Locations:	City street light poles in public right-of-way adjacent to: **1) Case no. PLN18011; 1034 66th Ave** (APN: 041 4062-001-02); Submitted: 1/16/18; General Plan: Detached Unit Residential; Zoning: RD-1 Zone; Council District: 6 **2) Case no. PLN18091; 1048 35th Ave** (APN: 033 2190-022-00); Submitted: 2/14/18; General Plan: Neighborhood Center Mixed Use; Zoning: S-15 Transit-Oriented Development Commercial Zone; Council District: 5 ***(See map on reverse)***
Proposal:	To consider requests for two (2) applications to install new "small cell site" Monopole Telecommunications Facilities on City light poles by attaching antenna and equipment.
Applicant /Phone Number:	James Singleton for Mobilitie / (650) 814-0564
Owner:	City of Oakland
Planning Permits Required:	Major Conditional Use Permit and Regular Design Review with additional findings for Monopole Telecommunications Facility in or near a Residential Zone
Environmental Determination:	Exempt, Section 15301 of the State CEQA Guidelines: Existing Facilities; Exempt, Section 15302: Replacement or Reconstruction; Exempt, Section 15303: New Construction of Small Structures; Section 15183: Projects Consistent with a Community Plan, General Plan or Zoning
Historic Status:	Non-historic properties
Action to be Taken:	Approve with Conditions
Finality of Decision:	*Appealable to City Council within 10 days*
For Further Information:	Contact case planner **Aubrey Rose AICP** at **(510) 238-2071** or arose@oaklandca.gov

EXECUTIVE SUMMARY

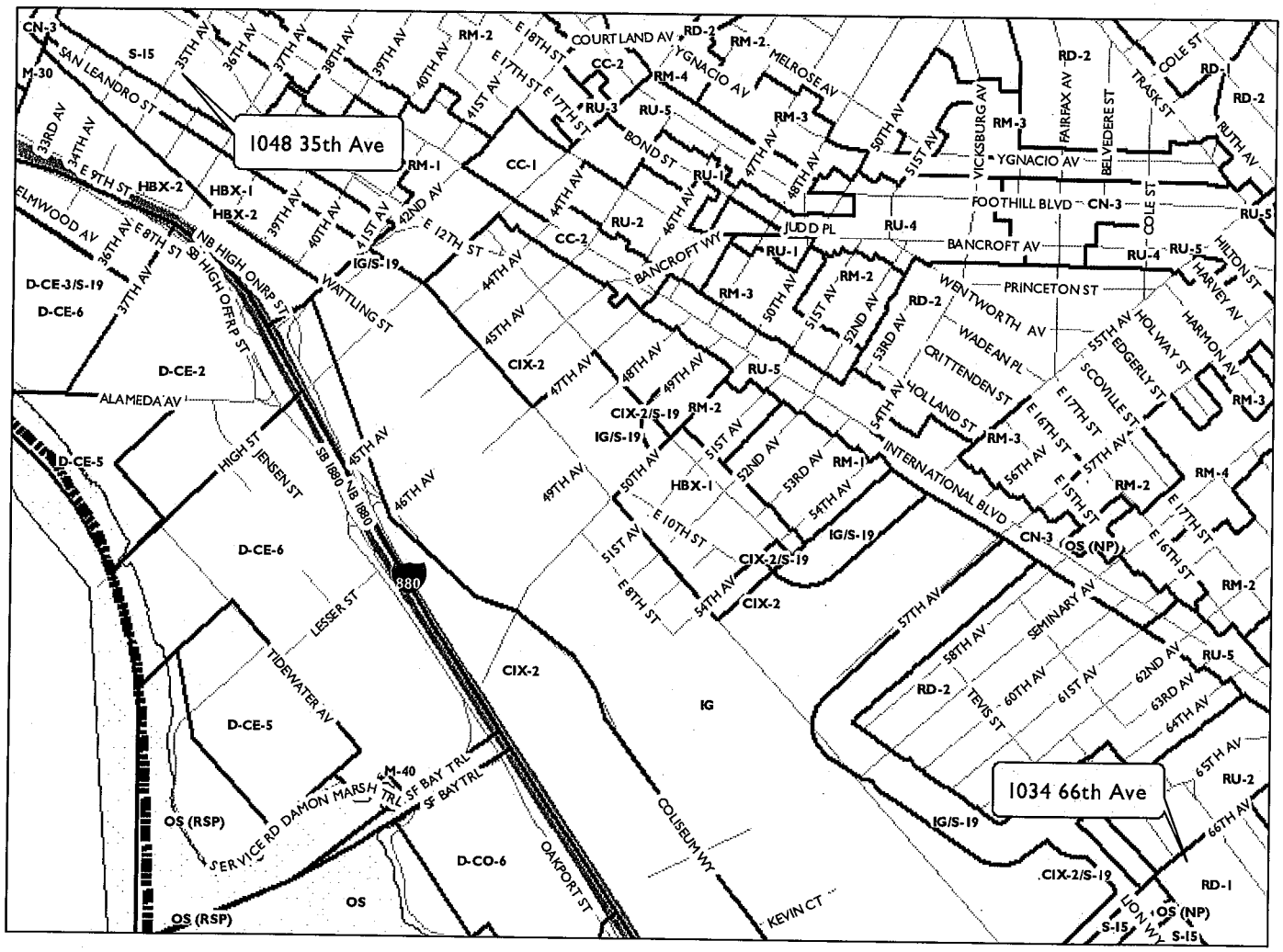
The applicant requests Planning Commission approval to establish two (2) small cell wireless telecommunication facility site on existing City street light poles located in the public right-of-way in residential and commercial districts. The project involves attaching one antenna within a shroud to the top of the pole and equipment mounted to the side of the pole, as described in the submitted plans, to enhance wireless services in those areas.

Regular Design Review and a Major Conditional Use Permit decided by the Planning Commission, each with additional findings, are required for the installation of a new Monopole Telecommunications Facility. The proposed projects, antenna and associated equipment, would be similar to other facilities around the City. The proposed telecommunication facility is therefore sited at appropriate locations and would not significantly increase negative visual impacts to adjacent properties including residences. The project meets all the required findings for approval of these two (2) small cell sites.

TELECOMMUNICATIONS BACKGROUND

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

CITY OF OAKLAND PLANNING COMMISSION



Case Files:	PLN18011, PLN18091
Applicant:	James Singleton for Mobilitie
Addresses:	1034 66th Ave, 1048 35th Ave
Zones:	RD-1, S-15

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. Specifically:

- 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 Federal Communications Commission (FCC) standards in this regard. (See 47 U.S.C. Section 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 (See 47 U.S.C.332(c)(7)(B)(ii) and 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, consult the following:
Competition & Infrastructure Policy Division (CIPD) of the Wireless Telecommunications Bureau, main division number: (202) 418-1310. https://www.fcc.gov/general/competition-infrastructure-policy-division-wireless-telecommunications-bureau

PROPERTY DESCRIPTION

Site # 1) Case no. PLN18011; 1034 66th Avenue

City street light pole measuring 29'-6" in height in the public right-of-way (sidewalk towards curb). The pole fronts the open parking lot of a large church located in a residential zone with two-story dwellings across the street to the west.

Site # 2) Case no. PLN18091; 1048 35th Avenue

City street light pole measuring 26'-3" in height in the public right-of-way (sidewalk towards curb). The pole fronts open parking at the Fruitvale BART station and is located adjacent to the elevated tracks to the north. To the south are buildings including residences towards and along San Leandro Street.

PROJECT DESCRIPTION

Both sites are proposed for:

- Installation by top-mounting one omni-directional antenna within a 4'-6" shroud above the street light to extend to 34-feet (Site # 1) and 30'-9" (Site # 2) in height;

- Installation of side-mounted 3' equipment below the street light centered at 18'-3" in height; and,

- Paint and texturize the proposed antenna and associated equipment to match the pole.

No portion of the telecommunication facilities would be located at grade. The proposed antenna and associated equipment would not be accessible to the public.

SIMILAR CASES

Records show that the Planning Commission has approved numerous Monopole Telecommunications Facilities requiring Design Review and Conditional Use Permits throughout the City since 2016.

GENERAL PLAN ANALYSIS

Site # 1 is located in the Detached Unit Residential area of the General Plan's Land Use and Transportation Element (LUTE). The intent of the area is: "to create, maintain, and enhance residential areas characterized by detached, single unit structures." Site # 2 is in the Neighborhood Center Mixed Use area and the intent is: "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 telecommunication facilities would be mounted on existing City street light poles within the City of Oakland public right-of-way. The proposed unmanned wireless telecommunication facility would not adversely affect the characteristics of the neighborhood.

ZONING ANALYSIS

Site # 1 is located in the RD-1 Detached Unit Residential zone. Site # 2 is in the S-15 Transit-Oriented Development Commercial Zone. Monopole Telecommunications Facilities on City light poles require a Conditional Use Permit and a Regular Design Review with additional findings; these permits are decided by the Planning Commission for sites located in or near to a residential zone. New wireless telecommunications facilities may also be subject to a Site Alternatives Analysis, Site Design Alternatives Analysis, and a satisfactory radio-frequency (RF) emissions report. Staff analyzes the proposal in consideration of these requirements in the 'Key Issues and Impacts' section of this report. Additionally, attachment to City infrastructure requires review by the City's Real Estate Department, Public Works Agency's Electrical Division, and Information Technology Department. Given customers increasing reliance upon cellular service for phone and Wi-Fi, the proposal for a Monopole Telecommunications Facility that is not adjacent to a primary living space or historic structure conforms to this intent.

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 15301, minor additions and alterations to an existing City street light pole; Section 15302, replacement or reconstruction of existing utility systems and/or facilities; and Section 15303, new construction or conversion of small structures, and is subject to Section 15183, projects consistent with a community plan, general plan or zoning.

KEY ISSUES AND IMPACTS

The proposal to establish a Monopole Telecommunications Facility is subject to the following Planning Code development standards, which are followed by staff's analysis in relation to this application:

17.128.080 Monopole Telecommunications Facilities.

A. General Development Standards for Monopole Telecommunications Facilities.

1. Applicant and owner shall allow other future wireless communications companies including public and quasi-public agencies using similar technology to collocate antenna equipment and facilities on the monopole unless specific technical or other constraints, subject to independent verification, at the applicant's expense, at the discretion of the City of Oakland Zoning Manager, prohibit said collocation. Applicant and other wireless carriers shall provide a mechanism for the construction and maintenance of shared facilities and infrastructure and shall provide for equitable sharing of cost in accordance with industry standards. Construction of future facilities shall not interrupt or interfere with the continuous operation of applicant's facilities.

The proposal involves use of an existing City of Oakland metal street light pole that would remain available for future collocation purposes as practicable.

2. 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.

Recommended conditions of approval require painting and texturing the antenna and equipment to match the appearance of the metal pole. There is no equipment shelter or cabinet proposed; however, minimal equipment would be closely mounted onto the side of the metal pole.

3. When a monopole is in a Residential Zone or adjacent to a residential use, it must be set back from the nearest residential lot line a distance at least equal to its total height.

Site # 1 is in a residential zone but not fronting a residential use.

4. In all zones other than the D-CE-5, D-CE-6, IG, CIX-2, and IO Zones, the maximum height of Monopole Telecommunications Facilities and connecting appurtenances may be increased from the otherwise required maximum height to forty-five (45) feet upon the granting of a Conditional Use Permit (see Chapter 17.134 for the Conditional Use Permit Procedure).

This requirement does not apply. The subject property is not located in any of the described zoning districts. Nonetheless, neither facility would not exceed 34-feet in height.

5. In the D-CE-5, D-CE-6, CIX-2, and IO Zones, the maximum height of Monopole Telecommunications Facilities and connecting appurtenances may be increased from the otherwise required maximum height to eighty (80) feet upon the granting of a Conditional Use Permit (see Chapter 17.134 for the Conditional Use Permit Procedure).

This requirement does not apply. The subject property is not located in any of the described zoning districts. Nonetheless, neither facility would exceed 34-feet in height.

6. In the IG Zone, the maximum height of Monopole Telecommunications Facilities and connecting appurtenances may reach a height of forty-five (45) feet. These facilities may reach a height of eighty (80) feet upon the granting of Regular Design Review approval (see Chapter 17.136 for the Design Review Procedure).

This requirement does not apply. The subject property is not located in the described zoning district. Nonetheless, neither facility would exceed 34-feet in height.

7. The applicant shall submit written documentation demonstrating that the emissions from the proposed project are within the limits set by the Federal Communications Commission.

This standard is met by the proposal; a satisfactory emissions report has been submitted and is attached to this report **(Attachments C-D)**.

8. Antennas may not extend more than fifteen (15) feet above their supporting structure.

The proposed antenna would project less than fifteen feet above the City light pole.

17.128.110 Site location preferences.
New wireless facilities shall generally be located on the following properties or facilities in 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 Nonresidential Zones (excluding all HBX Zones and the D-CE-3 and D-CE-4 Zones).
D. Existing commercial or industrial structures in Residential Zones, HBX Zones, or the DCE-3 or D-CE-4 Zones.
E. Other Nonresidential uses in Residential Zones, HBX Zones, or the D-CE-3 or D-CE-4 Zones.
F. Residential uses in Nonresidential 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 an A, 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. A site alternatives analysis shall, at a minimum, consist of: a. The identification of all A, B and C ranked preference sites within one thousand (1,000) feet of the proposed location. If more than three (3) sites in each preference order exist, the three such closest to the proposed location shall be required. b. Written evidence indicating why each such identified alternative cannot be used. Such evidence shall be in sufficient detail that independent verification, at the applicant's expense, 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. refusal to lease, inability to provide utilities).

A site alternatives analysis is not required because the proposal conforms to 'B' as it would be located on a public facility (City light pole). Nonetheless, the applicant has submitted an analysis which is attached to this report **(Attachments C-D)**.

17.128.120 Site design preferences.
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 such higher preference design alternative cannot 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).

The proposal most closely conforms to 'E' (monopole) and the applicant has submitted a satisfactory site design alternatives analysis **(Attachments C-D)**.

17.128.130 Radio frequency emissions standards.
The applicant for all wireless facilities, including requests for modifications to existing facilities, shall submit the following verifications:
a. With the initial application, a RF emissions report, prepared by a licensed professional engineer or other expert, indicating that the proposed site will operate within the current acceptable thresholds as established by the Federal government or any such agency who may be subsequently authorized to establish such standards.

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

A satisfactory report is attached to this report **(Attachments C-D)**.

Analysis
The proposed site design would not be situated on an historic or decorative pole or structure, would not create a view obstruction, and would not negatively impact a view from a primary living space such as a living room or bedroom window. Staff, therefore, finds the proposal to provide an essential service with a least-intrusive possible design. Draft conditions of approval stipulate that the components be painted and textured to match the metal pole in appearance for camouflaging.

In conclusion, staff recommends approval subject to recommended Conditions of Approval.

RECOMMENDATIONS:

1. Affirm staff's environmental determination.
2. Approve the Major Conditional Use Permit and Regular Design Review subject to the attached Findings and Conditions of Approval.

Prepared by:

AUBREY ROSE, AICP
Planner III

Reviewed by:

ROBERT D. MERKAMP
Acting Zoning Manager

Approved for forwarding to the Planning Commission:

ED MANASSE, Acting Deputy Director
Planning Bureau

ATTACHMENTS:

A. Findings

B. Conditions of Approval

Plans / Photo-Simulations / Site Analyses / RF Report / Proof of Posting:

C. Site # 1: Case no. PLN18011; 1034 66th Avenue

D. Site # 2: Case no. PLN18091; 1048 35th Avenue

ATTACHMENT A: FINDINGS

This proposal meets the required findings under General Use Permit Criteria (OMC Sec. 17.134.050), Conditional Use Permit Criteria for Monopole Facilities (OMC Sec. 17.136.040 (A)), Regular Design Review Criteria for Nonresidential Facilities (OMC Sec. 17.136.050(B)), and Design Review Criteria for Monopole Telecommunications Facilities (OMC Sec. 17.128.070(B)), as set forth below. Required findings are shown in **bold** type; explanations as to why these findings can be made are in normal type.

GENERAL USE PERMIT CRITERIA (OMC SEC. 17.134.050):

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 proposal is to establish a Monopole Telecommunications Facility in or near a residential zone by attaching to an existing City light pole. Attachment to an existing structure with smallest possible components painted and texturized to match the pole will be the least intrusive design. The project will enhance existing service for merchants, shoppers, residents, and visitors in the area.

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

Attachment to an existing structure with smallest possible components painted and texturized to match the pole will be the least intrusive design.

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 project will enhance existing service for merchants, shoppers, residents, and visitors in the area.

D. That the proposal conforms to all applicable design review criteria set forth in the design review procedure at Section 17.136.070.

The proposal conforms to Design Review findings which are included in that section of this attachment of Findings for Approval.

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

Site # 1 is located in the Detached Unit Residential area of the General Plan's Land Use and Transportation Element (LUTE). The intent of the area is: "to create, maintain, and enhance residential areas characterized by detached, single unit structures." Site # 2 is in the Neighborhood Center Mixed Use area and the intent is: "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 telecommunication facilities would be mounted on existing City street light poles within the City of Oakland public right-of-way. The proposed unmanned wireless telecommunication facility would not adversely affect the characteristics of the neighborhood.

CONDITIONAL USE PERMIT CRITERIA FOR MONOPOLE FACILITIES (OMC SEC. 17.128.070(C))

1. The project must meet the special design review criteria listed in subsection B o

The proposal conforms to Design Review findings which are included in that section of this attachment of Findings for Approval.

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.

Use of this pole precludes placement of a new pole with facility fronting an upper story residences at various viable sites in the surrounding area and is therefore "visually preferable."

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

Attachment to an existing structure with smallest possible components painted and texturized to match the pole will be the least intrusive design. The project will enhance existing service for merchants, shoppers, residents, and visitors in the area.

4. If a major conditional use permit is required, the Planning Director or the Planning Commission may request independent expert review regarding site location, collocation and facility configuration. Any party may request that the Planning Commission consider making such request for independent expert review.
a. If there is any objection to the appointment of an independent expert engineer, the applicant must notify the Planning Director within ten (10) days of the Commission request. The Commission will hear arguments regarding the need for the independent expert and the applicant's objection to having one appointed. The Commission will rule as to whether an independent expert should be appointed.
b. Should the Commission appoint an independent expert, the Commission will direct the Planning Director to pick an expert from a panel of licensed engineers, a list of which will be compiled, updated and maintained by the Planning Department.
c. No expert on the panel will be allowed to review any materials or investigate any application without first signing an agreement under penalty of perjury that the expert will keep confidential any and all information learned during the investigation of the application. No personnel currently employed by a telecommunication company are eligible for inclusion on the list.
d. An applicant may elect to keep confidential any proprietary information during the expert's investigation. However, if an applicant does so elect to keep confidential various items of proprietary information, that applicant may not introduce the confidential proprietary information for the first time before the Commission in support of the application.
e. The Commission shall require that the independent expert prepare the report in a timely fashion so that it will be available to the public prior to any public hearing on the application.
f. Should the Commission appoint an independent expert, the expert's fees will be paid by the applicant through the application fee, imposed by the City.

A Major Conditional Use Permit is required and the Planning Director or Planning Commission may therefore independent expert review in addition to that which is attached to this report.

REGULAR DESIGN REVIEW CRITERIA FOR NON-RESIDENTIAL FACILITIES (OMC SEC. 17.136.050(B))

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;

Attachment to an existing structure with smallest possible components painted and texturized to match the pole will be the least intrusive design. The proposal will not create a view obstruction, will not be directly adjacent to a residential facility's primary living space windows, and will not be located on an historic or decorative structure. The proposal will enhance essential services in a residential or commercial district.

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;

Attachment to an existing structure with smallest possible components painted and texturized to match the pole will be the least intrusive design. The proposal will not create a view obstruction, will not be directly adjacent to a residential facility's primary living space windows, and will not be located on an historic or decorative structure. The proposal will enhance essential services in a residential or commercial district.

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.

This finding is met by this proposal as described in a previous section of this attachment.

DESIGN REVIEW CRITERIA FOR MONOPOLE TELECOMMUNICATIONS FACILITIES (OMC SEC. 17.128.070(B))

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 project does not involve collocation as it involves the establishment of a new telecommunications facility; however, the project should not preclude any future proposals for location at the site.

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

The Monopole Facility is sited on existing infrastructure where it will not create clutter or negatively affect specific views. The view of the City street light from the adjacent story residence should remain of the pole below the antenna and above the equipment.

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

The Monopole Facility will be camouflaged and texturized to match the appearance of the existing light pole that will host it. The City street light is not located adjacent to a residential facility's window.

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.

Recommended conditions of approval require painting and texturing the antenna and equipment to match the appearance of the metal pole. There is no equipment shelter or cabinet proposed, however minimal equipment would be closely mounted on the side of the metal pole.

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 will be placed in an existing non-decorative City light pole. This enables the preservation of character in the area and will not pose a negative visual impact as the proposal will be camouflaged to match the pole. There is no adjacent vegetation or topography.

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 minimal clearance to the facility will reduce or eliminate public access.

Attachment B: Conditions of Approval

1. Approved Use

The project shall be constructed and operated in accordance with the authorized use as described in the approved application materials, **staff report** and the approved plans **dated June 14, 2017 and submitted January 3, 2018 (#1) and February 14, 2018 (#2)**, as amended by the following conditions of approval and mitigation measures, if applicable ("Conditions of Approval" or "Conditions").

Two (2) approvals to install new "small cell site" Monopole Telecommunications Facilities on an existing City street light pole in public right-of-way (sidewalk) by attaching an antenna within a shroud to the top of the pole and equipment mounted to the side of the pole adjacent to:

Site # 1: Case no. PLN18011; 1034 66th Avenue

Site # 2: Case no. PLN18091; 1048 35th Avenue

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 calendar 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.

10. Job Site Plans

Ongoing throughout demolition, grading, and/or construction

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

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

The project applicant may be required to cover the full costs of independent third-party technical review and City monitoring and inspection, including without limitation, special inspector(s)/inspection(s) during times of extensive or specialized plan-check review or construction, and inspections of potential violations of the Conditions of Approval. The project applicant shall establish a deposit with the Bureau of Building, if directed by the Building Official, Director of City Planning, or designee, prior to the issuance of a construction-related permit and on an ongoing as-needed basis.

12. Public Improvements

The project applicant shall obtain all necessary permits/approvals, such as encroachment permits, obstruction permits, curb/gutter/sidewalk permits, and public improvement ("p-job") permits from the City for work in the public right-of-way, including but not limited to, streets, curbs, gutters, sidewalks, utilities, and fire hydrants. Prior to any work in the public right-of-way, the applicant shall submit plans for review and approval by the Bureau of Planning, the Bureau of Building, and other City departments as required. Public improvements shall be designed and installed to the satisfaction of the City.

13. Construction Days/Hours

Requirement: The project applicant shall comply with the following restrictions concerning construction days and hours:

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

b. Construction activities are limited to between 9:00 a.m. and 5:00 p.m. on Saturday. In residential zones and within 300 feet of a residential zone, construction activities are allowed from 9:00 a.m. to 5:00 p.m. only within the interior of the building with the doors and windows closed. No pier drilling or other extreme noise generating activities greater than 90 dBA are allowed on Saturday.

c. No construction is allowed on Sunday or federal holidays.

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

Any construction activity proposed outside of the above days and hours for special activities (such as concrete pouring which may require more continuous amounts of time) shall be evaluated on a case-by-case basis by the City, with criteria including the urgency/emergency nature of the work, the proximity of residential or other sensitive uses, and a consideration of nearby residents'/occupants' preferences. The project applicant shall notify property owners and occupants located within 300 feet at least 14 calendar days prior to construction activity proposed outside of the above days/hours. When submitting a request to the City to allow construction activity outside of the above days/hours, the project applicant shall submit information concerning the type and duration of proposed construction activity and the draft public notice for City review and approval prior to distribution of the public notice.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

PROJECT-SPECIFIC CONDITIONS

14. Emissions Report

Requirement: A RF emissions report shall be submitted to the Planning Bureau 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.

Requirement: Prior to a final inspection

When Required: Prior to final building permit inspection sign-off

Initial Approval: N/A

Monitoring/Inspection: N/A

15. Camouflage

Requirement: The antenna and equipment shall be painted, texturized, and maintained the same color and finish of the City light pole.

When Required: Prior to a final inspection

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

16. Operational

Requirement: 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.

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

17. Graffiti Control

Requirement:

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

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

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

   ii. For galvanized poles, covering with new paint to match the color of the surrounding surface.

   iii. Replace pole numbers.

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

ATTACHMENT C

Plans / Photo-Simulations / Site Analyses / RF Report / Proof of Posting

Site # 1: Case no. PLN18011; 1034 66th Avenue

EXHIBIT C

mobilitie®

intelligent infrastructure

SITE ID/CASCADE ID-CANDIDATE LETTER:

9CAB013581/SF90XS1N9A

LATITUDE/LONGITUDE:

37.75930700/-122.19752600

CROSS STREET:

66TH AVE & FENHAM ST

CITY, STATE, ZIP:

OAKLAND, CA 94621

(E) 28'-4" PAINTED STEEL LIGHT POLE

RECEIVED
OCT 26 2018
City of Oakland
Planning & Zoning Division

IF YOU DIG IN ANY STATE DIAL 811 FOR THE LOCAL "ONE CALL CENTER" – IT'S THE LAW

THE UTILITIES SHOWN HEREIN ARE FOR THE CONTRACTORS CONVENIENCE ONLY. THERE MAY BE OTHER UTILITIES NOT SHOWN ON THESE PLANS. THE ENGINEER/SURVEYOR ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS SHOWN AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL THE UTILITIES WITHIN THE LIMITS OF THE WORK. ALL DAMAGE MADE TO THE (E) UTILITIES BY THE CONTRACTOR SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OF EFFECT ON DRAINAGE; NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS (N).

SITE INFORMATION

SITE ID:	9CAB013581
CASCADE ID:	SF90XS1N9A
LATITUDE:	37.75930700
LONGITUDE:	-122.19752600
CROSS STREET:	66TH AVE & FENHAM ST
CITY, STATE, ZIP:	OAKLAND, CA 94621
COUNTY:	ALAMEDA
JURISDICTION:	CITY OF OAKLAND
PROPERTY OWNER:	PUBLIC RIGHT-OF-WAY
APPLICANT:	MOBILITIE, LLC 2955 REDHILL AVENUE, STE. 200 COSTA MESA, CA 92626 CONTACT: JAMES SINGLETON PHONE: (605) 814-0584 EMAIL: JSINGLETON@MOBILITIE.COM

ENGINEER

L5 ENGINEERING, INC
944 CALLE AMANECER STE E
SAN CLEMENTE, CA 92673
CARLOS GODINEZ
(949) 218-8724

RUSSELL N. EMERY, P.E.
VECTOR STRUCTURAL ENGINEERS
651 W. GALENA PARK BLVD
DRAPER, UT 84020
(801) 990-1775

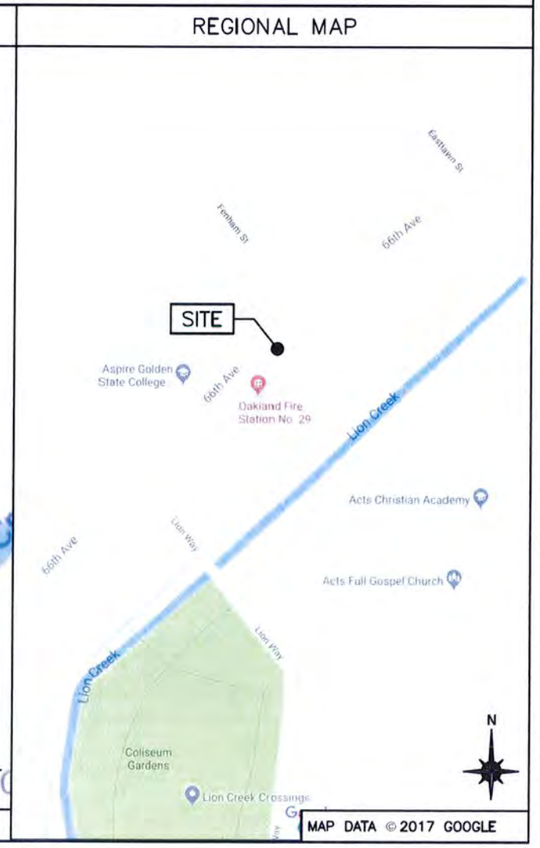
DO NOT SCALE DRAWINGS

CONTRACTORS SHALL VERIFY ALL PLANS, (E) DIMENSIONS & FIELD CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

LOCATION MAP

VICINITY MAP

REGIONAL MAP



PROJECT DESCRIPTION

END USER PROPOSES TO INSTALL EQUIPMENT ON AN (E) STEEL LIGHT POLE WITHIN AN EXISTING RIGHT-OF-WAY. THE SCOPE WILL CONSIST OF THE FOLLOWING:

- INSTALL PROPOSED BACKHAUL TRANSPORT EQUIPMENT ON AN (E) STEEL LIGHT POLE

CODES

2016 CALIFORNIA BUILDING CODE (2015 IBC)
2017 NATIONAL ELECTRICAL CODE
TIA/EIA-222-G-2 OR LATEST EDITION
LOCAL BUILDING/PLANNING CODE

DRAWING INDEX

SHEET NO:	SHEET TITLE
T-1	TITLE SHEET
SP-1	EXHIBIT PHOTO & SITE PLAN
SP-2	OVERALL SITE PLAN
EV-1	POLE ELEVATIONS
EV-2	POLE ELEVATIONS
PL-1	PLUMBING & RISER DIAGRAMS
EQ-1	EQUIPMENT DETAILS
EQ-2	EQUIPMENT DETAILS
E-1	ELECTRICAL DETAILS
E-2	ELECTRICAL PLAN
G-1	GROUNDING DETAILS
TC-1	VEHICULAR TRAFFIC CONTROL PLAN
TC-2	PEDESTRIAN/WORKER SAFETY PLAN
GN-1	GENERAL NOTES
GN-2	GENERAL NOTES
GN-3	GENERAL NOTES

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SAN CLEMENTE, CA 92673
WWW.LEAFCC-LLC.COM
PHONE: (949) 388-0192

MOBILITIE ID:	9CAB013581
DRAWN BY:	KH
CHECKED BY:	CG

A	07/27/18	FOR REVIEW

08/03/2018
VECTOR PROJECT #: U2314-099-181

VECTOR ENGINEERS
651 W. GALENA PARK BLVD, STE 101 DRAPER, UTAH 84020 PHONE (801) 990-1775 WWW.VECTORSE.COM

REGISTERED PROFESSIONAL ENGINEER
RUSSELL N. EMERY
17256
CIVIL
STATE OF CALIFORNIA

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SF90XS1N9A
9CAB013581
OAKLAND, CA 94621
(E) 28'-4" STEEL LIGHT POLE

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

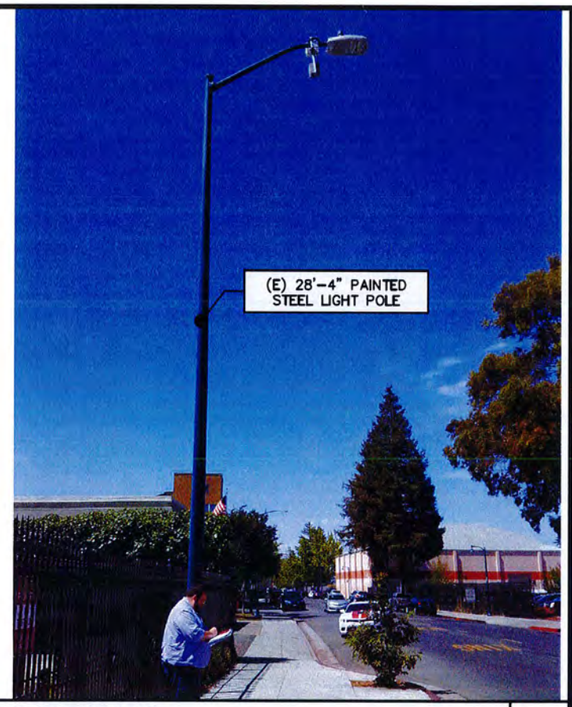
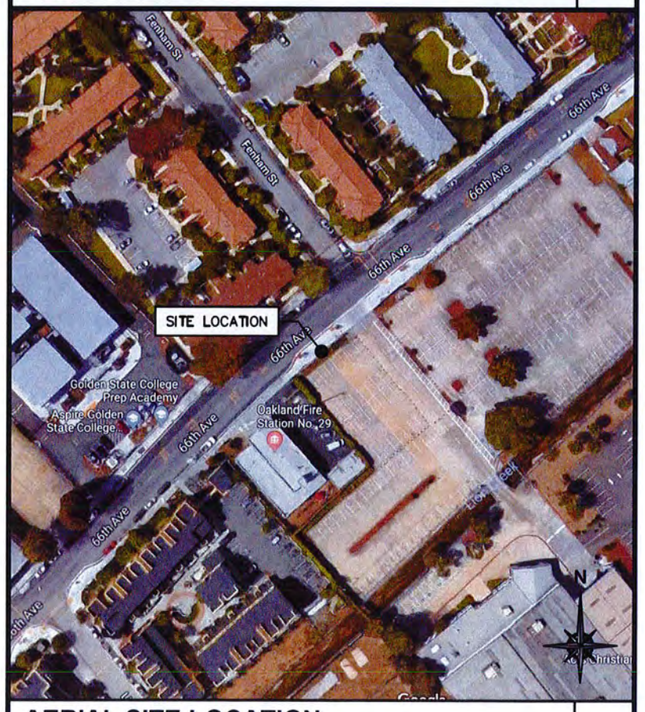


EXHIBIT PHOTO

SCALE: NOT TO SCALE

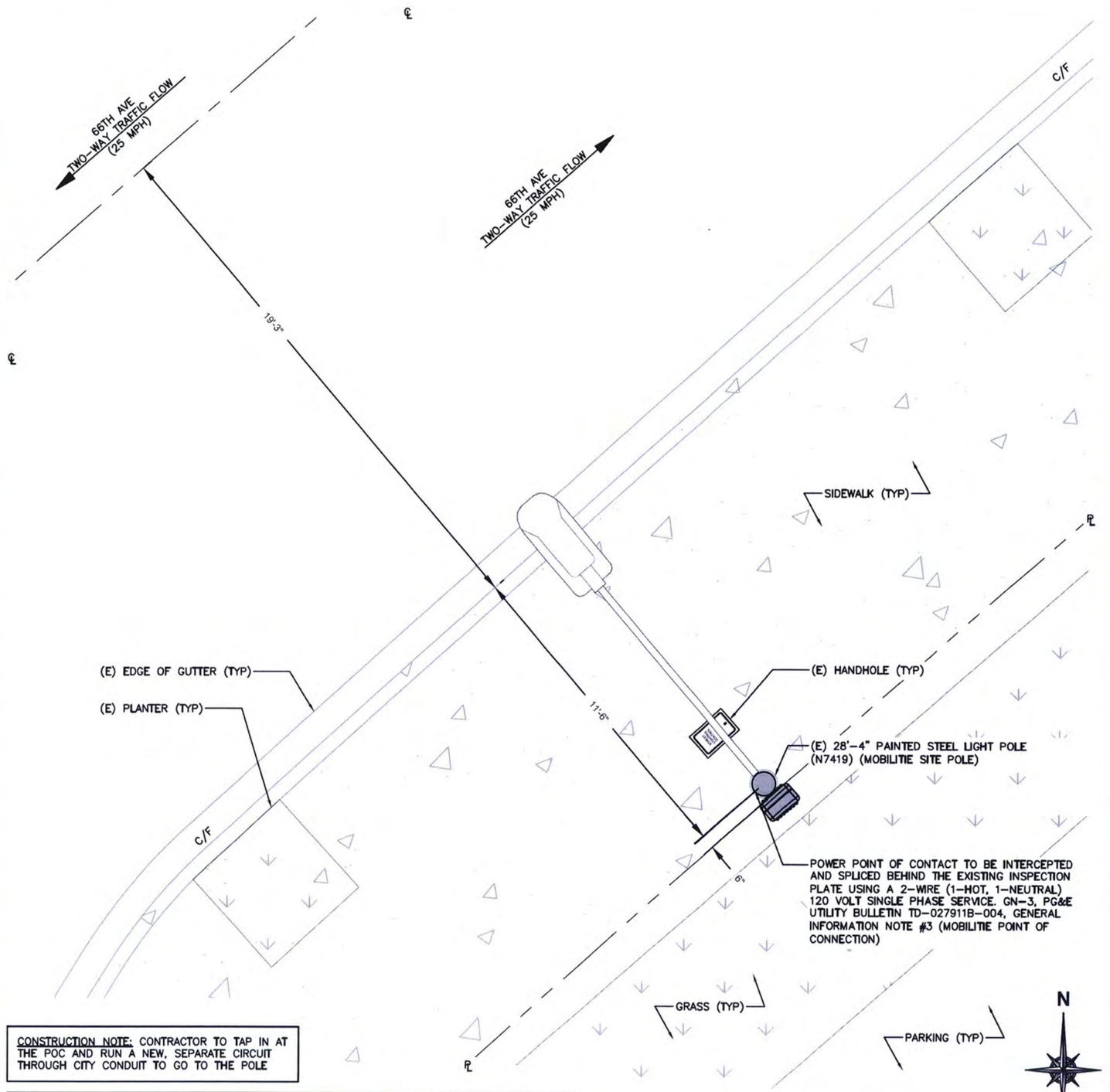
1



AERIAL SITE LOCATION

SCALE: NOT TO SCALE

2



CONSTRUCTION NOTE: CONTRACTOR TO TAP IN AT THE POC AND RUN A NEW, SEPARATE CIRCUIT THROUGH CITY CONDUIT TO GO TO THE POLE

NOTE: THIS SITE PLAN WAS GENERATED WITHOUT THE USE OF A SURVEY. PROPERTY LINES, RIGHT-OF-WAYS, POWER & TELCO UTILITY POINT CONNECTIONS/ROUTES AND EASEMENTS SHOWN ON THESE PLANS ARE ESTIMATED. ALL ITEMS AND DIMENSIONS SHOULD BE VERIFIED IN THE FIELD.

ENLARGED SITE PLAN

SCALE: 1/4" = 1'-0" (1/2" = 1'-0" ON 22"x34" SHEET)

3

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COSTA MESA, CA 92626

L5 ENGINEERING INC.
944 CALLE AMANECER, STE E
SAN CLEMENTE, CA 92673
WWW.LEAFCC-LLC.COM
PHONE: (949) 388-0192

MOBILITIE ID:	9CAB013581
DRAWN BY:	KH
CHECKED BY:	CG

A	07/27/18	FOR REVIEW

08/03/2018
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VECTOR ENGINEERS
651 W. RALEIGH PARK PLACE, STE 101 PHONE (801) 990-1775
DRAPER, UTAH 84020 WWW.VECTORSEC.COM

REGISTERED PROFESSIONAL ENGINEER
RUSSELL N. EMERY
17356
CIVIL
STATE OF CALIFORNIA

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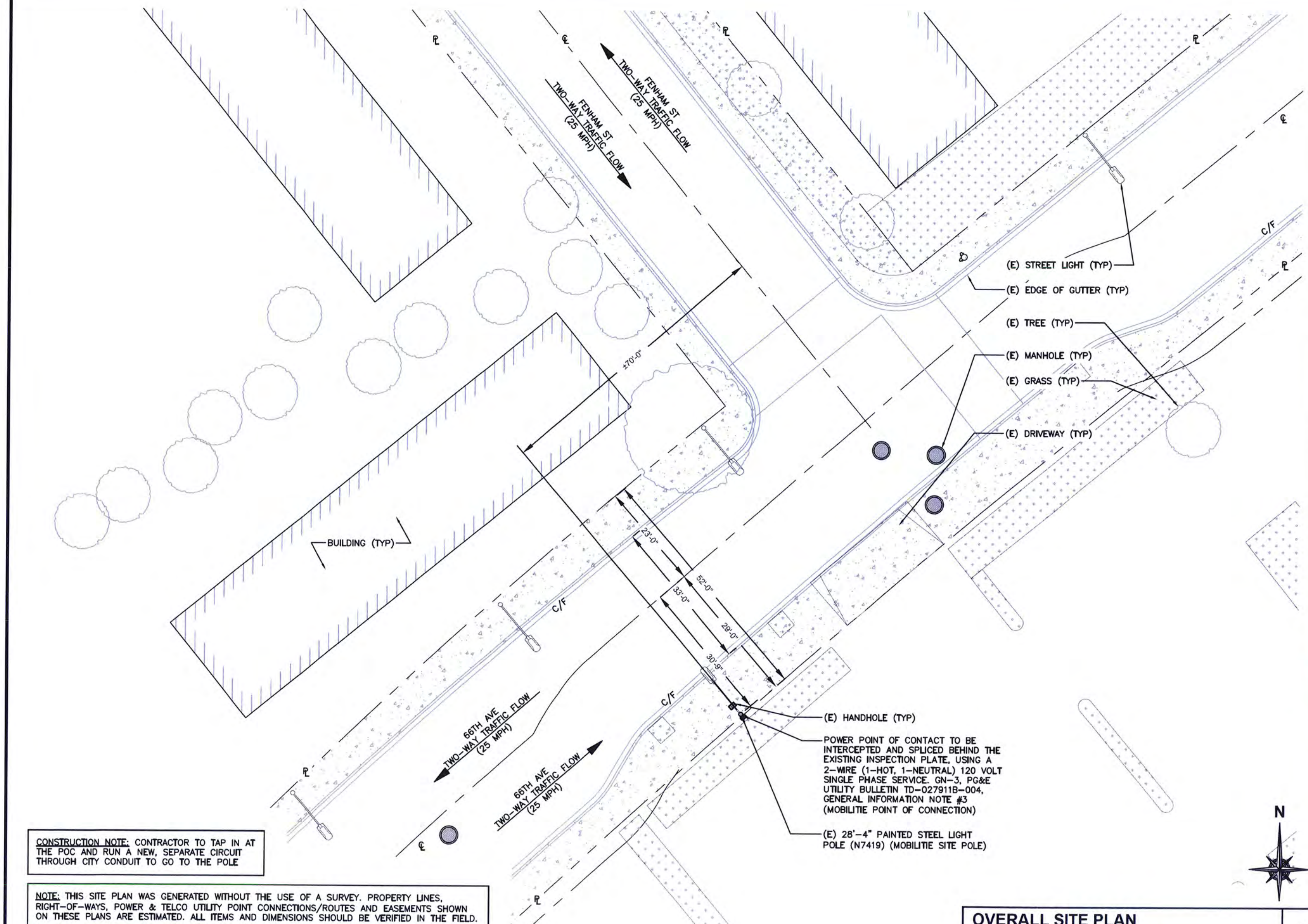
SF90XS1N9A
9CAB013581
OAKLAND, CA 94621
(E) 28'-4" STEEL LIGHT POLE

SHEET TITLE
EXHIBIT PHOTO & SITE PLAN

SHEET NUMBER
SP-1



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OVERALL SITE PLAN | 1

SCALE: 1" = 20'-0" (1" = 10'-0" ON 22"x34" SHEET)

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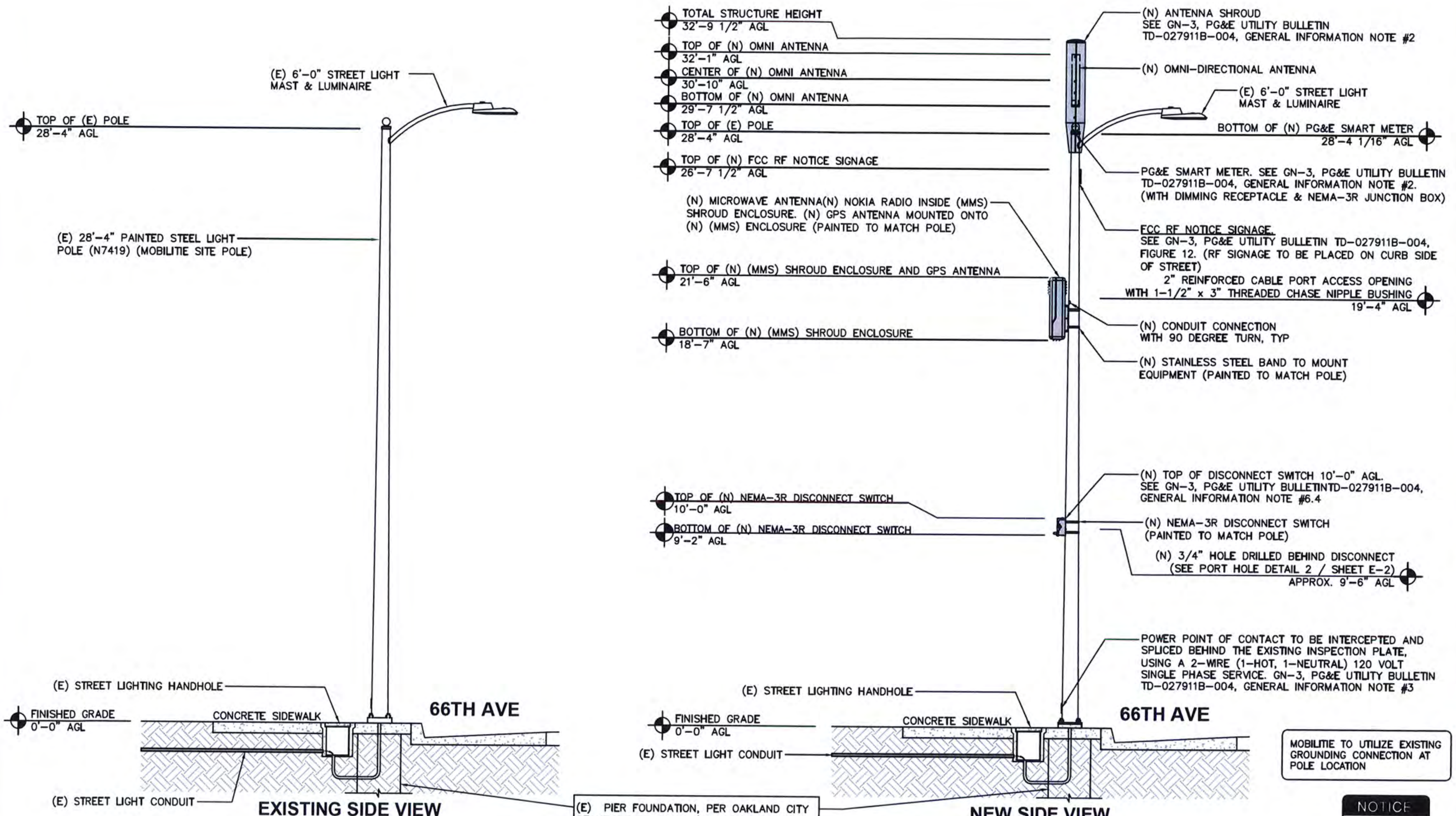
VECTOR ENGINEERS

REGISTERED PROFESSIONAL ENGINEER
RUSSELL N. EMERY
073566
CIVIL
STATE OF CALIFORNIA

SF90XS1N9A
9CAB013581
OAKLAND, CA 94621
(E) 28'-4" STEEL LIGHT POLE

SHEET TITLE
OVERALL SITE PLAN

SHEET NUMBER
SP-2



(E) PIER FOUNDATION, PER OAKLAND CITY STANDARD DRAWINGS (SEE APPENDIX C, CITY OF OAKLAND PUBLIC WORKS AGENCY – STREET LIGHT DESIGN MANUAL DOCUMENT)

