CITY OF ANTIOCH CALIFORNIA
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STAFF REPORT TO THE ANTIOCH PLANNING COMMISSION

DATE: Regular Meeting of June 4, 2025

SUBMITTED BY: Nathan Tinclair, Associate Planner

APPROVED BY: Zoe Merideth, Planning Manager

SUBJECT: Wireless Macro Facility at Prewett Ranch Drive (CELL2025-0001)

REQUESTS

The project applicant, Dish Wireless, is seeking Use Permit and Design Review approval of a new wireless macro facility located on an existing PG&E tower near Prewett Ranch Drive and Candlewood Way (APN: 056-240-032).

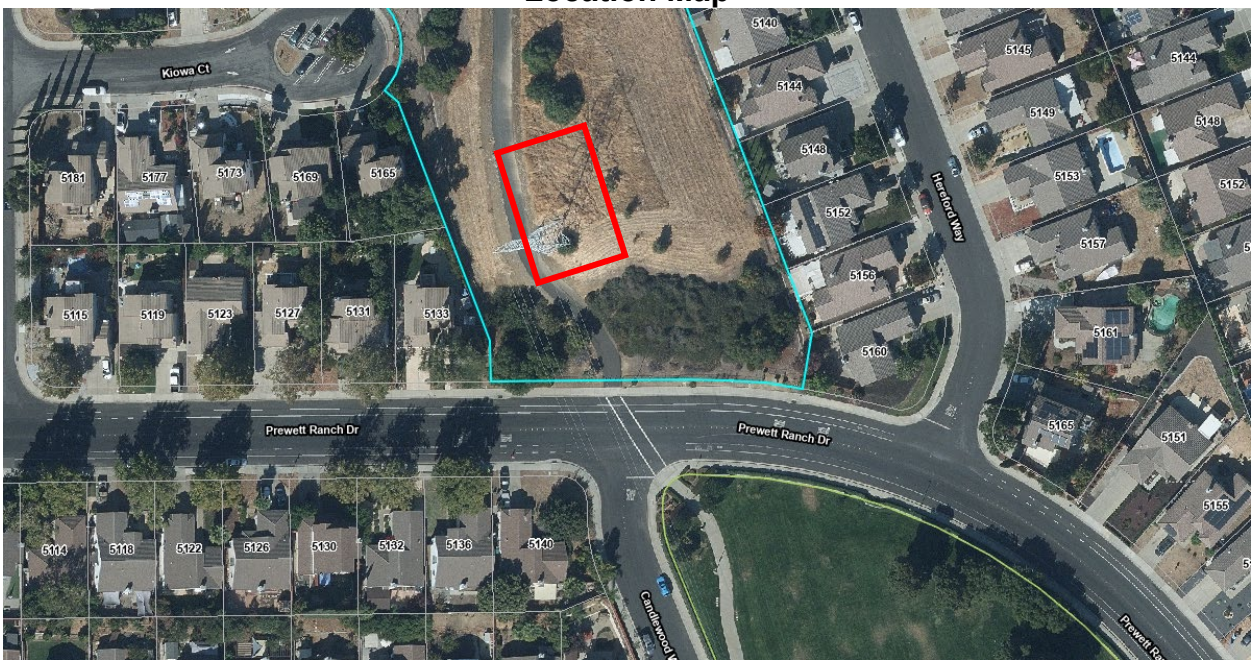
STAFF RECOMMENDATION

Staff recommends that the Planning Commission approve the Use Permit and Design Review for the new wireless macro facility.

SITE LOCATION

The project site is an existing PG&E power line tower located on a city-owned parcel at north of the intersection of Prewett Ranch Drive and Candlewood Way. In addition to the PG&E tower, the parcel currently contains open space and connection to a walking trail. The Parcel is zoned P-D (Planned Development District), and the General Plan designation is open space. The current use is as an open space and site for a PG&E power line. The applicant entered into a ground lease agreement for the site with the City of Antioch in November 2024. The site is bordered by single family residences within 250 feet to the south, east and west.