MOBILITIE TO UTILIZE EXISTING GROUNDING CONNECTION AT POLE LOCATION

NOTES:
1. ALL HARDWARE SHALL BE STAINLESS STEEL.
2. ALL CABLES SHALL BE SECURED TO POLE EVERY 36" OR LESS.
3. LIGHTNING RODS SHALL BE INCLUDED AS REQUIRED.
4. STRUCTURAL BACKFILL TO BE COMPACTED IN 6" MAXIMUM LAYERS TO 95% OF CONTENT IN ACCORDANCE WITH ASTM D698. ADDITIONALLY, STURCTURAL BACKFILL MUST HAVE A MINIMUM COMPACTED UNIT WEIGHT OF 100 LBS PER CUBIC FOOT (16kN/m3)

NODE SITE POWER SHUT DOWN PROCEDURES:

1. NON EMERGENCY SCHEDULED POWER SHUT DOWN
   - CALL MOBILITIE AT (877) 244-7889
   - 24 HOURS PRIOR TO SCHEDULED POWER SHUT OFF, PROVIDE THE FOLLOWING INFORMATION:
     - SITE NUMBER IDENTIFIED ON SITE NUMBERING STICKER (9CAB013581)
     - YOUR NAME AND REASON FOR POWER SHUTOFF
     - PROVIDE DURATION OF OUTAGE
   - PULL DISCONNECT HANDLE TO "OFF" POSITION
   - POWER SHUT OFF VERIFICATION WITH APPROVED PG&E PROCEDURES
   - NOTIFY MOBILITIE AT (877) 244-7889 UPON COMPLETION OF WORK
   - RESTORE POWER BY PLACING POWER DISCONNECT HANDLE IN THE "ON" POSITION
   - REINSTALL LOCK ON POWER HANDLE
2. EMERGENCY POWER SHUT OFF
   - CALL MOBILITIE AT (877) 244-7889
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   - RESTORE POWER BY PLACING POWER DISCONNECT HANDLE IN THE "ON" POSITION
   - REINSTALL LOCK ON POWER HANDLE

- SIGN TO BE NO LARGER THAN 3"x4"
- SIGN TO BE MOUNTED ON CURB SIDE

POLE ELEVATIONS

SCALE: 1" = 5'-0" (1" = 2'-6" ON 22"x34" SHEET) | 1

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SF90XS1N9A
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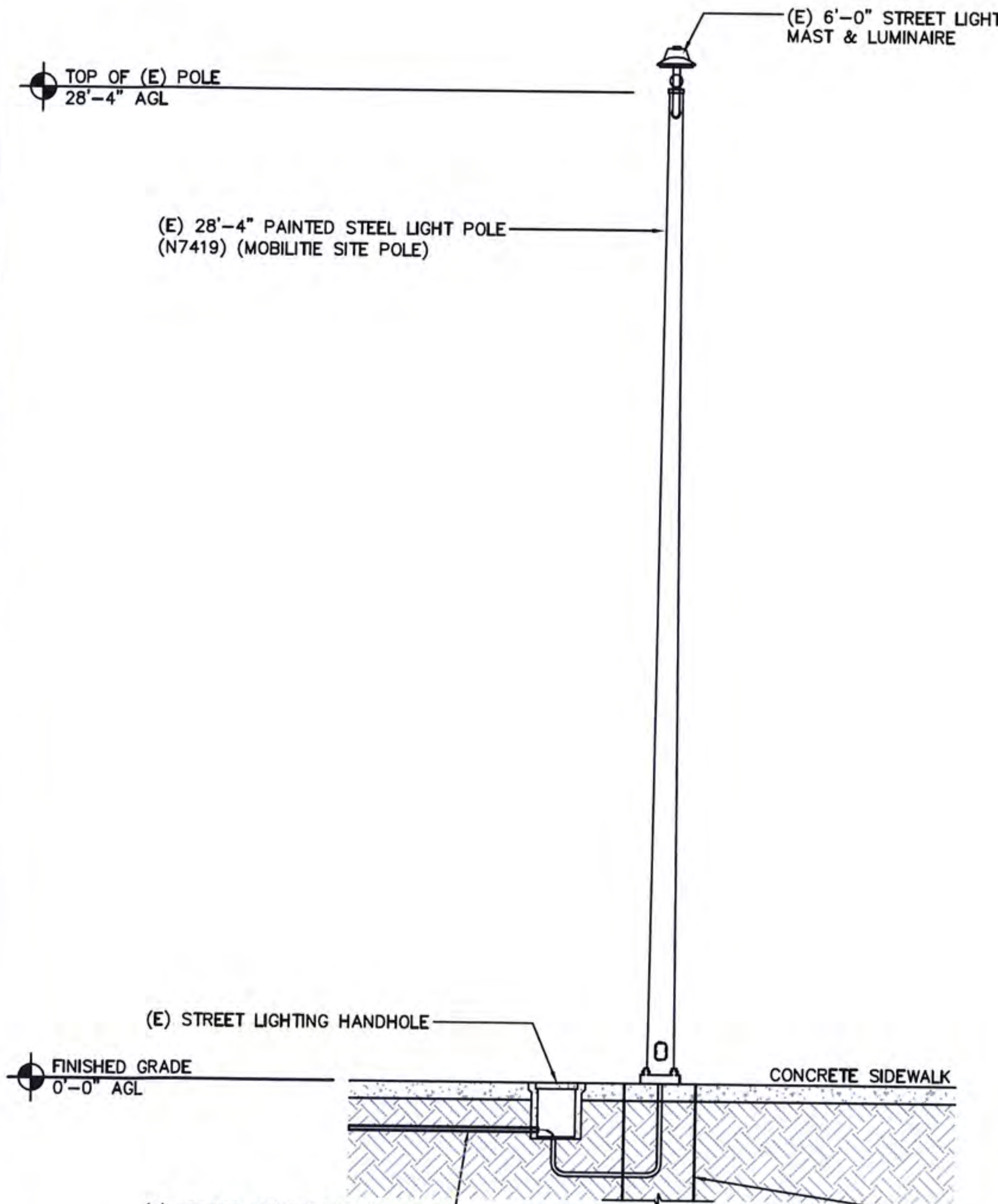
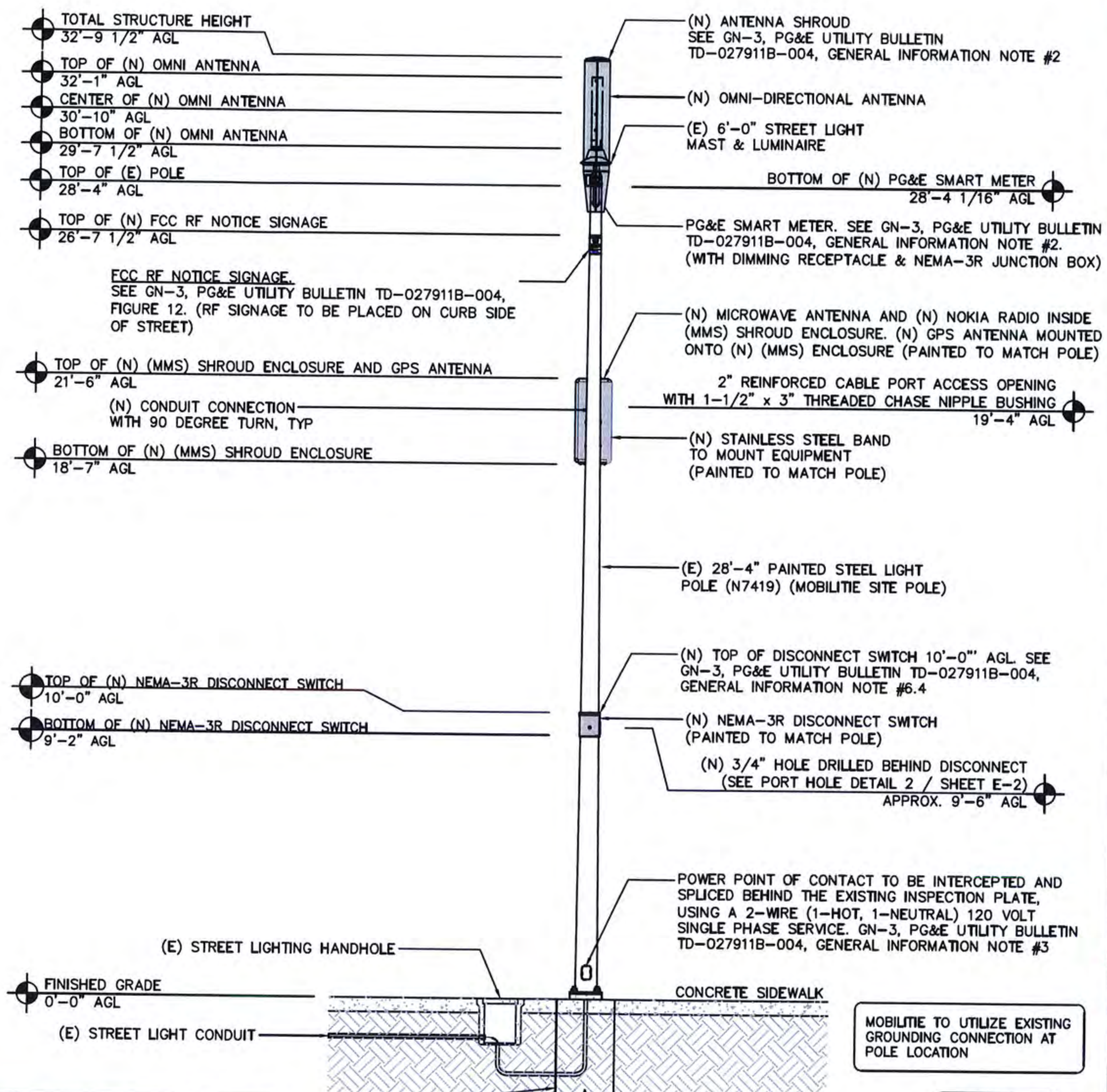
OAKLAND, CA 94621
(E) 28'-4" STEEL LIGHT POLE

SHEET TITLE
POLE ELEVATIONS

SHEET NUMBER
EV-1



EXISTING FRONT VIEW



NEW FRONT VIEW

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POLE ELEVATIONS 1

SCALE: 1" = 5'-0" (1" = 2'-6" ON 22"x34" SHEET)

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MOBILITIE ID:	9CAB013581
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VECTOR PROJECT #: U2314-099-181
VECTOR ENGINEERS

RUSSELL N. EMERY — REGISTERED PROFESSIONAL ENGINEER — CIVIL — STATE OF CALIFORNIA

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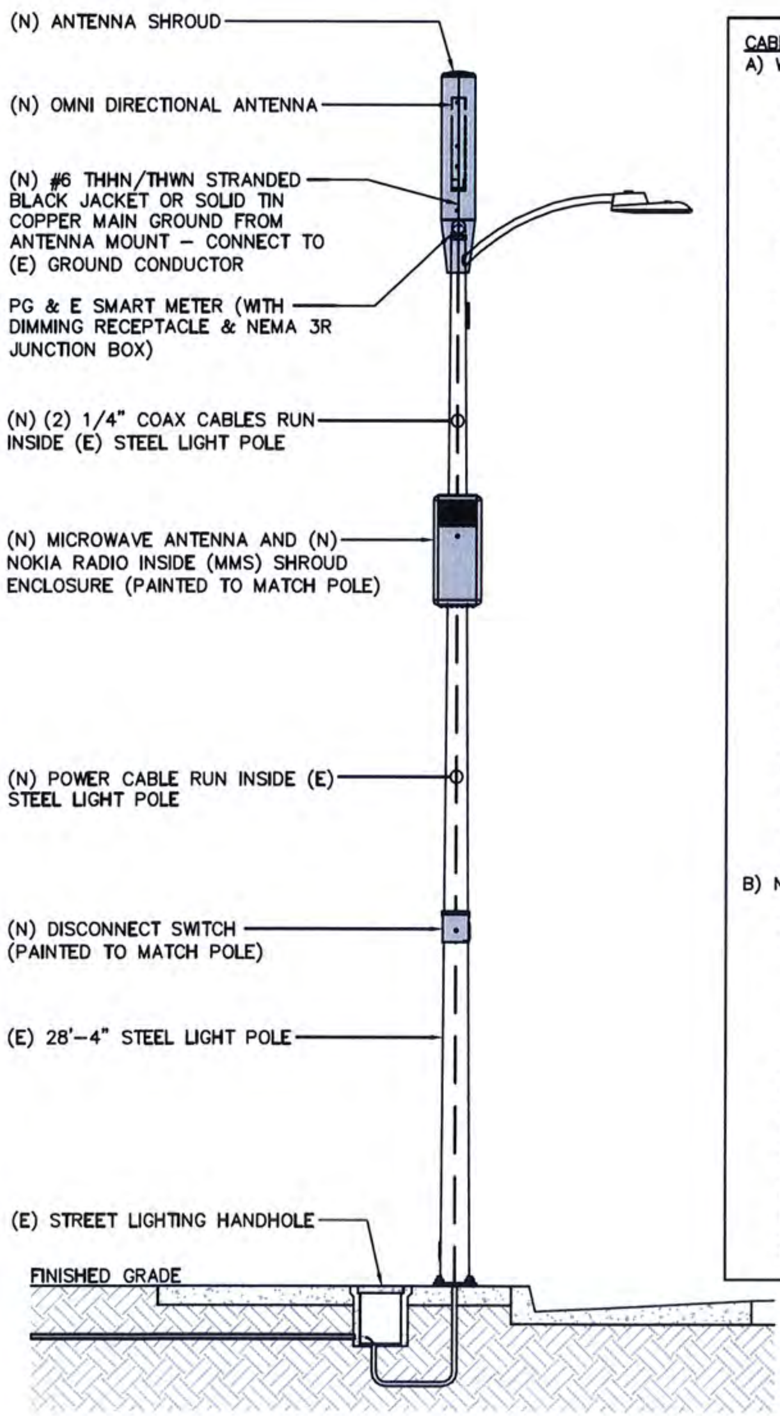
SF90XS1N9A
9CAB013581
OAKLAND, CA 94621
(E) 28'-4" STEEL LIGHT POLE

SHEET TITLE
POLE ELEVATIONS

SHEET NUMBER
EV-2

NOTE:
CABLING DIAGRAM IS FOR CLARITY OF CABLE ROUTE AND TERMINATION ONLY. CONTRACTOR SHALL INSTALL CABLES WITH MINIMAL VISUAL IMPACT ON (E) STEEL POLE.
SEE ELEVATION DRAWING FOR EQUIPMENT AND ANTENNA LOCATIONS.

NOTE:
REFER TO STRUCTURAL ANALYSIS REPORT (SEPARATE DOCUMENT) FOR ADDITIONAL STRUCTURAL INFORMATION.



CABLING NOTES:

A) WOOD, CONCRETE AND EXISTING METALLIC POLES
- I) FROM GRADE LINE TO 11 '-0" ABOVE GRADE, ALL CABLES/CONDUCTORS EXCEPT GROUNDING CONDUCTOR MUST RUN IN RIGID GALVANIZED STEEL CONDUIT (RGS)
- II) GROUNDING CONDUCTORS IN EXPOSED LOCATIONS MUST BE INSTALLED IN PVC.
- III) IN EARTH INSTALL PVC CONDUIT FOR BACKHAUL AND ELECTRICAL SERVICE. TRANSITION TO RGS AT GRADE LINE.
- IV) ABOVE 11 '-0" ALL CABLES (POWER, ETHERNET, COAXIAL) MUST RUN IN PVC UTILITY POLE RISER.
  - (1) AT MAJOR EQUIPMENT, EXTEND UTILITY DUCT IMMEDIATELY ADJACENT TO THE EQUIPMENT. INSTALL CABLES IN THE UTILITY POLE RISER CREATING CABLE DRIP LOOPS NOT LESS THAN THE CABLE BENDING RADIUS.
  - (2) INSIDE THE UTILITY POLE RISER, UTILIZE ½" COAX BLOCKS WITH LAG SCREWS TO SUPPORT COAX, RADIO AND MW POWER, RF COAX, AND ETHERNET CABLES TO WITHIN 12" OF THE EQUIPMENT BEING SERVED AND ON INTERVALS NOT TO EXCEED 6'.
- V) FOR UNDERGROUND HFC/PUBLIC BACKHAUL, ROUTE ETHERNET CABLE IN CONDUIT UP THE POLE AND ENTER THE UTILITY POLE RISER. SEAL EXPOSED END OF CONDUIT WITH A CABLE TERMINATION FITTING.
- VI) BY APPROVAL IN SELECT CASES LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LFMC) MAY BE USED IN LENGTHS NOT TO EXCEED 36" TO EXTEND THE ELECTRICAL SERVICE CONDUIT TO THE AC DISTRIBUTION BOX. EXAMPLE: UTILITY-REQUIRED DISCONNECT ON POLE W/ AC DISTRIBUTION BOX ON OPPOSITE SIDE OF POLE.

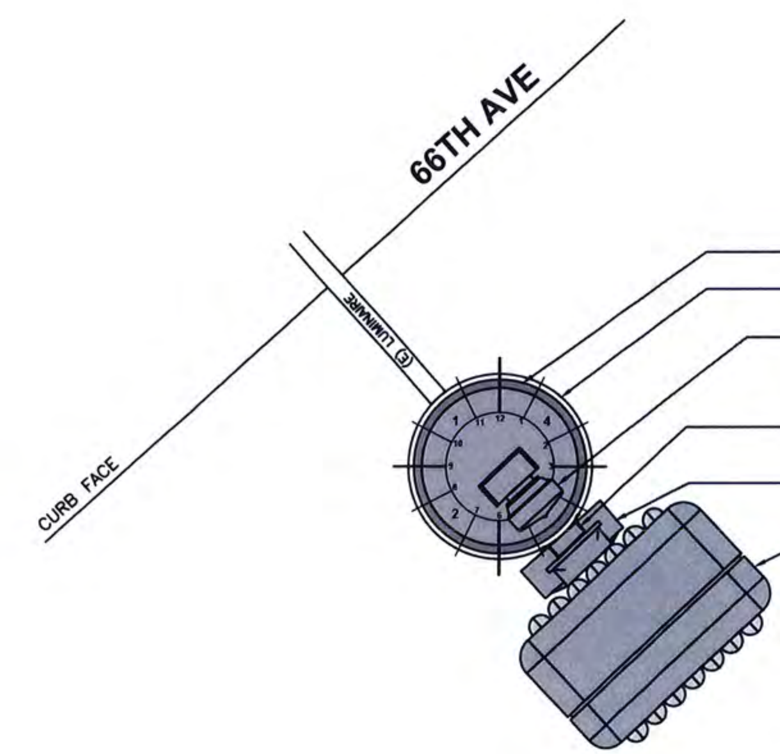
B) NEW METALLIC POLES
- I) PROCURE NEW POLES WITH SUITABLE HAND HOLES SUCH THAT HAND HOLES EXIST AT ALL EQUIPMENT LOCATIONS.
  - (1) WITH CLIENT APPROVAL IN SELECT CASES TO FACILITATE IMPROVED APPEARANCE, ½" COAXIAL CABLES MAY BE "SUPERFLEX" IN LIEU OF LDF-4.
- II) WHERE POSSIBLE, INSTALL POLE BASE SUCH THAT THE ELECTRICAL FEED AND BACKHAUL (IF UNDERGROUND) CIRCUIT ENTER THE POLE THROUGH THE POLE BASE. IF A DISCONNECTING MEANS SEPARATE FROM THE AC DISTRIBUTION BOX IS REQUIRED BY JURISDICTION OR UTILITY, WITH APPROVAL IN SELECT CASES LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LFMC) MAY BE USED IN LENGTHS NOT TO EXCEED 36" TO EXTEND THE ELECTRICAL SERVICE CONDUIT TO THE AC DISTRIBUTION BOX.

TYPICAL PLUMBING DIAGRAM — 1
SCALE: NOT TO SCALE

EQUIPMENT CHART					
QTY	DESCRIPTION	MANUFACTURER	MODEL NUMBER	DIMENSIONS (HxWxD)	WEIGHT
1	ANTENNA	ALPHA WIRELESS	AW3477-S	29.5" x 4.7ø	7 LBS
1	ANTENNA SHROUD	CONCEALFAB	007452-AABBCC	47.375" x 17" 10.75"ø	16.11 LBS
1	(MMS) SHROUD ENCLOSURE	ELTEK	MMS SHROUD	35" x 15.5" x 9"	12 LBS
1	UE RELAY 2.5 – MIDHAUL	AIRSPAN	iR460-SPB-ST-1-P-0	13" x 7" ø	8.8 LBS
1	RADIO	NOKIA	B41 FWHR HIGH POWER(473548A)	7.7" x 12.9" x 6.3"	24.64 LBS
3	FANS (2 SMALL; 1 LARGE)	TBD	–	–	2.76 LBS
1	SMART METER	PG&E	M241490	2.67" x 4.5"ø	–
1	RECEPTACLE	PG&E	–	–	–
1	NEMA-32 JUNCTION BOX	ALLEN-BRADLEY	598-BS533	4.53" x 2.58" x 2.17"	0.60 LBS
1	NEMA TYPE-3R DISCONNECT	SIEMENS	GNF321	9.9" x 8.8" x 4.5"	5 LBS
1	GPS ANTENNA	PCTEL	3997D-HR	.53" x 1.7"ø	.57 LBS
	TOTAL WEIGHT				77.48 LBS

ANTENNA AZIMUTH: N/A
MICROWAVE AZIMUTH: 137

BILL OF MATERIALS — 2
SCALE: NOT TO SCALE



RISER ORIENTATION DIAGRAM — 3
SCALE: NOT TO SCALE

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WWW.LEAFCC-LLC.COM
PHONE: (949) 388-0192

MOBILITIE ID:	9CAB013581
DRAWN BY:	KH
CHECKED BY:	CG

A	07/27/18	FOR REVIEW

08/03/2018
VECTOR PROJECT #: U2314-099-181
VECTOR ENGINEERS
REGISTERED PROFESSIONAL ENGINEER RUSSELL N. EMERY 73560 CIVIL STATE OF CALIFORNIA

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SF90XS1N9A
9CAB013581
OAKLAND, CA 94621
(E) 28'-4" STEEL LIGHT POLE

SHEET TITLE
PLUMBING & RISER DIAGRAM

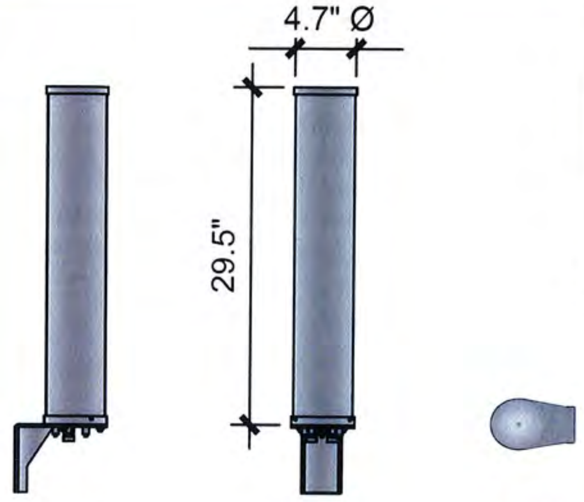
SHEET NUMBER
PL-1

ALPHA AW3477-S OMNI

SCALE: NTS | 1

MANUFACTURER: ALPHA WIRELESS
MODEL: AW3477-S
HEIGHT: 29.5 IN
DIAMETER: 4.7 IN Ø
WEIGHT: 7 LBS
MOUNT WEIGHT: 4.4 LB

ALPHA WIRELESS



REMOTE RADIO HEAD

SCALE: NTS | 4

MANUFACTURER: NOKIA
MODEL: B41 HP FWHR
(473548A/473604A)
HEIGHT: 9.7 IN
WIDTH: 12.9 IN
DEPTH: 6.3 IN
WEIGHT: 24.7 LBS

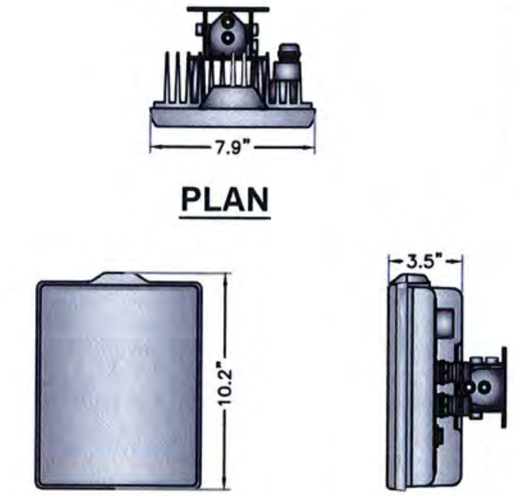
NOKIA

MICROWAVE ANTENNA

SCALE: NTS | 6

MANUFACTURER: FASTBACK
MODEL: IBR-1300
(OR APPROVED EQUAL)
HEIGHT: 10.2 IN
WIDTH: 7.9 IN
DEPTH: 3.5 IN
WEIGHT: 8.8 LBS

Fastback NETWORKS
Intelligent wireless transport

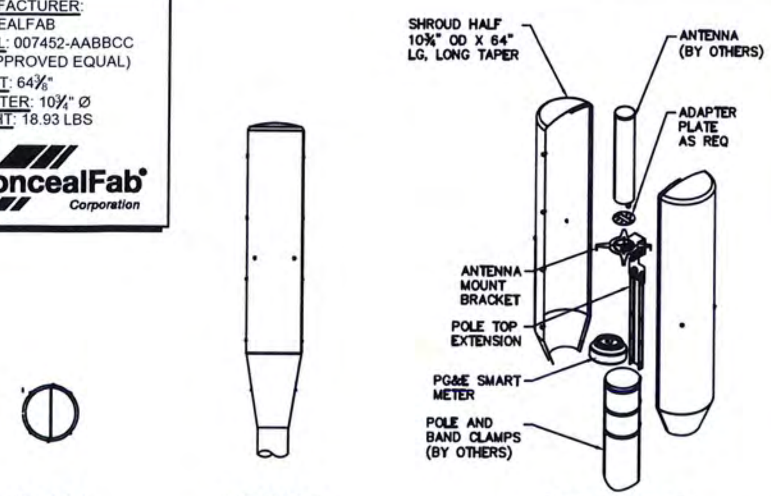


ANTENNA SHROUD

SCALE: NTS | 2

MANUFACTURER: CONCEALFAB
MODEL: 007452-AABBCC
(OR APPROVED EQUAL)
HEIGHT: 64⅜"
DIAMETER: 10¾" Ø
WEIGHT: 18.93 LBS

ConcealFab Corporation

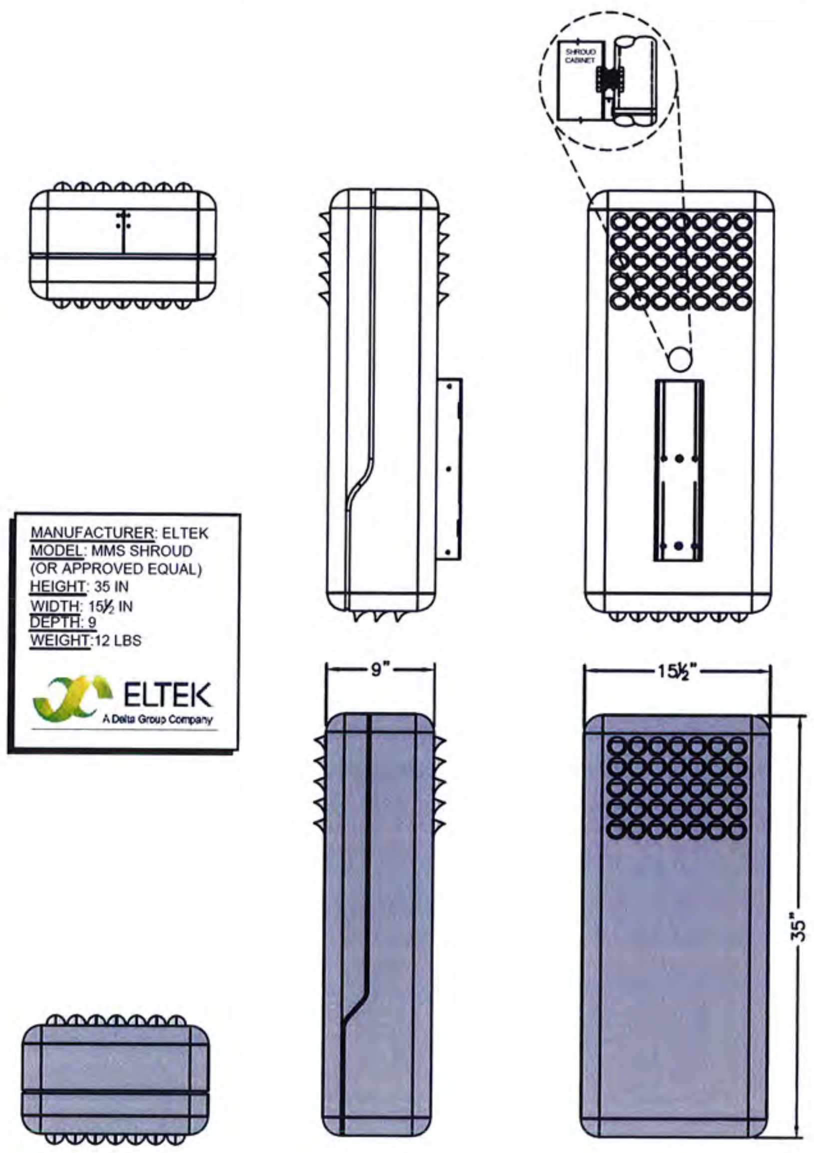


MMS SHROUD ENCLOSURE

SCALE: NTS | 5

MANUFACTURER: ELTEK
MODEL: MMS SHROUD
(OR APPROVED EQUAL)
HEIGHT: 35 IN
WIDTH: 15½ IN
DEPTH: 9
WEIGHT: 12 LBS

ELTEK A Delta Group Company



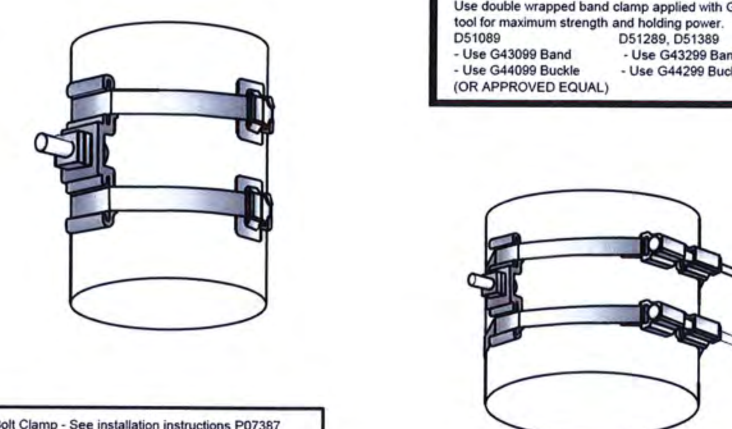
STAINLESS STEEL BANDS

SCALE: NTS | 7

Ear-Lokt Buckle
Use double wrapped band clamp applied with G40269 tool for maximum strength and holding power.

D51089	D51289, D51389
- Use G43099 Band	- Use G43299 Band
- Use G44099 Buckle	- Use G44299 Buckle

(OR APPROVED EQUAL)



Bolt Clamp - See installation instructions P07387

D51089	D51289, D51389
- Use G43099 Band	- Use G43299 Band
- Use D50089 Bolt Clamp	- Use D50489 Bolt Clamp

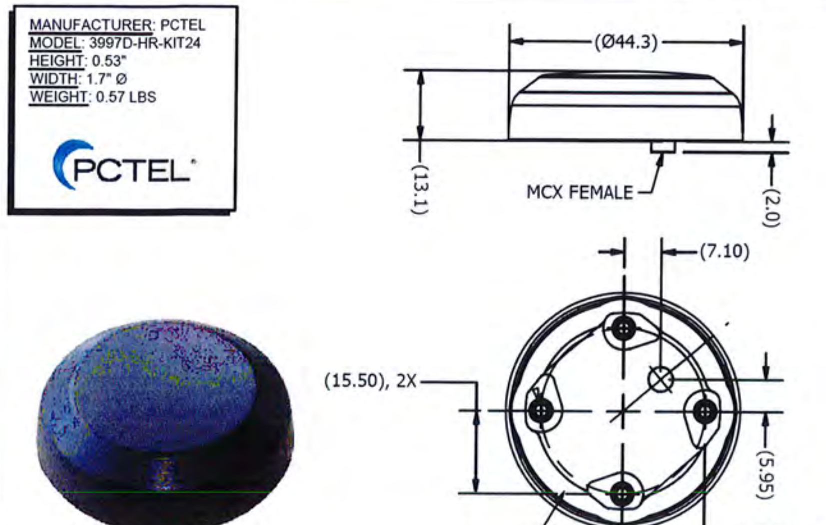
(OR APPROVED EQUAL)

GPS ANTENNA

SCALE: NTS | 3

MANUFACTURER: PCTEL
MODEL: 3997D-HR-KIT24
HEIGHT: 0.53"
WIDTH: 1.7" Ø
WEIGHT: 0.57 LBS

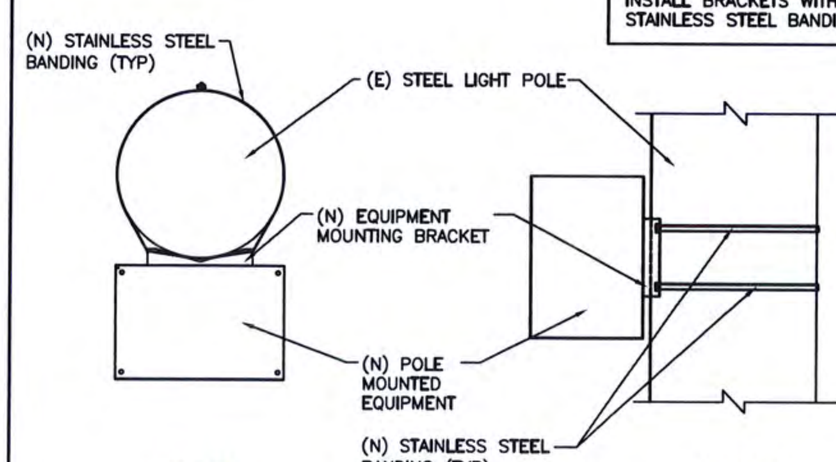
PCTEL



EQUIPMENT MOUNTING DETAIL

SCALE: NTS | 8

NOTE:
INSTALL BRACKETS WITH STAINLESS STEEL BANDING



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PHONE: (949) 388-0192

MOBILITIE ID:	9CAB013581
DRAWN BY:	KH
CHECKED BY:	CG

A	07/27/18	FOR REVIEW

08/03/2018
VECTOR PROJECT #: U2314-099-181
VECTOR ENGINEERS
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REGISTERED PROFESSIONAL ENGINEER
RUSSELL N. EMERY
C73566
CIVIL
STATE OF CALIFORNIA

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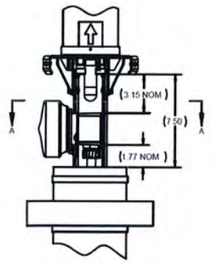
SF90XS1N9A
9CAB013581
OAKLAND, CA 94621
(E) 28'-4" STEEL LIGHT POLE

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
EQ-1

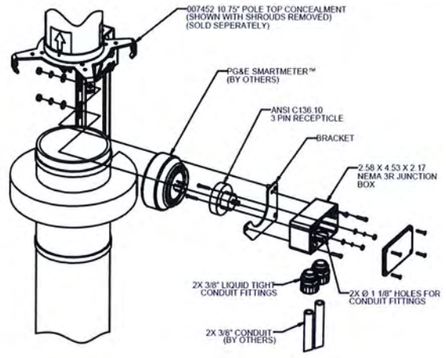
SECTION A-A



FRONT

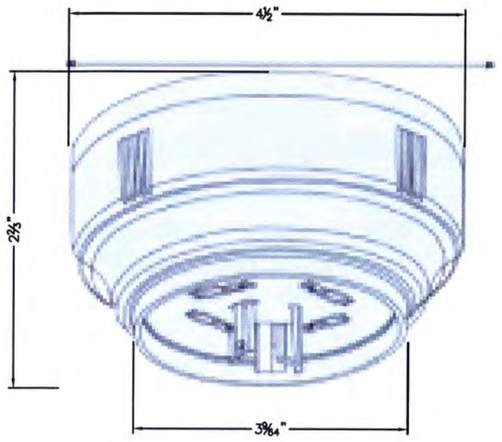
MANUFACTURER:
CONCEALFAB
MODEL: 007452-AABBCC
(OR APPROVED EQUAL)
HEIGHT: 64⅜"
DIAMETER: 10¾" Ø
WEIGHT: 18.93 LBS

ConcealFab Corporation



ISO VIEW

PG&E SMART METER INSTALLATION — SCALE: NTS — 1



- UNIVERSAL AC INPUT 90V-.305V, 50/60 Hz
- AMPERE RATING: 15A MAX CONTINUOUS
- ADVANCED METERING INFRASTRUCTURE (AMI) NETWORK COMMUNICATION CARD TO REMOTELY SEND ENERGY USAGE BACK TO THE HEAD-END SYSTEM
- DATE RATE: 50 TO 300 KBPS
- FREQUENCY RANGE: 902-928 MHz
- SPREAD SPECTRUM, FREQUENCY HOPPING
- TRANSMITTER OUTPUT: 27-30 08M (1W)
- RECEIVER SENSITIVITY: -9B dBm FOR 10% PER
- PROTOCOL: IEEE 802.15.4C

SEE GN-3, PG&E UTILITY BULLETIN
TD-027911B-004, FIGURE 8 – SMARTPOLE METER

PG&E SMART METER DETAIL — SCALE: NTS — 2

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

SITE ID: 9CAB013581

Contact 877-244-7889

mobilitie

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

- SIGN TO BE NO LARGER THAN 3" X 4"
- SIGN TO BE MOUNTED ON CURB SIDE

ANTENNA SIGNAGE

SEE GN-3, PG&E UTILITY BULLETIN TD-027911B-004, FIGURE 12 – SAMPLE RF SIGN

NODE SITE POWER SHUT DOWN PROCEDURES:

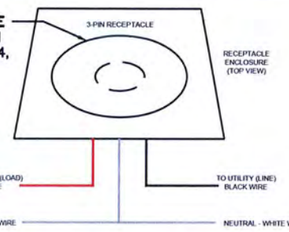
1. NON EMERGENCY SCHEDULED POWER SHUT DOWN
   - CALL MOBILITIE AT (877) 244-7889
   - 24 HOURS PRIOR TO SCHEDULED POWER SHUT OFF, PROVIDE THE FOLLOWING INFORMATION:
     - SITE NUMBER IDENTIFIED ON SITE NUMBERING STICKER (9CAB013581)
     - YOUR NAME AND REASON FOR POWER SHUTOFF
     - PROVIDE DURATION OF OUTAGE
   - PULL DISCONNECT HANDLE TO "OFF" POSITION
   - POWER SHUT OFF VERIFICATION WITH APPROVED PG&E PROCEDURES
   - NOTIFY MOBILITIE AT (877) 244-7889 UPON COMPLETION OF WORK
   - RESTORE POWER BY PLACING POWER DISCONNECT HANDLE IN THE "ON" POSITION
   - REINSTALL LOCK ON POWER HANDLE
2. EMERGENCY POWER SHUT OFF
   - CALL MOBILITIE AT (877) 244-7889
   - PROVIDE THE FOLLOWING INFORMATION:
     - SITE NUMBER IDENTIFIED ON SITE NUMBERING STICKER (9CAB013581)
     - YOUR NAME AND REASON FOR POWER SHUTOFF
     - PROVIDE DURATION OF OUTAGE
   - PULL DISCONNECT HANDLE TO "OFF" POSITION
   - POWER SHUT OFF VERIFICATION WITH APPROVED PG&E PROCEDURES
   - NOTIFY MOBILITIE AT (877) 244-7889 UPON COMPLETION OF WORK
   - RESTORE POWER BY PLACING POWER DISCONNECT HANDLE IN THE "ON" POSITION
   - REINSTALL LOCK ON POWER HANDLE

SHUT DOWN PROCEDURE SIGN

SEE GN-3, PG&E UTILITY BULLETIN TD-027911B-004, FIGURE 11 – SHUT DOWN PROCEDURE SIGN

POLE MOUNTED SIGNS — SCALE: NTS — 3

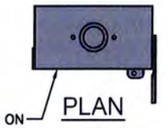
SEE GN-3, PG&E UTILITY BULLETIN TD-027911B-004, FIGURE 10-WIRING DIAGRAM FOR 3-PIN RECEPTACLE



SEE GN-3, PG&E UTILITY BULLETIN TD-027911B-004, FIGURE 9 – 3-PIN RECEPTACLE

3 PIN RECEPTACLE DETAIL — SCALE: NTS — 4

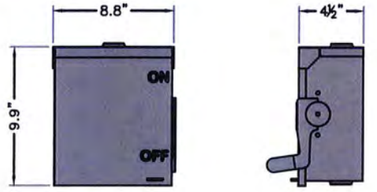
SEE DETAIL #4 ON EQ-3 (SHUTDOWN PROCEDURE SIGN)



PLAN

MANUFACTURER:
SIEMENS
MODEL: GNF321R
(OR APPROVED EQUAL)
HEIGHT: 9.9 IN
WIDTH: 8.8 IN
DEPTH: 4½ IN
WEIGHT: 5 LBS

SIEMENS



FRONT SIDE

NEMA-3R DISCONNECT — SCALE: NTS — 5

ILSCO PBTD-2-1.0 MULTITAP
TWO SIDED TERMINAL CONNECTOR
(FOR CONDUCTOR SIZES 14-1/0 AWG)

TERMINAL CONNECTOR — SCALE: NTS — 6

ISO VIEW

MANUFACTURER:
ALLEN-BRADLEY
MODEL: 598-BS533
HEIGHT: 5.12"
WIDTH: 3.15"
DEPTH: 3.35"
WEIGHT: 0.60 LBS

Rockwell Automation
Allen- Bradley

NEMA 3R JUNCTION BOX — SCALE: NTS — 7

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MOBILITIE ID:	9CAB013581
DRAWN BY:	KH
CHECKED BY:	CG

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08/03/2018
VECTOR PROJECT #: U2314-099-181

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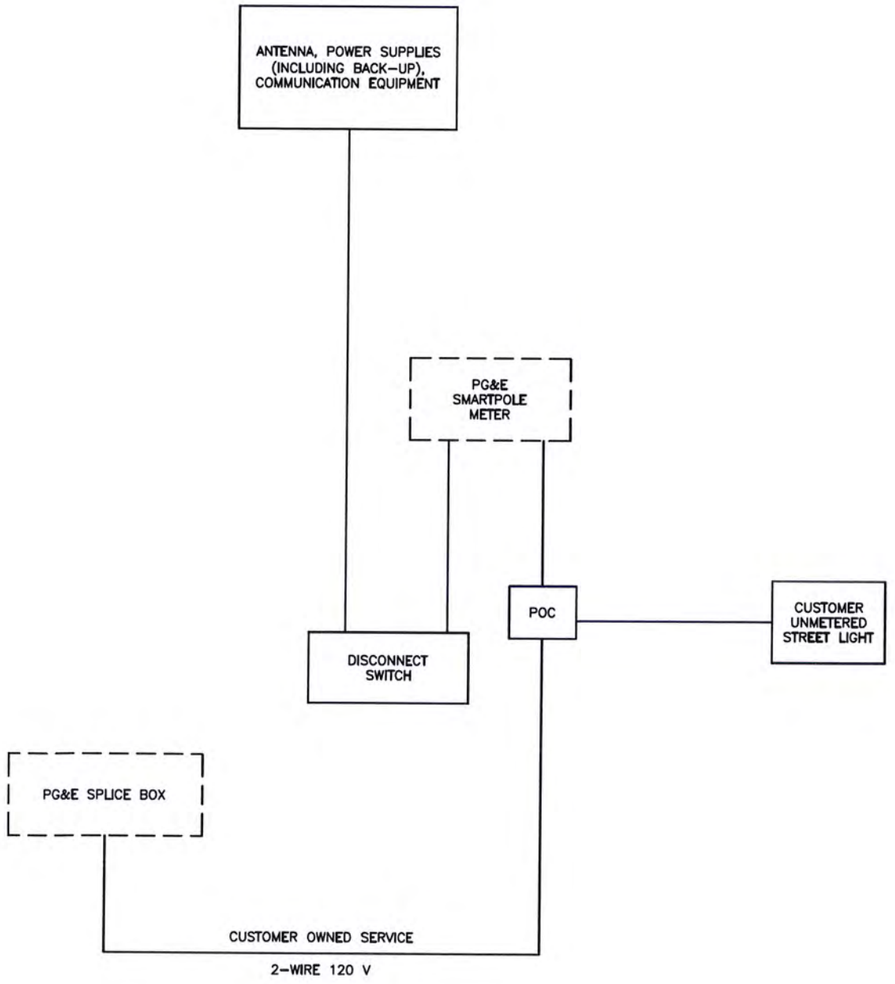
SF90XS1N9A
9CAB013581
OAKLAND, CA 94621
(E) 28'-4" STEEL LIGHT POLE

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
EQ-2



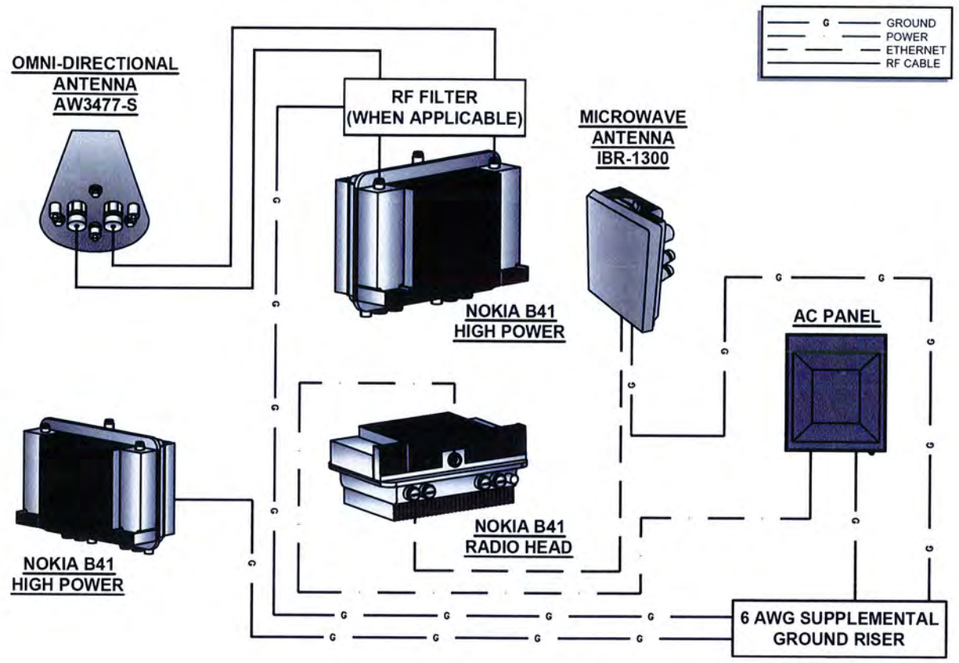
SEE GN-3, PG&E UTILITY BULLETIN TD-027911B-004, FIGURE 6 – ONE LINE DIAGRAM

ONE-LINE DIAGRAM

SCALE: NOT TO SCALE

1

NOKIA MM RADIO W/ UE RELAY



WIRING DIAGRAM

SCALE: NOT TO SCALE

2

NOTES:

1. NOMINAL POWER IS CALCULATED AS 80% OF OEM DOCUMENTED MAXIMUM POWER
2. CALCULATIONS FOR UE W/ NOKIA DO NOT NEED TO INCLUDE THE POWER FOR THE UE ANTENNA AS IT IS INCLUDED IN THE MAX POWER FIGURE. CALCULATIONS FOR UE W/ AIRSPAN MUST INCLUDE UE AS IT IS NOT INCLUDED
3. KVA IS CALCULATED FROM THE CONSUMPTION VALUE ASSUMING A PF=1. MAMIMUM POWER WAS USED FOR KVA. WHERE MAXIMUM WAS NOTED BY THE OEM THE QUOTED FIGURE WAS USED. WHERE AVERAGE/NOMINAL POWER WAS NOTED BY THE OEM MAXIMUM POWER WAS CALCULATED BY INCREASING AVERAGE/NOMINAL POWER BY A FACTOR OF 50%
4. COST PER KW PROVIDED BY BRIAN KOOYMAN

NOKIA SCENARIO 3 B41 HIGH POWER RADIO AND UE BACKHAUL									
UNIT	SUB DESCRIPTION	MAX POWER (W)	NOMINAL POWER (W)	AVERAGE POWER (W)	CONS (W)	KVA	kWh/YR	$/YR	$/MO
FWHR	B41 HIGH	360	288	N/A	288	0.36	2522.88	$276.51	23.04
MICROWAVE ANTENNA	IBR-1300	N/A	N/A	N/A	0	0	0	N/A	N/A
TOTAL		360	288	N/A	288	0.36	2522.88	$276.51	23.04

LOAD CALCULATIONS

SCALE: NOT TO SCALE

3

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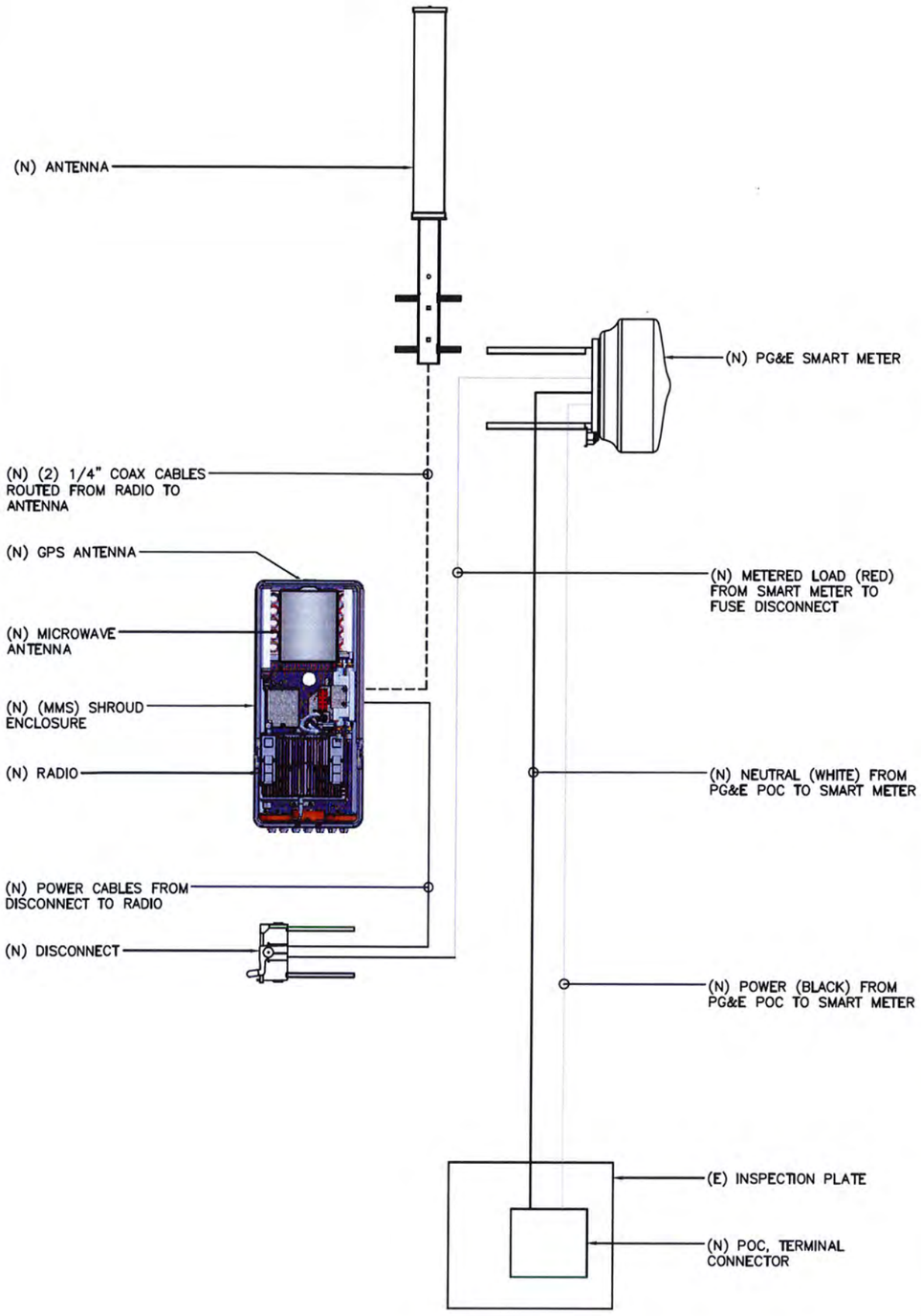
WWW.VECTORSE.COM

SF90XS1N9A
9CAB013581
OAKLAND, CA 94621
(E) 28'-4" STEEL LIGHT POLE

SHEET TITLE
ELECTRICAL DETAILS

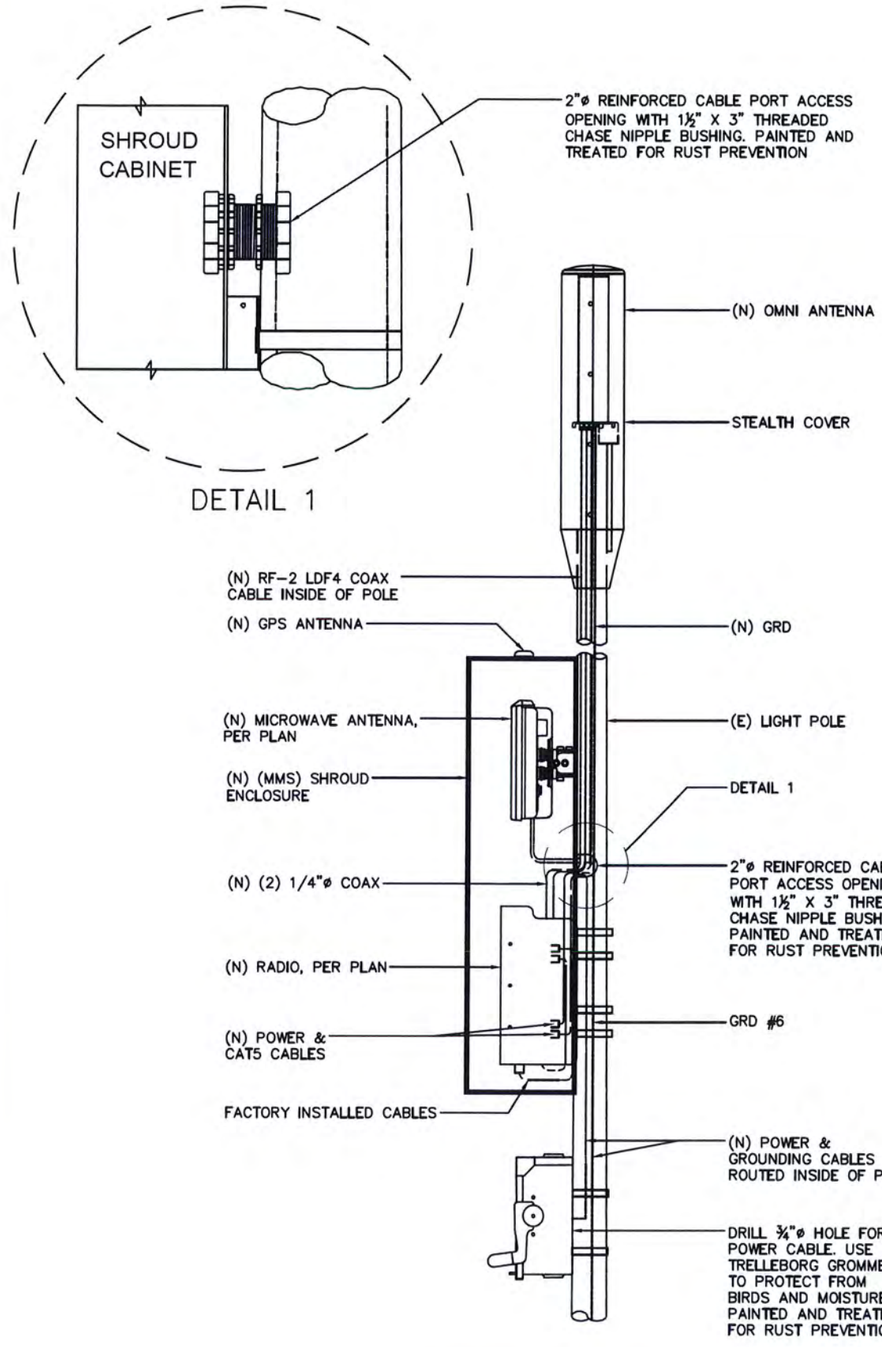
SHEET NUMBER
E-1



SCHEMATIC POWER FLOW

SCALE: NOT TO SCALE

1



PORT HOLE DETAIL

SCALE: NOT TO SCALE

2

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MOBILITIE ID:	9CAB013581
DRAWN BY:	KH
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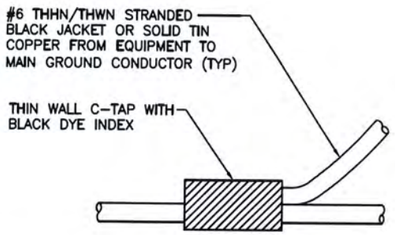
SF90XS1N9A
9CAB013581
OAKLAND, CA 94621
(E) 28'-4" STEEL LIGHT POLE

SHEET TITLE
ELECTRICAL PLAN

SHEET NUMBER
E-2

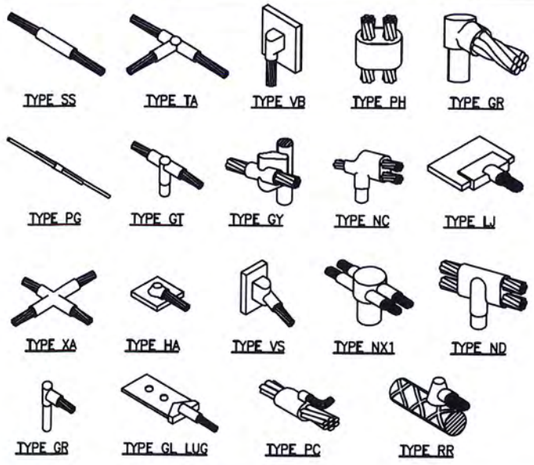


NOTE:
CONTRACTOR TO SURROUND COMPLETED CONNECTION WITH HEAT-SHRINK TUBING TO ENSURE WEATHER PROOF CONNECTION

C-TAP DETAIL

SCALE: NOT TO SCALE

1



GROUNDING BONDS: ALL BONDS ARE TO BE MADE WITH #2 AWG STRANGDED COPPER IN GREEN INSULATION (ATT-TP-76416 7, 6.7)

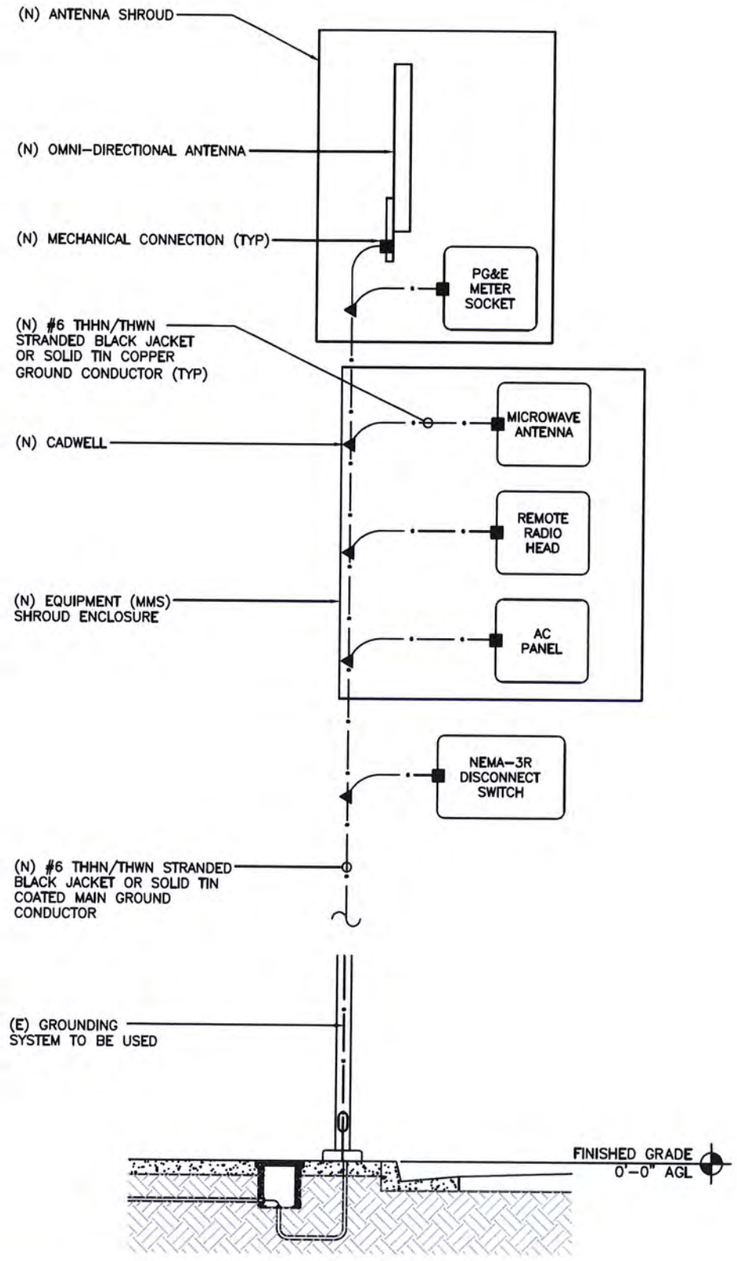
EXTERIOR UNIT BONDS: ALL METALLIC OBJECTS SHALL BE BONDED TO THE GROUND ROD (ATT-TP-76416 7, 12.6)

GROUND ROD: UL LISTED COPPER CLAD STEEL GROUND ROD WITH MINIMUM DIAMETER OF $\frac{5}{8}$" AND MINIMUM LENGTH OF 8'. ALL GROUND RODS MAY BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO A MINIMUM OF DEPTH OF 30" BELOW GRADE OR 6" BELOW FROST LINE. (ATT-TP-76416 1.4 / 2/2, 3, 10)

WELD CONNECTION DETAILS

SCALE: NOT TO SCALE

2

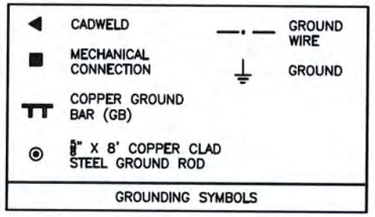


NOTE:
1. ALL RGS TO BE GROUNDED AT BOTH ENDS USING GROUNDING BUSHINGS.
2. GROUND WIRE TO BE RUN IN $\frac{1}{2}$" SCHEDULE 40 PVC.
3. GROUNDING RISER FOR DIAGRAMMATIC PURPOSES ONLY. SEE ELEVATION DRAWING FOR EQUIPMENT AND ANTENNA LOCATIONS.

GROUNDING RISER DIAGRAM

SCALE: NOT TO SCALE

3



GROUNDING SYMBOLS

mobilitie
intelligent infrastructure
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MOBILITIE ID:	9CAB013581
DRAWN BY:	KH
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A	07/27/18	FOR REVIEW

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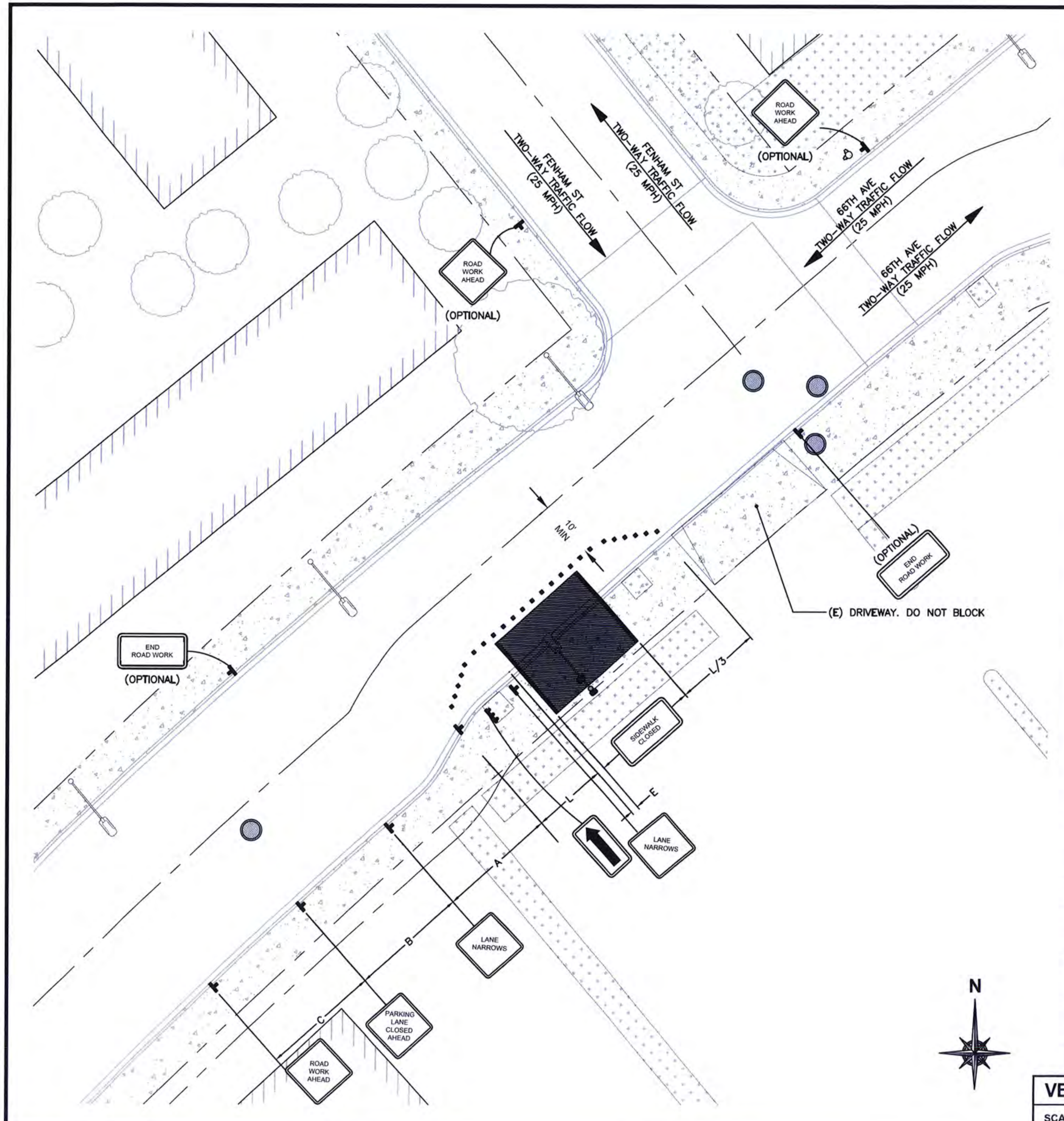
SF90XS1N9A
9CAB013581
OAKLAND, CA 94621
(E) 28'-4" STEEL LIGHT POLE

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-1



1. "ROAD WORK AHEAD" AND THE "BE PREPARED TO STOP" SIGNS MAY BE OMITTED IF ALL OF THE FOLLOWING CONDITIONS ARE MET:
   A. WORK OPERATIONS ARE 60 MINUTES OR LESS
   B. SPEED LIMIT IS 45 MPH OR LESS
   C. NO SIGHT OBSTRUCTIONS TO VEHICLES APPROACHING THE WORK AREA FOR A DISTANCE EQUAL TO THE BUFFER SPACE
   D. VEHICLES IN THE WORK AREA HAVE HIGH-INTENSITY, ROTATING, FLASHING, OSCILLATING, OR STROBE LIGHTS OPERATING
   E. VOLUME AND COMPLEXITY OF THE ROADWAY HAS BEEN CONSIDERED

DURATION NOTES

LEGEND	
▪	CHANNELIZING DEVICE
	SIGN
	WORK SPACE
	FLAGGER
➡	DIRECTION OF TRAFFIC
	TYPE 3 BARRICADE

1. ALL WORK AND MATERIALS SHALL COMPLY WITH THE WORK AREA TRAFFIC CONTROL HANDBOOK (WATCH) 2016 EDITION.
2. ALL STRINGS AND MARKINGS SHALL CONFORM TO THE STATE OF CALIFORNIA, STANDARD PLANS AND SPECIFICATIONS, INCLUDING STANDARD PLAN A-20, DETAILS.
3. THE CONTRACTOR SHALL PROVIDE FOR ACCESS TO ALL ADJACENT PROPERTIES.
4. FLASHING YELLOW BEACONS, TYPE "B", SHALL BE USED ON ALL W20-1 SIGNS AND ON ALL TYPE III BARRICADES GUARDING THE WORK AREA OVERNIGHT.
5. ALL SIGNS SHALL BE REFLECTORIZED AND STANDARD SIZE.
6. ALL TUBULAR DELINEATORS AND CONES SHALL BE 28" MINIMUM HEIGHT, REFLECTORIZED AND MAINTAINED ERECT IN THE INDICATED POSITION AT ALL TIMES, AND SHALL BE REPAIRED, REPLACED, OR CLEANED AS NECESSARY TO PRESERVE THEIR APPEARANCE AND CONTINUITY, AND SHALL INCLUDE A 12" HIGH-INTENSITY REFECTORIZED SLEEVE, IF USED DURING NIGHT-TIME HOURS.
7. THE CONTRACTOR SHALL MAINTAIN ON A CONTINUOUS BASIS, ALL SIGNS, DELINEATORS, BARRICADES, ETC., TO ENSURE PROPER FLOW AND SAFETY OF TRAFFIC DURING CONSTRUCTION.
8. THE CONTRACTOR SHALL HAVE ALL SIGNS, DELINEATORS, BARRICADES, ETC., PROPERLY INSTALLED PRIOR TO COMMENCING CONSTRUCTION.
9. CONSTRUCTION OPERATION SHALL BE CONDUCTED IN SUCH A MANNER AS TO CAUSE AS LITTLE INCONVENIENCE AS POSSIBLE TO ABUTTING PROPERTY OWNERS.
10. ADDITIONAL TRAFFIC CONTROLS, TRAFFIC SIGNS, OR BARRICADING MAY BE REQUIRED IN THE FIELD. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PLACEMENT OF ANY ADDITIONAL DEVICES NECESSARY TO ASSURE SAFETY TO THE PUBLIC AT ALL TIMES DURING CONSTRUCTION.
11. EXACT LOCATION AND TYPE OF CONSTRUCTION SIGNS SHALL BE DIRECTED BY THE ENGINEER BASED UPON CONSTRUCTION CONDITIONS.
12. MOVE DELINEATORS AND/OR CONES TO SIDEWALK DURING NON-WORKING HOURS. REMOVE BARRICADES ETC. FROM TRAVEL LANE.
13. REMOVE OR TURN OFF SIGNS DURING NON-WORK HOURS.
14. ALL CONFLICTING LINES, EXISTING CURB PAINT, AND MARKING SHALL BE REMOVED BY WET SANDBLASTING OR OTHER APPROVED METHOD PRIOR TO INSTALLATION OF NEW/TEMPORARY STRIPING. ALL CONFLICTING RAISED PAVEMENT MARKERS SHALL BE REMOVED. PAVEMENT THAT IS DAMAGED DUE TO REMOVAL OF MARKERS SHALL BE REPAIRED TO THE SATISFACTION OF THE CITY ENGINEER AND/OR STATE INSPECTOR.

GENERAL NOTES

TEMPORARY TRAFFIC CONTROL PLAN DIMENSION GUIDELINES

SPEED MPH (2)	Dimension A/B/C ADVANCE WARNING SIGN SPACING (5)	Dimension L MERGING TAPER LENGTH	Dimension L/2 SHIFTING TAPER LENGTH	Dimension L/3 MINIMUM SHOULDER LENGTH	Dimension "E" BUFFER SPACE (4-A) and FLAGGER STATION STOPPING SIGHT DISTANCE (4-B) (0%)	(-3%)	(-6%)	MAXIMUM CHANNELIZER TAPER SPACING (3)	MAXIMUM CHANNELIZER TANGENT SPACING (3)	MAXIMUM CHANNELIZER CONFLICT SPACING (6)
MPH	ft	ft	ft	ft	ft			ft	ft	ft
25	100	125	65	45	(155)	(160)	(165)	25	50	12
30	250	180	90	60	(200)	(205)	(215)	30	60	15
35	250	245	125	85	(250)	(260)	(275)	35	70	17
40	250	320	160	110	(305)	(315)	(335)	40	80	20
45	350	540	270	180	(360)	(380)	(400)	45	90	22
50	350	600	300	200	(425)	(450)	(475)	50	100	25
55	500	660	330	220	(495)	(520)	(555)	50	100	25
60	500	720	360	240	(570)	(600)	(640)	50	100	25
65	500	780	390	260	(645)	(685)	(730)	50	100	25
(1)	Work on Freeways and Expressways shall meet the Caltrans Standard Plans and Standard Specification requirements.									
(2)	Posted Speed or observed operating speed (whichever is greater)									
(3)	Channelizer spacing shall be reduced by half at areas where work is taking place on curved or areas of head-on conflict.									
(4-A)	Buffer space may be inserted in low-speed urban areas and should be inserted in high-speed urban and rural areas.									
(4-B)	The Stopping Sight Distance should enable Road User to see the Primary Flagger Station and safety stop.									
(5)	Sign spacing in rural areas should be 500 ft.									
(6)	** Table 6F-101(CA)									

DIMENSION GUIDELINE

VEHICULAR TRAFFIC CONTROL PLAN

SCALE: NOT TO SCALE

1

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MOBILITIE ID:	9CAB013581
DRAWN BY:	KH
CHECKED BY:	CG

A	07/27/18	FOR REVIEW

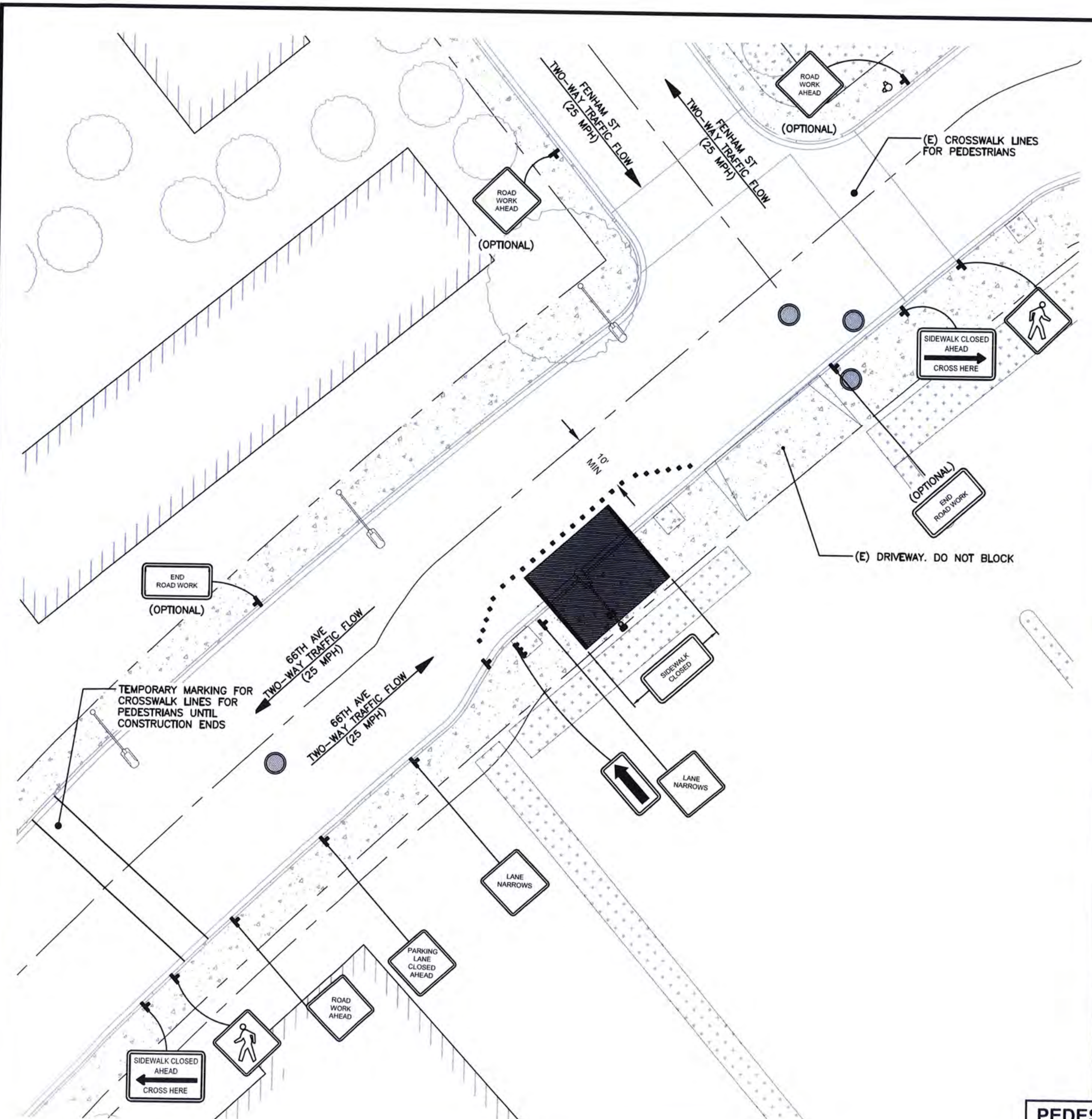
08/03/2018
VECTOR PROJECT #: U2314-099-181
VECTOR ENGINEERS
REGISTERED PROFESSIONAL ENGINEER
RUSSELL N. EMERY
C 73560
CIVIL
STATE OF CALIFORNIA

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

SF90XS1N9A
9CAB013581
OAKLAND, CA 94621
(E) 28'-4" STEEL LIGHT POLE

SHEET TITLE
VEHICULAR TRAFFIC CONTROL PLAN

SHEET NUMBER
TC-1



TRAFFIC CONTROL GENERAL NOTES:

1. ALL TEMPORARY TRAFFIC CONTROL SIGNAGE, LAYOUTS AND PROCEDURES SHALL COMPLY WITH LOCAL JURISDICTIONAL REQUIREMENTS AND MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION, WHICHEVER IS MORE STRINGENT.

2. PRIOR TO ANY ROAD CONSTRUCTION, TRAFFIC CONTROL SIGNS AND DEVICES SHALL BE IN PLACE.

3. TRAFFIC CONTROL DEVICES FOR LANE CLOSURES INCLUDING SIGNS, CONES, BARRICADES, ETC. SHALL BE PLACED AS SHOWN ON PLANS. SIGNS SHALL NOT BE PLACED WITHOUT ACTUAL LANE CLOSURES AND SHALL BE IMMEDIATELY REMOVED UPON REMOVAL OF THE CLOSURES.

4. SELECTION, PLACEMENT, MAINTENANCE, AND PROTECTION OF TRAFFIC, PEDESTRIANS, AND WORKERS SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) – PART VI "TEMPORARY TRAFFIC CONTROL", AND LOCAL JURISDICTIONAL REQUIREMENTS UNLESS OTHERWISE NOTED IN THE PLANS AND SPECIFICATIONS, AND SHALL BE APPROVED BY THE APPROPRIATE HIGHWAY AUTHORITY HAVING JURISDICTION.

5. ADVANCE WARNING SIGNS, DISTANCES, AND TAPER LENGTHS MAY BE EXTENDED TO ADJUST FOR REDUCED VISIBILITY DUE TO HORIZONTAL AND VERTICAL CURVATURE OF THE ROADWAY AND FOR ACTUAL TRAFFIC SPEEDS IF IN EXCESS OF POSTED SPEED LIMITS.

6. TAPERS SHALL BE LOCATED TO MAXIMIZE THE VISIBILITY OF THEIR TOTAL LENGTH.

7. CONFLICTING OR NON-OPERATING SIGNAL INDICATIONS ON THE (E) TRAFFIC SIGNAL SYSTEMS SHALL BE BAGGED OR COVERED.

8. ALL (E) ROAD SIGNS, PAVEMENT MARKINGS AND/OR PLOWABLE PAVEMENT REFLECTORS WHICH CONFLICT WITH THE (N) TRAFFIC CONTROL PLAN SHALL BE COVERED, REMOVED, OR RELOCATED. ALL TRAFFIC CONTROL DEVICES SHALL BE RESTORED TO MATCH PRE-CONSTRUCTION CONDITION AFTER COMPLETION OF WORK.

9. CONTRACTOR SHALL CONTACT LOCAL AUTHORITY HAVING HIGHWAY JURISDICTION AND PROVIDE ADDITIONAL "FLAGMEN" OR POLICE SUPERVISION, IF REQUIRED.

10. ALL EXCAVATED AREAS WITHIN OR ADJACENT TO THE ROADWAY SHALL BE BACKFILLED AND PLACED ON A MINIMUM 6H: 1 V SLOPE PRIOR TO END OF EACH WORK DAY. OTHER EXCAVATED AREAS WITHIN THE CLEAR ZONE ARE TO BE EITHER BACKFILLED OR PRECAST CONCRETE CURB BARRIER CONSTRUCTION BARRIER SET TEMPORARILY IN PLACE TO SHIELD VEHICULAR AND PEDESTRIAN TRAFFIC.

11. WHERE DICTATED BY LOCAL CONDITIONS, THE CONTRACTOR SHALL MAKE PROVISIONS FOR MAINTAINING PEDESTRIAN AND WORKER CROSSING LOCATIONS IN ACCORDANCE WITH ALL APPLICABLE CODES AND OSHA REQUIREMENTS.

12. CONSTRUCTION ZONE SPEED LIMIT IF REDUCED FROM POSTED LIMITS SHALL BE IN ACCORDANCE WITH MUTCD AND WILL BE DETERMINED BY THE AUTHORITY HAVING JURISDICTION.

13. THERE SHALL BE NO WORKERS, EQUIPMENT, OR OTHER VEHICLES IN THE BUFFER SPACE OR THE ROLL AHEAD SPACE.

14. DRIVEWAYS AND/OR SIDE STREETS ENTERING THE ROADWAY AFTER THE FIRST ADVANCE WARNING SIGN SHALL BE PROVIDED WITH AT LEAST ONE W20-1 SIGN (ROAD WORK AHEAD) AS A MINIMUM.

15. CONES MAY BE SUBSTITUTED FOR DRUMS AND INSTALLED UPON THE APPROVAL OF THE AUTHORITY HAVING JURISDICTION PROVIDED THEY COMPLY WITH MUTCD.

16. THE SPACING BETWEEN CONES, TUBULAR MARKERS, VERTICAL PANELS, DRUMS, AND BARRICADES SHOULD NOT EXCEED A DISTANCE IN FEET EQUAL TO 1.0 TIMES THE SPEED LIMIT IN MPH WHEN USED FOR TAPER CHANNELIZATION, AND A DISTANCE IN FEET EQUAL TO 2.0 TIMES THE SPEED LIMIT IN MPH WHEN USED FOR TANGENT CHANNELIZATION.

17. WHEN CHANNELIZATION DEVICES HAVE THE POTENTIAL OF LEADING VEHICULAR TRAFFIC OUT OF THE INTENDED VEHICULAR TRAFFIC SPACE, THE CHANNELIZATION DEVICES SHOULD BE EXTENDED A DISTANCE IN FEET OF 2.0 TIMES THE SPEED LIMIT IN MPH BEYOND THE DOWNSTREAM END OF THE TRANSITION AREA.

18. TAPER LENGTHS ARE CALCULATED AS FOLLOWS: L= WS2 /60 (40 MPH AND HIGHER) OR L2=WS (OVER 40 MPH), WHERE W=OFFSET WIDTH (FT), S=TRAFFIC SPEED (MPH).

PEDESTRIAN/WORKER SAFETY PLAN 1

SCALE: NOT TO SCALE

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VECTOR PROJECT #: U2314-099-181
VECTOR ENGINEERS

REGISTERED PROFESSIONAL ENGINEER RUSSELL N. EMERY C72560 CIVIL STATE OF CALIFORNIA

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SF90XS1N9A
9CAB013581
OAKLAND, CA 94621
(E) 28'-4" STEEL LIGHT POLE

SHEET TITLE
PEDESTRIAN/WORKER SAFETY PLAN

SHEET NUMBER
TC-2

GENERAL CONSTRUCTION NOTES:

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE LOCAL BUILDING CODE, THE LATEST ADOPTED EDITION AND ALL OTHER APPLICABLE CODES AND ORDINANCES.

2. CONTRACTOR SHALL CONSTRUCT SITE IN ACCORDANCE WITH THESE DRAWINGS AND LATEST MOBILITIE CONSTRUCTION STANDARDS. THE SPECIFICATION IS THE RULING DOCUMENT AND ANY DISCREPANCIES BETWEEN THE SPECIFICATION AND THE CONSTRUCTION DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER OR MOBILITIE CM PRIOR TO THE COMMENCEMENT OF WORK.

3. CONTRACTOR SHALL VISIT THE JOB SITE AND SHALL FAMILIARIZE THEMSELVES WITH ALL CONDITIONS AFFECTING THE (N) WORK AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED, AS SHOWN, PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER OR MOBILITIE CM PRIOR TO THE COMMENCEMENT OF WORK. NO COMPENSATION WILL BE AWARDED BASED ON CLAIM OF LACK OF KNOWLEDGE OF FIELD CONDITIONS.

4. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. CONTRACTOR IS REQUIRED TO FURNISH AND INSTALL ANY/ALL ITEMS FOR A COMPLETE AND FULLY FUNCTIONAL SYSTEM SUBJECT ONLY TO OWNER-SUPPLIED ITEMS. CONTRACTOR SHALL PROVIDE ANY/ALL REQUIREMENTS FOR THE EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.

5. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT AND APPURTENANCES, AND LABOR NECESSARY TO EFFECT ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS. OWNER PROVIDED AND CONTRACTOR INSTALLED MATERIALS WILL INCLUDE THE FOLLOWING, UNLESS NOTED OTHERWISE:
   A) TRANSMITTER
   B) UHF ANTENNA AND MOUNTING BRACKETS, GPS ANTENNAS AND KU ANTENNAS
   C) UHF COAX AND HANGERS
   D) INTEGRATED LOAD CENTER

6. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, (E) CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPORTING ANY DISCREPANCIES TO THE ATTENTION OF THE MOBILITIE CM, IN WRITING, PRIOR TO THE COMMENCEMENT OF WORK.

7. DETAILS PROVIDED ARE FOR THE PURPOSE OF SHOWING DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR SITE CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.

8. CONTRACTOR SHALL PAY FOR APPLICABLE PERMITS, FEES, INSPECTIONS AND TESTING. CONTRACTOR IS TO OBTAIN PERMITS AND APPROVED SUBMITTALS PRIOR TO ORDERING MATERIALS AND THE COMMENCEMENT OF WORK.

9. THE TERM 'PROVIDE' USED IN CONSTRUCTION DOCUMENTS AND SPECIFICATIONS, INDICATES THAT THE CONTRACTOR SHALL FURNISH AND INSTALL.

10. CONTRACTOR SHALL RECEIVE CLARIFICATION IN WRITING, AND SHALL RECEIVE IN WRITING AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.

11. CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING ACCEPTED INDUSTRY-STANDARD SKILLS AND ATTENTION. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT, UNLESS OTHERWISE NOTED.

12. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS.

13. CONTRACTOR SHALL COORDINATE THEIR WORK WITH THE MOBILITIE CM AND SCHEDULE THEIR ACTIVITIES AND WORKING HOURS IN ACCORDANCE WITH THE REQUIREMENTS.

14. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THEIR WORK WITH THE WORK OF OTHERS AS IT MAY RELATE TO RADIO EQUIPMENT, ANTENNAS AND ANY OTHER PORTIONS OF THE WORK.

15. CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS UNLESS SPECIFICALLY OTHERWISE INDICATED OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.

16. CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT (E) SURFACES, EQUIPMENT, IMPROVEMENTS, PIPING ETC. AND IMMEDIATE REPAIR, TO NEW CONDITION, ANY DAMAGE THAT OCCURS DURING CONSTRUCTION AT THE SOLE COST OF THE CONTRACTOR.

17. IN DRILLING HOLES, OR CORING, INTO CONCRETE WHETHER FOR FASTENING OR ANCHORING PURPOSES, OR PENETRATIONS THROUGH THE FLOOR FOR CONDUIT RUNS, PIPE RUNS, ETC., MUST BE CLEARLY UNDERSTOOD THAT REINFORCING STEEL SHALL NOT BE DRILLED INTO, CUT OR DAMAGED UNDER ANY CIRCUMSTANCES (UNLESS NOTED OTHERWISE). LOCATIONS OF REINFORCING STEEL ARE NOT DEFINITELY KNOWN AND THEREFORE MUST BE LOCATED BY THE CONTRACTOR USING APPROPRIATE METHODS AND EQUIPMENT PRIOR TO ANY DRILLING OR CORING OPERATIONS IN (E) CONCRETE.

18. CONTRACTOR SHALL REPAIR, TO NEW CONDITION, ALL (E) WALL SURFACES DAMAGED DURING CONSTRUCTION SUCH THAT THEY MATCH AND BLEND IN WITH ADJACENT SURFACES.

19. CONTRACTOR SHALL SEAL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES OR MATERIALS WITH U.L. LISTED AND FIRE CODE APPROVED MATERIALS AND SYSTEMS THAT MEET OR EXCEED THE RATING OF THE ASSEMBLY IN WHICH THE NEW PENETRATION IS PLACED.

20. CONTRACTOR SHALL KEEP CONTRACT AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DIRT, DEBRIS, AND RUBBISH. EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY OF THE OWNER SHALL BE REMOVED. LEAVE PREMISES IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ITEMS UNTIL COMPLETION OF CONSTRUCTION.

21. MINIMUM BEND RADIUS OF ANTENNA CABLES SHALL BE IN ACCORDANCE WITH CABLE MANUFACTURERS RECOMMENDATIONS.

22. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO (E) SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION SHALL BE IN CONFORMANCE WITH JURISDICTIONAL OR STATE AND LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL AND COORDINATED WITH LOCAL REGULATORY AUTHORITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF ANY EROSION CONTROL MEASURES, RECORD-KEEPING, MONITORING, AND REPORTING TO THE OWNER AND REGULATORY AUTHORITIES.

23. ALL CONSTRUCTION WORK IS TO ADHERE TO APPLICANT'S INTEGRATED CONSTRUCTION STANDARDS UNLESS STATE OR LOCAL CODE IS MORE STRINGENT.

24. THE INTENT OF THE PLANS AND SPECIFICATIONS IS TO PERFORM THE CONSTRUCTION IN ACCORDANCE PER STATE BUILDING STANDARDS CODE AND STATE CODE OF REGULATIONS. SHOULD ANY CONDITIONS DEVELOP NOT COVERED BY THE APPROVED PLANS AND SPECIFICATIONS WHEREIN THE FINISHED WORK WILL NOT COMPLY PER STATE CODE OF REGULATIONS, A SCOPE OF WORK DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY THE JURISDICTION BEFORE PROCEEDING WITH THE WORK. A CHANGE ORDER FOR THAT SCOPE SHALL BE SUBMITTED TO THE MOBILITIE CM PRIOR TO PROCEEDING WITH THE WORK.

25. ADEQUATE AND REQUIRED LIABILITY INSURANCE SHALL BE PROVIDED BY THE CONTRACTOR FOR PROTECTION AGAINST PUBLIC LOSS AND ANY/ALL PROPERTY DAMAGE FOR THE DURATION OF WORK.

26. CONTRACTOR SHALL GUARANTEE ANY/ALL MATERIALS AND WORK FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN ONE YEAR FROM DATE OF ACCEPTANCE. ANY CORRECTIVE WORK SHALL BE COMPLETED AT THE SOLE COST OF THE CONTRACTOR.

ELECTRICAL NOTES:

1. ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL ANY/ALL ELECTRICAL WORK INDICATED. ANY/ALL CONSTRUCTION SHALL BE IN ACCORDANCE W/DRAWINGS AND ANY/ALL APPLICABLE SPECIFICATIONS. IF ANY PROBLEMS ARE ENCOUNTERED BY COMPLYING WITH THESE REQUIREMENTS, CONTRACTOR SHALL NOTIFY MOBILITIE CM AS SOON AS POSSIBLE, AFTER THE DISCOVERY OF THE PROBLEMS, AND SHALL NOT PROCEED WITH THAT PORTION OF WORK, UNTIL THE MOBILITIE CM HAS DIRECTED THE CORRECTIVE ACTIONS TO BE TAKEN.

2. ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND FAMILIARIZE THEMSELVES WITH ANY/ALL CONDITIONS AFFECTING ELECTRICAL AND COMMUNICATION INSTALLATION AND MAKE PROVISIONS AS TO THE COST THEREOF. ALL (E) CONDITIONS OF ELECTRICAL EQUIP., ETC., THAT ARE PART OF THE FINAL SYSTEM, SHALL BE VERIFIED BY THE CONTRACTOR, PRIOR TO THE SUBMITTING OF THEIR BID. FAILURE TO COMPLY WITH THIS PARAGRAPH WILL IN NO WAY RELIEVE CONTRACTOR OF PERFORMING ALL WORK NECESSARY FOR A COMPLETE AND WORKING SYSTEM.

3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NEC, ALL CODES AND ORDINANCES OF THE LOCAL JURISDICTION, AND POWER & TELEPHONE COMPANIES HAVING JURISDICTION AND SHALL INCLUDE BUT ARE NOT BE LIMITED TO:
   A) UL – UNDERWRITERS LABORATORIES
   B) NEC – NATIONAL ELECTRICAL CODE
   C) NEMA – NATIONAL ELECTRICAL MANUFACTURERS ASSOC.
   D) OSHA – OCCUPATIONAL SAFETY AND HEALTH ACT
   E) SBC – STANDARD BUILDING CODE
   F) NFPA – NATIONAL FIRE PROTECTION AGENCY
   G) ANSI – AMERICAN NATIONAL STANDARDS INSTITUTE
   H) IEEE – INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
   I) ASTM – AMERICAN SOCIETY FOR TESTING MATERIALS

4. REFER TO SITE PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL EQUIPMENT, AND CONFIRM WITH MOBILITIE CM ANY SIZES AND LOCATIONS WHEN NEEDED.

5. (E) SERVICES: CONTRACTOR SHALL NOT INTERRUPT (E) SERVICES WITHOUT WRITTEN PERMISSION OF THE OWNER.

6. CONTRACTOR SHALL CONFIRM WITH LOCAL UTILITY COMPANY ANY/ALL REQUIREMENTS SUCH AS THE: LUG SIZE RESTRICTIONS, CONDUIT ENTRY, SIZE OF TRANSFORMERS, SCHEDULED DOWNTIME FOR THE OWNERS' CONFIRMATION, ETC... ANY/ALL CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE MOBILITIE CM, PRIOR TO BEGINNING ANY WORK.

7. MINIMUM WIRE SIZE SHALL BE #12 AWG, NOT INCLUDING CONTROL WIRING, UNLESS NOTED OTHERWISE. ALL CONDUCTORS SHALL BE COPPER WITH THWN INSULATION, UNLESS OTHERWISE NOTED.

8. OUTLET BOXES SHALL BE PRESSED STEEL IN DRY LOCATIONS, CAST ALLOY WITH THREADED HUBS IN WET/DAMP LOCATIONS AND SPECIAL ENCLOSURES FOR OTHER CLASSIFIED AREAS.

9. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF THE CONSTRUCTION. CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE ALL REQUIREMENTS FOR THE EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.

10. ELECTRICAL SYSTEM SHALL BE AS COMPLETELY AND EFFECTIVELY GROUNDED, AS REQUIRED BY SPECIFICATIONS, SET FORTH BY APPLICANT.

11. ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR IN A FIRST CLASS, WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY FUNCTIONAL AND SHALL BE APPROVED BY THE MOBILITIE CM AND LOCAL JURISDICTION. ANY DEFICIENCIES SHALL BE CORRECTED BY AN ELECTRICAL CONTRACTOR AT THE SOLE COST OF THE CONTRACTOR.

12. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGRESS OF CONSTRUCTION.

13. THE CORRECTION OF ANY DEFECTS SHALL BE COMPLETED BY THE CONTRACTOR WITHOUT ANY ADDITIONAL CHARGE AND SHALL INCLUDE THE REPLACEMENT OR THE REPAIR OF ANY OTHER PHASE OF THE INSTALLATION, WHICH MAY HAVE BEEN DAMAGED THEREIN.

14. CONTRACTOR SHALL PROVIDE AND INSTALL CONDUIT, CONDUCTORS, PULL WIRES, BOXES, COVER PLATES AND DEVICES FOR ALL OUTLETS AS INDICATED.

15. DITCHING AND BACK FILL: CONTRACTOR SHALL PROVIDE FOR ALL UNDERGROUND INSTALLED CONDUIT AND/OR CABLES INCLUDING EXCAVATION AND BACKFILLING AND COMPACTION. REFER TO NOTES AND REQUIREMENTS 'EXCAVATION, AND BACKFILLING.

16. MATERIALS, PRODUCTS AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW AND SHALL APPEAR ON THE LIST OF U.L. APPROVED ITEMS AND SHALL MEET OR EXCEED THE REQUIREMENTS OF THE NEC, NEMA AND IECE.

17. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OR MANUFACTURER'S CATALOG INFORMATION OF ANY/ALL EQUIPMENT AND ALL OTHER ELECTRICAL ITEMS FOR APPROVAL BY THE MOBILITIE CM PRIOR TO INSTALLATION.

18. ANY CUTTING OR PATCHING DEEMED NECESSARY FOR ELECTRICAL WORK IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY AND SHALL BE INCLUDED IN THE COST FOR WORK AND PERFORMED TO THE SATISFACTION OF THE MOBILITIE CM UPON FINAL ACCEPTANCE.

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MOBILITIE ID:	9CAB013581
DRAWN BY:	KH
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A	07/27/18	FOR REVIEW

08/03/2018
VECTOR PROJECT #: U2314-099-181

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RUSSELL N. EMERY
CIVIL
STATE OF CALIFORNIA

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

SF90XS1N9A
9CAB013581
OAKLAND, CA 94621
(E) 28'-4" STEEL LIGHT POLE

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-1

ELECTRICAL NOTES CONT'D

19. THE ELECTRICAL CONTRACTOR SHALL LABEL ALL PANELS WITH ONLY TYPEWRITTEN DIRECTORIES. ALL ELECTRICAL WIRING SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
20. DISCONNECT SWITCHES SHALL BE UL-RATED, H.P. RATED HEAVY-DUTY, QUICK-MAKE AND QUICK-BREAK ENCLOSURES, AS REQUIRED BY EXPOSURE TYPE.
21. ALL CONNECTIONS SHALL BE MADE WITH A PROTECTIVE COATING OF AN ANTI-OXIDE COMPOUND KNOWN AS "NO-OXIDE A" BY DEARBORNE CHEMICAL CO. COAT ALL WIRE SURFACES BEFORE CONNECTING. EXPOSED COPPER SURFACES, INCLUDING GROUND BARS, SHALL BE TREATED - NO SUBSTITUTIONS.
22. RACEWAYS: CONDUIT SHALL BE SCHEDULE 80 PVC MEETING OR EXCEEDING NEMA TC2 - 1990. CONTRACTOR SHALL PLUG AND CAP EACH END OF SPARE AND EMPTY CONDUITS AND PROVIDE TWO SEPARATE PULL STRINGS - 200 LBS TEST POLYETHYLENE CORD. ALL CONDUIT BENDS SHALL BE A MINIMUM OF 2 FT. RADIUS. RGS CONDUITS WHEN SPECIFIED, SHALL MEET UL-6 FOR GALVANIZED STEEL. ALL FITTINGS SHALL BE SUITABLE FOR USE WITH THREADED RIGID CONDUIT. COAT ALL THREADS WITH 'BRITE ZINC' OR 'COLD GALV'.
23. SUPPORT OF ALL ELECTRICAL WORK SHALL BE AS REQUIRED BY NEC.
24. CONDUCTORS: CONTRACTOR SHALL USE 98% CONDUCTIVITY COPPER WITH TYPE THWN INSULATION, UNLESS OTHERWISE NOTED, 600 VOLT, COLOR CODED. USE SOLID CONDUCTORS FOR WIRE UP TO AND INCLUDING NO. 8 AWG. USE STRANDED CONDUCTORS FOR WIRE ABOVE NO. 8 AWG.
25. CONNECTORS FOR POWER CONDUCTORS: CONTRACTOR SHALL USE PRESSURE TYPE INSULATED TWIST-ON CONNECTORS FOR NO. 10 AWG AND SMALLER. USE SOLDERLESS MECHANICAL TERMINAL LUGS FOR NO. 8 AWG AND LARGER.
26. SERVICE: AS SPECIFIED ON THE DRAWINGS. OWNER OR OWNER'S AGENT WILL APPLY FOR POWER. ALL PROVISIONS FOR TEMPORARY POWER WILL BE OBTAINED BY THE CONTRACTOR.
27. TELEPHONE OR FIBER SERVICE: CONTRACTOR SHALL PROVIDE EMPTY CONDUITS WITH PULL STRINGS AS INDICATED ON DRAWINGS.
28. ELECTRICAL AND TELCO/FIBER RACEWAYS TO BE BURIED A MINIMUM DEPTH OF 30", UNLESS OTHERWISE NOTED.
29. CONTRACTOR SHALL PLACE 6" WIDE DETECTABLE WARNING TAPE AT A DEPTH OF 6" BELOW GROUND AND DIRECTLY ABOVE ELECTRICAL AND TELCO SERVICE CONDUITS. CAUTIONS TAPE TO READ "CAUTION BURIED ELECTRIC" OR "BURIED TELECOM".
30. ALL BOLTS SHALL BE 3-16 STAINLESS STEEL.
31. THE ELECTRICAL CONTRACTOR SHALL LABEL ALL PANELS WITH ONLY TYPEWRITTEN DIRECTORIES. ALL ELECTRICAL WIRING SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.

GROUNDING NOTES:

1. ALL HARDWARE SHALL BE 3-16 STAINLESS STEEL, INCLUDING LOCK WASHERS. COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND, AS SPECIFIED, BEFORE MATING. ALL HARDWARE SHALL BE STAINLESS STEEL ⅜" DIAMETER OR LARGER.
2. FOR GROUND BOND TO STEEL ONLY: INSERT A CADMIUM FLAT WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
3. ALL STEEL CONDUIT SHALL BE BONDED AT BOTH ENDS WITH GROUNDING BUSHING.
4. ALL ELECTRICAL AND GROUNDING AT THE POLE SITE SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE (NEC), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 780 (LATEST EDITION), AND MANUFACTURER.
5. ALL DETAILS ARE SHOWN IN GENERAL TERMS. ACTUAL GROUNDING INSTALLATION AND CONSTRUCTION MAY VARY DUE TO SITE SPECIFIC CONDITIONS.
6. GROUND ALL ANTENNA BASES, FRAMES, CABLE RUNS, AND OTHER METALLIC COMPONENTS USING #6 GROUND WIRES. FOLLOW ANTENNA AND BTS MANUFACTURER'S PRACTICES FOR GROUNDING REQUIREMENTS.
7. ALL GROUND CONNECTIONS SHALL BE #6 AWG, UNLESS OTHERWISE NOTED. ALL WIRES SHALL BE COPPER WITH THHN, UNLESS OTHERWISE NOTED. ALL GROUND WIRE SHALL BE SOLID TIN COATED OR STRANDED GREEN INSULATED WIRE.
8. CONTRACTOR TO VERIFY AND TEST GROUND TO SOURCE, 10 OHMS MAXIMUM. PROVIDE SUPPLEMENT GROUNDING RODS AS REQUIRED TO ACHIEVE SPECIFIED OHMS READING. GROUNDING AND OTHER OPTIONAL TESTING WILL BE WITNESSED BY THE MOBILITIE CM.
9. NOTIFY ARCHITECT /ENGINEER IF THERE ARE ANY DIFFICULTIES INSTALLING GROUNDING SYSTEM DUE TO SITE SOIL CONDITIONS.
10. ALL HORIZONTALLY RUN GROUNDING CONDUCTORS SHALL BE INSTALLED A MINIMUM OF 30" BELOW GRADE/ 6" BELOW FROST-LINE IN TRENCH, UNLESS OTHERWISE NOTED. BACK FILL SHALL BE COMPACTED AS REQUIRED BY ARCHITECT /ENGINEER.
11. ALL GROUND CONDUCTORS SHALL BE RUN AS STRAIGHT AND SHORT AS POSSIBLE, WITH A MINIMUM 12" BENDING RADIUS NOT LESS THAN 90 DEGREES.
12. ACCEPTABLE CONNECTIONS FOR GROUNDING SYSTEM SHALL BE:
    A. BURNDY, HY-GRADE U.L. LISTED CONNECTORS FOR OUTDOOR USE OR AS APPROVED BY APPLICANT PROJECT MANAGER.
    B. CADWELD, EXOTHERMIC WELDS (WELDED CONNECTIONS).
    C. ONE (1) HOLE TINNED COPPER COMPRESSION (LONG BARREL) FITTINGS.
13. ALL CRIMPED CONNECTIONS SHALL HAVE EMBOSSED MANUFACTURER'S DIEMARK VISIBLE AT THE CRIMP (RESULTING FROM USE OF PROPER CRIMPING DEVICES) AND WEATHER-PROOFED WITH HEAT SHRINK.
14. ALL CONNECTION HARDWARE SHALL BE TYPE 3-16 STAINLESS STEEL (NOT ATTRACTED TO MAGNETS).
15. ELECTRICAL SERVICE EQUIPMENT GROUNDING SHALL COMPLY WITH NEC, ARTICLE 250-82 AND SHALL BOND ALL (E) AND NEW GROUNDING ELECTRODES. NEW GROUNDING ELECTRODE SHALL INCLUDE BUT NOT LIMITED TO GROUND RODS.

TESTING AND EQUIPMENT TURN UP REQUIREMENTS:

1. RF CABLE, DATA CABLE, RADIO EQUIPMENT AND BACK HAUL EQUIPMENT TESTING WILL COMPLY WITH CURRENT INDUSTRY STANDARDS AND OR THOSE STANDARDS OF THE EQUIPMENT MANUFACTURER OR PROVIDED TO THE CONTRACTOR PRIOR TO TESTING.
2. CONTRACTOR WILL USE THE APPROPRIATE CALIBRATED TESTING EQUIPMENT IN THE TESTING OF RF CABLE, DATA CABLE, RADIO EQUIPMENT AND BACK HAUL EQUIPMENT THAT MEET INDUSTRY STANDARDS OF THE MANUFACTURER OR THOSE STANDARDS PROVIDED TO THE CONTRACTOR PRIOR TO TESTING.
3. CONTRACTOR TO VERIFY AND RECORD ALL TEST RESULTS AND PROVIDE THESE RESULTS WITHIN THE FINAL CLOSE OUT PACKAGE.
4. ALL PERSONNEL INVOLVED IN THE TESTING OF RF CABLE, DATA CABLE, RADIO EQUIPMENT AND BACK HAUL EQUIPMENT WILL BE REQUIRED TO HAVE BEEN TRAINED AND OR CERTIFIED IN THE PROPER TESTING OF RF CABLE, DATA CABLE, RADIO EQUIPMENT AND BACK HAUL EQUIPMENT.
5. ALL TEST RESULTS SHALL BE TIME STAMPED, RECORDED AND PRESENTED PRIOR TO ENERGIZING AND TURN UP OF ANY EQUIPMENT.
6. GPS EQUIPMENT (WHEN REQUIRED) IS NOT TO BE TESTED OR ATTACHED TO ANY CABLING DURING TESTING, DOING SO WILL DAMAGE THE GPS UNIT.
7. PRIOR TO TESTING IF THE CONTRACTOR HAS ANY QUESTIONS ABOUT THE TESTING PROCEDURES THEY ARE TO CALL AND OBTAIN ASSISTANCE FROM A QUALIFIED DESIGNATED TESTING REPRESENTATIVE.
8. EQUIPMENT IS NOT TO BE ENERGIZED UNTIL ALL TESTING HAS BEEN COMPLETED, APPROVED AND THE APPROPRIATE AUTHORITY HAS BEEN NOTIFIED AND GIVES APPROVAL TO ENERGIZE THE EQUIPMENT.

SITE WORK NOTES:

1. DO NOT EXCAVATE OR DISTURB BEYOND THE PROPERTY LINES OR LEASE LINES, UNLESS OTHERWISE NOTED.
2. SIZE, LOCATION AND TYPE OF ANY UNDERGROUND UTILITIES OR IMPROVEMENTS SHALL BE ACCURATELY NOTED AND PLACED ON AS-BUILT DRAWINGS BY GENERAL CONTRACTOR AND ISSUED TO ARCHITECT/ENGINEER AT COMPLETION OF PROJECT.
3. ALL (E) UTILITIES, FACILITIES, CONDITIONS AND THEIR DIMENSIONS SHOWN ON PLANS HAVE BEEN PLOTTED FROM AVAILABLE RECORDS. THE ENGINEER AND OWNER ASSUME NO RESPONSIBILITY WHATSOEVER AS TO THE SUFFICIENCY OR ACCURACY OF THE INFORMATION SHOWN ON THE PLANS OR THE MANNER OF THEIR REMOVAL OR ADJUSTMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL (E) UTILITIES AND FACILITIES PRIOR TO START OF CONSTRUCTION. CONTRACTOR SHALL ALSO OBTAIN FROM EACH UTILITY COMPANY DETAILED INFORMATION RELATIVE TO WORKING SCHEDULES AND METHODS OF REMOVING OR ADJUSTING (E) UTILITIES.
4. CONTRACTOR SHALL VERIFY ALL (E) UTILITIES BOTH HORIZONTALLY AND VERTICALLY PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES OR DOUBTS AS TO THE INTERPRETATION OF PLANS SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT/ENGINEER OR MOBILITIE CM FOR RESOLUTION AND INSTRUCTION, AND NO FURTHER WORK SHALL BE PERFORMED UNTIL THE DISCREPANCY IS CHECKED AND CORRECTED BY THE ARCHITECT/ENGINEER. FAILURE TO SECURE SUCH INSTRUCTION MEANS CONTRACTOR WILL HAVE WORKED AT THEIR OWN RISK AND EXPENSE. CONTRACTOR SHALL CALL LOCAL UTILITY LOCATE HOT LINE, SUCH AS 811, FOR UTILITY LOCATIONS A MINIMUM OF 48 HOURS PRIOR TO START OF CONSTRUCTION.
5. ALL NEW AND (E) UTILITY STRUCTURES ON SITE AND IN AREAS TO BE DISTURBED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISH ELEVATIONS PRIOR TO FINAL INSPECTION OF WORK. ANY COST RELATED TO ADJUSTING (E) STRUCTURES SHALL BE BORNE SOLELY BY THE CONTRACTOR.
6. GRADING OF THE SITE WORK AREA IS TO BE SMOOTH AND CONTINUOUS IN SLOPE AND IS TO FEATHER INTO (E) GRADES AT THE GRADING LIMITS.
7. ALL TEMPORARY EXCAVATIONS FOR THE INSTALLATION OF FOUNDATIONS, UTILITIES, ETC., SHALL BE PROPERLY LAID BACK OR BRACED IN ACCORDANCE WITH CORRECT OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REQUIREMENTS.
8. STRUCTURAL FILLS SUPPORTING PAVEMENTS SHALL BE COMPACTED TO 95% OF MAXIMUM STANDARD PROCTOR DRY DENSITY, UNLESS OTHERWISE NOTED.
9. NEW GRADES NOT IN BUILDING AND DRIVEWAY IMPROVEMENT AREA TO BE ACHIEVED BY FILLING WITH APPROVED CLEAN FILL AND COMPACTED TO 95% OF STANDARD PROCTOR DENSITY.
10. ALL FILL SHALL BE PLACED IN UNIFORM LIFTS. THE LIFTS' THICKNESS SHOULD NOT EXCEED THAT WHICH CAN BE PROPERLY COMPACTED THROUGHOUT ITS ENTIRE DEPTH WITH THE EQUIPMENT AVAILABLE.
11. ANY FILLS PLACED ON (E) SLOPES THAT ARE STEEPER THAN 10 HORIZONTAL TO 1 VERTICAL SHALL BE PROPERLY BENCHED INTO THE (E) SLOPE AS DIRECTED BY A GEOTECHNICAL ENGINEER.
12. CONTRACTOR SHALL CLEAN ENTIRE SITE AFTER CONSTRUCTION SUCH THAT NO DEBRIS, PAPER, TRASH, WEEDS, BRUSH, EXCESS FILL, OR ANY OTHER DEPOSITS WILL REMAIN. ALL MATERIALS COLLECTED DURING CLEANING OPERATIONS SHALL BE DISPOSED OF OFF-SITE BY THE GENERAL CONTRACTOR.
13. ALL TREES AND SHRUBS WHICH ARE NOT IN DIRECT CONFLICT WITH THE IMPROVEMENTS SHALL BE PROTECTED BY THE GENERAL CONTRACTOR.
14. ALL SITE WORK SHALL BE CAREFULLY COORDINATED BY GENERAL CONTRACTOR WITH LOCAL UTILITY COMPANY, TELEPHONE COMPANY, AND ANY OTHER UTILITY COMPANIES HAVING JURISDICTION OVER THIS LOCATION.

ENVIRONMENTAL NOTES:

1. ALL WORK PERFORMED SHALL BE DONE IN ACCORDANCE WITH ISSUED PERMITS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYMENT OF FINES AND PROPER CLEAN UP FOR AREAS IN VIOLATION.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS DURING CONSTRUCTION FOR PROTECTION OF ADJACENT PROPERTIES, ROADWAYS AND WATERWAYS. ALL EROSION AND SEDIMENTATION CONTROLS SHALL BE MAINTAINED IN PLACE THROUGH FINAL JURISDICTIONAL INSPECTION & RELEASE OF SITE.
3. CONTRACTOR SHALL INSTALL/CONSTRUCT ALL NECESSARY SEDIMENT/SILT CONTROL FENCING AND PROTECTIVE MEASURES AS REQUIRED BY THE LOCAL JURISDICTION WITHIN THE LIMITS OF SITE DISTURBANCE PRIOR TO CONSTRUCTION.
4. NO SEDIMENT SHALL BE ALLOWED TO EXIT THE PROPERTY. THE CONTRACTOR IS RESPONSIBLE FOR TAKING ADEQUATE MEASURES FOR CONTROLLING EROSION. ADDITIONAL SEDIMENT CONTROL FENCING MAY BE REQUIRED IN ANY AREAS SUBJECT TO EROSION.
5. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING POSITIVE DRAINAGE ON THE SITE AT ALL TIMES WITH SILT AND EROSION CONTROL MEASURES MAINTAINED ON THE DOWNSTREAM SIDE OF SITE DRAINAGE. ANY DAMAGE TO ADJACENT PROPERTY AS A RESULT OF EROSION WILL BE CORRECTED AT THE CONTRACTORS EXPENSE.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY INSPECTIONS AND ANY REPAIRS OF ALL SEDIMENT CONTROL MEASURES INCLUDING SEDIMENT REMOVAL AS NECESSARY.
7. CLEARING OF VEGETATION AND TREE REMOVAL SHALL BE ONLY AS PERMITTED AND BE HELD TO A MINIMUM. ONLY TREES NECESSARY FOR CONSTRUCTION OF THE FACILITIES SHALL BE REMOVED.
8. SEEDING AND MULCHING AND/OR SODDING OF THE SITE WILL BE ACCOMPLISHED AS SOON AS POSSIBLE AFTER COMPLETION OF THE PROJECT FACILITIES AFFECTING LAND DISTURBANCE.
9. CONTRACTOR SHALL PROVIDE ALL EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED BY LOCAL, COUNTY AND STATE CODES AND ORDINANCES TO PROTECT EMBANKMENTS FROM SOIL LOSS AND TO PREVENT ACCUMULATION OF SOIL AND SILT IN STREAMS AND DRAINAGE PATHS LEAVING THE CONSTRUCTION AREA. THIS MAY INCLUDE, BUT IS NOT LIMITED TO SUCH MEASURES AS SILT FENCES, STRAW BALE SEDIMENT BARRIERS, AND CHECK DAMS.
10. RIP RAP OF SIZES INDICATED SHALL CONSIST OF CLEAN, HARD, SOUND, DURABLE, UNIFORM IN QUALITY STONE FREE OF ANY DETRIMENTAL QUANTITY OF SOFT, FRIABLE, THIN, ELONGATED OR LAMINATED PIECES, DISINTEGRATED MATERIAL, ORGANIC MATTER, OIL, ALKALI, OR OTHER DELETERIOUS SUBSTANCES.
11. GC TO PLACE FILTER MATERIAL AT ALL CATCH BASINS ADJACENT TO CONSTRUCTION SITE TO PREVENT SOLID WASTE CONTAMINATION FROM ENTERING SEWER SYSTEM.

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(E) 28'-4" STEEL LIGHT POLE

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-2

PG&E UTILITY BULLETIN TD–027911B–004, GENERAL INFORMATION NOTES:

1. A PG&E ABSOLVING SERVICE AGREEMENT IS REQUIRED TO BE SIGNED WHEN CUSTOMER OWNED SERVICES, SUPPL YING POWER TO NON–PG&E OWNED STEEL STREETLIGHT POLES WITH COMMUNICATION AND ANTENNA EQUIPMENT, ARE INTERCONNECTED TO THE PG&E DISTRIBUTION SYSTEM. CONTACT THE PG&E SERVICE PLANNING OFFICE FOR AN EXPLANATION OF AN ABSOLVING SER\11CE AGREEMENT. IF NEEDED, PG&E PERSONNEL CAN CONTACT THE TARIFF INTERPRETATION OR LAW DEPARTMENTS FOR GUIDANCE.

2. THE STREET LIGHT POLE MUST HAVE A RADOME SHROUD INSTALLED AT THE TOP OF THE POLE TO HOUSE THE ANTENNA AND METERING EQUIPMENT. THE SHROUD MUST BE MADE OF FIBERGLASS OR OTHER MATERIAL THAT DOES NOT INHIBIT THE TRANSMISSION OF THE WIRELESS METER SIGNAL. THE SHROUD OR A PART OF THE SHROUD MUST BE REMOVABLE OR OPEN TO ALLOW DIRECT ACCESS TO THE METER INSIDE. SEE FIGURE 7. OTHER DESIGNS FOR THE PLACEMENT OF THE ANTENNA AND METERING EQUIPMENT ARE NOT BEING ACCEPTED.

3. A 2–WIRE (1–HOT, 1–NEUTRAL) 120 VOLT SINGLE–PHASE SERVICE MUST BE INSTALLED FROM THE PG&E SPECIFIED SPLICE BOX TO THE POLE. THIS IS THE ONLY TYPE OF SERVICE ALLOWED TO POWER THE SMART POLE METER ALONG WITH THE CUSTOMER AND 3RD PARTY EQUIPMENT. THE CUSTOMER SERVICE WIRE MUST BE SIZED AS NEEDED TO ACCOMMODATE ALL METERED AND UNMETERED LOADS.

NOTE: IN VERY LIMITED LOCATIONS IF AN EXISTING PG&E 2–WIRE SINGLE–PHASE 240 VOLT SECONDARY SYSTEM IS AVAILABLE THE SMART POLE METER MAY BE CONNECTED. THESE LOCATIONS ARE NOT COMMON.

4. CAUTION: DO NOT INSTALL A 3–WIRE 1–PHASE 120/240 VOLT SERVICE AS THIS IS THE INCORRECT WIRING AND VOLTAGE FOR THE SMARTPOLE METERING APPLICATION.

5. THE ANTENNA, COMMUNICATION EQUIPMENT, AND STREET LIGHT MUST BE POWERED FROM THE SAME CUSTOMER OWNED SERVICE. A SECOND OR SEPARATE CUSTOMER OWNED SERVICE IS NOT ALLOWED.

6. DISCONNECT SWITCH REQUIREMENTS: A DISCONNECT SWITCH MUST BE INSTALLED AND MEET ALL OF THE FOLLOWING REQUIREMENTS BELOW.

   6.1 THE SWITCH MUST BE READILY ACCESSIBLE AT ALL TIMES. THE SWITCH WILL BE USED AS PART OF THE NORMAL OR EMERGENCY SHUTDOWN PROTOCOLS REQUIRED IN CALIFORNIA PUBLIC UTILITY COMMISSION (CPUC) GENERAL ORDER 95, RULE 94.

   6.2 THE SWITCH SHALL DE–ENERGIZE ALL POWER SUPPLIES, INCLUDING BACK–UP POWER, AND ANY COMMUNICATION EQUIPMENT EMITTING RADIO FREQUENCIES (RF). SIGN AGE MUST BE A TT ACHED TO THE SWITCH IDENTIFYING WHAT EQUIPMENT IT WILL DE–ENERGIZE.

   6.3 THE SWITCH MUST NOT DE–ENERGIZE (TURN OFF) THE STREET LIGHT(S) OR THE PG&E SMART METER. SEE THE SINGLE LINE DRAWING IN FIGURE 6.

   6.4 THE SWITCH MUST BE ATTACHED EXTERNALLY ON THE POLE LESS THAN 10 FEET ABOVE GRADE, AS MEASURED TO THE TOP OF THE SWITCH ENCLOSURE.

   6.5 IF THE SPECIFIC REQUIREMENTS ARE MET THE SWITCH MAY BE LOCATED INSIDE AN EQUIPMENT PEDESTAL, THAT IS INSTALLED AROUND THE BASE OF THE POLE. A PERMANENT AND DEDICATED SIDE HINGED DOOR WITH LOCKING PROVISIONS DEDICATED ONLY FOR A PG&E PAD–LOCK (5/16"SHAFT) MUST BE PROVIDED TO ALLOW EASY ACCESS TO THE DISCONNECT SWITCH. THIS DISCONNECT ACCESS DOOR CAN BE PART OF A LARGER MAINTENANCE DOOR IF NEEDED. SEE FIGURES 2 THROUGH 5 FOR ADDITIONAL DETAILS. LOCK BOXES, SHARED KEYS, OR OTHER LOCKING METHODS ARE NOT ACCEPTABLE.

   6.6 THE SWITCH MAY NOT BE INSTALLED INSIDE THE POLE (EXCEPT INSIDE THE PEDESTAL), IN A SUBSURFACE ENCLOSURE, OR IN A REMOTE LOCATION AWAY FROM THE POLE.

   6.7 PROVISIONS FOR LOCKING THE DISCONNECT SWITCH IN THE OFF POSITION ARE REQUIRED.

7. POLES MUST HAVE SIGN AGE THAT MEET FCC GUIDELINES FOR THE ANTENNAS AND COMMUNICATION EQUIPMENT EMITTING RF TRANSMISSION. SITES SHALL BE SIGNED ACCORDING TO FCC GUIDELINES.

8. ANTENNAS AND POWER UNITS MUST HAVE AN OWNERSHIP LABEL WITH THE COMPANY'S NAME, CONTACT NUMBER, AND SITE IDENTIFICATION INFORMATION.

9. ALL MATERIALS, EXCEPT THE PG&E METER, SHALL BE FURNISHED AND INSTALLED BY THE CUSTOMER. INCLUDING THE 3–PIN SOCKET AND PROVISIONS FOR THE METER TO BE SECURELY A TT ACHED INSIDE THE SHROUD. THE PG&E METER ENGINEERING DEPARTMENT WILL REVIEW AND APPROVE THESE ATTACHMENT PROVISIONS FOR THE METER.

10. THE METERING PROVISION CONTAINED HEREIN IS AN EXCEPTION TO THE GREEN BOOK REQUIREMENT AND IS DESIGNED PRIMARILY FOR WI/FL, CABLE TV POWER SUPPLIES, AND OTHER TELECOM EQUIPMENT REQUIRING METERING. REFER TO, TARIFF APPLICATION GUIDE – ELECTRIC RULE 9. DO NOT CONNECT ANY OTHER TYPES OF LOAD TO THIS SERVICE EXCEPT FOR ANTENNA AND COMMUNICATION EQUIPMENT, AND STREET LIGHTS.

11. THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) OF INSPECTIONS FOR THE CITY OR COUNTY MUST PROVIDE APPROVAL OF FINAL INSPECTION AND METER RELEASE BEFORE PG&E WILL INSTALL A METER AND ENERGIZE THE CUSTOMER'S ELECTRIC SERVICE.

12. A PG&E INSPECTOR OR TROUBLE MAN (T–MAN) MUST INSPECT THE INSTALLATION TO VERIFY THE REQUIREMENTS IN THIS DOCUMENT HAVE BEEN MET.

13. PG&E VEHICLE (BUCKET TRUCK) ACCESS UP TO AND AROUND THE POLE IS REQUIRED AT ALL TIMES. THIS INCLUDES A ROAD WHICH ALLOWS THE PG&E VEHICLE TO DRIVE UP NEXT TO THE POLE AND HAVE AN ADEQUATE AREA TO BACK UP, MANEUVER, AND EXIT. THIS VEHICLE DRIVE UP ACCESS IS REQUIRED FOR THE INSTALLATION AND MAINTENANCE OF THE PG&E METER.

14. FOR SERVICE CONNECTIONS TO STEEL POLES THAT ARE NOT ON AN LS–2 RATE, OR IF THE REQUIREMENTS IN THIS DOCUMENT CANNOT BE MET, THEN THE PG&E APPROVED METHOD OF PROVIDING SERVICE TO A PAD–MOUNTED METERING PEDESTAL SHOULD BE USED.

MISCELLANEOUS MATERIALS

FROM TIME TO TIME, IT MAY BE NECESSARY TO MAKE MINOR ADJUSTMENTS TO ACCOMMODATE, LEVEL, OR SPACE ANTENNA MOUNTS AND EQUIPMENT. EXAMPLE: ADDING A WASHER OR SHIM TO LEVEL OUT A BRACKET OR MOUNT TO MEET SPECIFICATIONS. HAVING TO OFFSET OR SPACE A BRACKET OR MOUNT DUE TO FLANGES AND/OR OTHER SMALL PROTRUSIONS ON A POLE TOP ASSEMBLY. ANY MATERIALS– NUTS, BOLTS, SHIMS, OR SPACERS– USED TO ACCOMMODATE ADJUSTMENTS TO ANTENNA MOUNTS AND EQUIPMENT MUST BE PERMANENTLY AFFIXED, BOLTED TO THE MOUNT, BRACKET, OR POLE; AS NEVER TO BECOME A FALL HAZARD. ALL MATERIALS– NUTS, BOLTS, SHIMS, OR SPACERS– USED IN MINOR ADJUSTMENTS, MUST EITHER BE STAINLESS STEEL OR GALVANIZED; HALF WASHERS ARE PROHIBITED. ANY MINOR ADJUSTMENTS TO ACCOMMODATE ANTENNA MOUNTS AND EQUIPMENT SHOULD BE DONE IN A PROFESSIONAL MANNER WITH SAFETY AND AESTHETICS IN MIND. SHOULD YOU HAVE ANY QUESTIONS, CONTACT YOUR ASSIGNED CONSTRUCTION PROJECT MANAGER OR ENGINEER FOR GUIDANCE.

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OAKLAND, CA 94621
(E) 28'-4" STEEL LIGHT POLE

SHEET TITLE
GENERAL NOTES

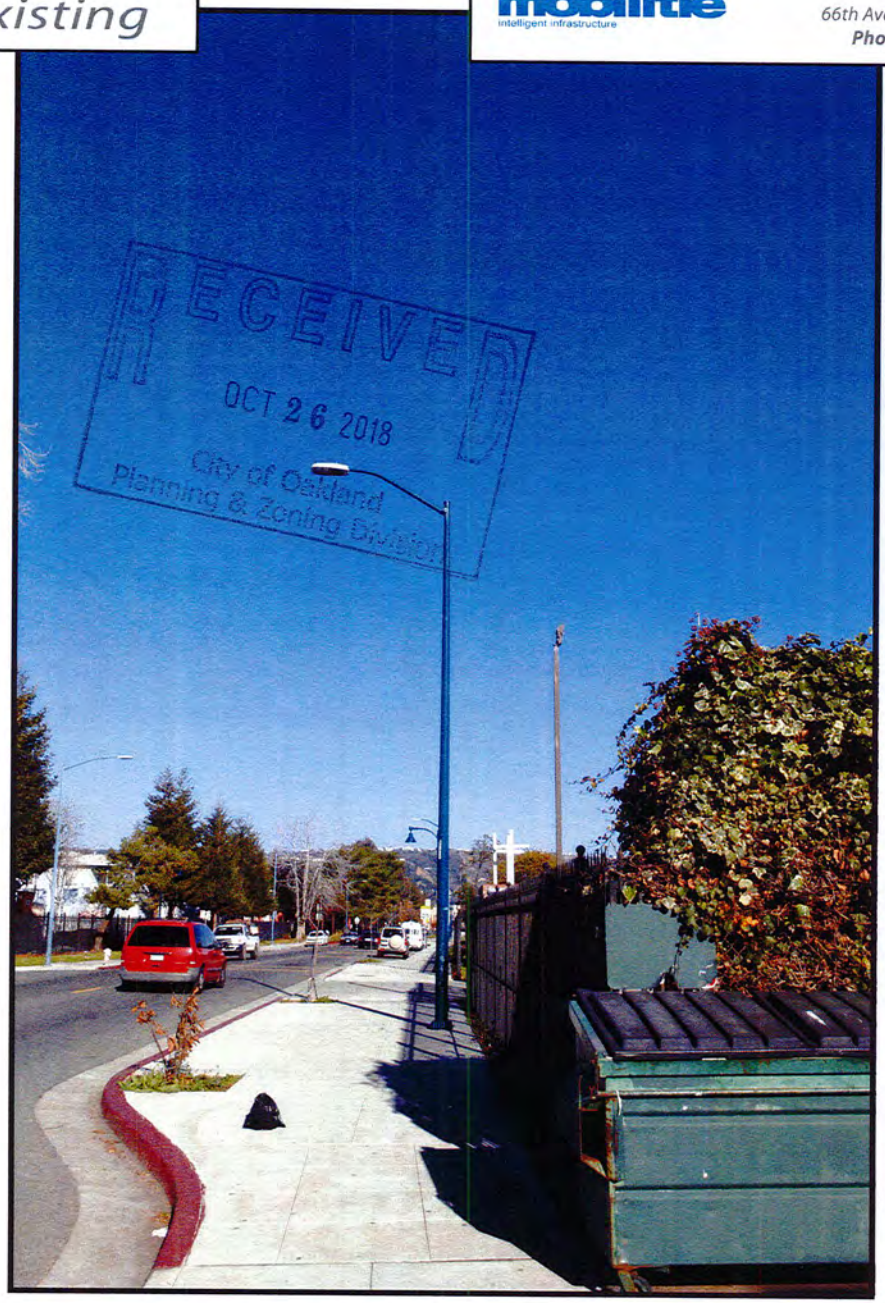
SHEET NUMBER
GN-3

view from 66th Avenue looking northeast at site

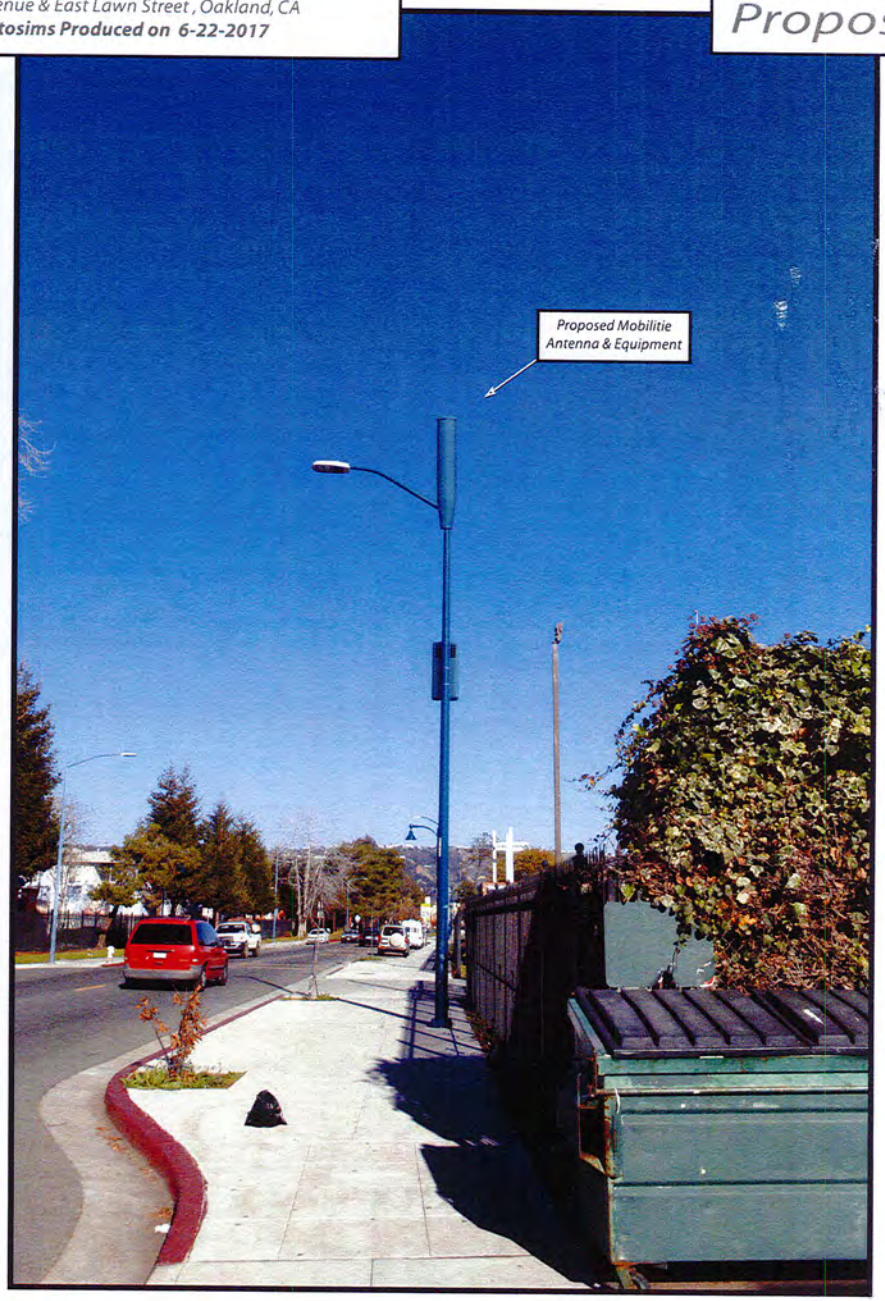
mobilitie
intelligent infrastructure

9CAB013581 / SF90XS1N9A
66th Avenue & East Lawn Street , Oakland, CA
Photosims Produced on 6-22-2017

Existing



Proposed



AdvanceSim
Photo Simulation Solutions
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Existing

Proposed

view from 66th Avenue looking southwest at site

mobilitie
intelligent infrastructure

9CAB013581 / SF90XS1N9A
66th Avenue & East Lawn Street , Oakland, CA
Photosims Produced on 6-22-2017

AdvanceSim
Photo Simulation Solutions
Contact (925) 202-8507

Radio Frequency- Electromagnetic Energy-EME
Measurements & Compliance Report

Site ID:	9CAB013581
Site Name:	9CAB013581
Market/Region:	California
Address:	66TH AVE., S. OF FENHAM ST. OAKLAND, CA 94621
Latitude:	37.759307
Longitude:	-122.197526
Site Type:	Light Pole

Compliance Status:

Proposed equipment at the site is compliant with FCC guidelines for General Population environments

Prepared for:

Mobilitie, LLC
2220 University Drive,
Newport Beach, CA 92660

By
ATG LLC

Date:09/06/2017

TABLE OF CONTENT

1 Executive Summary

Purpose of Report

ATG LLC's RF Engineering has conducted radio frequency electromagnetic energy (RF-EME) modeling for Mobilitie LLC's site 9CAB013581 located at 66TH AVE., S. OF FENHAM ST. OAKLAND, CA to determine RF-EME exposure levels from the carrier's proposed wireless communications equipment.

The Federal Communications Commission (FCC) has developed Maximum Permissible Exposure (MPE) limits for general public and occupational exposures to RF-EME. This report summarizes the results of RF-EME modeling in relation to relevant FCC compliance standards for limiting human exposure to RF-EME. The details of FCC defined exposure limits are provided in Appendix A of this report.

Analysis results included in this report are based on drawings dated June 15th , 2017.

Statement of Compliance

Predictive modeling conducted using the original equipment manufacturers (OEMs) specifications for radio and antenna performance along with the supplied construction drawings dated June 15th , 2017, indicate there will be no exposure due to the carrier's proposed equipment on accessible ground-level walking surface at this site that exceeds the FCC's general public exposure limits.

Proposed equipment at the site is compliant with FCC guidelines for general population environments.

2 Maximum Permissible Exposure (MPE) Modeling Results for Proposed Site

The predictive modeling was conducted using the RoofView 5.0 suite of analysis tools. The modeling was conducted with the antennas operating at 100% capacity, all antenna channels transmitting simultaneously and the radio transmitters operating at full power. Obstructions (trees, buildings etc.) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are more conservative (higher) than the actual signal levels would be during normal operations. The modeling calculations were made for an area 40'x 40' area with the equipment at the center.

Table 1: Maximum Permissible Exposure- Summary

Location	% of FCC General Public/Uncontrolled Exposure Limit	% of FCC Occupational/Controlled Exposure Limit	Power Density (mW/cm^2)	Compliance Status
6ft above ground level	2.1	0.42	0.021	Compliant

3 Antenna Inventory

The Antenna Inventory shows all transmitting antennas on the site (see Table 2). This inventory was used by ATG to perform the software modeling of RF emissions. The inventory conforms with the submitted construction drawings which identifies the proposed mounting location of each antenna at the site. The exposure level is calculated for a person of height 6ft standing right below the devices at ground level.

Table 2: Antenna Inventory

Antenna ID	Carrier/Operator	Antenna Type	Frequency (MHz)	Technology	ERP (W)	Gain dBd	Mfg.	Model	Aperture (ft.)	Transmitter count	Horizontal BeamWidth (deg)	Z (6 ft. above Ground)
1	Mobilitie	Omni	2496	LTE	172.58	6.35	Alpha Wireless	AW3477-S	2.56	2	360	24.8
2	Mobilitie	LTE Relay BH	2496	LTE	1.93	9.85	Airspan	iR460	1.1	1	35	10.5

The table below details the operating power and Effective Radiated Power (ERP) for each carrier and frequency used in the modeling.

Frequency (MHz)	Power per Transmitter (Watts)	# of Transmitters	ERP (watts)
2496 (Omni)	20	2	172.58
2496 (UE Relay)	0.2	1	1.93

4 Modeling Summary and Assumptions

4.1 General Model Assumptions

The modeling was conducted using the antenna and radio maximum power values, while operating at full power with 100% duty cycle.

The site has been modeled with these assumptions to calculate the maximum RF energy density. ATG believes this to be a worst case analysis, based on data supplied by the OEMs and client. If actual power density measurements were made, ATG believes the real time measurements would indicate levels below those shown in the report.

5 Preparer Certification

I, Preparer, state that:

- I am an employee of ATG LLC that provides RF-EME safety and compliance services to the wireless communications industry.
- I have successfully completed 100s of RF-EME exposure studies and reports for various carriers.
- I am aware of the potential hazards from RF-EME exposures that would be classified "occupational" or "general public" under the FCC regulations.
- I am familiar with the FCC rules and regulations as well as OSHA regulations both in general and as they apply to RF-EME exposure.
- I have reviewed all the data related to the site and incorporated it into this study and Compliance Report such that the information contained in this report is true and accurate to the best of my knowledge.

Ahmed Saadallah

Ahmed Saadallah (RF Engineer)

Appendix A

Federal Communications Commission (FCC) Requirements

This appendix summarizes the policies, guidelines and requirements that were adopted by the FCC on August 1, 1996, amending Part 1 of Title 47 of the Code of Federal Regulations, and further amended by action of the Commission on August 25, 1997 (see 47 CFR Sections 1.1307(b), 1.1310, 2.1091 and 2.1093, as amended). Commission actions granting construction permits, licenses to transmit or renewals thereof, equipment authorizations or modifications in existing facilities, require the preparation of an Environmental Assessment (EA), as described in 47 CFR Section 1.1311, if the particular facility, operation or transmitter would cause human exposure to levels of radiofrequency (RF) electromagnetic fields in excess of these limits.

The potential hazard associated with the RF electromagnetic fields is discussed in OET Bulletin No. 65. This document can be obtained on the FCC website. (https://transition.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet65/oet65.pdf)

As per FCC guidelines there are two separate tiers of exposure limits that are based upon occupational/controlled exposure limits (for workers) and general public/uncontrolled exposure limits for members of the general public.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means

General public/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment and not be made fully aware of the potential for exposure or cannot exercise control over their exposure.