Location Map



BACKGROUND

The applicant is seeking a use permit and design review approval to install a new tower-mounted wireless facility for Dish Wireless. The wireless facility will be located on an existing PG&E tower, and include the installation of a 12' tower top hat, 6' panel antennas, remote radio units (RRUs), construction of an approximately 114 square foot concrete masonry equipment shelter, and associated utility and minor site work, such as new underground utility lines, power equipment, and placement of a firebreak (weed block and compacted rock) around the site for compliance with PG&E safety and access requirements.

There are currently no wireless facilities at the subject site. This will be a new facility with a "macro" installation as defined in the Antioch City Council Policy for Wireless Communications Facilities.

> *O. "**macro wireless facility**" or "**macro wireless facilities**" means any wireless facility that is not a small wireless facility as defined by the FCC in 47 C.F.R. § 1.6002(l), as may be amended or superseded.*

The FCC definition for "facility" is defined as, "*Facility or personal wireless service facility means an antenna facility or a structure that is used for the provision of personal wireless service, whether such service is provided on a stand-alone basis or commingled with other wireless communications services.*

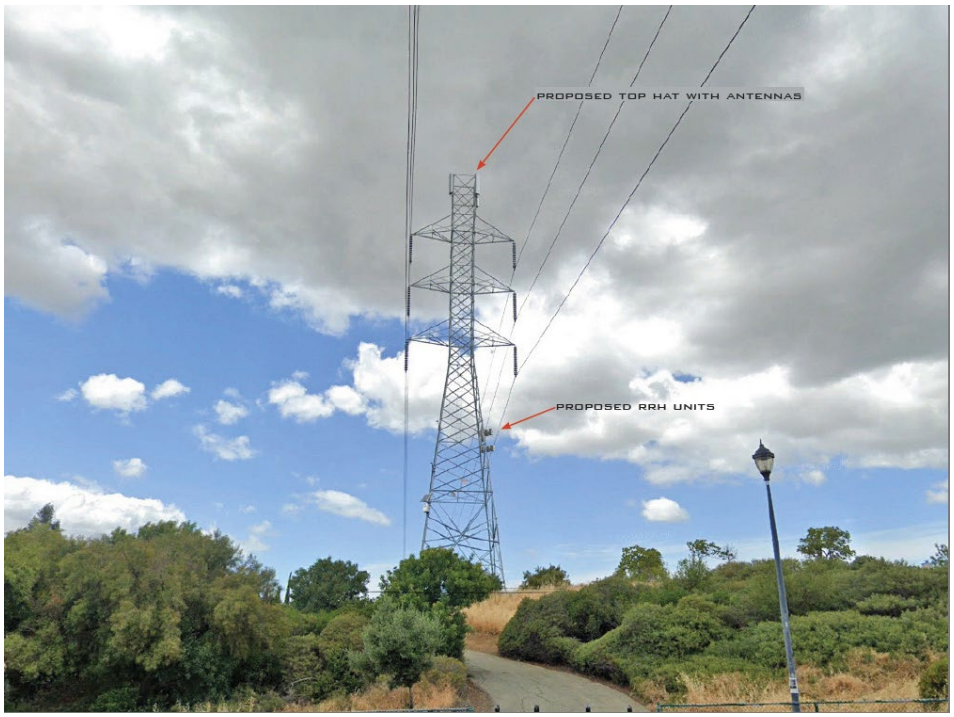
ANALYSIS

Wireless Policy

The City of Antioch Wireless Policy (found here: https://www.antiochca.gov/fc/community-development/planning/wireless-facilities-council-policy.pdf) was adopted by the City Council on June 11, 2019. The Policy establishes reasonable, uniform and comprehensive standards and procedures for wireless facilities deployment, construction, installation, collocation, modification, operation, relocation and removal within the City's territorial boundaries, consistent with and to the extent permitted under federal and California state law. The standards and procedures contained in this policy are intended to protect and promote public health, safety and welfare, and balance the benefits that flow from robust, advanced wireless services with the City's local values, which include without limitation the aesthetic character of the City, its neighborhoods and community.