The FCC's MPE limits for field strength and power density are given in Table 1 (and in 47 CFR § 1.1310) Figure 1 is a graphical representation of the limits for plane-wave (far-field) equivalent power density versus frequency. The FCC's limits are generally applicable to all facilities, operations and transmitters regulated by the Commission, and compliance is expected with the appropriate guidelines. The power density limits vary by frequency to take into account the different types of equipment that may be in operation at a particular facility and are "time-averaged" limits to reflect different durations resulting from controlled and uncontrolled exposures.

(A) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $|E|^2$, $|H|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $|E|^2$, $|H|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f= frequency in MHz *Plane-wave equivalent power density

f = frequency in MHz *Plane-wave equivalent power density

Table 1

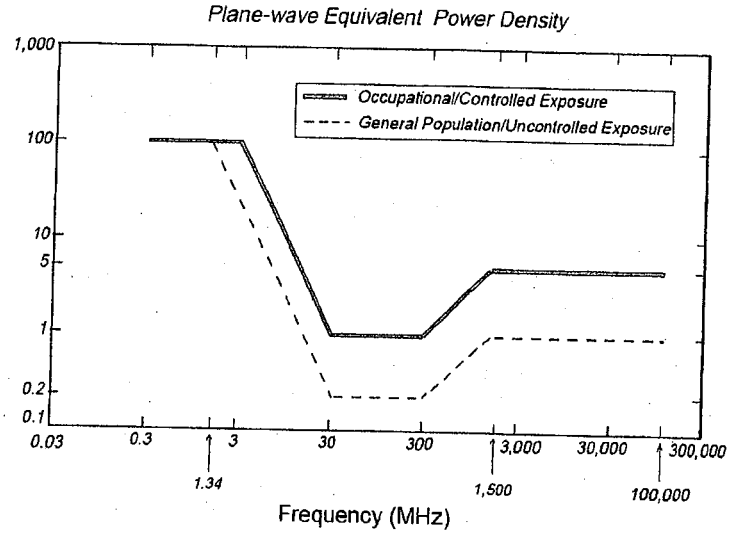


Figure 1. FCC Limits for Maximum Permissible Exposure (MPE)

FCC Compliance Requirement

In general, as specified in 47 C.F.R. 1.1307(b), as amended, when the FCC's guidelines are exceeded in an accessible area due to the emissions from multiple fixed transmitters the following policy applies. Actions necessary to bring the area into compliance with the guidelines are the shared responsibility of all licensees whose transmitter's contribution to the RF environment at the non-complying area exceeds 5% of the exposure limit (that applies to their particular transmitter) in terms of power density or the square of the electric or magnetic field strength.

For non-compliant sites, Occupational Safety and Health Administration (OSHA) set recommendations to make the sites compliant. The document can be found in the link: https://www.osha.gov/dte/library/radiation/nir_stds_20021011/nir_stds_20021011.ppt

Appendix B

Glossary of Terms

1. *Electromagnetic Field (energy density)* – the electromagnetic energy contained in an infinitesimal volume divided by that volume.

2. *Exposure* – Exposure occurs whenever and wherever a person is subjected to electric, magnetic or electromagnetic fields other than those originating from physiological processes in the body and other natural phenomena.

3. *General Population / Uncontrolled Exposure* – applies to human exposure to RF fields when the general public is exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public always fall under this category when exposure is not employment-related.

4. *Maximum Permissible Exposure (MPE)* – the rms and peak electric and magnetic field strength, their squares, or the plane-wave equivalent power densities associated with these fields to which a person may be exposed without harmful effect and with an acceptable safety factor.

5. *Occupational / Controlled Exposure* – applies to human exposure to RF fields when persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/controlled limits.

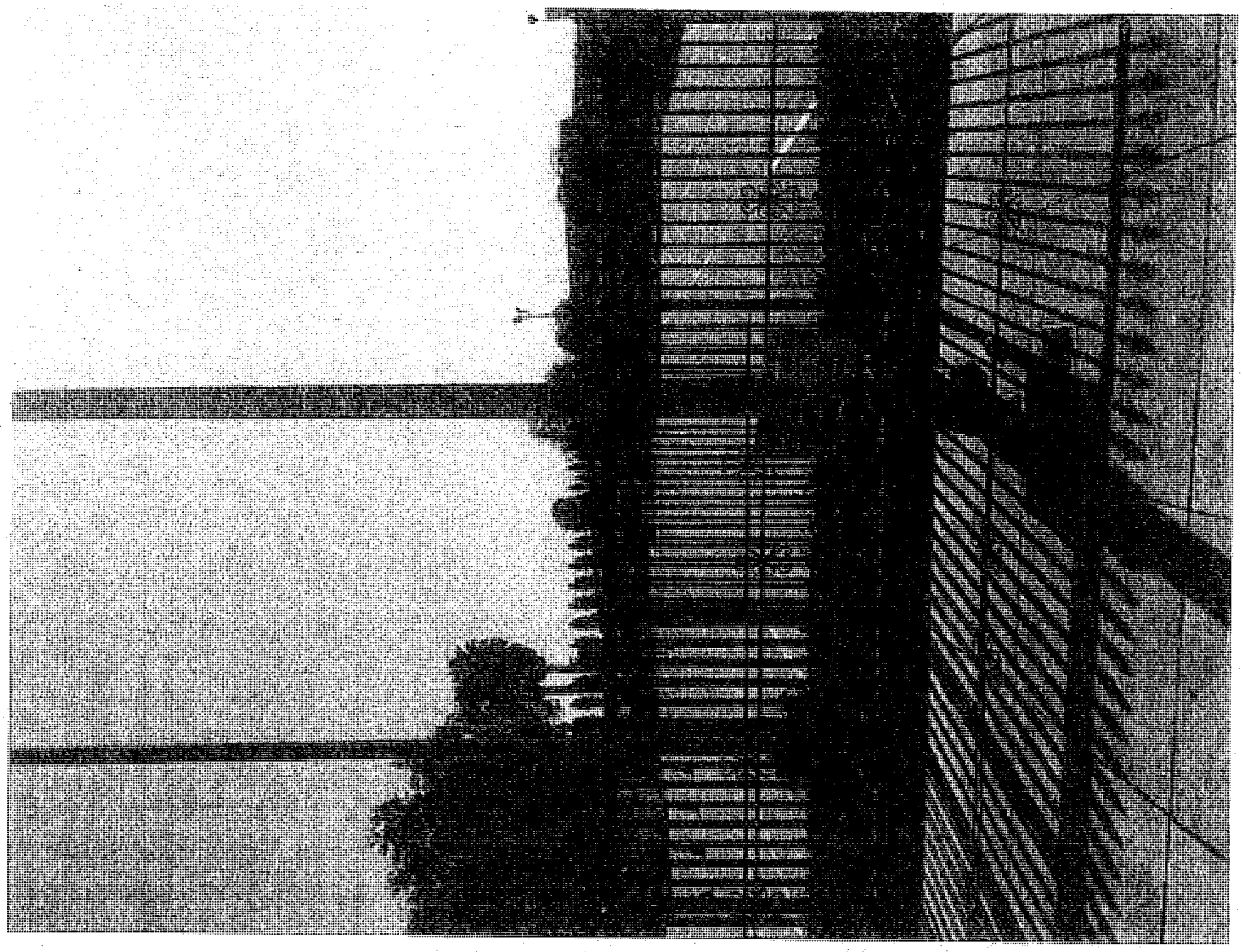
6. *Power Density (S)* – Power per unit area normal to the direction of propagation, usually expressed in units of watts per square meter (W/m^2) or, for convenience, units such as milliwatts per square centimeter (mW/cm^2) or microwatts per square centimeter ($\mu W/cm^2$).

Appendix C

RoofView Export File

The below file shows the Antenna information that has been used to calculate the MPE levels using RoofView 5. RoofView is a powerful, Excel based software analysis tool for evaluating radiofrequency (RF) field levels at telecommunications sites that are produced by antennas of the type commonly used in the cellular, paging, SMR, PCS and conventional two-way radio communication services

StartMapDefinition																					
Roof Max	Roof Max	Map Max	Map Max	Y Offset	X Offset	Number	envelope														List Of Areas
40	40	200	200	0	0	1	$K$181:$A	$K$181:$AX$220													$K$181:$AX$220
StartSettingsData																					
Standard	Method	Uptime	Scale Fact	Low Thr	Low Color	Mid Thr	Mid Color	Hi Thr	Hi Color	Over Colo	Ap Ht Mul	Ap Ht Method									
4	1	4	1	5	1	100	6	1000	3	5	1.5	1									
StartAntennaData		It is advisable to provide an ID (ant 1) for all antennas																			
		(MHz)	Trans	Trans	Coax	Coax	Other	Input	Calc			(ft)	(ft)	(ft)		(ft)	dBd	BWdth	Uptime	ON	
ID	Name	Freq	Power	Count	Len	Type	Loss	Power	Power	Mfg	Model	X	Y	Z	Type	Aper	Gain	Pt Dir	Profile	flag	
1	Mobilitie	2496						40	40	Alpha Wir	AW3477-S	20	20	24.8	VC	2.5	6.35	360		ON*	
2	Mobilitie	2496						0.2	0.2	Airspan	IR460	20	20	10.5	VC	1.1	9.85	35		ON*	
StartSymbolData																					
Sym	Map Mark	Roof X	Roof Y	Map Label	Description (notes for this table only)																



ATTACHMENT D

Plans / Photo-Simulations / Site Analyses / RF Report / Proof of Posting

Site # 2: Case no. PLN18091; 1048 35th Avenue

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SITE ID/CASCADE ID-CANDIDATE LETTER:

9CAB013792/SF90XS2K0C

LATITUDE/LONGITUDE:

37.77446100/-122.22387800

CROSS STREET:

35TH AVE. & SAN LEANDRO ST.

CITY, STATE, ZIP:

OAKLAND, CA 94601

(E) 28'-6" PAINTED STEEL LIGHT POLE

IF YOU DIG IN ANY STATE DIAL 811 FOR THE LOCAL "ONE CALL CENTER" – IT'S THE LAW

THE UTILITIES SHOWN HEREIN ARE FOR THE CONTRACTORS CONVENIENCE ONLY. THERE MAY BE OTHER UTILITIES NOT SHOWN ON THESE PLANS. THE ENGINEER/SURVEYOR ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS SHOWN AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL THE UTILITIES WITHIN THE LIMITS OF THE WORK. ALL DAMAGE MADE TO THE (E) UTILITIES BY THE CONTRACTOR SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

RECEIVED
OCT 26 2018
City of Oakland
Planning & Zoning Division

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OF EFFECT ON DRAINAGE; NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS (N).

SITE INFORMATION

SITE ID:	9CAB013792
CASCADE ID:	SF90XS2K0C
LATITUDE:	37.77446100
LONGITUDE:	-122.22387800
CROSS STREET:	35TH AVE. & SAN LEANDRO ST.
CITY, STATE, ZIP:	OAKLAND, CA 94601
COUNTY:	ALAMEDA
JURISDICTION:	CITY OF OAKLAND
PROPERTY OWNER:	PUBLIC RIGHT-OF-WAY
APPLICANT:	MOBILITIE, LLC 2955 REDHILL AVENUE, STE. 200 COSTA MESA, CA 92626 CONTACT: JAMES SINGLETON PHONE: (605) 814-0584 EMAIL: JSINGLETON@MOBILITIE.COM

ENGINEER

L5 ENGINEERING, INC
944 CALLE AMANECER STE E
SAN CLEMENTE, CA 92673
CARLOS GODINEZ
(949) 218-8724

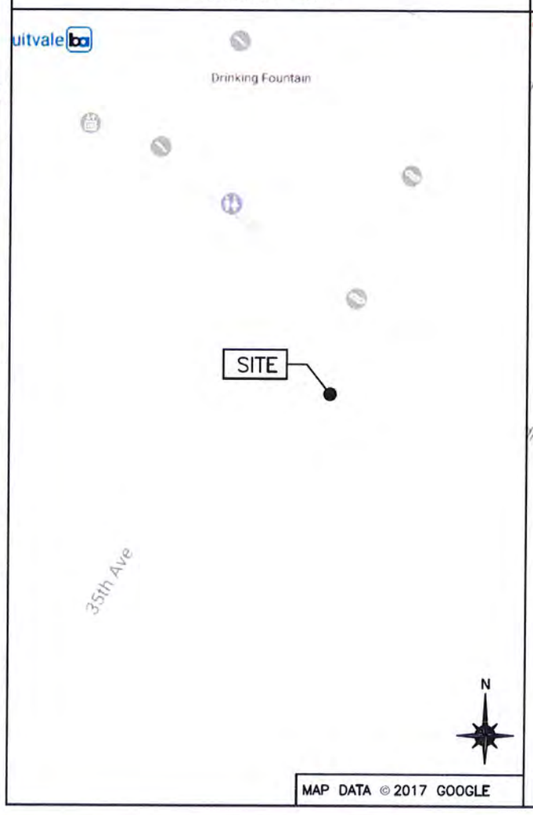
JACOB S. PROCTOR, P.E.
VECTOR STRUCTURAL ENGINEERS
651 W. GALENA PARK BLVD
DRAPER, UT 84020
(801) 990-1775

DO NOT SCALE DRAWINGS

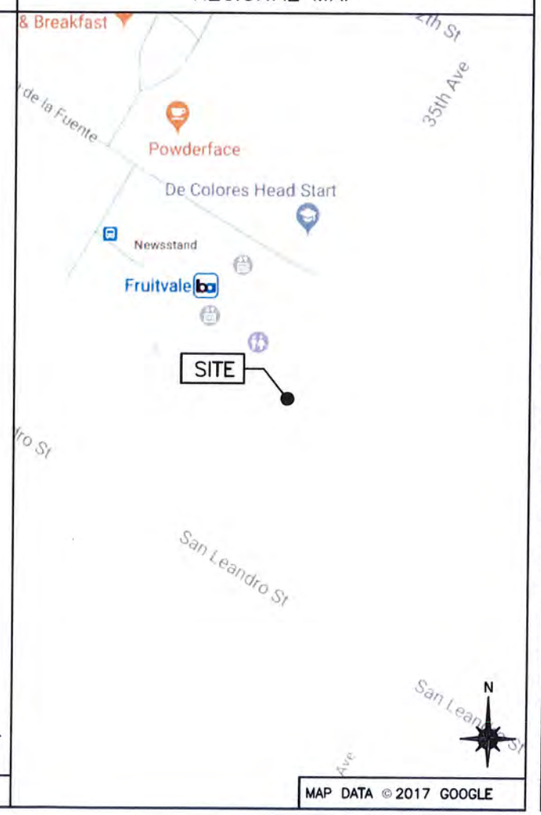
CONTRACTORS SHALL VERIFY ALL PLANS, (E) DIMENSIONS & FIELD CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

LOCATION MAP

VICINITY MAP



REGIONAL MAP



PROJECT DESCRIPTION

END USER PROPOSES TO INSTALL EQUIPMENT ON AN (E) STEEL LIGHT POLE WITHIN AN EXISTING RIGHT-OF-WAY. THE SCOPE WILL CONSIST OF THE FOLLOWING:

- INSTALL PROPOSED BACKHAUL TRANSPORT EQUIPMENT ON AN (E) STEEL LIGHT POLE

CODES

2016 CALIFORNIA BUILDING CODE (2015 IBC)
2017 NATIONAL ELECTRICAL CODE
TIA/EIA-222-G-2 OR LATEST EDITION
LOCAL BUILDING/PLANNING CODE

DRAWING INDEX

SHEET NO:	SHEET TITLE
T-1	TITLE SHEET
SP-1	EXHIBIT PHOTO & SITE PLAN
SP-2	OVERALL SITE PLAN
EV-1	POLE ELEVATIONS
EV-2	POLE ELEVATIONS
PL-1	PLUMBING & RISER DIAGRAMS
EQ-1	EQUIPMENT DETAILS
EQ-2	EQUIPMENT DETAILS
E-1	ELECTRICAL DETAILS
E-2	ELECTRICAL PLAN
G-1	GROUNDING DETAILS
TC-1	VEHICULAR TRAFFIC CONTROL PLAN
TC-2	PEDESTRIAN/WORKER SAFETY PLAN
GN-1	GENERAL NOTES
GN-2	GENERAL NOTES
GN-3	GENERAL NOTES

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SAN CLEMENTE, CA 92673
WWW.LEAFCC-LLC.COM
PHONE: (949) 385-0192

MOBILITIE ID:	9CAB013792
DRAWN BY:	SK
CHECKED BY:	CG

A	06/08/18	FOR REVIEW

06/26/2018
VECTOR PROJECT #: U2314-057-181

VECTOR ENGINEERS
651 W. GALENA PARK BLVD, DRAPER, UTAH 84020 PHONE: (801) 990-1775 WWW.VECTORSE.COM

REGISTERED PROFESSIONAL ENGINEER
JACOB S. PROCTOR
C 70567
CIVIL
STATE OF CALIFORNIA

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

SF90XS2K0C
9CAB013792
OAKLAND, CA 94601
(E) 28'-6" STEEL LIGHT POLE

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

EXHIBIT PHOTO

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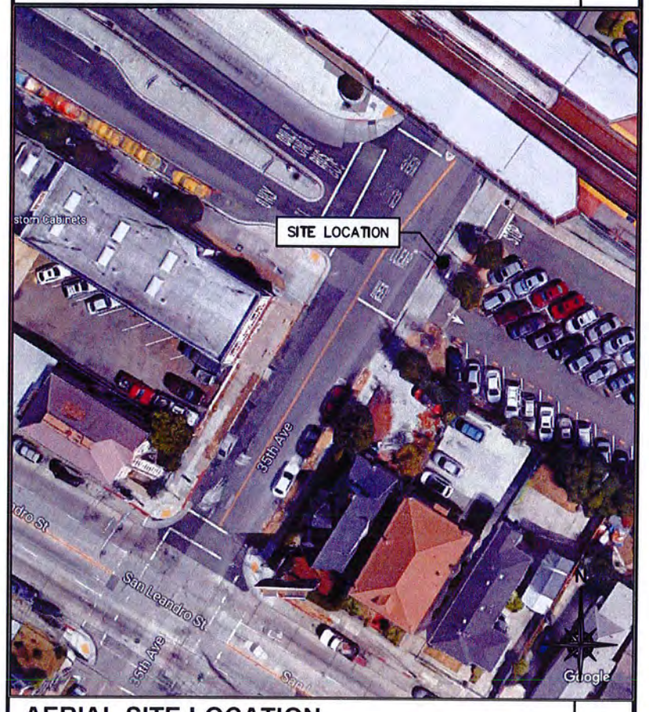

AERIAL SITE LOCATION

SCALE: NOT TO SCALE

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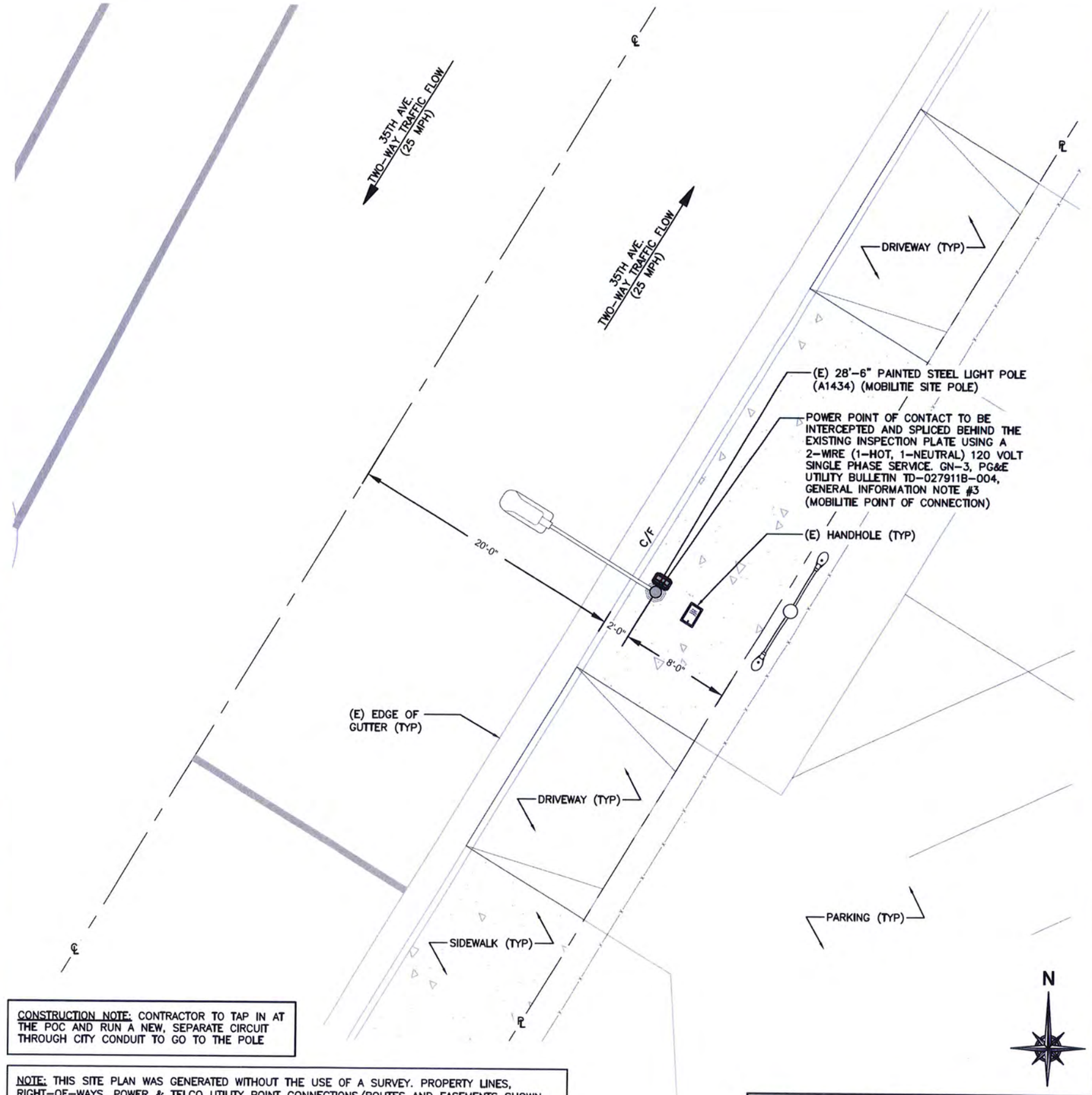

CONSTRUCTION NOTE: CONTRACTOR TO TAP IN AT THE POC AND RUN A NEW, SEPARATE CIRCUIT THROUGH CITY CONDUIT TO GO TO THE POLE

NOTE: THIS SITE PLAN WAS GENERATED WITHOUT THE USE OF A SURVEY. PROPERTY LINES, RIGHT-OF-WAYS, POWER & TELCO UTILITY POINT CONNECTIONS/ROUTES AND EASEMENTS SHOWN ON THESE PLANS ARE ESTIMATED. ALL ITEMS AND DIMENSIONS SHOULD BE VERIFIED IN THE FIELD.

ENLARGED SITE PLAN

SCALE: 1/8" = 1'-0" (1/4" = 1'-0" ON 22"x34" SHEET)

3

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MOBILITIE ID:	9CAB013792
DRAWN BY:	SK
CHECKED BY:	CG

A	06/06/18	FOR REVIEW

06/26/2018
VECTOR PROJECT #: U2314-057-181
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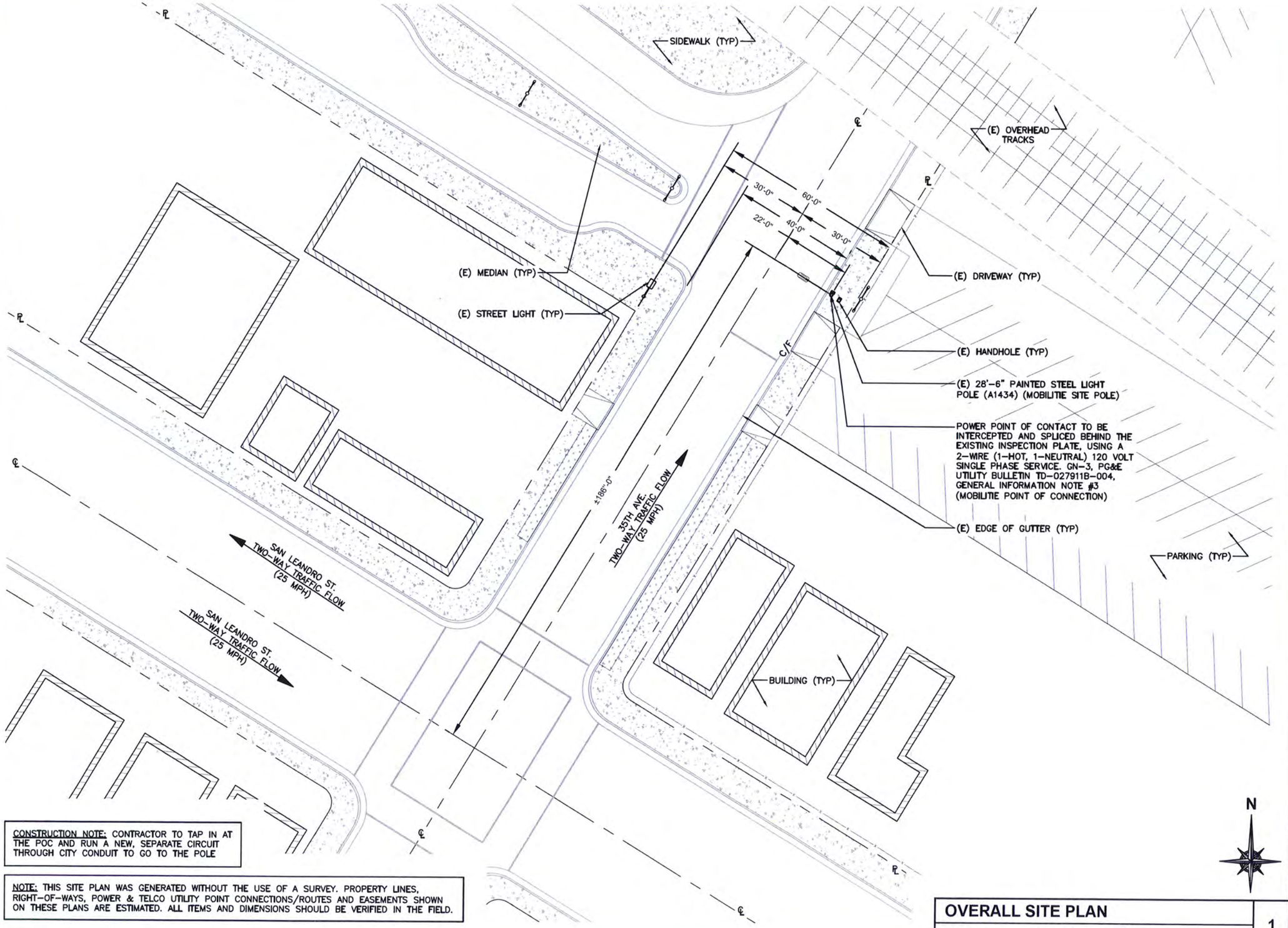
STATE OF CALIFORNIA

SF90XS2K0C
9CAB013792
OAKLAND, CA 94601
(E) 28'-6" STEEL LIGHT POLE

SHEET TITLE
EXHIBIT PHOTO & SITE PLAN

SHEET NUMBER
SP-1



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OVERALL SITE PLAN

SCALE: 1" = 30'-0" (1" = 15'-0" ON 22"x34" SHEET)

1

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CHECKED BY:	CG

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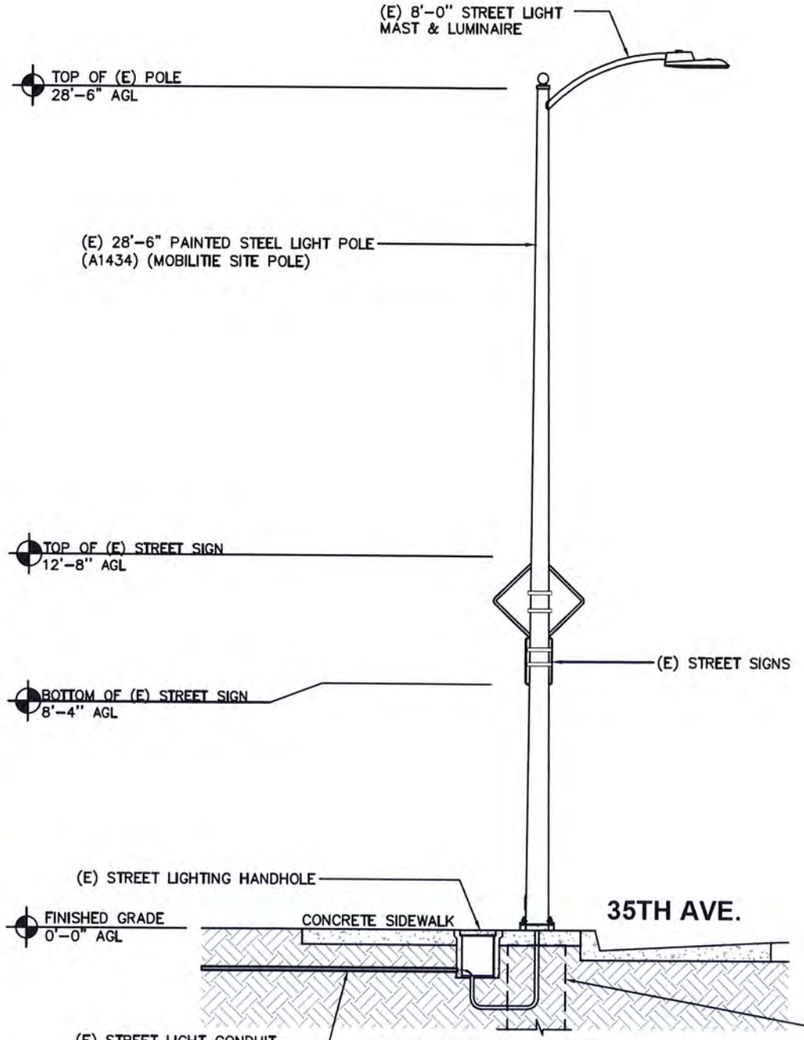
STATE OF CALIFORNIA

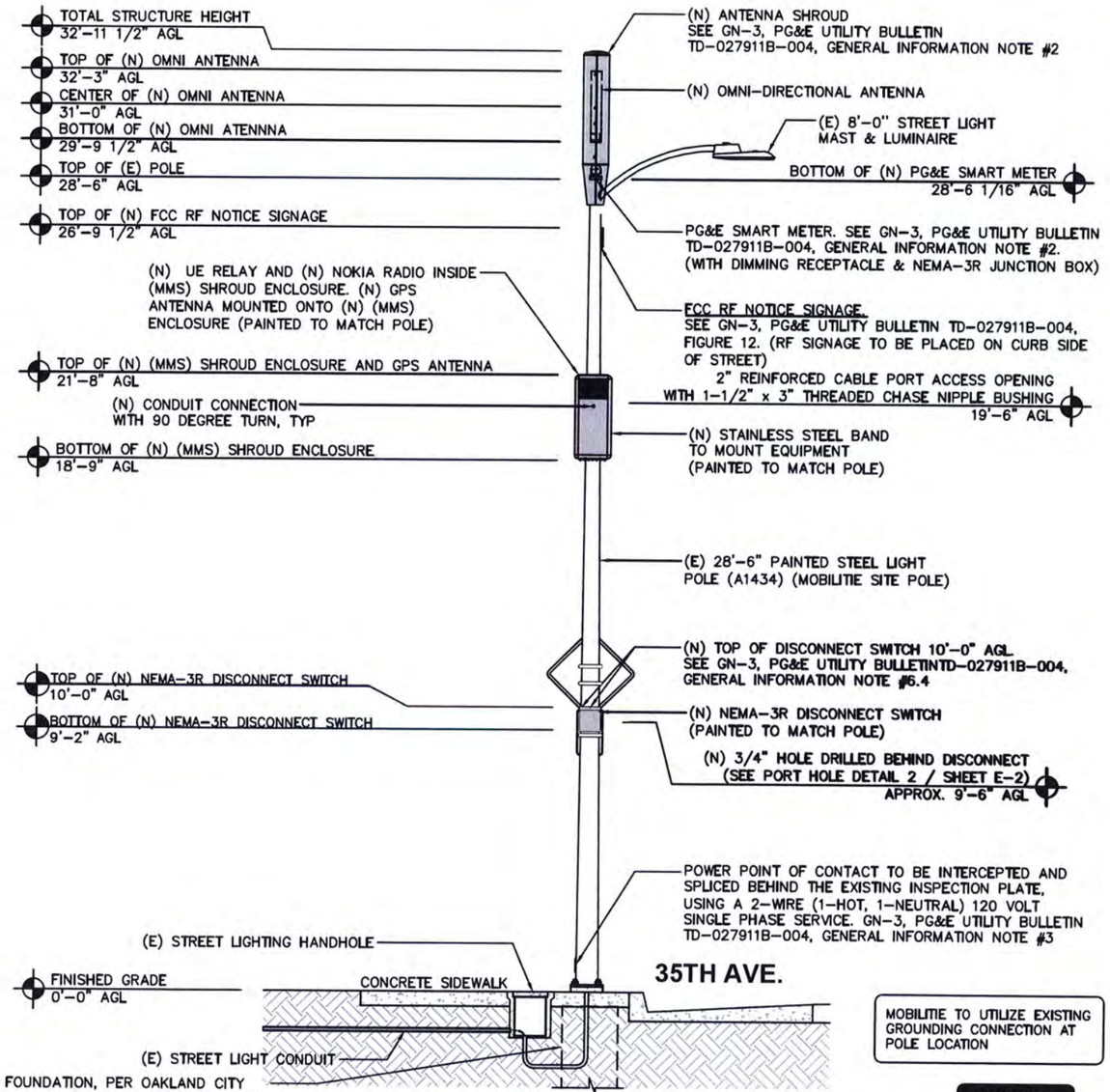
SF90XS2K0C
9CAB013792
OAKLAND, CA 94601
(E) 28'-6" STEEL LIGHT POLE

SHEET TITLE
OVERALL SITE PLAN

SHEET NUMBER
SP-2



EXISTING SIDE VIEW



NEW SIDE VIEW

NOTES:
1. ALL HARDWARE SHALL BE STAINLESS STEEL.
2. ALL CABLES SHALL BE SECURED TO POLE EVERY 36" OR LESS.
3. LIGHTNING RODS SHALL BE INCLUDED AS REQUIRED.
4. STRUCTURAL BACKFILL TO BE COMPACTED IN 6" MAXIMUM LAYERS TO 95% OF CONTENT IN ACCORDANCE WITH ASTM D698. ADDITIONALLY, STURCTURAL BACKFILL MUST HAVE A MINIMUM COMPACTED UNIT WEIGHT OF 100 LBS PER CUBIC FOOT (16kN/m3)

MODE SITE POWER SHUT DOWN PROCEDURES:

1. NON EMERGENCY SCHEDULED POWER SHUT DOWN
   - CALL MOBILITIE AT (877) 244-7889
   - 24 HOURS PRIOR TO SCHEDULED POWER SHUT OFF, PROVIDE THE FOLLOWING INFORMATION:
     - SITE NUMBER IDENTIFIED ON SITE NUMBERING STICKER (9CAB013792)
     - YOUR NAME AND REASON FOR POWER SHUTOFF
     - PROVIDE DURATION OF OUTAGE
   - PULL DISCONNECT HANDLE TO "OFF" POSITION
   - POWER SHUT OFF VERIFICATION WITH APPROVED PG&E PROCEDURES
   - NOTIFY MOBILITIE AT (877) 244-7889 UPON COMPLETION OF WORK
   - RESTORE POWER BY PLACING POWER DISCONNECT HANDLE IN THE "ON" POSITION
   - REINSTALL LOCK ON POWER HANDLE
2. EMERGENCY POWER SHUT OFF
   - CALL MOBILITIE AT (877) 244-7889
   - PROVIDE THE FOLLOWING INFORMATION:
     - SITE NUMBER IDENTIFIED ON SITE NUMBERING STICKER (9CAB013792)
     - YOUR NAME AND REASON FOR POWER SHUTOFF
     - PROVIDE DURATION OF OUTAGE
   - PULL DISCONNECT HANDLE TO "OFF" POSITION
   - POWER SHUT OFF VERIFICATION WITH APPROVED PG&E PROCEDURES
   - NOTIFY MOBILITIE AT (877) 244-7889 UPON COMPLETION OF WORK
   - RESTORE POWER BY PLACING POWER DISCONNECT HANDLE IN THE "ON" POSITION
   - REINSTALL LOCK ON POWER HANDLE

MOBILITIE TO UTILIZE EXISTING GROUNDING CONNECTION AT POLE LOCATION

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.

SITE ID: 9CAB013792

Contact 877-244-7889

mobilitie

- SIGN TO BE NO LARGER THAN 3"x4"
- SIGN TO BE MOUNTED ON CURB SIDE

POLE ELEVATIONS

SCALE: 1" = 5'-0" (1" = 2'-6" ON 22"x34" SHEET)

1

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SAN CLEMENTE, CA 92673
WWW.LEAFCC-LLC.COM
PHONE: (949) 388-0192

MOBILITIE ID:	9CAB013792
DRAWN BY:	SK
CHECKED BY:	CG

A	06/06/18	FOR REVIEW

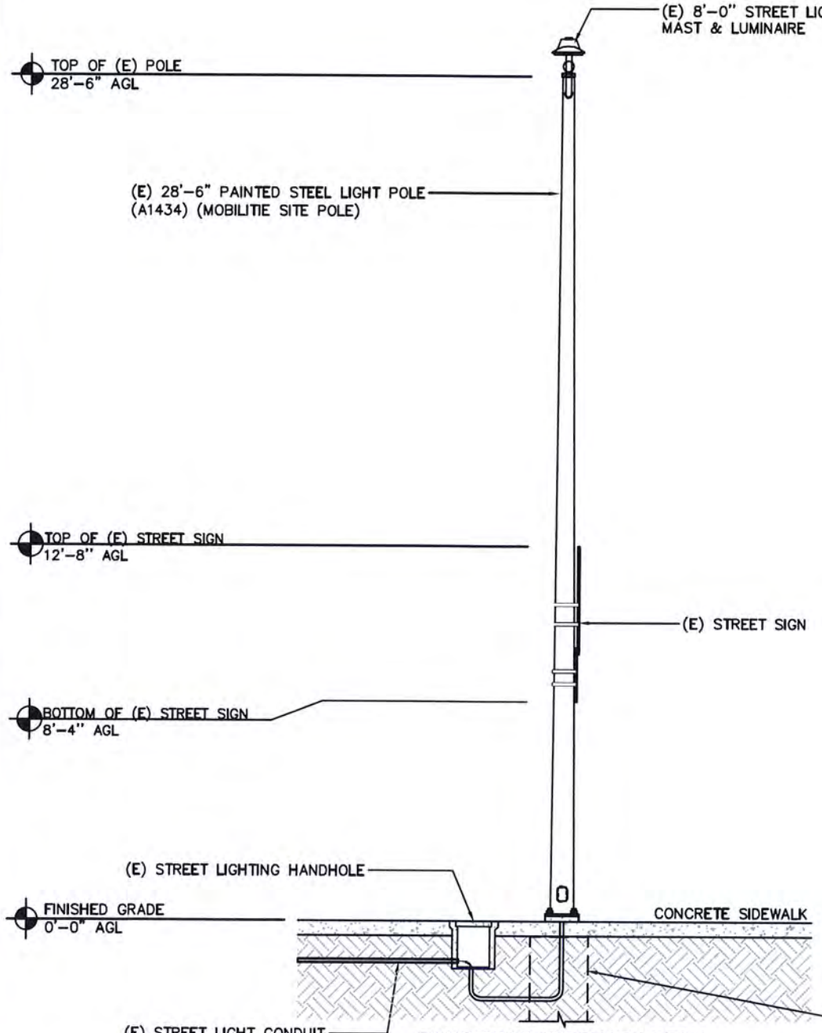
06/26/2018
VECTOR PROJECT #: U2314-057-181
VECTOR ENGINEERS
651 W. GALENA PARK BLVD, STE 201, DRAPER, UTAH 84020 PHONE: (801) 990-1778 WWW.VECTORSE.COM
REGISTERED PROFESSIONAL ENGINEER JACOB S. PROCTOR C.70567 CIVIL STATE OF CALIFORNIA

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

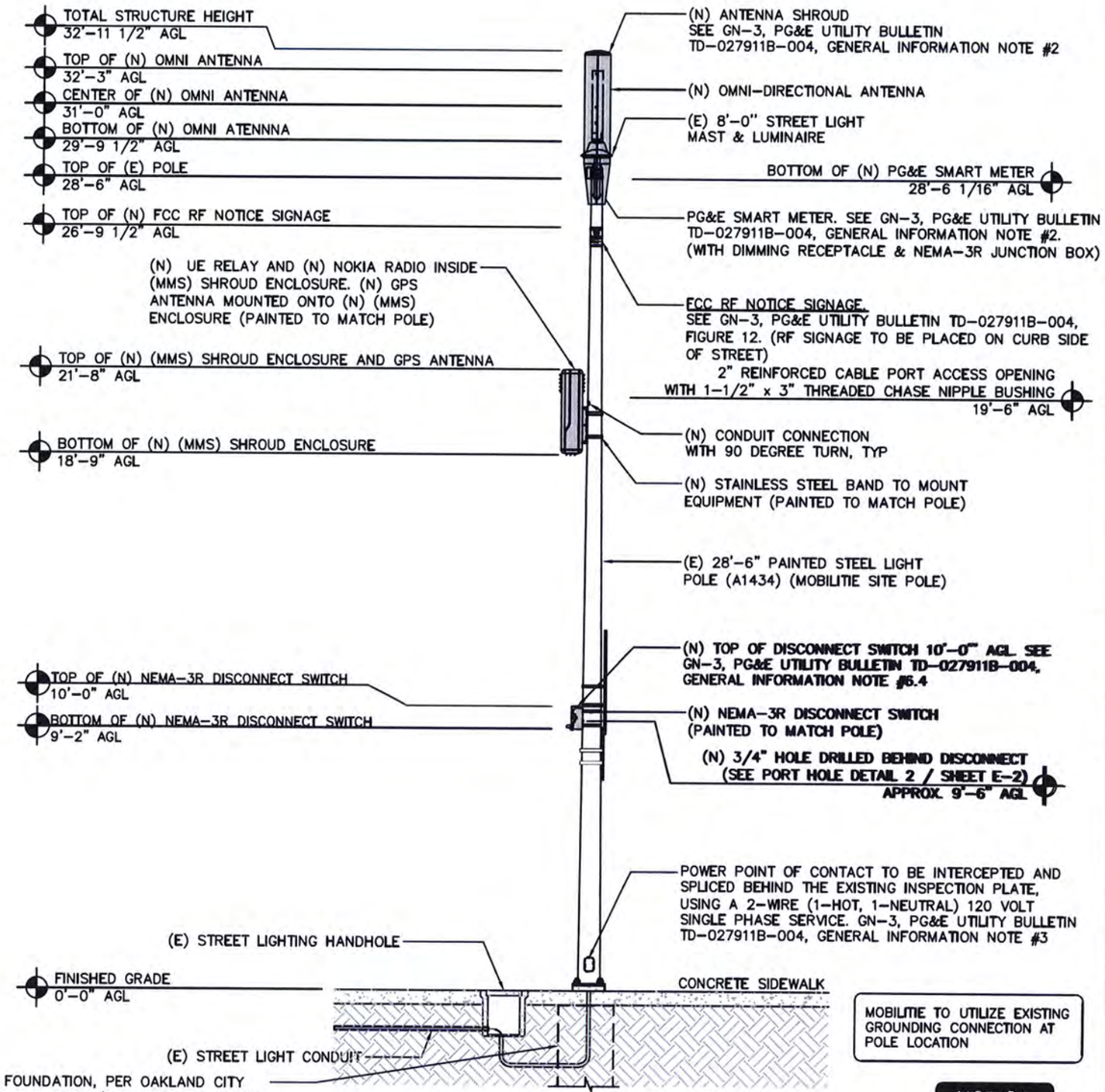
SF90XS2K0C
9CAB013792
OAKLAND, CA 94601
(E) 28'-6" STEEL LIGHT POLE

SHEET TITLE
POLE ELEVATIONS

SHEET NUMBER
EV-1



EXISTING FRONT VIEW



NEW FRONT VIEW

MOBILITIE TO UTILIZE EXISTING GROUNDING CONNECTION AT POLE LOCATION

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.

SITE ID: 9CAB013792

Contact 877-244-7889

mobilitie

- SIGN TO BE NO LARGER THAN 3"x4"
- SIGN TO BE MOUNTED ON CURB SIDE

NOTES:
1. ALL HARDWARE SHALL BE STAINLESS STEEL.
2. ALL CABLES SHALL BE SECURED TO POLE EVERY 36" OR LESS.
3. LIGHTNING RODS SHALL BE INCLUDED AS REQUIRED.
4. STRUCTURAL BACKFILL TO BE COMPACTED IN 6" MAXIMUM LAYERS TO 95% OF CONTENT IN ACCORDANCE WITH ASTM D698. ADDITIONALLY, STURCTURAL BACKFILL MUST HAVE A MINIMUM COMPACTED UNIT WEIGHT OF 100 LBS PER CUBIC FOOT (16kN/m3)

NODE SITE POWER SHUT DOWN PROCEDURES:

1. NON EMERGENCY SCHEDULED POWER SHUT DOWN
   - CALL MOBILITIE AT (877) 244-7889
   - 24 HOURS PRIOR TO SCHEDULED POWER SHUT OFF, PROVIDE THE FOLLOWING INFORMATION:
     - SITE NUMBER IDENTIFIED ON SITE NUMBERING STICKER (9CAB013792)
     - YOUR NAME AND REASON FOR POWER SHUTOFF
     - PROVIDE DURATION OF OUTAGE
   - PULL DISCONNECT HANDLE TO "OFF" POSITION
   - POWER SHUT OFF VERIFICATION WITH APPROVED PG&E PROCEDURES
   - NOTIFY MOBILITIE AT (877) 244-7889 UPON COMPLETION OF WORK
   - RESTORE POWER BY PLACING POWER DISCONNECT HANDLE IN THE "ON" POSITION
   - REINSTALL LOCK ON POWER HANDLE
2. EMERGENCY POWER SHUT OFF
   - CALL MOBILITIE AT (877) 244-7889
   - PROVIDE THE FOLLOWING INFORMATION:
     - SITE NUMBER IDENTIFIED ON SITE NUMBERING STICKER (9CAB013792)
     - YOUR NAME AND REASON FOR POWER SHUTOFF
     - PROVIDE DURATION OF OUTAGE
   - PULL DISCONNECT HANDLE TO "OFF" POSITION
   - POWER SHUT OFF VERIFICATION WITH APPROVED PG&E PROCEDURES
   - NOTIFY MOBILITIE AT (877) 244-7889 UPON COMPLETION OF WORK
   - RESTORE POWER BY PLACING POWER DISCONNECT HANDLE IN THE "ON" POSITION
   - REINSTALL LOCK ON POWER HANDLE

POLE ELEVATIONS

SCALE: 1" = 5'-0" (1" = 2'-6" ON 22"x34" SHEET)

1

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COSTA MESA, CA 92626

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944 CALLE AMANECER, STE E
SAN CLEMENTE, CA 92673
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PHONE: (949) 388-0192

MOBILITIE ID:	9CAB013792
DRAWN BY:	SK
CHECKED BY:	CG

A	06/08/18	FOR REVIEW

06/26/2018
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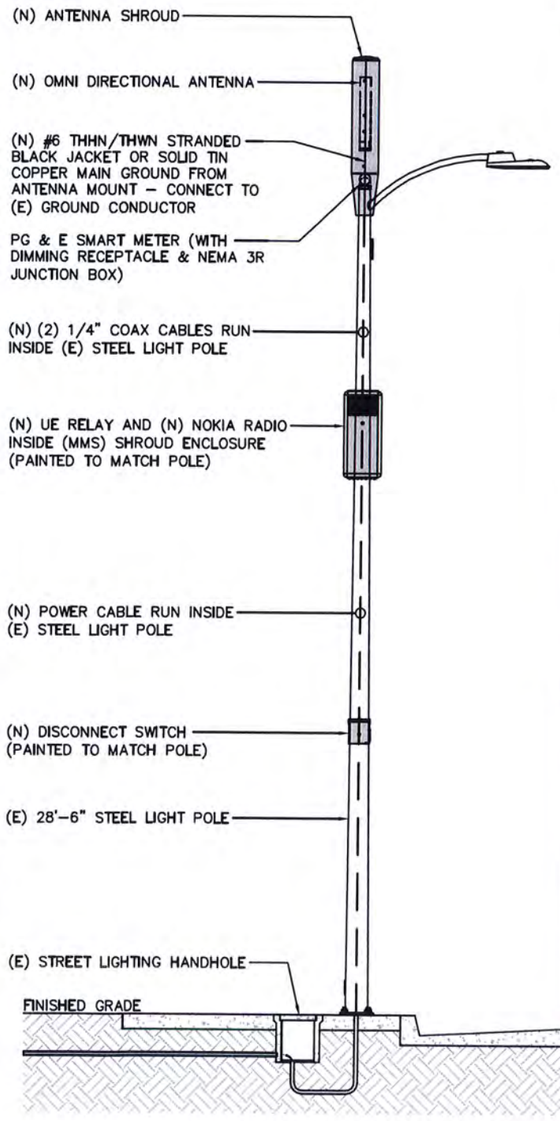
REGISTERED PROFESSIONAL ENGINEER
JACOB S. PROCTOR
C 70567
CIVIL
STATE OF CALIFORNIA

SF90XS2K0C
9CAB013792
OAKLAND, CA 94601
(E) 28'-6" STEEL LIGHT POLE

SHEET TITLE
POLE ELEVATIONS

SHEET NUMBER
EV-2



NOTE:
CABLING DIAGRAM IS FOR CLARITY OF CABLE ROUTE AND TERMINATION ONLY. CONTRACTOR SHALL INSTALL CABLES WITH MINIMAL VISUAL IMPACT ON (E) STEEL POLE.
SEE ELEVATION DRAWING FOR EQUIPMENT AND ANTENNA LOCATIONS.

NOTE:
REFER TO STRUCTURAL ANALYSIS REPORT (SEPARATE DOCUMENT) FOR ADDITIONAL STRUCTURAL INFORMATION.

CABLING NOTES:

A) WOOD, CONCRETE AND EXISTING METALLIC POLES
- I) FROM GRADE LINE TO 11 '–0" ABOVE GRADE, ALL CABLES/CONDUCTORS EXCEPT GROUNDING CONDUCTOR MUST RUN IN RIGID GALVANIZED STEEL CONDUIT (RGS)
- II) GROUNDING CONDUCTORS IN EXPOSED LOCATIONS MUST BE INSTALLED IN PVC.
- III) IN EARTH INSTALL PVC CONDUIT FOR BACKHAUL AND ELECTRICAL SERVICE. TRANSITION TO RGS AT GRADE LINE.
- IV) ABOVE 11 '–0" ALL CABLES (POWER, ETHERNET, COAXIAL) MUST RUN IN PVC UTILITY POLE RISER.
  - (1) AT MAJOR EQUIPMENT, EXTEND UTILITY DUCT IMMEDIATELY ADJACENT TO THE EQUIPMENT. INSTALL CABLES IN THE UTILITY POLE RISER CREATING CABLE DRIP LOOPS NOT LESS THAN THE CABLE BENDING RADIUS.
  - (2) INSIDE THE UTILITY POLE RISER, UTILIZE ½" COAX BLOCKS WITH LAG SCREWS TO SUPPORT COAX, RADIO AND MW POWER, RF COAX, AND ETHERNET CABLES TO WITHIN 12" OF THE EQUIPMENT BEING SERVED AND ON INTERVALS NOT TO EXCEED 6'.
- V) FOR UNDERGROUND HFC/PUBLIC BACKHAUL, ROUTE ETHERNET CABLE IN CONDUIT UP THE POLE AND ENTER THE UTILITY POLE RISER. SEAL EXPOSED END OF CONDUIT WITH A CABLE TERMINATION FITTING.
- VI) BY APPROVAL IN SELECT CASES LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LFMC) MAY BE USED IN LENGTHS NOT TO EXCEED 36" TO EXTEND THE ELECTRICAL SERVICE CONDUIT TO THE AC DISTRIBUTION BOX. EXAMPLE: UTILITY–REQUIRED DISCONNECT ON POLE W/ AC DISTRIBUTION BOX ON OPPOSITE SIDE OF POLE.

B) NEW METALLIC POLES
- I) PROCURE NEW POLES WITH SUITABLE HAND HOLES SUCH THAT HAND HOLES EXIST AT ALL EQUIPMENT LOCATIONS.
  - (1) WITH CLIENT APPROVAL IN SELECT CASES TO FACILITATE IMPROVED APPEARANCE, ½" COAXIAL CABLES MAY BE "SUPERFLEX" IN LIEU OF LDF–4.
- II) WHERE POSSIBLE, INSTALL POLE BASE SUCH THAT THE ELECTRICAL FEED AND BACKHAUL (IF UNDERGROUND) CIRCUIT ENTER THE POLE THROUGH THE POLE BASE. IF A DISCONNECTING MEANS SEPARATE FROM THE AC DISTRIBUTION BOX IS REQUIRED BY JURISDICTION OR UTILITY, WITH APPROVAL IN SELECT CASES LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LFMC) MAY BE USED IN LENGTHS NOT TO EXCEED 36" TO EXTEND THE ELECTRICAL SERVICE CONDUIT TO THE AC DISTRIBUTION BOX.

TYPICAL PLUMBING DIAGRAM

SCALE: NOT TO SCALE

1

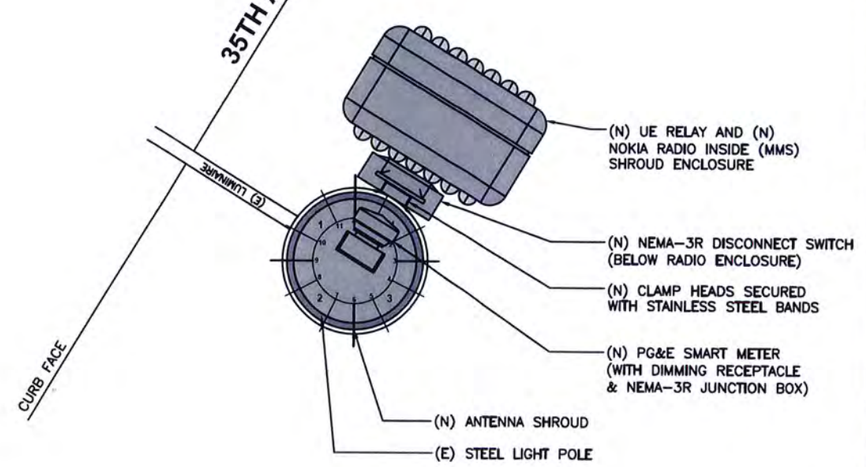
EQUIPMENT CHART					
QTY	DESCRIPTION	MANUFACTURER	MODEL NUMBER	DIMENSIONS (HxWxD)	WEIGHT
1	ANTENNA	ALPHA WIRELESS	AW3477–S1	29.5" x 4.5ø	8.8 LBS
1	ANTENNA SHROUD	CONCEALFAB	007452–AABBCC	47.375" x 17" 10.75"ø	16.11 LBS
1	(MMS) SHROUD ENCLOSURE	ELTEK	MMS SHROUD	35" x 15.5" x 9"	12 LBS
1	UE RELAY	AIRSPAN	iR460–SPB–ST–1–P–0	13" x 7" ø	8.8 LBS
1	RADIO	NOKIA	B41 FWHR HIGH POWER	7.7" x 12.9" x 6.3"	24.64 LBS
3	FANS (2 SMALL; 1 LARGE)	TBD	–	–	2.76 LBS
1	SMART METER	PG&E	M241490	2.67" x 4.5"ø	–
1	RECEPTACLE	PG&E	–	–	–
1	NEMA–32 JUNCTION BOX	ALLEN–BRADLEY	598–BS533	4.53" x 2.58" x 2.17"	0.60 LBS
1	NEMA TYPE–3R DISCONNECT	SIEMENS	GNF321	9.9" x 8.8" x 4.5"	5 LBS
1	GPS ANTENNA	PCTEL	3997D–HR	.53" x 1.7"ø	.57 LBS
	TOTAL WEIGHT				79.28 LBS

ANTENNA AZIMUTH: N/A
UE RELAY AZIMUTH: 24

BILL OF MATERIALS

SCALE: NOT TO SCALE

2



N

RISER ORIENTATION DIAGRAM

SCALE: NOT TO SCALE

3

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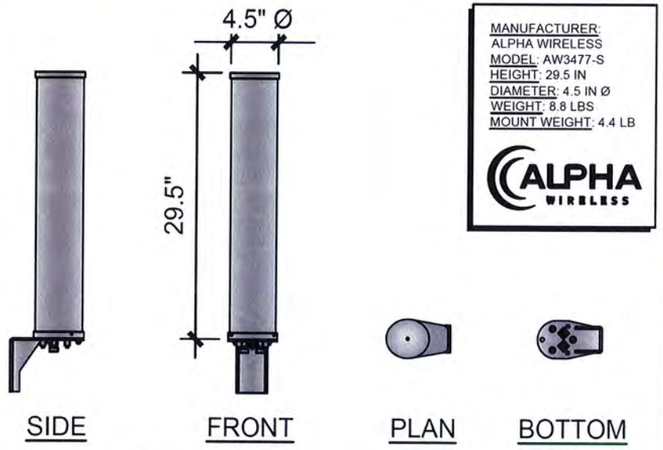
C 70567
CIVIL
STATE OF CALIFORNIA

SF90XS2K0C
9CAB013792
OAKLAND, CA 94601
(E) 28'-6" STEEL LIGHT POLE

SHEET TITLE
PLUMBING & RISER DIAGRAM

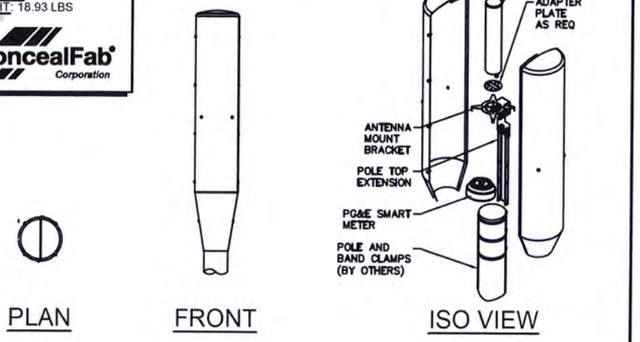
SHEET NUMBER
PL-1



MANUFACTURER: ALPHA WIRELESS
MODEL: AW3477-S
HEIGHT: 29.5 IN
DIAMETER: 4.5 IN Ø
WEIGHT: 8.8 LBS
MOUNT WEIGHT: 4.4 LB

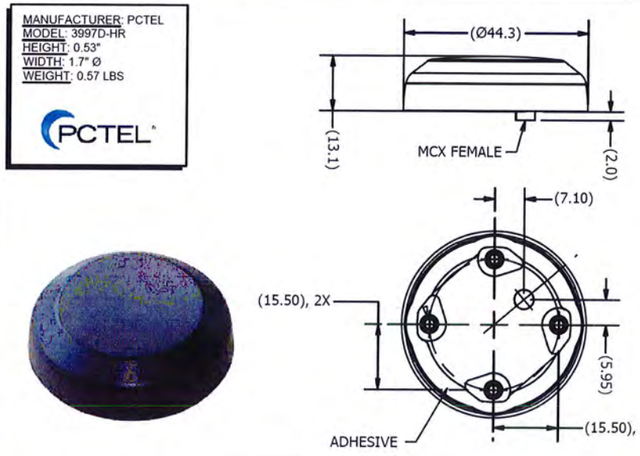
ALPHA AW3477-S1 OMNI — SCALE: NTS — 1

MANUFACTURER: CONCEALFAB
MODEL: 007452-AABBCC
(OR APPROVED EQUAL)
HEIGHT: 64⅜"
DIAMETER: 10¼" Ø
WEIGHT: 18.93 LBS



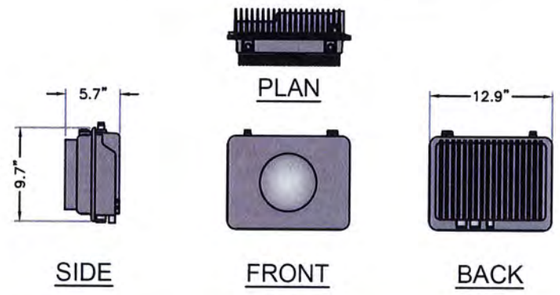
ANTENNA SHROUD — SCALE: NTS — 2

MANUFACTURER: PCTEL
MODEL: 3997D-HR
HEIGHT: 0.53"
WIDTH: 1.7" Ø
WEIGHT: 0.57 LBS



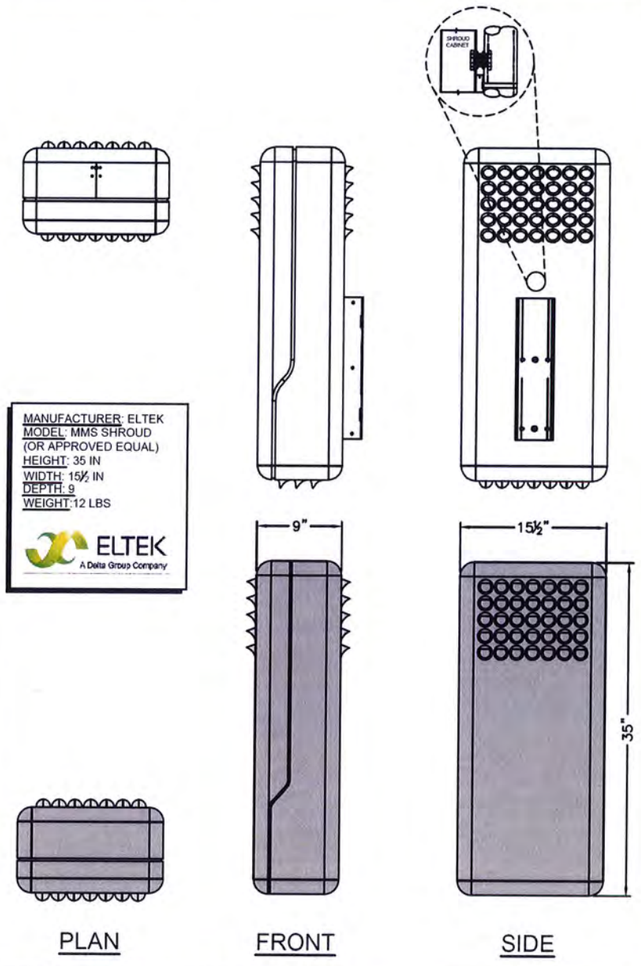
GPS ANTENNA — SCALE: NTS — 3

MANUFACTURER: NOKIA
MODEL: B41 HP FWHR
(OR APPROVED EQUAL)
HEIGHT: 9.7 IN
WIDTH: 12.9 IN
DEPTH: 5.7 IN
WEIGHT: 24.7 LBS

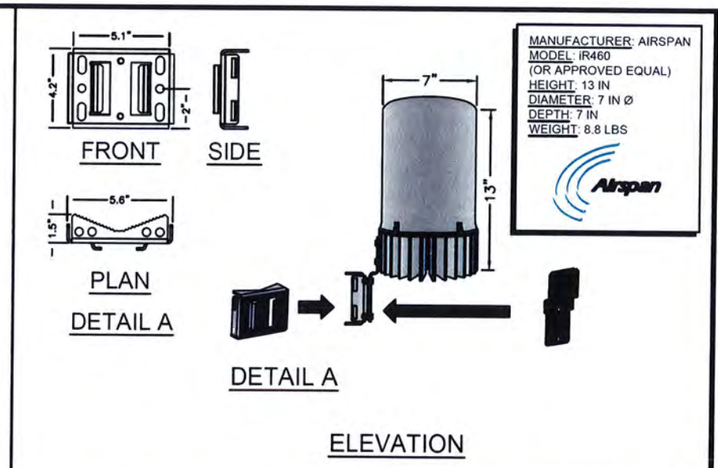


REMOTE RADIO HEAD — SCALE: NTS — 4

MANUFACTURER: ELTEK
MODEL: MMS SHROUD
(OR APPROVED EQUAL)
HEIGHT: 35 IN
WIDTH: 15½ IN
DEPTH: 9
WEIGHT: 12 LBS



MMS SHROUD ENCLOSURE — SCALE: NTS — 5



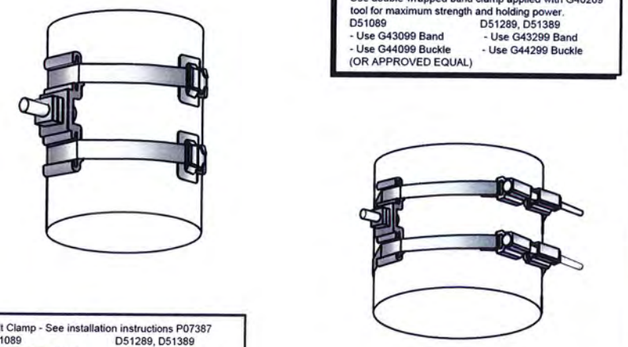
MANUFACTURER: AIRSPAN
MODEL: iR460
(OR APPROVED EQUAL)
HEIGHT: 13 IN
DIAMETER: 7 IN Ø
DEPTH: 7 IN
WEIGHT: 8.8 LBS

UE RELAY & FLUSH MOUNT — SCALE: NTS — 6

Ear-Lokt Buckle
Use double wrapped band clamp applied with G40269 tool for maximum strength and holding power.

D51089	D51289, D51389
- Use G43099 Band	- Use G43299 Band
- Use G44099 Buckle	- Use G44299 Buckle

(OR APPROVED EQUAL)



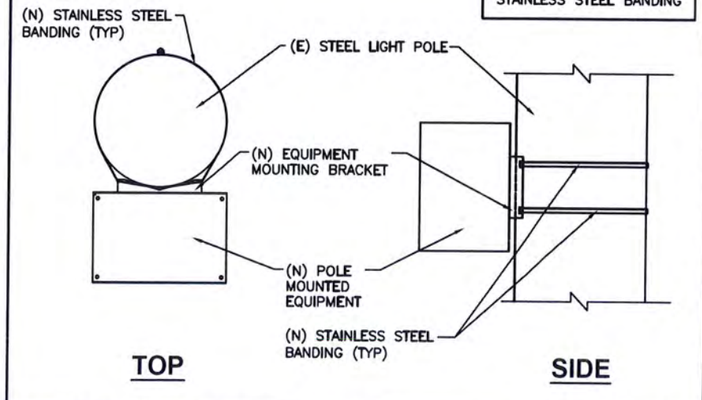
Bolt Clamp - See installation instructions P07387

D51089	D51289, D51389
- Use G43099 Band	- Use G43299 Band
- Use D50089 Bolt Clamp	- Use D50489 Bolt Clamp

(OR APPROVED EQUAL)

STAINLESS STEEL BANDS — SCALE: NTS — 7

NOTE:
INSTALL BRACKETS WITH STAINLESS STEEL BANDING



EQUIPMENT MOUNTING DETAIL — SCALE: NTS — 8

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PHONE: (949) 388-0192

MOBILITIE ID:	9CAB013792
DRAWN BY:	SK
CHECKED BY:	CG

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VECTOR PROJECT #: U2314-057-181
VECTOR ENGINEERS
851 W. GALENA PARK BLVD. [illegible] PHONE: (801) 990-1775
DRAPER, UTAH 84020 WWW.VECTORSE.COM

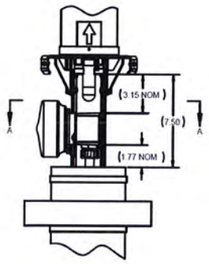
REGISTERED PROFESSIONAL ENGINEER
JACOB S. PROCTOR
C 70567
CIVIL
STATE OF CALIFORNIA

SF90XS2K0C
9CAB013792
OAKLAND, CA 94601
(E) 28'-6" STEEL LIGHT POLE

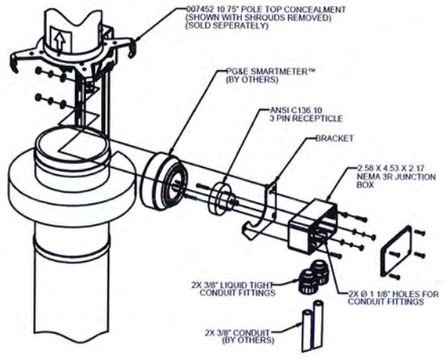
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
EQ-1

SECTION A-A



FRONT

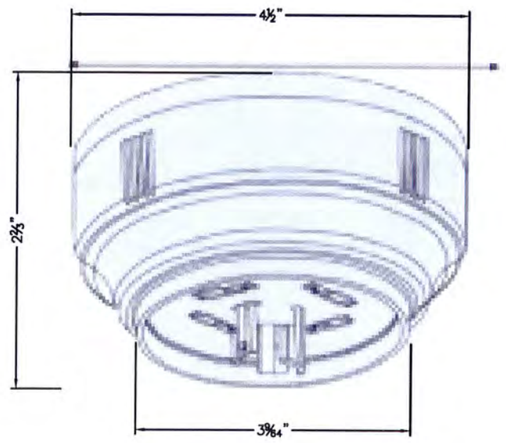


ISO VIEW

MANUFACTURER:
CONCEALFAB
MODEL: 007452-AABBCC
(OR APPROVED EQUAL)
HEIGHT: 64¼"
DIAMETER: 10¾" Ø
WEIGHT: 18.93 LBS

ConcealFab Corporation

PG&E SMART METER INSTALLATION — SCALE: NTS — 1



- UNIVERSAL AC INPUT 90V-.305V, 50/60 Hz
- AMPERE RATING: 15A MAX CONTINUOUS
- ADVANCED METERING INFRASTRUCTURE (AMI) NETWORK COMMUNICATION CARD TO REMOTELY SEND ENERGY USAGE BACK TO THE HEAD-END SYSTEM
- DATE RATE: 50 TO 300 KBPS
- FREQUENCY RANGE: 902-928 MHz
- SPREAD SPECTRUM, FREQUENCY HOPPING
- TRANSMITTER OUTPUT: 27-30 08M (1W)
- RECEIVER SENSITIVITY: -9B dBm FOR 10% PER
- PROTOCOL: IEEE 802.15.4C

SEE GN-3, PG&E UTILITY BULLETIN TD-027911B-004, FIGURE 8 – SMARTPOLE METER

PG&E SMART METER DETAIL — SCALE: NTS — 2

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.

SITE ID: 9CAB013792

Contact 877-244-7889

mobilitie

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

- SIGN TO BE NO LARGER THAN 3" X 4"
- SIGN TO BE MOUNTED ON CURB SIDE

ANTENNA SIGNAGE

SEE GN-3, PG&E UTILITY BULLETIN TD-027911B-004, FIGURE 12 – SAMPLE RF SIGN

NODE SITE POWER SHUT DOWN PROCEDURES:

1. NON EMERGENCY SCHEDULED POWER SHUT DOWN
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     - SITE NUMBER IDENTIFIED ON SITE NUMBERING STICKER (9CAB013792)
     - YOUR NAME AND REASON FOR POWER SHUTOFF
     - PROVIDE DURATION OF OUTAGE
   - PULL DISCONNECT HANDLE TO "OFF" POSITION
   - POWER SHUT OFF VERIFICATION WITH APPROVED PG&E PROCEDURES
   - NOTIFY MOBILITIE AT (877) 244-7889 UPON COMPLETION OF WORK
   - RESTORE POWER BY PLACING POWER DISCONNECT HANDLE IN THE "ON" POSITION
   - REINSTALL LOCK ON POWER HANDLE
2. EMERGENCY POWER SHUT OFF
   - CALL MOBILITIE AT (877) 244-7889
   - PROVIDE THE FOLLOWING INFORMATION:
     - SITE NUMBER IDENTIFIED ON SITE NUMBERING STICKER (9CAB013792)
     - YOUR NAME AND REASON FOR POWER SHUTOFF
     - PROVIDE DURATION OF OUTAGE
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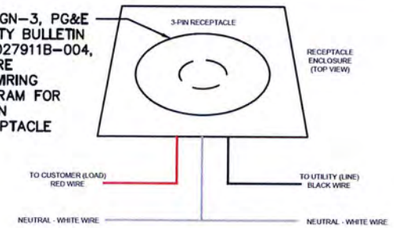
   - POWER SHUT OFF VERIFICATION WITH APPROVED PG&E PROCEDURES
   - NOTIFY MOBILITIE AT (877) 244-7889 UPON COMPLETION OF WORK
   - RESTORE POWER BY PLACING POWER DISCONNECT HANDLE IN THE "ON" POSITION
   - REINSTALL LOCK ON POWER HANDLE

SHUT DOWN PROCEDURE SIGN

SEE GN-3, PG&E UTILITY BULLETIN TD-027911B-004, FIGURE 11 – SHUT DOWN PROCEDURE SIGN

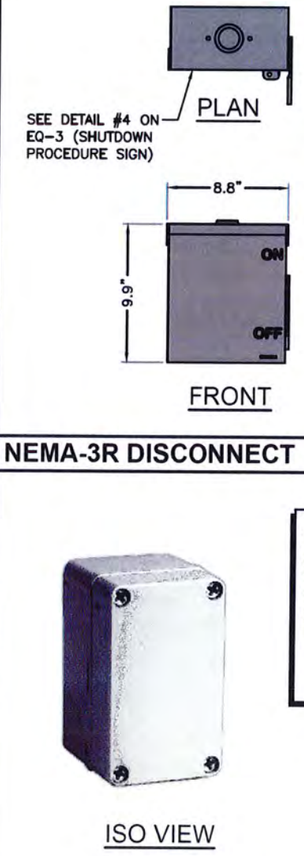
POLE MOUNTED SIGNS — SCALE: NTS — 3

SEE GN-3, PG&E UTILITY BULLETIN TD-027911B-004, FIGURE 10-WIRING DIAGRAM FOR 3-PIN RECEPTACLE



SEE GN-3, PG&E UTILITY BULLETIN TD-027911B-004, FIGURE 9 – 3-PIN RECEPTACLE

3 PIN RECEPTACLE DETAIL — SCALE: NTS — 4



SEE DETAIL #4 ON EQ-3 (SHUTDOWN PROCEDURE SIGN)

MANUFACTURER:
SIEMENS
MODEL: GNF321R
(OR APPROVED EQUAL)
HEIGHT: 9.9 IN
WIDTH: 8.8 IN
DEPTH: 4½ IN
WEIGHT: 5 LBS

SIEMENS

NEMA-3R DISCONNECT — SCALE: NTS — 5

ILSCO PBTD-2-1.0 MULTITAP
TWO SIDED TERMINAL CONNECTOR
(FOR CONDUCTOR SIZES 14-1/0 AWG)

TERMINAL CONNECTOR — SCALE: NTS — 6

ISO VIEW

MANUFACTURER:
ALLEN-BRADLEY
MODEL: 598-BS533
HEIGHT: 5.12"
WIDTH: 3.15"
DEPTH: 3.35"
WEIGHT: 0.60 LBS

Rockwell Automation
Allen-Bradley

NEMA 3R JUNCTION BOX — SCALE: NTS — 7

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MOBILITIE ID:	9CAB013792
DRAWN BY:	SK
CHECKED BY:	CG

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VECTOR PROJECT #: U2314-057-181

VECTOR ENGINEERS
851 W. GALENA PARK BLVD. STE. 2 DRAPER, UTAH 84020 PHONE: (801) 990-1775 WWW.VECTORSE.COM

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JACOB S. PROCTOR
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CIVIL
STATE OF CALIFORNIA

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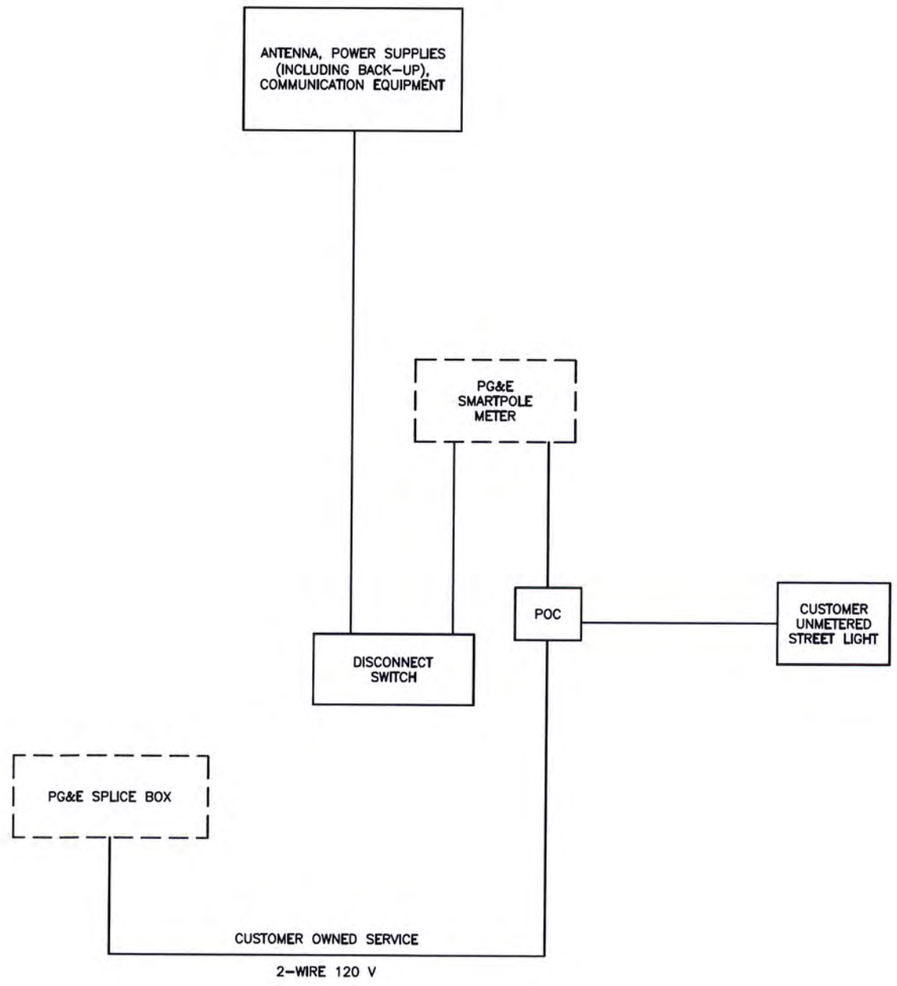
OAKLAND, CA 94601
(E) 28'-6" STEEL LIGHT POLE

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
EQ-2



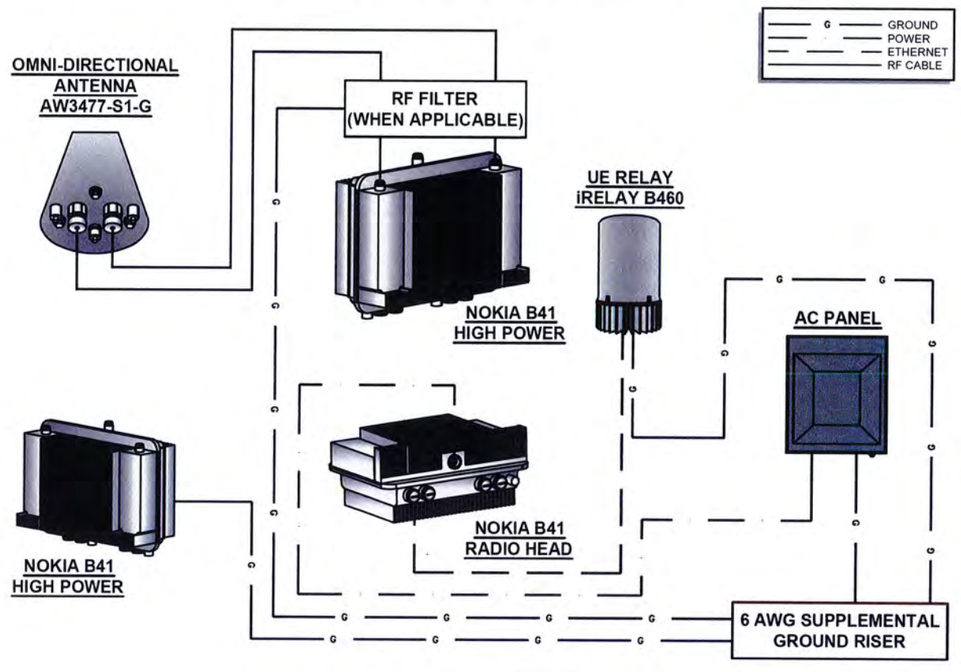
SEE GN-3, PG&E UTILITY BULLETIN TD-027911B-004, FIGURE 6 – ONE LINE DIAGRAM

ONE-LINE DIAGRAM

SCALE: NOT TO SCALE

1

NOKIA MM RADIO W/ UE RELAY



WIRING DIAGRAM

SCALE: NOT TO SCALE

2

NOTES:

1. NOMINAL POWER IS CALCULATED AS 80% OF OEM DOCUMENTED MAXIMUM POWER
2. CALCULATIONS FOR UE W/ NOKIA DO NOT NEED TO INCLUDE THE POWER FOR THE UE ANTENNA AS IT IS INCLUDED IN THE MAX POWER FIGURE. CALCULATIONS FOR UE W/ AIRSPAN MUST INCLUDE UE AS IT IS NOT INCLUDED
3. KVA IS CALCULATED FROM THE CONSUMPTION VALUE ASSUMING A PF=1. MAMIMUM POWER WAS USED FOR KVA. WHERE MAXIMUM WAS NOTED BY THE OEM THE QUOTED FIGURE WAS USED. WHERE AVERAGE/NOMINAL POWER WAS NOTED BY THE OEM MAXIMUM POWER WAS CALCULATED BY INCREASING AVERAGE/NOMINAL POWER BY A FACTOR OF 50%
4. COST PER KW PROVIDED BY BRIAN KOOYMAN

NOKIA SCENARIO 3 B41 HIGH POWER RADIO AND UE BACKHAUL

UNIT	SUB DESCRIPTION	MAX POWER (W)	NOMINAL POWER (W)	AVERAGE POWER (W)	CONS (W)	KVA	kWh/YR	$/YR	$/MO
FWHR	B41 HIGH	360	288	N/A	288	0.36	2522.88	$276.51	23.04
AIRSPAN UE RELAY	iR460-SPB-ST1-P-0	N/A	N/A	N/A	0	0	0	N/A	N/A
TOTAL		360	288	N/A	288	0.36	2522.88	$276.51	23.04

LOAD CALCULATIONS

SCALE: NOT TO SCALE

3

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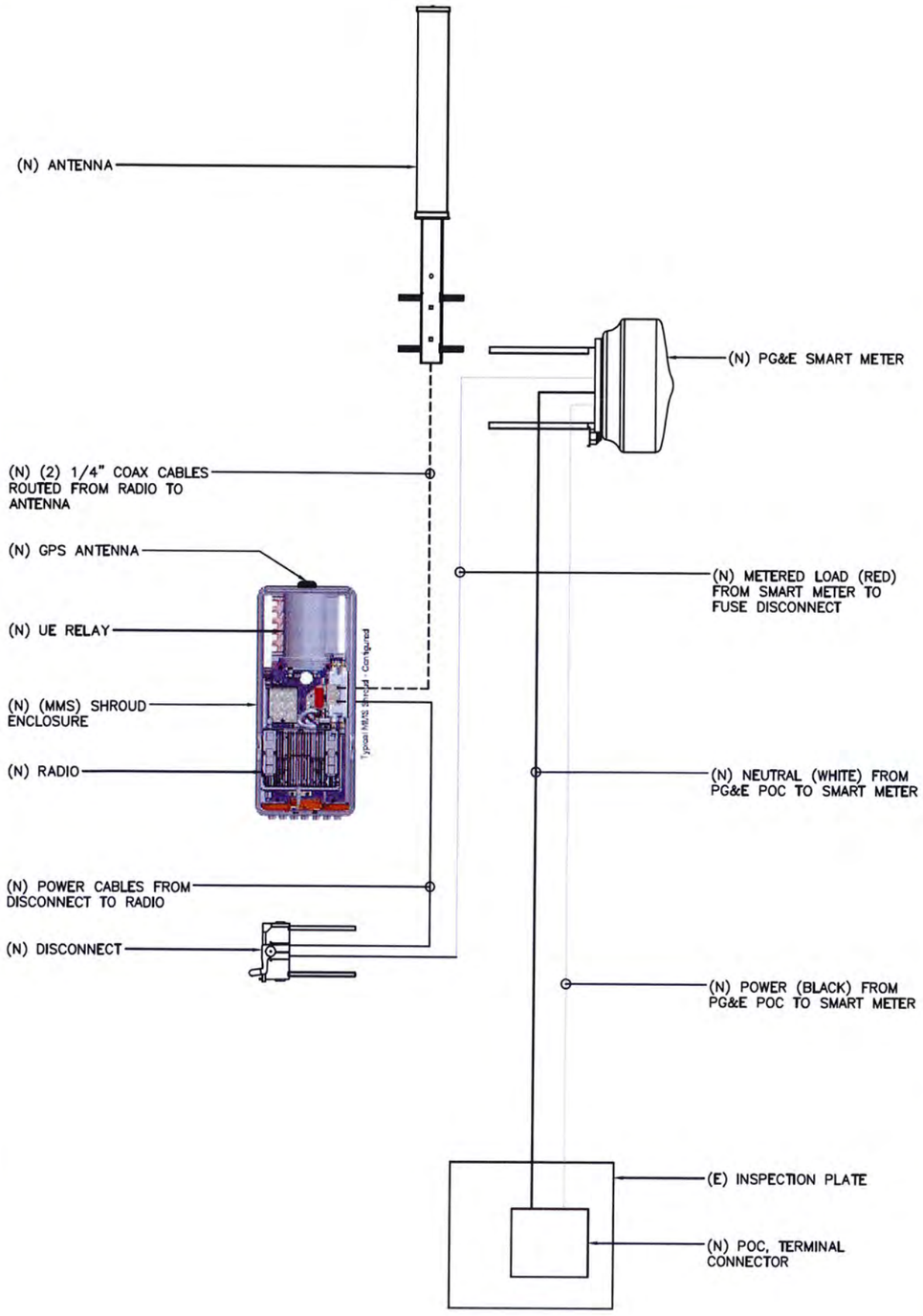
OAKLAND, CA 94601
(E) 28'-6" STEEL LIGHT POLE

SHEET TITLE
ELECTRICAL DETAILS

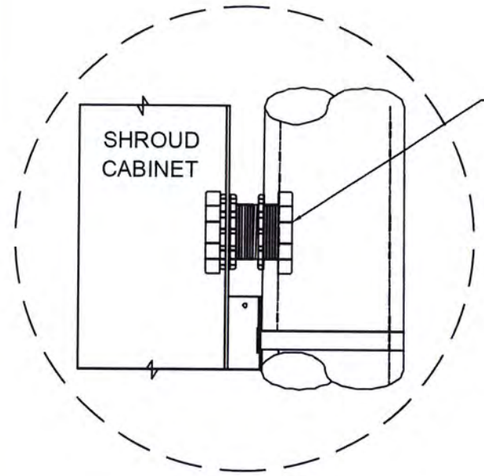
SHEET NUMBER
E-1



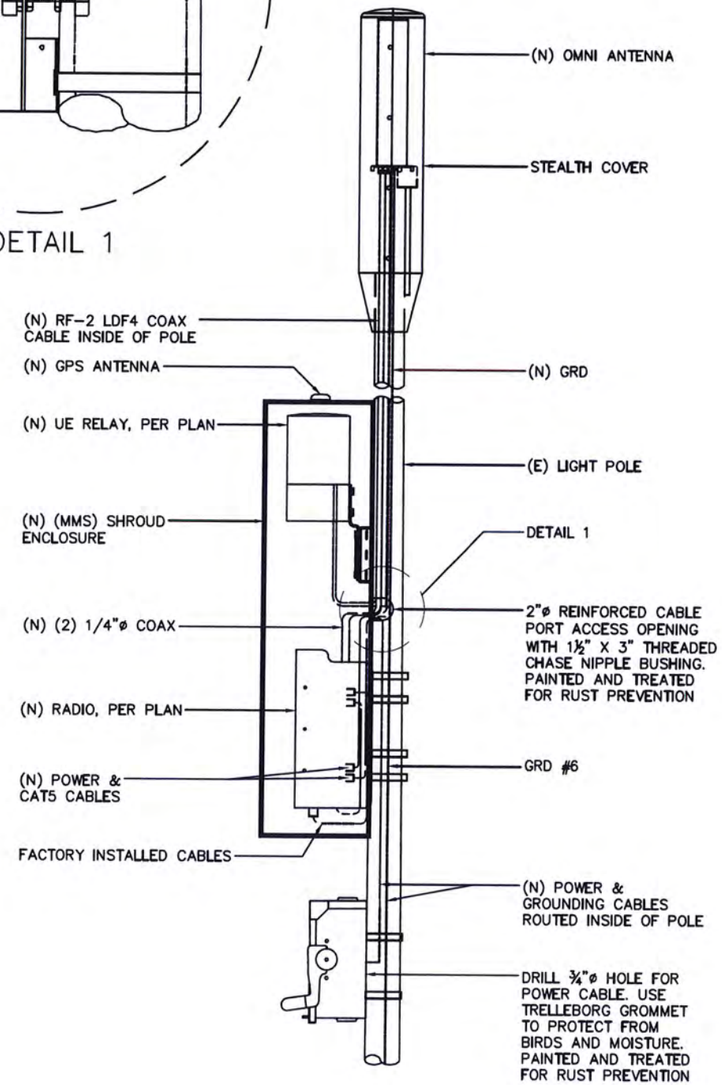
SCHEMATIC POWER FLOW

SCALE: NOT TO SCALE

1



DETAIL 1



PORT HOLE DETAIL

SCALE: NOT TO SCALE

2

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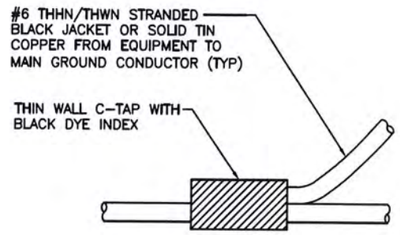
SHEET TITLE
ELECTRICAL PLAN

SHEET NUMBER
E-2

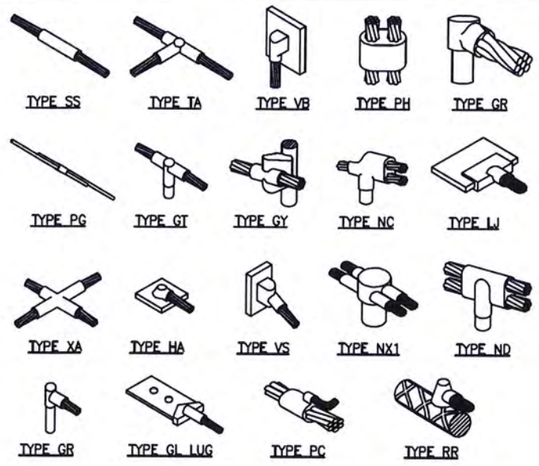


NOTE:
CONTRACTOR TO SURROUND COMPLETED CONNECTION WITH HEAT-SHRINK TUBING TO ENSURE WEATHER PROOF CONNECTION

C-TAP DETAIL

SCALE: NOT TO SCALE

1



GROUNDING BONDS: ALL BONDS ARE TO BE MADE WITH #2 AWG STRANGDED COPPER IN GREEN INSULATION (ATT-TP-76416 7, 6.7)

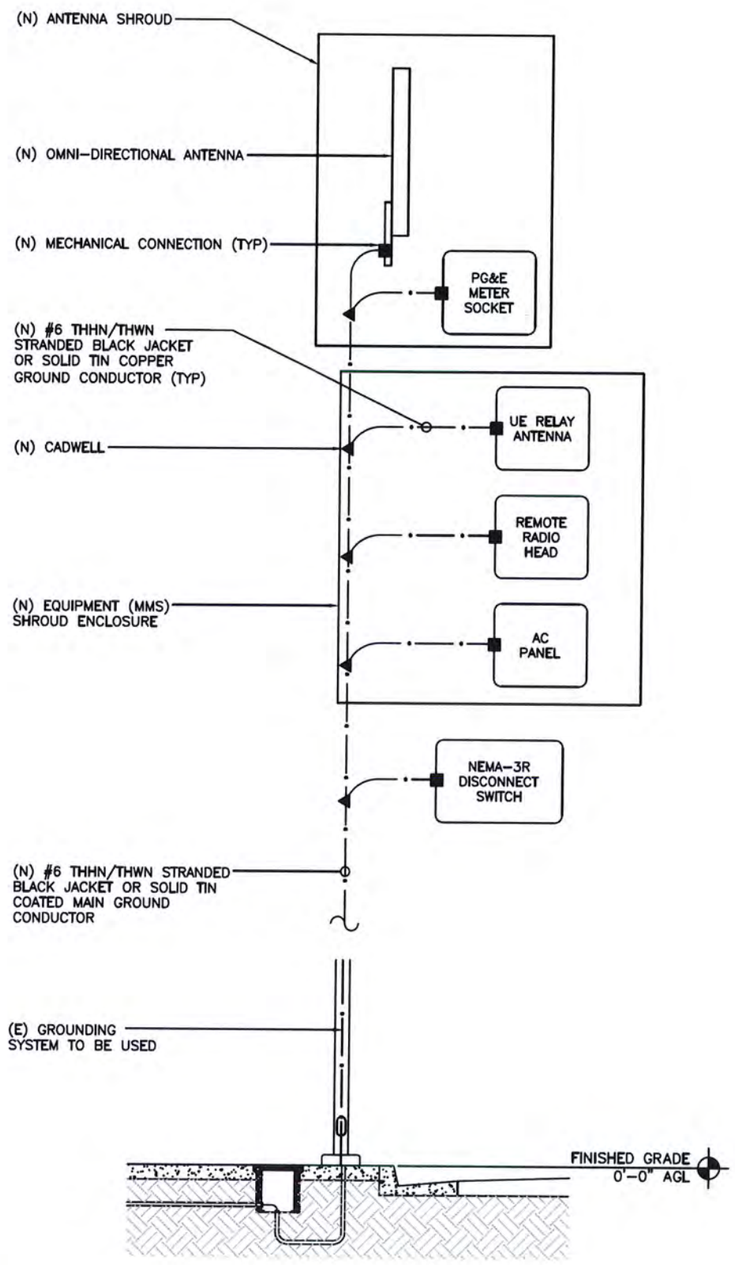
EXTERIOR UNIT BONDS: ALL METALLIC OBJECTS SHALL BE BONDED TO THE GROUND ROD (ATT-TP-76416 7, 12.6)

GROUND ROD: UL LISTED COPPER CLAD STEEL GROUND ROD WITH MINIMUM DIAMETER OF 5/8" AND MINIMUM LENGTH OF 8'. ALL GROUND RODS MAY BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO A MINIMUM OF DEPTH OF 30" BELOW GRADE OR 6" BELOW FROST LINE. (ATT-TP-76416 1.4 / 2/2, 3, 10)

WELD CONNECTION DETAILS

SCALE: NOT TO SCALE

2

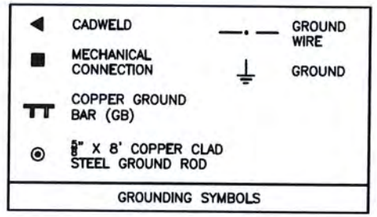


NOTE:
1. ALL RGS TO BE GROUNDED AT BOTH ENDS USING GROUNDING BUSHINGS.
2. GROUND WIRE TO BE RUN IN 3/4" SCHEDULE 40 PVC.
3. GROUNDING RISER FOR DIAGRAMMATIC PURPOSES ONLY. SEE ELEVATION DRAWING FOR EQUIPMENT AND ANTENNA LOCATIONS.