Design

The project includes the installation of three 6 foot tall panel antennas which will be installed on a 12 foot tall top hat attachment to the tower, which matches the existing design and color of the tower. The top hat will increase the overall height of the tower from 100 feet and 1 inch to 112 feet and 1 inch. RRUs will be installed on an H-frame attachment mounted to the tower at approximately 46' height. Cables connecting the equipment will run down the inside of the tower to an underground conduit attaching to the equipment shelter. Below is a rendering of what the proposed tower will look like with the wireless equipment installed, to illustrate how the equipment will blend in with the existing tower.



The wireless ground equipment will be located in a new equipment shelter approximately 35 feet north of the tower, which is the closest reasonably flat location that meets all PG&E requirements, according to the applicant. The equipment shelter will measure approximately 10 feet by 11 feet 4 inches, and will be approximately 11 feet 6 inches in height. The walls of the equipment shelter will be ORCO concrete masonry construction, colored white split face for the bottom 4 feet and natural grey split face for the top 4 feet. The shelter roof will be Spanish tiles, desert red color. The shelter will be installed on a concrete pad. The design is similar to other equipment shelters located in open spaces throughout the city.

The shelter will be adjacent to the existing open space pathway for access purposes, and a new PG&E transformer will be located adjacent to it, surrounded by bollards as required by PG&E. The existing dirt and grass surrounding the tower and equipment shelter will be replaced by a new 2-3 inch thick ¾ inch "California Gold" crushed gravel fire break, to meet PG&E fire and access requirements, as well as to create a staging area between the tower and the equipment shelter.

The proposed project meets the Wireless Policy's requirements for Tower-Mounted Equipment in V.B.4.a, which states, "Tower-Mounted Equipment—In General. All tower-mounted equipment must be mounted as close to the vertical support structure as possible to reduce its overall visual profile. Applicants must mount non-antenna, tower mounted equipment (including, but not limited to, RRUs/heads, surge suppressors and utility demarcation boxes) directly behind the antennas to the maximum extent feasible. All tower-mounted equipment, cables and hardware must be painted with flat/neutral colors subject to the approval authority's prior approval." The equipment is located as close to the vertical structure as possible and matches its neutral colors to reduce the overall visual profile. Due to the requirements of placement on a PG&E tower, the non-antenna RRU's are mounted lower down from the tower than the antennas, but they are designed to also blend in with the tower to the extent feasible. A Raycap surge protector will be located directly behind the RRU units.

Additionally, the proposed equipment is concealed in a new equipment shelter, as required by section V.B.4.b "Ground-Mounted Equipment-In General."

<u>Location & Review Requirements</u>
The subject site is located on an existing PG&E tower on a city-owned open-space property within the P-D (Planned Development District) zone, in a location designated open space in the General Plan. According to wireless policy section V.B.1, "parcels within public/institutional districts or approved for a public/institutional use" are considered preferred locations. Therefore, this location is considered preferred. The facility is within 250 feet of single-family residences and therefore is subject to Planning Commission use permit and design review per wireless policy section V.A.2.a.

The applicant has entered into a lease with the City of Antioch, as property holder, and would be subject to meeting the standards and requirements therein.

Recommended Findings

The Commission is responsible for evaluating the application for compliance with the wireless policy's development standards outlined in section V.B. Specifically, it may approve or conditionally approve an application when it finds the following:

a. the approval authority can make all the findings required for a use permit in accordance with Antioch Municipal Code § 9-5.2703;

b. the proposed wireless facility complies with all applicable development standards in section V.B;

c. the applicant has demonstrated that its proposed wireless facility will be in compliance with all applicable FCC regulations and guidelines for human exposure to RF emissions;

d. the applicant has proposed to place the wireless facility in the most preferred location or, if the wireless facility is not proposed in the most preferred location, the applicant has demonstrated a good-faith effort to identify and evaluate more-preferred alternative locations through a meaningful comparative analysis; and

e. the applicant has provided the approval authority with a meaningful comparative analysis that shows all more-preferred alternative designs identified in the administrative record are either technically infeasible or unavailable.