GROUNDING RISER DIAGRAM

SCALE: NOT TO SCALE

3



GROUNDING SYMBOLS

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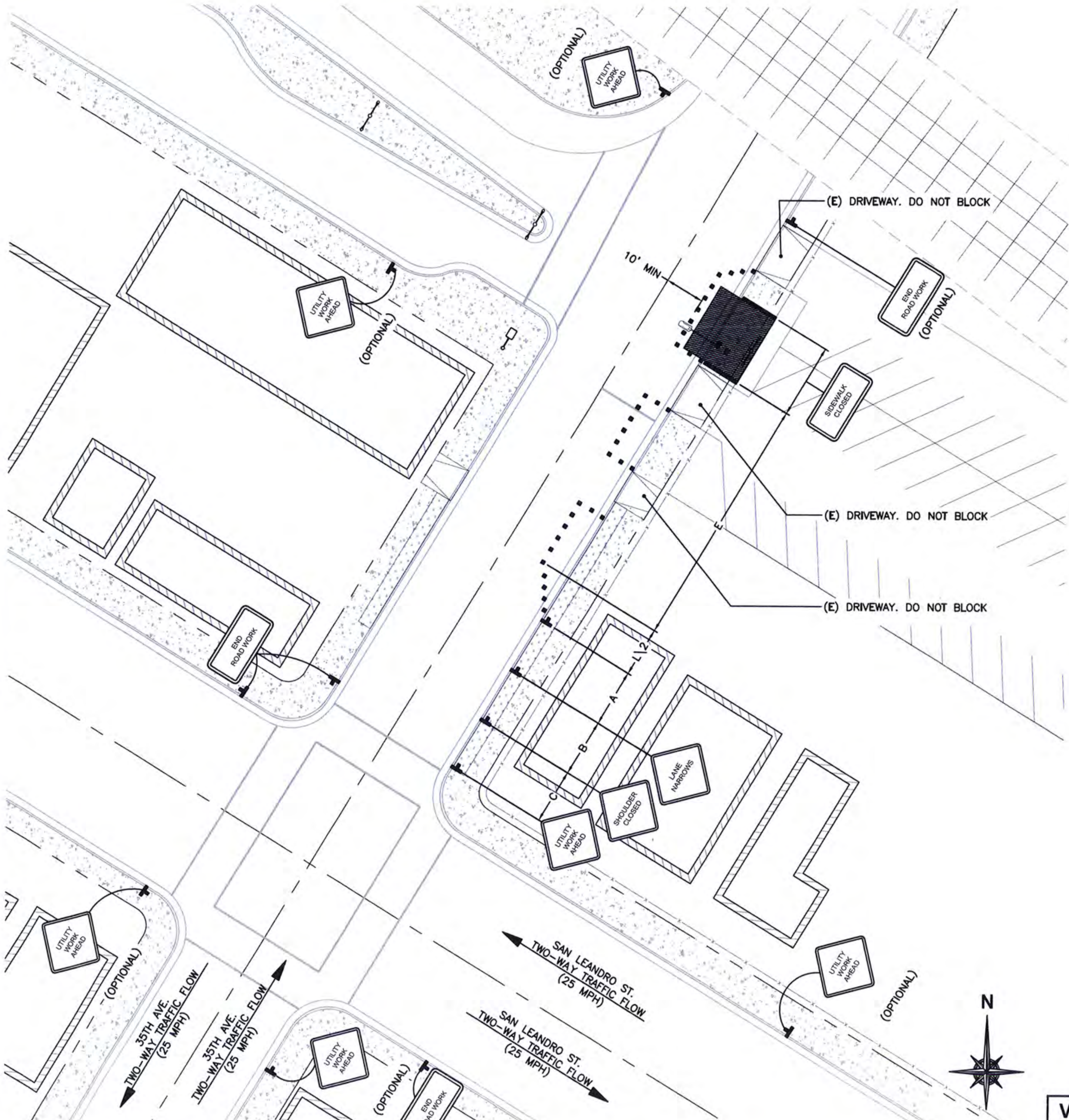
(E) 28'-6" STEEL LIGHT POLE

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-1



1. "ROAD WORK AHEAD" AND THE "BE PREPARED TO STOP" SIGNS MAY BE OMITTED IF ALL OF THE FOLLOWING CONDITIONS ARE MET:
   - A. WORK OPERATIONS ARE 60 MINUTES OR LESS
   - B. SPEED LIMIT IS 45 MPH OR LESS
   - C. NO SIGHT OBSTRUCTIONS TO VEHICLES APPROACHING THE WORK AREA FOR A DISTANCE EQUAL TO THE BUFFER SPACE
   - D. VEHICLES IN THE WORK AREA HAVE HIGH-INTENSITY, ROTATING, FLASHING, OSCILLATING, OR STROBE LIGHTS OPERATING
   - E. VOLUME AND COMPLEXITY OF THE ROADWAY HAS BEEN CONSIDERED

DURATION NOTES

LEGEND	
■	CHANNELIZING DEVICE
┣	SIGN
▨	WORK SPACE
▬•	FLAGGER
➡	DIRECTION OF TRAFFIC
▧▧▧	TYPE 3 BARRICADE

1. ALL WORK AND MATERIALS SHALL COMPLY WITH THE WORK AREA TRAFFIC CONTROL HANDBOOK (WATCH) 2016 EDITION.
2. ALL STRINGS AND MARKINGS SHALL CONFORM TO THE STATE OF CALIFORNIA, STANDARD PLANS AND SPECIFICATIONS, INCLUDING STANDARD PLAN A-20, DETAILS.
3. THE CONTRACTOR SHALL PROVIDE FOR ACCESS TO ALL ADJACENT PROPERTIES.
4. FLASHING YELLOW BEACONS, TYPE "B", SHALL BE USED ON ALL W20-1 SIGNS AND ON ALL TYPE III BARRICADES GUARDING THE WORK AREA OVERNIGHT.
5. ALL SIGNS SHALL BE REFLECTORIZED AND STANDARD SIZE.
6. ALL TUBULAR DELINEATORS AND CONES SHALL BE 28" MINIMUM HEIGHT, REFLECTORIZED AND MAINTAINED ERECT IN THE INDICATED POSITION AT ALL TIMES, AND SHALL BE REPAIRED, REPLACED, OR CLEANED AS NECESSARY TO PRESERVE THEIR APPEARANCE AND CONTINUITY, AND SHALL INCLUDE A 12" HIGH-INTENSITY REFECTORIZED SLEEVE, IF USED DURING NIGHT-TIME HOURS.
7. THE CONTRACTOR SHALL MAINTAIN ON A CONTINUOUS BASIS, ALL SIGNS, DELINEATORS, BARRICADES, ETC., TO ENSURE PROPER FLOW AND SAFETY OF TRAFFIC DURING CONSTRUCTION.
8. THE CONTRACTOR SHALL HAVE ALL SIGNS, DELINEATORS, BARRICADES, ETC., PROPERLY INSTALLED PRIOR TO COMMENCING CONSTRUCTION.
9. CONSTRUCTION OPERATION SHALL BE CONDUCTED IN SUCH A MANNER AS TO CAUSE AS LITTLE INCONVENIENCE AS POSSIBLE TO ABUTTING PROPERTY OWNERS.
10. ADDITIONAL TRAFFIC CONTROLS, TRAFFIC SIGNS, OR BARRICADING MAY BE REQUIRED IN THE FIELD. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PLACEMENT OF ANY ADDITIONAL DEVICES NECESSARY TO ASSURE SAFETY TO THE PUBLIC AT ALL TIMES DURING CONSTRUCTION.
11. EXACT LOCATION AND TYPE OF CONSTRUCTION SIGNS SHALL BE DIRECTED BY THE ENGINEER BASED UPON CONSTRUCTION CONDITIONS.
12. MOVE DELINEATORS AND/OR CONES TO SIDEWALK DURING NON-WORKING HOURS. REMOVE BARRICADES ETC. FROM TRAVEL LANE.
13. REMOVE OR TURN OFF SIGNS DURING NON-WORK HOURS.
14. ALL CONFLICTING LINES, EXISTING CURB PAINT, AND MARKING SHALL BE REMOVED BY WET SANDBLASTING OR OTHER APPROVED METHOD PRIOR TO INSTALLATION OF NEW/TEMPORARY STRIPING. ALL CONFLICTING RAISED PAVEMENT MARKERS SHALL BE REMOVED. PAVEMENT THAT IS DAMAGED DUE TO REMOVAL OF MARKERS SHALL BE REPAIRED TO THE SATISFACTION OF THE CITY ENGINEER AND/OR STATE INSPECTOR.

GENERAL NOTES

TEMPORARY TRAFFIC CONTROL PLAN DIMENSION GUIDELINES

SPEED MPH (2)	Dimension A/B/C ADVANCE WARNING SIGN SPACING (5)	Dimension L MERGING TAPER LENGTH	Dimension L/2 SHIFTING TAPER LENGTH	Dimension L/3 MINIMUM SHOULDER LENGTH	Dimension "E" BUFFER SPACE (4-A) and FLAGGER STATION STOPPING SIGHT DISTANCE (4-B) (0%)	(-3%)	(-6%)	MAXIMUM CHANNELIZER TAPER SPACING (3)	MAXIMUM CHANNELIZER TANGENT SPACING (3)	MAXIMUM CHANNELIZER CONFLICT SPACING (6)
MPH	ft	ft	ft	ft	ft			ft	ft	ft
25	100	125	65	45	(155)	(160)	(165)	25	50	12
30	250	180	90	60	(200)	(205)	(215)	30	60	15
35	250	245	125	85	(250)	(260)	(275)	35	70	17
40	250	320	160	110	(305)	(315)	(335)	40	80	20
45	350	540	270	180	(360)	(380)	(400)	45	90	22
50	350	600	300	200	(425)	(450)	(475)	50	100	25
55	500	660	330	220	(495)	(520)	(555)	50	100	25
60	500	720	360	240	(570)	(600)	(640)	50	100	25
65	500	780	390	260	(645)	(685)	(730)	50	100	25

(1)	Work on Freeways and Expressways shall meet the Caltrans Standard Plans and Standard Specification requirements.
(2)	Posted Speed or observed operating speed (whichever is greater)
(3)	Channelizer spacing shall be reduced by half at areas where work is taking place on curved or areas of head-on conflict.
(4-A)	Buffer space may be inserted in low-speed urban areas and should be inserted in high-speed urban and rural areas.
(4-B)	The Stopping Sight Distance should enable Road User to see the Primary Flagger Station and safety stop.
(5)	Sign spacing in rural areas should be 500 ft.
(6)	** Table 6F-101(CA)

DIMENSION GUIDELINE

VEHICULAR TRAFFIC CONTROL PLAN

SCALE: NOT TO SCALE

1

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CHECKED BY:	CG

A	06/08/18	FOR REVIEW

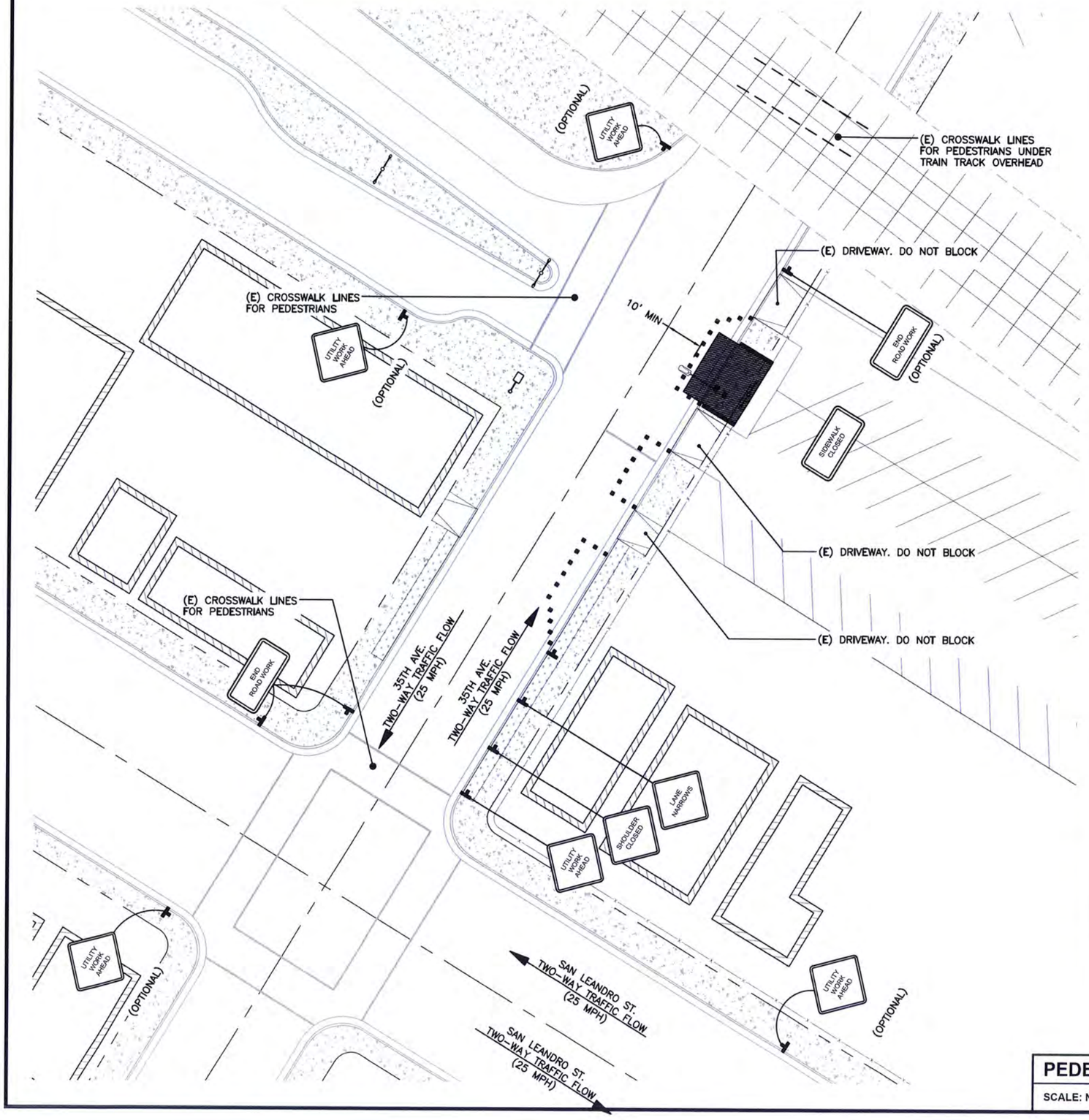
06/26/2018
VECTOR PROJECT #: U2314-057-181
VECTOR ENGINEERS
REGISTERED PROFESSIONAL ENGINEER
JACOB S. PROCTOR
C70567
CIVIL
STATE OF CALIFORNIA

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT

SF90XS2K0C
9CAB013792
OAKLAND, CA 94601
(E) 28'-6" STEEL LIGHT POLE

SHEET TITLE
VEHICULAR TRAFFIC CONTROL PLAN

SHEET NUMBER
TC-1



TRAFFIC CONTROL GENERAL NOTES:

1. ALL TEMPORARY TRAFFIC CONTROL SIGNAGE, LAYOUTS AND PROCEDURES SHALL COMPLY WITH LOCAL JURISDICTIONAL REQUIREMENTS AND MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION, WHICHEVER IS MORE STRINGENT.

2. PRIOR TO ANY ROAD CONSTRUCTION, TRAFFIC CONTROL SIGNS AND DEVICES SHALL BE IN PLACE.

3. TRAFFIC CONTROL DEVICES FOR LANE CLOSURES INCLUDING SIGNS, CONES, BARRICADES, ETC. SHALL BE PLACED AS SHOWN ON PLANS. SIGNS SHALL NOT BE PLACED WITHOUT ACTUAL LANE CLOSURES AND SHALL BE IMMEDIATELY REMOVED UPON REMOVAL OF THE CLOSURES.

4. SELECTION, PLACEMENT, MAINTENANCE, AND PROTECTION OF TRAFFIC, PEDESTRIANS, AND WORKERS SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) – PART VI "TEMPORARY TRAFFIC CONTROL", AND LOCAL JURISDICTIONAL REQUIREMENTS UNLESS OTHERWISE NOTED IN THE PLANS AND SPECIFICATIONS, AND SHALL BE APPROVED BY THE APPROPRIATE HIGHWAY AUTHORITY HAVING JURISDICTION.

5. ADVANCE WARNING SIGNS, DISTANCES, AND TAPER LENGTHS MAY BE EXTENDED TO ADJUST FOR REDUCED VISIBILITY DUE TO HORIZONTAL AND VERTICAL CURVATURE OF THE ROADWAY AND FOR ACTUAL TRAFFIC SPEEDS IF IN EXCESS OF POSTED SPEED LIMITS.

6. TAPERS SHALL BE LOCATED TO MAXIMIZE THE VISIBILITY OF THEIR TOTAL LENGTH.

7. CONFLICTING OR NON-OPERATING SIGNAL INDICATIONS ON THE (E) TRAFFIC SIGNAL SYSTEMS SHALL BE BAGGED OR COVERED.

8. ALL (E) ROAD SIGNS, PAVEMENT MARKINGS AND/OR PLOWABLE PAVEMENT REFLECTORS WHICH CONFLICT WITH THE (N) TRAFFIC CONTROL PLAN SHALL BE COVERED, REMOVED, OR RELOCATED. ALL TRAFFIC CONTROL DEVICES SHALL BE RESTORED TO MATCH PRE-CONSTRUCTION CONDITION AFTER COMPLETION OF WORK.

9. CONTRACTOR SHALL CONTACT LOCAL AUTHORITY HAVING HIGHWAY JURISDICTION AND PROVIDE ADDITIONAL "FLAGMEN" OR POLICE SUPERVISION, IF REQUIRED.

10. ALL EXCAVATED AREAS WITHIN OR ADJACENT TO THE ROADWAY SHALL BE BACKFILLED AND PLACED ON A MINIMUM 6H: 1 V SLOPE PRIOR TO END OF EACH WORK DAY. OTHER EXCAVATED AREAS WITHIN THE CLEAR ZONE ARE TO BE EITHER BACKFILLED OR PRECAST CONCRETE CURB BARRIER CONSTRUCTION BARRIER SET TEMPORARILY IN PLACE TO SHIELD VEHICULAR AND PEDESTRIAN TRAFFIC.

11. WHERE DICTATED BY LOCAL CONDITIONS, THE CONTRACTOR SHALL MAKE PROVISIONS FOR MAINTAINING PEDESTRIAN AND WORKER CROSSING LOCATIONS IN ACCORDANCE WITH ALL APPLICABLE CODES AND OSHA REQUIREMENTS.

12. CONSTRUCTION ZONE SPEED LIMIT IF REDUCED FROM POSTED LIMITS SHALL BE IN ACCORDANCE WITH MUTCD AND WILL BE DETERMINED BY THE AUTHORITY HAVING JURISDICTION.

13. THERE SHALL BE NO WORKERS, EQUIPMENT, OR OTHER VEHICLES IN THE BUFFER SPACE OR THE ROLL AHEAD SPACE.

14. DRIVEWAYS AND/OR SIDE STREETS ENTERING THE ROADWAY AFTER THE FIRST ADVANCE WARNING SIGN SHALL BE PROVIDED WITH AT LEAST ONE W20-1 SIGN (ROAD WORK AHEAD) AS A MINIMUM.

15. CONES MAY BE SUBSTITUTED FOR DRUMS AND INSTALLED UPON THE APPROVAL OF THE AUTHORITY HAVING JURISDICTION PROVIDED THEY COMPLY WITH MUTCD.

16. THE SPACING BETWEEN CONES, TUBULAR MARKERS, VERTICAL PANELS,
DRUMS, AND BARRICADES SHOULD NOT EXCEED A DISTANCE IN FEET EQUAL
TO 1.0 TIMES THE SPEED LIMIT IN MPH WHEN USED FOR TAPER CHANNELIZATION, AND A DISTANCE IN FEET EQUAL TO 2.0 TIMES THE SPEED LIMIT IN MPH WHEN USED FOR TANGENT CHANNELIZATION.

17. WHEN CHANNELIZATION DEVICES HAVE THE POTENTIAL OF LEADING VEHICULAR TRAFFIC OUT OF THE INTENDED VEHICULAR TRAFFIC SPACE, THE CHANNELIZATION DEVICES SHOULD BE EXTENDED A DISTANCE IN FEET OF 2.0 TIMES THE SPEED LIMIT IN MPH BEYOND THE DOWNSTREAM END OF THE TRANSITION AREA.

18. TAPER LENGTHS ARE CALCULATED AS FOLLOWS:
L= WS2 /60 (40 MPH AND HIGHER) OR L2=WS (OVER 40 MPH),
WHERE W=OFFSET WIDTH (FT), S=TRAFFIC SPEED (MPH).

PEDESTRIAN/WORKER SAFETY PLAN

SCALE: NOT TO SCALE

1

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REGISTERED PROFESSIONAL ENGINEER
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OAKLAND, CA 94601
(E) 28'-6" STEEL LIGHT POLE

SHEET TITLE
PEDESTRIAN/WORKER SAFETY PLAN

SHEET NUMBER
TC-2

GENERAL CONSTRUCTION NOTES:

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE LOCAL BUILDING CODE, THE LATEST ADOPTED EDITION AND ALL OTHER APPLICABLE CODES AND ORDINANCES.

2. CONTRACTOR SHALL CONSTRUCT SITE IN ACCORDANCE WITH THESE DRAWINGS AND LATEST MOBILITIE CONSTRUCTION STANDARDS. THE SPECIFICATION IS THE RULING DOCUMENT AND ANY DISCREPANCIES BETWEEN THE SPECIFICATION AND THE CONSTRUCTION DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER OR MOBILITIE CM PRIOR TO THE COMMENCEMENT OF WORK.

3. CONTRACTOR SHALL VISIT THE JOB SITE AND SHALL FAMILIARIZE THEMSELVES WITH ALL CONDITIONS AFFECTING THE (N) WORK AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED, AS SHOWN, PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER OR MOBILITIE CM PRIOR TO THE COMMENCEMENT OF WORK. NO COMPENSATION WILL BE AWARDED BASED ON CLAIM OF LACK OF KNOWLEDGE OF FIELD CONDITIONS.

4. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. CONTRACTOR IS REQUIRED TO FURNISH AND INSTALL ANY/ALL ITEMS FOR A COMPLETE AND FULLY FUNCTIONAL SYSTEM SUBJECT ONLY TO OWNER-SUPPLIED ITEMS. CONTRACTOR SHALL PROVIDE ANY/ALL REQUIREMENTS FOR THE EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.

5. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT AND APPURTENANCES, AND LABOR NECESSARY TO EFFECT ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS. OWNER PROVIDED AND CONTRACTOR INSTALLED MATERIALS WILL INCLUDE THE FOLLOWING, UNLESS NOTED OTHERWISE:
   A) TRANSMITTER
   B) UHF ANTENNA AND MOUNTING BRACKETS, GPS ANTENNAS AND KU ANTENNAS
   C) UHF COAX AND HANGERS
   D) INTEGRATED LOAD CENTER

6. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, (E) CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPORTING ANY DISCREPANCIES TO THE ATTENTION OF THE MOBILITIE CM, IN WRITING, PRIOR TO THE COMMENCEMENT OF WORK.

7. DETAILS PROVIDED ARE FOR THE PURPOSE OF SHOWING DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR SITE CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.

8. CONTRACTOR SHALL PAY FOR APPLICABLE PERMITS, FEES, INSPECTIONS AND TESTING. CONTRACTOR IS TO OBTAIN PERMITS AND APPROVED SUBMITTALS PRIOR TO ORDERING MATERIALS AND THE COMMENCEMENT OF WORK.

9. THE TERM "PROVIDE" USED IN CONSTRUCTION DOCUMENTS AND SPECIFICATIONS, INDICATES THAT THE CONTRACTOR SHALL FURNISH AND INSTALL.

10. CONTRACTOR SHALL RECEIVE CLARIFICATION IN WRITING, AND SHALL RECEIVE IN WRITING AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.

11. CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING ACCEPTED INDUSTRY-STANDARD SKILLS AND ATTENTION. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT, UNLESS OTHERWISE NOTED.

12. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS.

13. CONTRACTOR SHALL COORDINATE THEIR WORK WITH THE MOBILITIE CM AND SCHEDULE THEIR ACTIVITIES AND WORKING HOURS IN ACCORDANCE WITH THE REQUIREMENTS.

14. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THEIR WORK WITH THE WORK OF OTHERS AS IT MAY RELATE TO RADIO EQUIPMENT, ANTENNAS AND ANY OTHER PORTIONS OF THE WORK.

15. CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS UNLESS SPECIFICALLY OTHERWISE INDICATED OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.

16. CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT (E) SURFACES, EQUIPMENT, IMPROVEMENTS, PIPING ETC. AND IMMEDIATE REPAIR, TO NEW CONDITION, ANY DAMAGE THAT OCCURS DURING CONSTRUCTION AT THE SOLE COST OF THE CONTRACTOR.

17. IN DRILLING HOLES, OR CORING, INTO CONCRETE WHETHER FOR FASTENING OR ANCHORING PURPOSES, OR PENETRATIONS THROUGH THE FLOOR FOR CONDUIT RUNS, PIPE RUNS, ETC., MUST BE CLEARLY UNDERSTOOD THAT REINFORCING STEEL SHALL NOT BE DRILLED INTO, CUT OR DAMAGED UNDER ANY CIRCUMSTANCES (UNLESS NOTED OTHERWISE). LOCATIONS OF REINFORCING STEEL ARE NOT DEFINITELY KNOWN AND THEREFORE MUST BE LOCATED BY THE CONTRACTOR USING APPROPRIATE METHODS AND EQUIPMENT PRIOR TO ANY DRILLING OR CORING OPERATIONS IN (E) CONCRETE.

18. CONTRACTOR SHALL REPAIR, TO NEW CONDITION, ALL (E) WALL SURFACES DAMAGED DURING CONSTRUCTION SUCH THAT THEY MATCH AND BLEND IN WITH ADJACENT SURFACES.

19. CONTRACTOR SHALL SEAL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES OR MATERIALS WITH U.L. LISTED AND FIRE CODE APPROVED MATERIALS AND SYSTEMS THAT MEET OR EXCEED THE RATING OF THE ASSEMBLY IN WHICH THE NEW PENETRATION IS PLACED.

20. CONTRACTOR SHALL KEEP CONTRACT AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DIRT, DEBRIS, AND RUBBISH. EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY OF THE OWNER SHALL BE REMOVED. LEAVE PREMISES IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ITEMS UNTIL COMPLETION OF CONSTRUCTION.

21. MINIMUM BEND RADIUS OF ANTENNA CABLES SHALL BE IN ACCORDANCE WITH CABLE MANUFACTURERS RECOMMENDATIONS.

22. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO (E) SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION SHALL BE IN CONFORMANCE WITH JURISDICTIONAL OR STATE AND LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL AND COORDINATED WITH LOCAL REGULATORY AUTHORITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF ANY EROSION CONTROL MEASURES, RECORD-KEEPING, MONITORING, AND REPORTING TO THE OWNER AND REGULATORY AUTHORITIES.

23. ALL CONSTRUCTION WORK IS TO ADHERE TO APPLICANT'S INTEGRATED CONSTRUCTION STANDARDS UNLESS STATE OR LOCAL CODE IS MORE STRINGENT.

24. THE INTENT OF THE PLANS AND SPECIFICATIONS IS TO PERFORM THE CONSTRUCTION IN ACCORDANCE PER STATE BUILDING STANDARDS CODE AND STATE CODE OF REGULATIONS. SHOULD ANY CONDITIONS DEVELOP NOT COVERED BY THE APPROVED PLANS AND SPECIFICATIONS WHEREIN THE FINISHED WORK WILL NOT COMPLY PER STATE CODE OF REGULATIONS, A SCOPE OF WORK DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY THE JURISDICTION BEFORE PROCEEDING WITH THE WORK. A CHANGE ORDER FOR THAT SCOPE SHALL BE SUBMITTED TO THE MOBILITIE CM PRIOR TO PROCEEDING WITH THE WORK.

25. ADEQUATE AND REQUIRED LIABILITY INSURANCE SHALL BE PROVIDED BY THE CONTRACTOR FOR PROTECTION AGAINST PUBLIC LOSS AND ANY/ALL PROPERTY DAMAGE FOR THE DURATION OF WORK.

26. CONTRACTOR SHALL GUARANTEE ANY/ALL MATERIALS AND WORK FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN ONE YEAR FROM DATE OF ACCEPTANCE. ANY CORRECTIVE WORK SHALL BE COMPLETED AT THE SOLE COST OF THE CONTRACTOR.

ELECTRICAL NOTES:

1. ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL ANY/ALL ELECTRICAL WORK INDICATED. ANY/ALL CONSTRUCTION SHALL BE IN ACCORDANCE W/DRAWINGS AND ANY/ALL APPLICABLE SPECIFICATIONS. IF ANY PROBLEMS ARE ENCOUNTERED BY COMPLYING WITH THESE REQUIREMENTS, CONTRACTOR SHALL NOTIFY MOBILITIE CM AS SOON AS POSSIBLE, AFTER THE DISCOVERY OF THE PROBLEMS, AND SHALL NOT PROCEED WITH THAT PORTION OF WORK, UNTIL THE MOBILITIE CM HAS DIRECTED THE CORRECTIVE ACTIONS TO BE TAKEN.

2. ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND FAMILIARIZE THEMSELVES WITH ANY/ALL CONDITIONS AFFECTING ELECTRICAL AND COMMUNICATION INSTALLATION AND MAKE PROVISIONS AS TO THE COST THEREOF. ALL (E) CONDITIONS OF ELECTRICAL EQUIP., ETC., THAT ARE PART OF THE FINAL SYSTEM, SHALL BE VERIFIED BY THE CONTRACTOR, PRIOR TO THE SUBMITTING OF THEIR BID. FAILURE TO COMPLY WITH THIS PARAGRAPH WILL IN NO WAY RELIEVE CONTRACTOR OF PERFORMING ALL WORK NECESSARY FOR A COMPLETE AND WORKING SYSTEM.

3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NEC, ALL CODES AND ORDINANCES OF THE LOCAL JURISDICTION, AND POWER & TELEPHONE COMPANIES HAVING JURISDICTION AND SHALL INCLUDE BUT ARE NOT BE LIMITED TO:
   A) UL – UNDERWRITERS LABORATORIES
   B) NEC – NATIONAL ELECTRICAL CODE
   C) NEMA – NATIONAL ELECTRICAL MANUFACTURERS ASSOC.
   D) OSHA – OCCUPATIONAL SAFETY AND HEALTH ACT
   E) SBC – STANDARD BUILDING CODE
   F) NFPA – NATIONAL FIRE PROTECTION AGENCY
   G) ANSI – AMERICAN NATIONAL STANDARDS INSTITUTE
   H) IEEE – INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
   I) ASTM – AMERICAN SOCIETY FOR TESTING MATERIALS

4. REFER TO SITE PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL EQUIPMENT, AND CONFIRM WITH MOBILITIE CM ANY SIZES AND LOCATIONS WHEN NEEDED.

5. (E) SERVICES: CONTRACTOR SHALL NOT INTERRUPT (E) SERVICES WITHOUT WRITTEN PERMISSION OF THE OWNER.

6. CONTRACTOR SHALL CONFIRM WITH LOCAL UTILITY COMPANY ANY/ALL REQUIREMENTS SUCH AS THE: LUG SIZE RESTRICTIONS, CONDUIT ENTRY, SIZE OF TRANSFORMERS, SCHEDULED DOWNTIME FOR THE OWNERS' CONFIRMATION, ETC... ANY/ALL CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE MOBILITIE CM, PRIOR TO BEGINNING ANY WORK.

7. MINIMUM WIRE SIZE SHALL BE #12 AWG, NOT INCLUDING CONTROL WIRING, UNLESS NOTED OTHERWISE. ALL CONDUCTORS SHALL BE COPPER WITH THWN INSULATION, UNLESS OTHERWISE NOTED.

8. OUTLET BOXES SHALL BE PRESSED STEEL IN DRY LOCATIONS, CAST ALLOY WITH THREADED HUBS IN WET/DAMP LOCATIONS AND SPECIAL ENCLOSURES FOR OTHER CLASSIFIED AREAS.

9. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF THE CONSTRUCTION. CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE ALL REQUIREMENTS FOR THE EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.

10. ELECTRICAL SYSTEM SHALL BE AS COMPLETELY AND EFFECTIVELY GROUNDED, AS REQUIRED BY SPECIFICATIONS, SET FORTH BY APPLICANT.

11. ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR IN A FIRST CLASS, WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY FUNCTIONAL AND SHALL BE APPROVED BY THE MOBILITIE CM AND LOCAL JURISDICTION. ANY DEFICIENCIES SHALL BE CORRECTED BY AN ELECTRICAL CONTRACTOR AT THE SOLE COST OF THE CONTRACTOR.

12. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGRESS OF CONSTRUCTION.

13. THE CORRECTION OF ANY DEFECTS SHALL BE COMPLETED BY THE CONTRACTOR WITHOUT ANY ADDITIONAL CHARGE AND SHALL INCLUDE THE REPLACEMENT OR THE REPAIR OF ANY OTHER PHASE OF THE INSTALLATION, WHICH MAY HAVE BEEN DAMAGED THEREIN.

14. CONTRACTOR SHALL PROVIDE AND INSTALL CONDUIT, CONDUCTORS, PULL WIRES, BOXES, COVER PLATES AND DEVICES FOR ALL OUTLETS AS INDICATED.

15. DITCHING AND BACK FILL: CONTRACTOR SHALL PROVIDE FOR ALL UNDERGROUND INSTALLED CONDUIT AND/OR CABLES INCLUDING EXCAVATION AND BACKFILLING AND COMPACTION. REFER TO NOTES AND REQUIREMENTS 'EXCAVATION, AND BACKFILLING.

16. MATERIALS, PRODUCTS AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW AND SHALL APPEAR ON THE LIST OF U.L. APPROVED ITEMS AND SHALL MEET OR EXCEED THE REQUIREMENTS OF THE NEC, NEMA AND IECE.

17. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OR MANUFACTURER'S CATALOG INFORMATION OF ANY/ALL EQUIPMENT AND ALL OTHER ELECTRICAL ITEMS FOR APPROVAL BY THE MOBILITIE CM PRIOR TO INSTALLATION.

18. ANY CUTTING OR PATCHING DEEMED NECESSARY FOR ELECTRICAL WORK IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY AND SHALL BE INCLUDED IN THE COST FOR WORK AND PERFORMED TO THE SATISFACTION OF THE MOBILITIE CM UPON FINAL ACCEPTANCE.

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SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-1

ELECTRICAL NOTES CONT'D

19. THE ELECTRICAL CONTRACTOR SHALL LABEL ALL PANELS WITH ONLY TYPEWRITTEN DIRECTORIES. ALL ELECTRICAL WIRING SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
20. DISCONNECT SWITCHES SHALL BE UL-RATED, H.P. RATED HEAVY-DUTY, QUICK-MAKE AND QUICK-BREAK ENCLOSURES, AS REQUIRED BY EXPOSURE TYPE.
21. ALL CONNECTIONS SHALL BE MADE WITH A PROTECTIVE COATING OF AN ANTI-OXIDE COMPOUND KNOWN AS "NO-OXIDE A" BY DEARBORNE CHEMICAL CO. COAT ALL WIRE SURFACES BEFORE CONNECTING. EXPOSED COPPER SURFACES, INCLUDING GROUND BARS, SHALL BE TREATED - NO SUBSTITUTIONS.
22. RACEWAYS: CONDUIT SHALL BE SCHEDULE 80 PVC MEETING OR EXCEEDING NEMA TC2 - 1990. CONTRACTOR SHALL PLUG AND CAP EACH END OF SPARE AND EMPTY CONDUITS AND PROVIDE TWO SEPARATE PULL STRINGS - 200 LBS TEST POLYETHYLENE CORD. ALL CONDUIT BENDS SHALL BE A MINIMUM OF 2 FT. RADIUS. RGS CONDUITS WHEN SPECIFIED, SHALL MEET UL-6 FOR GALVANIZED STEEL. ALL FITTINGS SHALL BE SUITABLE FOR USE WITH THREADED RIGID CONDUIT. COAT ALL THREADS WITH 'BRITE ZINC' OR 'COLD GALV'.
23. SUPPORT OF ALL ELECTRICAL WORK SHALL BE AS REQUIRED BY NEC.
24. CONDUCTORS: CONTRACTOR SHALL USE 98% CONDUCTIVITY COPPER WITH TYPE THWN INSULATION, UNLESS OTHERWISE NOTED, 600 VOLT, COLOR CODED. USE SOLID CONDUCTORS FOR WIRE UP TO AND INCLUDING NO. 8 AWG. USE STRANDED CONDUCTORS FOR WIRE ABOVE NO. 8 AWG.
25. CONNECTORS FOR POWER CONDUCTORS: CONTRACTOR SHALL USE PRESSURE TYPE INSULATED TWIST-ON CONNECTORS FOR NO. 10 AWG AND SMALLER. USE SOLDERLESS MECHANICAL TERMINAL LUGS FOR NO. 8 AWG AND LARGER.
26. SERVICE: AS SPECIFIED ON THE DRAWINGS. OWNER OR OWNER'S AGENT WILL APPLY FOR POWER. ALL PROVISIONS FOR TEMPORARY POWER WILL BE OBTAINED BY THE CONTRACTOR.
27. TELEPHONE OR FIBER SERVICE: CONTRACTOR SHALL PROVIDE EMPTY CONDUITS WITH PULL STRINGS AS INDICATED ON DRAWINGS.
28. ELECTRICAL AND TELCO/FIBER RACEWAYS TO BE BURIED A MINIMUM DEPTH OF 30", UNLESS OTHERWISE NOTED.
29. CONTRACTOR SHALL PLACE 6" WIDE DETECTABLE WARNING TAPE AT A DEPTH OF 6" BELOW GROUND AND DIRECTLY ABOVE ELECTRICAL AND TELCO SERVICE CONDUITS. CAUTIONS TAPE TO READ "CAUTION BURIED ELECTRIC" OR "BURIED TELECOM".
30. ALL BOLTS SHALL BE 3-16 STAINLESS STEEL.
31. THE ELECTRICAL CONTRACTOR SHALL LABEL ALL PANELS WITH ONLY TYPEWRITTEN DIRECTORIES. ALL ELECTRICAL WIRING SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.

GROUNDING NOTES:

1. ALL HARDWARE SHALL BE 3-16 STAINLESS STEEL, INCLUDING LOCK WASHERS. COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND, AS SPECIFIED, BEFORE MATING. ALL HARDWARE SHALL BE STAINLESS STEEL ⅜" DIAMETER OR LARGER.
2. FOR GROUND BOND TO STEEL ONLY: INSERT A CADMIUM FLAT WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
3. ALL STEEL CONDUIT SHALL BE BONDED AT BOTH ENDS WITH GROUNDING BUSHING.
4. ALL ELECTRICAL AND GROUNDING AT THE POLE SITE SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE (NEC), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 780 (LATEST EDITION), AND MANUFACTURER.
5. ALL DETAILS ARE SHOWN IN GENERAL TERMS. ACTUAL GROUNDING INSTALLATION AND CONSTRUCTION MAY VARY DUE TO SITE SPECIFIC CONDITIONS.
6. GROUND ALL ANTENNA BASES, FRAMES, CABLE RUNS, AND OTHER METALLIC COMPONENTS USING #6 GROUND WIRES. FOLLOW ANTENNA AND BTS MANUFACTURER'S PRACTICES FOR GROUNDING REQUIREMENTS.
7. ALL GROUND CONNECTIONS SHALL BE #6 AWG, UNLESS OTHERWISE NOTED. ALL WIRES SHALL BE COPPER WITH THHN, UNLESS OTHERWISE NOTED. ALL GROUND WIRE SHALL BE SOLID TIN COATED OR STRANDED GREEN INSULATED WIRE.
8. CONTRACTOR TO VERIFY AND TEST GROUND TO SOURCE, 10 OHMS MAXIMUM. PROVIDE SUPPLEMENT GROUNDING RODS AS REQUIRED TO ACHIEVE SPECIFIED OHMS READING. GROUNDING AND OTHER OPTIONAL TESTING WILL BE WITNESSED BY THE MOBILITIE CM.
9. NOTIFY ARCHITECT /ENGINEER IF THERE ARE ANY DIFFICULTIES INSTALLING GROUNDING SYSTEM DUE TO SITE SOIL CONDITIONS.
10. ALL HORIZONTALLY RUN GROUNDING CONDUCTORS SHALL BE INSTALLED A MINIMUM OF 30" BELOW GRADE/ 6" BELOW FROST-LINE IN TRENCH, UNLESS OTHERWISE NOTED. BACK FILL SHALL BE COMPACTED AS REQUIRED BY ARCHITECT /ENGINEER.
11. ALL GROUND CONDUCTORS SHALL BE RUN AS STRAIGHT AND SHORT AS POSSIBLE, WITH A MINIMUM 12" BENDING RADIUS NOT LESS THAN 90 DEGREES.
12. ACCEPTABLE CONNECTIONS FOR GROUNDING SYSTEM SHALL BE:
    A. BURNDY, HY-GRADE U.L. LISTED CONNECTORS FOR OUTDOOR USE OR AS APPROVED BY APPLICANT PROJECT MANAGER.
    B. CADWELD, EXOTHERMIC WELDS (WELDED CONNECTIONS).
    C. ONE (1) HOLE TINNED COPPER COMPRESSION (LONG BARREL) FITTINGS.
13. ALL CRIMPED CONNECTIONS SHALL HAVE EMBOSSED MANUFACTURER'S DIEMARK VISIBLE AT THE CRIMP (RESULTING FROM USE OF PROPER CRIMPING DEVICES) AND WEATHER-PROOFED WITH HEAT SHRINK.
14. ALL CONNECTION HARDWARE SHALL BE TYPE 3-16 STAINLESS STEEL (NOT ATTRACTED TO MAGNETS).
15. ELECTRICAL SERVICE EQUIPMENT GROUNDING SHALL COMPLY WITH NEC, ARTICLE 250-82 AND SHALL BOND ALL (E) AND NEW GROUNDING ELECTRODES. NEW GROUNDING ELECTRODE SHALL INCLUDE BUT NOT LIMITED TO GROUND RODS.

TESTING AND EQUIPMENT TURN UP REQUIREMENTS:

1. RF CABLE, DATA CABLE, RADIO EQUIPMENT AND BACK HAUL EQUIPMENT TESTING WILL COMPLY WITH CURRENT INDUSTRY STANDARDS AND OR THOSE STANDARDS OF THE EQUIPMENT MANUFACTURER OR PROVIDED TO THE CONTRACTOR PRIOR TO TESTING.
2. CONTRACTOR WILL USE THE APPROPRIATE CALIBRATED TESTING EQUIPMENT IN THE TESTING OF RF CABLE, DATA CABLE, RADIO EQUIPMENT AND BACK HAUL EQUIPMENT THAT MEET INDUSTRY STANDARDS OF THE MANUFACTURER OR THOSE STANDARDS PROVIDED TO THE CONTRACTOR PRIOR TO TESTING.
3. CONTRACTOR TO VERIFY AND RECORD ALL TEST RESULTS AND PROVIDE THESE RESULTS WITHIN THE FINAL CLOSE OUT PACKAGE.
4. ALL PERSONNEL INVOLVED IN THE TESTING OF RF CABLE, DATA CABLE, RADIO EQUIPMENT AND BACK HAUL EQUIPMENT WILL BE REQUIRED TO HAVE BEEN TRAINED AND OR CERTIFIED IN THE PROPER TESTING OF RF CABLE, DATA CABLE, RADIO EQUIPMENT AND BACK HAUL EQUIPMENT.
5. ALL TEST RESULTS SHALL BE TIME STAMPED, RECORDED AND PRESENTED PRIOR TO ENERGIZING AND TURN UP OF ANY EQUIPMENT.
6. GPS EQUIPMENT (WHEN REQUIRED) IS NOT TO BE TESTED OR ATTACHED TO ANY CABLING DURING TESTING, DOING SO WILL DAMAGE THE GPS UNIT.
7. PRIOR TO TESTING IF THE CONTRACTOR HAS ANY QUESTIONS ABOUT THE TESTING PROCEDURES THEY ARE TO CALL AND OBTAIN ASSISTANCE FROM A QUALIFIED DESIGNATED TESTING REPRESENTATIVE.
8. EQUIPMENT IS NOT TO BE ENERGIZED UNTIL ALL TESTING HAS BEEN COMPLETED, APPROVED AND THE APPROPRIATE AUTHORITY HAS BEEN NOTIFIED AND GIVES APPROVAL TO ENERGIZE THE EQUIPMENT.

SITE WORK NOTES:

1. DO NOT EXCAVATE OR DISTURB BEYOND THE PROPERTY LINES OR LEASE LINES, UNLESS OTHERWISE NOTED.
2. SIZE, LOCATION AND TYPE OF ANY UNDERGROUND UTILITIES OR IMPROVEMENTS SHALL BE ACCURATELY NOTED AND PLACED ON AS-BUILT DRAWINGS BY GENERAL CONTRACTOR AND ISSUED TO ARCHITECT/ENGINEER AT COMPLETION OF PROJECT.
3. ALL (E) UTILITIES, FACILITIES, CONDITIONS AND THEIR DIMENSIONS SHOWN ON PLANS HAVE BEEN PLOTTED FROM AVAILABLE RECORDS. THE ENGINEER AND OWNER ASSUME NO RESPONSIBILITY WHATSOEVER AS TO THE SUFFICIENCY OR ACCURACY OF THE INFORMATION SHOWN ON THE PLANS OR THE MANNER OF THEIR REMOVAL OR ADJUSTMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL (E) UTILITIES AND FACILITIES PRIOR TO START OF CONSTRUCTION. CONTRACTOR SHALL ALSO OBTAIN FROM EACH UTILITY COMPANY DETAILED INFORMATION RELATIVE TO WORKING SCHEDULES AND METHODS OF REMOVING OR ADJUSTING (E) UTILITIES.
4. CONTRACTOR SHALL VERIFY ALL (E) UTILITIES BOTH HORIZONTALLY AND VERTICALLY PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES OR DOUBTS AS TO THE INTERPRETATION OF PLANS SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT/ENGINEER OR MOBILITIE CM FOR RESOLUTION AND INSTRUCTION, AND NO FURTHER WORK SHALL BE PERFORMED UNTIL THE DISCREPANCY IS CHECKED AND CORRECTED BY THE ARCHITECT/ENGINEER. FAILURE TO SECURE SUCH INSTRUCTION MEANS CONTRACTOR WILL HAVE WORKED AT THEIR OWN RISK AND EXPENSE. CONTRACTOR SHALL CALL LOCAL UTILITY LOCATE HOT LINE, SUCH AS 811, FOR UTILITY LOCATIONS A MINIMUM OF 48 HOURS PRIOR TO START OF CONSTRUCTION.
5. ALL NEW AND (E) UTILITY STRUCTURES ON SITE AND IN AREAS TO BE DISTURBED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISH ELEVATIONS PRIOR TO FINAL INSPECTION OF WORK. ANY COST RELATED TO ADJUSTING (E) STRUCTURES SHALL BE BORNE SOLELY BY THE CONTRACTOR.
6. GRADING OF THE SITE WORK AREA IS TO BE SMOOTH AND CONTINUOUS IN SLOPE AND IS TO FEATHER INTO (E) GRADES AT THE GRADING LIMITS.
7. ALL TEMPORARY EXCAVATIONS FOR THE INSTALLATION OF FOUNDATIONS, UTILITIES, ETC., SHALL BE PROPERLY LAID BACK OR BRACED IN ACCORDANCE WITH CORRECT OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REQUIREMENTS.
8. STRUCTURAL FILLS SUPPORTING PAVEMENTS SHALL BE COMPACTED TO 95% OF MAXIMUM STANDARD PROCTOR DRY DENSITY, UNLESS OTHERWISE NOTED.
9. NEW GRADES NOT IN BUILDING AND DRIVEWAY IMPROVEMENT AREA TO BE ACHIEVED BY FILLING WITH APPROVED CLEAN FILL AND COMPACTED TO 95% OF STANDARD PROCTOR DENSITY.
10. ALL FILL SHALL BE PLACED IN UNIFORM LIFTS. THE LIFTS' THICKNESS SHOULD NOT EXCEED THAT WHICH CAN BE PROPERLY COMPACTED THROUGHOUT ITS ENTIRE DEPTH WITH THE EQUIPMENT AVAILABLE.
11. ANY FILLS PLACED ON (E) SLOPES THAT ARE STEEPER THAN 10 HORIZONTAL TO 1 VERTICAL SHALL BE PROPERLY BENCHED INTO THE (E) SLOPE AS DIRECTED BY A GEOTECHNICAL ENGINEER.
12. CONTRACTOR SHALL CLEAN ENTIRE SITE AFTER CONSTRUCTION SUCH THAT NO DEBRIS, PAPER, TRASH, WEEDS, BRUSH, EXCESS FILL, OR ANY OTHER DEPOSITS WILL REMAIN. ALL MATERIALS COLLECTED DURING CLEANING OPERATIONS SHALL BE DISPOSED OF OFF-SITE BY THE GENERAL CONTRACTOR.
13. ALL TREES AND SHRUBS WHICH ARE NOT IN DIRECT CONFLICT WITH THE IMPROVEMENTS SHALL BE PROTECTED BY THE GENERAL CONTRACTOR.
14. ALL SITE WORK SHALL BE CAREFULLY COORDINATED BY GENERAL CONTRACTOR WITH LOCAL UTILITY COMPANY, TELEPHONE COMPANY, AND ANY OTHER UTILITY COMPANIES HAVING JURISDICTION OVER THIS LOCATION.

ENVIRONMENTAL NOTES:

1. ALL WORK PERFORMED SHALL BE DONE IN ACCORDANCE WITH ISSUED PERMITS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYMENT OF FINES AND PROPER CLEAN UP FOR AREAS IN VIOLATION.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS DURING CONSTRUCTION FOR PROTECTION OF ADJACENT PROPERTIES, ROADWAYS AND WATERWAYS. ALL EROSION AND SEDIMENTATION CONTROLS SHALL BE MAINTAINED IN PLACE THROUGH FINAL JURISDICTIONAL INSPECTION & RELEASE OF SITE.
3. CONTRACTOR SHALL INSTALL/CONSTRUCT ALL NECESSARY SEDIMENT/SILT CONTROL FENCING AND PROTECTIVE MEASURES AS REQUIRED BY THE LOCAL JURISDICTION WITHIN THE LIMITS OF SITE DISTURBANCE PRIOR TO CONSTRUCTION.
4. NO SEDIMENT SHALL BE ALLOWED TO EXIT THE PROPERTY. THE CONTRACTOR IS RESPONSIBLE FOR TAKING ADEQUATE MEASURES FOR CONTROLLING EROSION. ADDITIONAL SEDIMENT CONTROL FENCING MAY BE REQUIRED IN ANY AREAS SUBJECT TO EROSION.
5. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING POSITIVE DRAINAGE ON THE SITE AT ALL TIMES WITH SILT AND EROSION CONTROL MEASURES MAINTAINED ON THE DOWNSTREAM SIDE OF SITE DRAINAGE. ANY DAMAGE TO ADJACENT PROPERTY AS A RESULT OF EROSION WILL BE CORRECTED AT THE CONTRACTORS EXPENSE.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY INSPECTIONS AND ANY REPAIRS OF ALL SEDIMENT CONTROL MEASURES INCLUDING SEDIMENT REMOVAL AS NECESSARY.
7. CLEARING OF VEGETATION AND TREE REMOVAL SHALL BE ONLY AS PERMITTED AND BE HELD TO A MINIMUM. ONLY TREES NECESSARY FOR CONSTRUCTION OF THE FACILITIES SHALL BE REMOVED.
8. SEEDING AND MULCHING AND/OR SODDING OF THE SITE WILL BE ACCOMPLISHED AS SOON AS POSSIBLE AFTER COMPLETION OF THE PROJECT FACILITIES AFFECTING LAND DISTURBANCE.
9. CONTRACTOR SHALL PROVIDE ALL EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED BY LOCAL, COUNTY AND STATE CODES AND ORDINANCES TO PROTECT EMBANKMENTS FROM SOIL LOSS AND TO PREVENT ACCUMULATION OF SOIL AND SILT IN STREAMS AND DRAINAGE PATHS LEAVING THE CONSTRUCTION AREA. THIS MAY INCLUDE, BUT IS NOT LIMITED TO SUCH MEASURES AS SILT FENCES, STRAW BALE SEDIMENT BARRIERS, AND CHECK DAMS.
10. RIP RAP OF SIZES INDICATED SHALL CONSIST OF CLEAN, HARD, SOUND, DURABLE, UNIFORM IN QUALITY STONE FREE OF ANY DETRIMENTAL QUANTITY OF SOFT, FRIABLE, THIN, ELONGATED OR LAMINATED PIECES, DISINTEGRATED MATERIAL, ORGANIC MATTER, OIL, ALKALI, OR OTHER DELETERIOUS SUBSTANCES.
11. GC TO PLACE FILTER MATERIAL AT ALL CATCH BASINS ADJACENT TO CONSTRUCTION SITE TO PREVENT SOLID WASTE CONTAMINATION FROM ENTERING SEWER SYSTEM.

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SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-2

PG&E UTILITY BULLETIN TD-027911B-004. GENERAL INFORMATION NOTES:

1. A PG&E ABSOLVING SERVICE AGREEMENT IS REQUIRED TO BE SIGNED WHEN CUSTOMER OWNED SERVICES, SUPPL YING POWER TO NON-PG&E OWNED STEEL STREETLIGHT POLES WITH COMMUNICATION AND ANTENNA EQUIPMENT, ARE INTERCONNECTED TO THE PG&E DISTRIBUTION SYSTEM. CONTACT THE PG&E SERVICE PLANNING OFFICE FOR AN EXPLANATION OF AN ABSOLVING SER\11CE AGREEMENT. IF NEEDED, PG&E PERSONNEL CAN CONTACT THE TARIFF INTERPRETATION OR LAW DEPARTMENTS FOR GUIDANCE.
2. THE STREET LIGHT POLE MUST HAVE A RADOME SHROUD INSTALLED AT THE TOP OF THE POLE TO HOUSE THE ANTENNA AND METERING EQUIPMENT. THE SHROUD MUST BE MADE OF FIBERGLASS OR OTHER MATERIAL THAT DOES NOT INHIBIT THE TRANSMISSION OF THE WIRELESS METER SIGNAL. THE SHROUD OR A PART OF THE SHROUD MUST BE REMOVABLE OR OPEN TO ALLOW DIRECT ACCESS TO THE METER INSIDE. SEE FIGURE 7. OTHER DESIGNS FOR THE PLACEMENT OF THE ANTENNA AND METERING EQUIPMENT ARE NOT BEING ACCEPTED.
3. A 2-WIRE (1-HOT, 1-NEUTRAL) 120 VOLT SINGLE-PHASE SERVICE MUST BE INSTALLED FROM THE PG&E SPECIFIED SPLICE BOX TO THE POLE. THIS IS THE ONLY TYPE OF SERVICE ALLOWED TO POWER THE SMART POLE METER ALONG WITH THE CUSTOMER AND 3RD PARTY EQUIPMENT. THE CUSTOMER SERVICE WIRE MUST BE SIZED AS NEEDED TO ACCOMMODATE ALL METERED AND UNMETERED LOADS.

NOTE: IN VERY LIMITED LOCATIONS IF AN EXISTING PG&E 2-WIRE SINGLE-PHASE 240 VOLT SECONDARY SYSTEM IS AVAILABLE THE SMART POLE METER MAY BE CONNECTED. THESE LOCATIONS ARE NOT COMMON.

4. CAUTION: DO NOT INSTALL A 3-WIRE 1-PHASE 120/240 VOLT SERVICE AS THIS IS THE INCORRECT WIRING AND VOLTAGE FOR THE SMARTPOLE METERING APPLICATION.
5. THE ANTENNA, COMMUNICATION EQUIPMENT, AND STREET LIGHT MUST BE POWERED FROM THE SAME CUSTOMER OWNED SERVICE. A SECOND OR SEPARATE CUSTOMER OWNED SERVICE IS NOT ALLOWED.
6. DISCONNECT SWITCH REQUIREMENTS: A DISCONNECT SWITCH MUST BE INSTALLED AND MEET ALL OF THE FOLLOWING REQUIREMENTS BELOW.

   6.1 THE SWITCH MUST BE READILY ACCESSIBLE AT ALL TIMES. THE SWITCH WILL BE USED AS PART OF THE NORMAL OR EMERGENCY SHUTDOWN PROTOCOLS REQUIRED IN CALIFORNIA PUBLIC UTILITY COMMISSION (CPUC) GENERAL ORDER 95, RULE 94.

   6.2 THE SWITCH SHALL DE-ENERGIZE ALL POWER SUPPLIES, INCLUDING BACK-UP POWER, AND ANY COMMUNICATION EQUIPMENT EMITTING RADIO FREQUENCIES (RF). SIGN AGE MUST BE A TT ACHED TO THE SWITCH IDENTIFYING WHAT EQUIPMENT IT WILL DE-ENERGIZE.

   6.3 THE SWITCH MUST NOT DE-ENERGIZE (TURN OFF) THE STREET LIGHT(S) OR THE PG&E SMART METER. SEE THE SINGLE LINE DRAWING IN FIGURE 6.

   6.4 THE SWITCH MUST BE ATTACHED EXTERNALLY ON THE POLE LESS THAN 10 FEET ABOVE GRADE, AS MEASURED TO THE TOP OF THE SWITCH ENCLOSURE.

   6.5 IF THE SPECIFIC REQUIREMENTS ARE MET THE SWITCH MAY BE LOCATED INSIDE AN EQUIPMENT PEDESTAL, THAT IS INSTALLED AROUND THE BASE OF THE POLE. A PERMANENT AND DEDICATED SIDE HINGED DOOR WITH LOCKING PROVISIONS DEDICATED ONLY FOR A PG&E PAD-LOCK (5/16"SHAFT) MUST BE PROVIDED TO ALLOW EASY ACCESS TO THE DISCONNECT SWITCH. THIS DISCONNECT ACCESS DOOR CAN BE PART OF A LARGER MAINTENANCE DOOR IF NEEDED. SEE FIGURES 2 THROUGH 5 FOR ADDITIONAL DETAILS. LOCK BOXES, SHARED KEYS, OR OTHER LOCKING METHODS ARE NOT ACCEPTABLE.

   6.6 THE SWITCH MAY NOT BE INSTALLED INSIDE THE POLE (EXCEPT INSIDE THE PEDESTAL), IN A SUBSURFACE ENCLOSURE, OR IN A REMOTE LOCATION AWAY FROM THE POLE.

   6.7 PROVISIONS FOR LOCKING THE DISCONNECT SWITCH IN THE OFF POSITION ARE REQUIRED.

7. POLES MUST HAVE SIGN AGE THAT MEET FCC GUIDELINES FOR THE ANTENNAS AND COMMUNICATION EQUIPMENT EMITTING RF TRANSMISSION. SITES SHALL BE SIGNED ACCORDING TO FCC GUIDELINES.
8. ANTENNAS AND POWER UNITS MUST HAVE AN OWNERSHIP LABEL WITH THE COMPANY'S NAME, CONTACT NUMBER, AND SITE IDENTIFICATION INFORMATION.
9. ALL MATERIALS, EXCEPT THE PG&E METER, SHALL BE FURNISHED AND INSTALLED BY THE CUSTOMER. INCLUDING THE 3-PIN SOCKET AND PROVISIONS FOR THE METER TO BE SECURELY A TT ACHED INSIDE THE SHROUD. THE PG&E METER ENGINEERING DEPARTMENT WILL REVIEW AND APPROVE THESE ATTACHMENT PROVISIONS FOR THE METER.
10. THE METERING PROVISION CONTAINED HEREIN IS AN EXCEPTION TO THE GREEN BOOK REQUIREMENT AND IS DESIGNED PRIMARILY FOR W/FL, CABLE TV POWER SUPPLIES, AND OTHER TELECOM EQUIPMENT REQUIRING METERING. REFER TO, TARIFF APPLICATION GUIDE - ELECTRIC RULE 9. DO NOT CONNECT ANY OTHER TYPES OF LOAD TO THIS SERVICE EXCEPT FOR ANTENNA AND COMMUNICATION EQUIPMENT, AND STREET LIGHTS.
11. THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) OF INSPECTIONS FOR THE CITY OR COUNTY MUST PROVIDE APPROVAL OF FINAL INSPECTION AND METER RELEASE BEFORE PG&E WILL INSTALL A METER AND ENERGIZE THE CUSTOMER'S ELECTRIC SERVICE.
12. A PG&E INSPECTOR OR TROUBLE MAN (T-MAN) MUST INSPECT THE INSTALLATION TO VERIFY THE REQUIREMENTS IN THIS DOCUMENT HAVE BEEN MET.
13. PG&E VEHICLE (BUCKET TRUCK) ACCESS UP TO AND AROUND THE POLE IS REQUIRED AT ALL TIMES. THIS INCLUDES A ROAD WHICH ALLOWS THE PG&E VEHICLE TO DRIVE UP NEXT TO THE POLE AND HAVE AN ADEQUATE AREA TO BACK UP, MANEUVER, AND EXIT. THIS VEHICLE DRIVE UP ACCESS IS REQUIRED FOR THE INSTALLATION AND MAINTENANCE OF THE PG&E METER.
14. FOR SERVICE CONNECTIONS TO STEEL POLES THAT ARE NOT ON AN LS-2 RATE, OR IF THE REQUIREMENTS IN THIS DOCUMENT CANNOT BE MET, THEN THE PG&E APPROVED METHOD OF PROVIDING SERVICE TO A PAD-MOUNTED METERING PEDESTAL SHOULD BE USED.

MISCELLANEOUS MATERIALS

FROM TIME TO TIME, IT MAY BE NECESSARY TO MAKE MINOR ADJUSTMENTS TO ACCOMMODATE, LEVEL, OR SPACE ANTENNA MOUNTS AND EQUIPMENT. EXAMPLE: ADDING A WASHER OR SHIM TO LEVEL OUT A BRACKET OR MOUNT TO MEET SPECIFICATIONS. HAVING TO OFFSET OR SPACE A BRACKET OR MOUNT DUE TO FLANGES AND/OR OTHER SMALL PROTRUSIONS ON A POLE TOP ASSEMBLY. ANY MATERIALS- NUTS, BOLTS, SHIMS, OR SPACERS- USED TO ACCOMMODATE ADJUSTMENTS TO ANTENNA MOUNTS AND EQUIPMENT MUST BE PERMANENTLY AFFIXED, BOLTED TO THE MOUNT, BRACKET, OR POLE; AS NEVER TO BECOME A FALL HAZARD. ALL MATERIALS- NUTS, BOLTS, SHIMS, OR SPACERS- USED IN MINOR ADJUSTMENTS, MUST EITHER BE STAINLESS STEEL OR GALVANIZED; HALF WASHERS ARE PROHIBITED. ANY MINOR ADJUSTMENTS TO ACCOMMODATE ANTENNA MOUNTS AND EQUIPMENT SHOULD BE DONE IN A PROFESSIONAL MANNER WITH SAFETY AND AESTHETICS IN MIND. SHOULD YOU HAVE ANY QUESTIONS, CONTACT YOUR ASSIGNED CONSTRUCTION PROJECT MANAGER OR ENGINEER FOR GUIDANCE.

mobilitie
intelligent infrastructure
2955 RED HILL AVE. SUITE 200
COSTA MESA, CA 92626

L5 ENGINEERING INC.
944 CALLE AMANECER, STE E
SAN CLEMENTE, CA 92673
WWW.LEAFCC-LLC.COM
PHONE: (949) 388-0192

MOBILITIE ID:	9CAB013792
DRAWN BY:	SK
CHECKED BY:	CG

A	06/06/18	FOR REVIEW

06/26/2018
VECTOR PROJECT #: U2314-057-181

VECTOR ENGINEERS
851 W. GLENN PARK BLVD. STE 200 PHONE: (801) 990-1775
DRAPER, UTAH 84020 WWW.VECTORSE.COM

REGISTERED PROFESSIONAL ENGINEER
JACOB S. PROCTOR
C 70567
CIVIL
STATE OF CALIFORNIA

SF90XS2K0C
9CAB013792
OAKLAND, CA 94601
(E) 28'-6" STEEL LIGHT POLE

SHEET TITLE
GENERAL NOTES

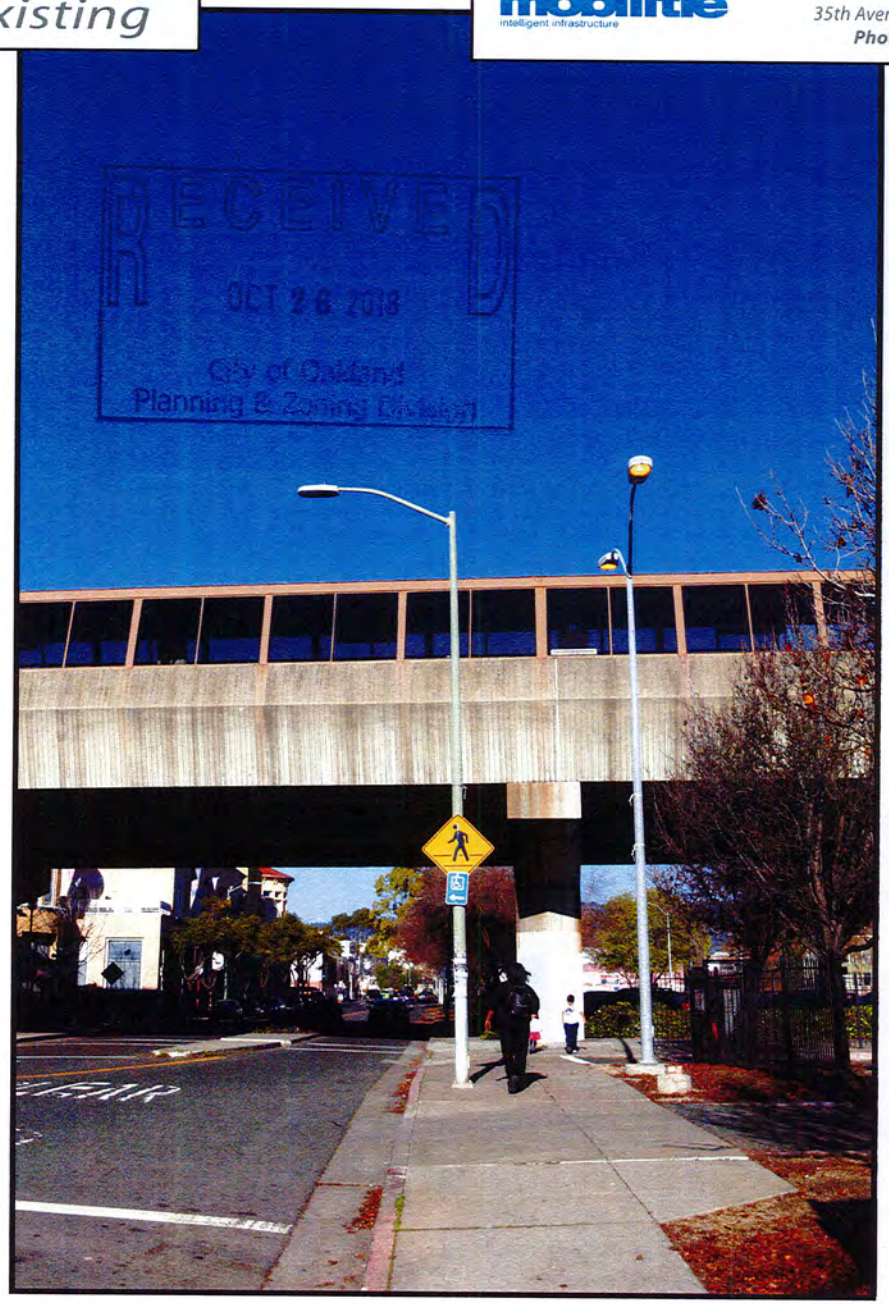
SHEET NUMBER
GN-3

view from 35th Avenue looking north at site

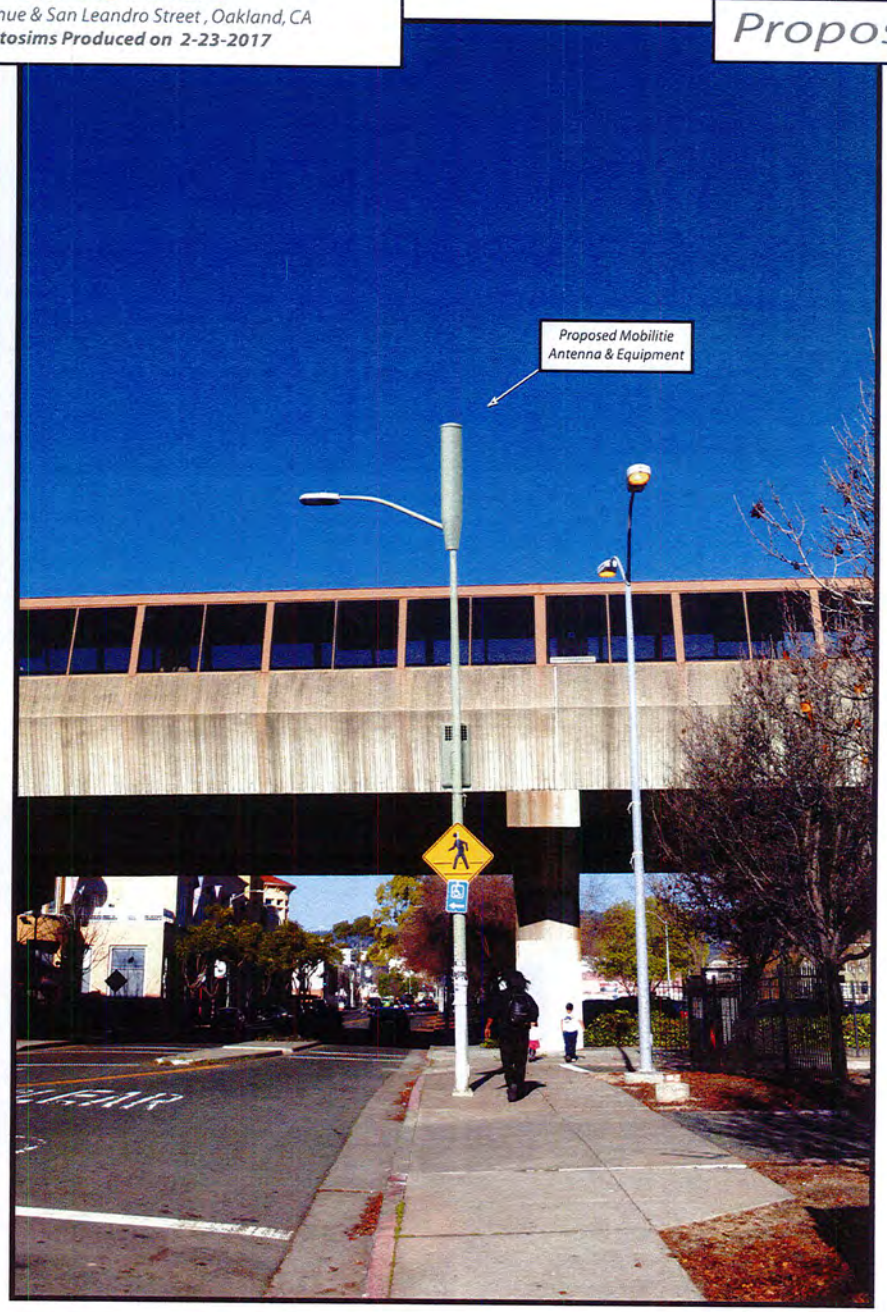
mobilitie
intelligent infrastructure

9CAB013792/SF90XS2K0C
35th Avenue & San Leandro Street , Oakland, CA
Photosims Produced on 2-23-2017

Existing

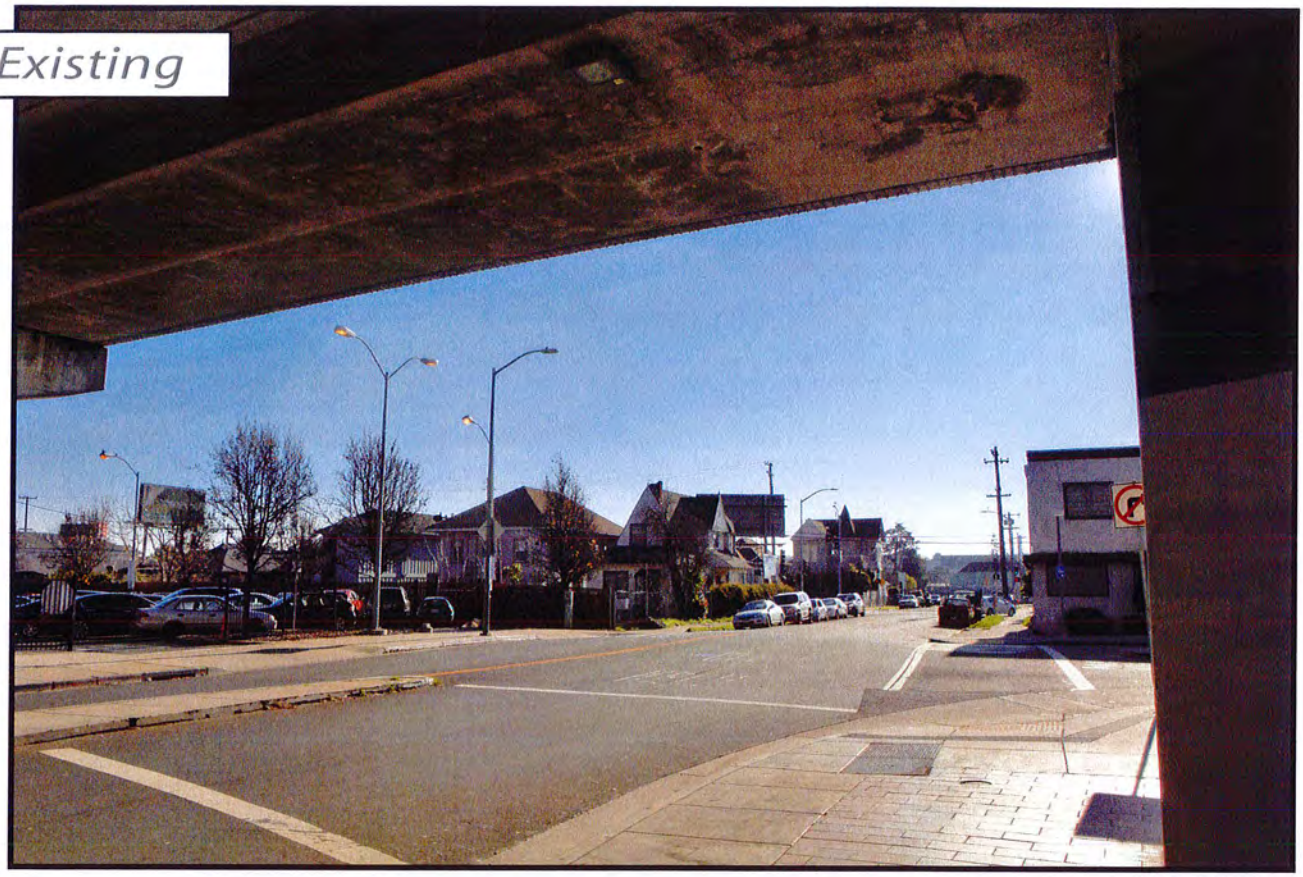


Proposed

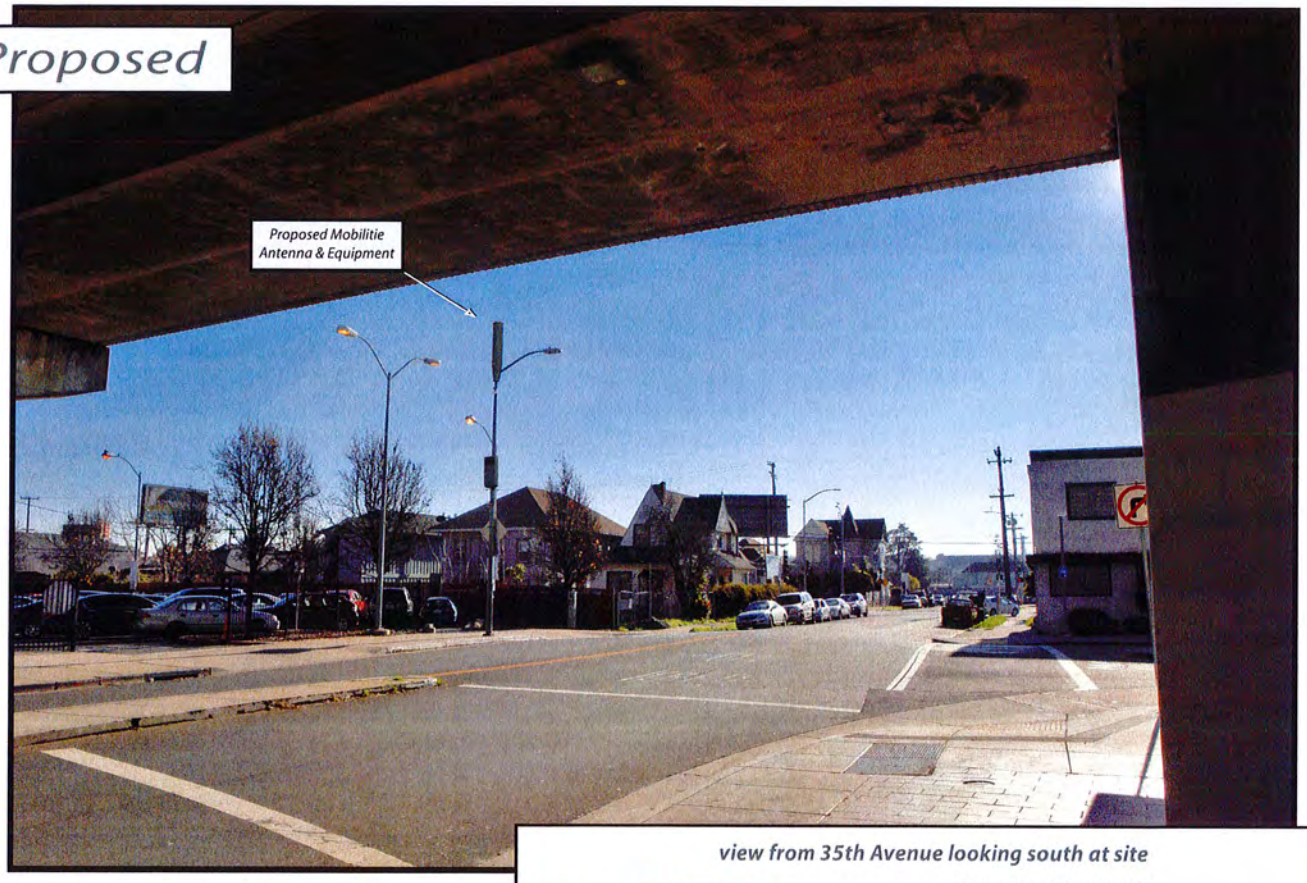


AdvanceSim
Photo Simulation Solutions
Contact (925) 202-8507

Existing



Proposed



view from 35th Avenue looking south at site

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9CAB013792/SF90XS2K0C
35th Avenue & San Leandro Street , Oakland, CA
Photosims Produced on 2-23-2017

AdvanceSim
Photo Simulation Solutions
Contact (925) 202-8507

mobilitie
intelligent infrastructure

2955 Red Hill Avenue
Suite 200
Costa Mesa, California 92660

Alternative Site Analysis
Proposed Small Cell Wireless Facility

Applicant: Mobilitie, LLC
Site ID: 9CAB0l 3792/SF90XS2K0C
Nearest Site Address: Public Right of Way near 1048 35TH Ave., Oakland, CA 94601
Latitude/Longitude: 37.774461, -122.223878

Mobilitie considered alternative sites on other street lights and utility poles in this area, but they are not as desirable when taking into consideration coverage goals, constructability, geographic topography of the surrounding area, and potential visual impact in the surrounding area. The proposed location is desirable because of the limited obstructions in the area, allowing our antenna to effectively propagate a signal. Furthermore, the proposed location is the optimal solution for providing maximum coverage to the surrounding area identified. Additionally, by locating on an existing street light with equipment concealed, visual impact in the surrounding area is minimized.

Mobilitie is a privately held, CLEC (Competitive Local Exchange Carrier) regulated by the California Public Utilities Commission (CPUC) to provide telephone related services. By proposing this location on an existing street light in the public right of way, Mobilitie is proposing an appropriate co-location to existing infrastructure according to our rights under the CPUC.

The alternative locations that Mobilitie considered include, but are not limited to, the sites listed below:

Alternate B (37.773978, -122.224381) At the intersection of 35th Ave and San Leandro Street. This wooden utility pole is located approximately 230 ft. northeast of our proposal. The existence of a power riser running up this pole precludes it from being used because there is not enough usable space on the pole for our facility.

Alternate C (37.773557, -122.22349) At the intersection of 36th Ave and San Leandro Street. This wooden utility pole is located approximately 230 ft. northeast of our proposal. The existence of a power riser running up this pole precludes it from being used because there is not enough usable space on the pole for our facility.

Radio Frequency- Electromagnetic Energy-EME
Measurements & Compliance Report

Site ID:	9CAB013792
Site Name:	9CAB013792
Market/Region:	California
Address:	35TH AVE., N. OF SAN LEANDRO ST. OAKLAND, CA 94601
Latitude:	37.774461
Longitude:	-122.223878
Site Type:	Light Pole

Compliance Status:

Proposed equipment at the site is compliant with FCC guidelines for General Population environments

Prepared for:

Mobilitie, LLC
2220 University Drive,
Newport Beach, CA 92660

By
ATG LLC

Date:09/06/2017

TABLE OF CONTENT

1 Executive Summary

Purpose of Report

ATG LLC's RF Engineering has conducted radio frequency electromagnetic energy (RF-EME) modeling for Mobilitie LLC's site 9CAB013792 located at 35TH AVE., N. OF SAN LEANDRO ST. OAKLAND, CA to determine RF-EME exposure levels from the carrier's proposed wireless communications equipment.

The Federal Communications Commission (FCC) has developed Maximum Permissible Exposure (MPE) limits for general public and occupational exposures to RF-EME. This report summarizes the results of RF-EME modeling in relation to relevant FCC compliance standards for limiting human exposure to RF-EME. The details of FCC defined exposure limits are provided in Appendix A of this report.

Analysis results included in this report are based on drawings dated June 14th , 2017.

Statement of Compliance

Predictive modeling conducted using the original equipment manufacturers (OEMs) specifications for radio and antenna performance along with the supplied construction drawings dated June 14th , 2017, indicate there will be no exposure due to the carrier's proposed equipment on accessible ground-level walking surface at this site that exceeds the FCC's general public exposure limits.

Proposed equipment at the site is compliant with FCC guidelines for general population environments.

2 Maximum Permissible Exposure (MPE) Modeling Results for Proposed Site

The predictive modeling was conducted using the RoofView 5.0 suite of analysis tools. The modeling was conducted with the antennas operating at 100% capacity, all antenna channels transmitting simultaneously and the radio transmitters operating at full power. Obstructions (trees, buildings etc.) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are more conservative (higher) than the actual signal levels would be during normal operations. The modeling calculations were made for an area 40'x 40' area with the equipment at the center.

Table 1: Maximum Permissible Exposure- Summary

Location	% of FCC General Public/Uncontrolled Exposure Limit	% of FCC Occupational/Controlled Exposure Limit	Power Density (mW/cm^2)	Compliance Status
6ft above ground level	2.6	0.52	0.026	Compliant

3 Antenna Inventory

The Antenna Inventory shows all transmitting antennas on the site (see Table 2). This inventory was used by ATG to perform the software modeling of RF emissions. The inventory conforms with the submitted construction drawings which identifies the proposed mounting location of each antenna at the site. The exposure level is calculated for a person of height 6ft standing right below the devices at ground level.

Table 2: Antenna Inventory

Antenna ID	Carrier/Operator	Antenna Type	Frequency (MHz)	Technology	ERP (W)	Gain dBd	Mfg.	Model	Aperture (ft.)	Transmitter count	Horizontal BeamWidth (deg)	Z (6 ft. above Ground)
1	Mobilitie	Omni	2496	LTE	172.58	6.35	Alpha Wireless	AW3477-S	2.56	2	360	21.5
2	Mobilitie	LTE Relay BH	2496	LTE	1.93	9.85	Airspan	iR460	1.1	1	35	10.5

The table below details the operating power and Effective Radiated Power (ERP) for each carrier and frequency used in the modeling.

Frequency (MHz)	Power per Transmitter (Watts)	# of Transmitters	ERP (watts)
2496 (Omni)	20	2	172.58
2496 (UE Relay)	0.2	1	1.93

4 Modeling Summary and Assumptions

4.1 General Model Assumptions

The modeling was conducted using the antenna and radio maximum power values, while operating at full power with 100% duty cycle.

The site has been modeled with these assumptions to calculate the maximum RF energy density. ATG believes this to be a worst case analysis, based on data supplied by the OEMs and client. If actual power density measurements were made, ATG believes the real time measurements would indicate levels below those shown in the report.

5 Preparer Certification

I, Preparer, state that:

- I am an employee of ATG LLC that provides RF-EME safety and compliance services to the wireless communications industry.
- I have successfully completed 100s of RF-EME exposure studies and reports for various carriers.
- I am aware of the potential hazards from RF-EME exposures that would be classified "occupational" or "general public" under the FCC regulations.
- I am familiar with the FCC rules and regulations as well as OSHA regulations both in general and as they apply to RF-EME exposure.
- I have reviewed all the data related to the site and incorporated it into this study and Compliance Report such that the information contained in this report is true and accurate to the best of my knowledge.

Ahmed Saadallah

Ahmed Saadallah (RF Engineer)

Appendix A

Federal Communications Commission (FCC) Requirements

This appendix summarizes the policies, guidelines and requirements that were adopted by the FCC on August 1, 1996, amending Part 1 of Title 47 of the Code of Federal Regulations, and further amended by action of the Commission on August 25, 1997 (see 47 CFR Sections 1.1307(b), 1.1310, 2.1091 and 2.1093, as amended). Commission actions granting construction permits, licenses to transmit or renewals thereof, equipment authorizations or modifications in existing facilities, require the preparation of an Environmental Assessment (EA), as described in 47 CFR Section 1.1311, if the particular facility, operation or transmitter would cause human exposure to levels of radiofrequency (RF) electromagnetic fields in excess of these limits.

The potential hazard associated with the RF electromagnetic fields is discussed in OET Bulletin No. 65. This document can be obtained on the FCC website. (https://transition.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet65/oet65.pdf)

As per FCC guidelines there are two separate tiers of exposure limits that are based upon occupational/controlled exposure limits (for workers) and general public/uncontrolled exposure limits for members of the general public.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means

General public/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment and not be made fully aware of the potential for exposure or cannot exercise control over their exposure.

The FCC's MPE limits for field strength and power density are given in Table 1 (and in 47 CFR § 1.1310) Figure 1 is a graphical representation of the limits for plane-wave (far-field) equivalent power density versus frequency. The FCC's limits are generally applicable to all facilities, operations and transmitters regulated by the Commission, and compliance is expected with the appropriate guidelines. The power density limits vary by frequency to take into account the different types of equipment that may be in operation at a particular facility and are "time-averaged" limits to reflect different durations resulting from controlled and uncontrolled exposures.

(A) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $|E|^2$, $|H|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $|E|^2$, $|H|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

f = frequency in MHz *Plane-wave equivalent power density

Table 1

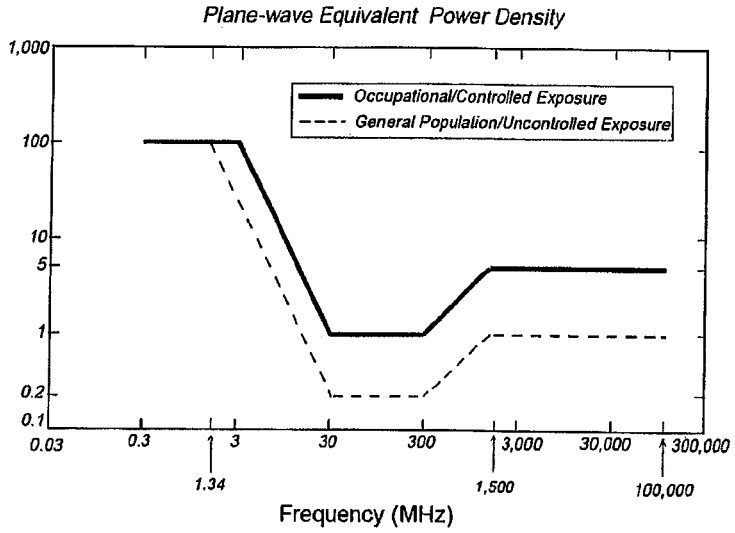

Figure 1. FCC Limits for Maximum Permissible Exposure (MPE)

FCC Compliance Requirement

In general, as specified in 47 C.F.R. 1.1307(b), as amended, when the FCC's guidelines are exceeded in an accessible area due to the emissions from multiple fixed transmitters the following policy applies. Actions necessary to bring the area into compliance with the guidelines are the shared responsibility of all licensees whose transmitter's contribution to the RF environment at the non-complying area exceeds 5% of the exposure limit (that applies to their particular transmitter) in terms of power density or the square of the electric or magnetic field strength.

For non-compliant sites, Occupational Safety and Health Administration (OSHA) set recommendations to make the sites compliant. The document can be found in the link: https://www.osha.gov/dte/library/radiation/nir_stds_20021011/nir_stds_20021011.ppt

Appendix B

Glossary of Terms

1. *Electromagnetic Field (energy density)* – the electromagnetic energy contained in an infinitesimal volume divided by that volume.

2. *Exposure* – Exposure occurs whenever and wherever a person is subjected to electric, magnetic or electromagnetic fields other than those originating from physiological processes in the body and other natural phenomena.

3. *General Population / Uncontrolled Exposure* – applies to human exposure to RF fields when the general public is exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public always fall under this category when exposure is not employment-related.

4. *Maximum Permissible Exposure (MPE)* – the rms and peak electric and magnetic field strength, their squares, or the plane-wave equivalent power densities associated with these fields to which a person may be exposed without harmful effect and with an acceptable safety factor.

5. *Occupational / Controlled Exposure* – applies to human exposure to RF fields when persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/controlled limits.

6. *Power Density (S)* – Power per unit area normal to the direction of propagation, usually expressed in units of watts per square meter (W/m^2) or, for convenience, units such as milliwatts per square centimeter (mW/cm^2) or microwatts per square centimeter ($\mu W/cm^2$).

Appendix C

RoofView Export File

The below file shows the Antenna information that has been used to calculate the MPE levels using RoofView 5. RoofView is a powerful, Excel based software analysis tool for evaluating radiofrequency (RF) field levels at telecommunications sites that are produced by antennas of the type commonly used in the cellular, paging, SMR, PCS and conventional two-way radio communication services

StartMapDefinition																					
Roof Max	Roof Max	Map Max	Map Max	Y Offset	X Offset	Number o	envelope														List Of Areas
40	40	200	200	0	0	1	$K$181:$A	$K$181:$AX$220													$K$181:$AX$220
StartSettingsData																					
Standard	Method	Uptime	Scale Fact	Low Thr	Low Color	Mid Thr	Mid Color	Hi Thr	Hi Color	Over Colo	Ap Ht Mul	Ap Ht Method									
4	1	4	1	5	1	100	6	1000	3	5	1.5	1									
StartAntennaData		It is advisable to provide an ID (ant 1) for all antennas																			
		(MHz)	Trans	Trans	Coax	Coax	Other	Input	Calc			(ft)	(ft)	(ft)		(ft)	dBd	BWdth	Uptime	ON	
ID	Name	Freq	Power	Count	Len	Type	Loss	Power	Power	Mfg	Model	X	Y	Z	Type	Aper	Gain	Pt Dir	Profile	flag	
1	Mobilitie	2496						40	40	Alpha Wir	AW3477-S	20	20	21.5	VC	2.5	6.35	360		ON•	
2	Mobilitie	2496						0.2	0.2	Airspan	IR460	20	20	10.5	VC	1.1	9.85	35		ON•	
StartSymbolData																					
Sym	Map Mark	Roof X	Roof Y	Map Labe	Description (notes for this table only)																

Rose, Aubrey

From: James Singleton <jsingleton@mobilitie.com>
Sent: Thursday, October 18, 2018 11:35 AM
To: Rose, Aubrey
Cc: Mendoza, Eliezer
Subject: Re: Update

Aubrey/Eliezer:

Attached are the photos posted today for the 11/7 hearing.