Staff recommends that the Planning Commission find the facility compliant with the applicable development standards in section V.B. and approve the use permit and design review. The facility will be located on top of an existing PG&E tower, and will blend in with the existing structure. The ground-level equipment, with the exception of a new transformer as required by PG&E, will be housed within a small equipment shelter screening it directly from public view. The height limits and setbacks described in V.B.3.c and V.B.3.d do not apply as the facility is on public property. The applicant has provided an acoustic analysis (attachment E) confirming no anticipated sound impacts from the project, as well as a Radio Frequency (RF) Compliance Report (attachment F) confirming RF emissions are within FCC requirements. The applicant also provided an analysis of alternative locations (attachment G) which shows that for providing coverage, this location is the most-preferred feasible alternative.

FCC Shot Clock

In accordance with FCC regulations, jurisdictions have 90 days to take final action on the required permits and approvals for a macro wireless facility located on an existing structure, or the application will be deemed approved. The application was submitted on March 27, 2025, therefore the 90-day "shot clock" will expire on June 25, 2025.

Public Comment Received

Staff received one phone call from a neighbor of the site who expressed their opposition to the project, due to concerns around the equipment shelter being visible from their

home, as well as potential negative noise impacts from the construction and operation of the project. The caller asked why the shelter was not located directly behind the tower (from their vantage point). According to the applicant, the shelter is located in the closest relatively flat location to the site, that does not conflict with PG&E requirements for safety and access.

ENVIRONMENTAL REVIEW

The proposed project is categorically exempt from the requirements of CEQA per Section 15303, "New Construction or Conversion of Small Structures" of the CEQA Guidelines. Class 3 consists of construction and location of limited numbers of new, small facilities or structures; installation of small new equipment and facilities in small structures; and the conversion of existing small structures from one use to another where only minor modifications are made in the exterior of the structure.

ATTACHMENTS

A. Planning Commission Resolution
    a. Exhibit A Conditions of Approval
B. Project Description
C. Project Plans
D. Photo Simulations
E. Acoustic Analysis
F. Radio Frequency Compliance Report
G. Alternative Site Analysis

ATTACHMENT "A"

PLANNING COMMISSION
RESOLUTION NO. 2025-XX

RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF ANTIOCH APPROVING A USE PERMIT AND DESIGN REVIEW FOR DEVELOPMENT OF A NEW WIRELES MACRO FACILITY (CELL2025-0001) NEAR THE INTERSECTION OF PREWETT RANCH DRIVE AND CANDLEWOOD WAY (APN: 056-240-032)

WHEREAS, the project applicant, Dish Wireless requests approval of a use permit and design review for development of a new wireless macro facility located on an existing PG&E tower on a City-owned parcel near the intersection of Prewett Ranch Drive and Candlewood Way (APN: 056-240-032);

WHEREAS, the project site is within the P-D zoning district, currently used as City-owned open space and home to existing PG&E power infrastructure, and the applicant has entered into a lease agreement with the City for use of the site as a wireless macro facility;

WHEREAS, the proposed scope includes installation of a 12' tower top hat, 6' panel antennas, remote radio units, construction of an approximately 114 square foot concrete masonry equipment shelter and associated utility and minor site work;

WHEREAS, the project is Categorically Exempt from the requirements of the California Environmental Quality Act (CEQA) pursuant to Section 15303, "New Construction or Conversation of Small Structures," which allows the construction of small facilities or structures;

WHEREAS, the Planning Commission duly gave notice of a public hearing as required by law;

WHEREAS, on June 4, 2025, the Planning Commission duly held a public hearing and received and considered evidence, both oral and documentary;

NOW, THEREFORE, BE IT RESOLVED AND DETERMINED that the Planning Commission hereby makes the following findings for approval of a Use Permit pursuant to Section 9-5.2703 "Required Findings" of the Antioch Municipal Code:

1. The granting of such Use Permit will not be detrimental to the public health or welfare or injurious to the property or improvements in such zone or vicinity.

   The project will be located on a city-owned parcel that currently contains a PG&E tower and associated infrastructure, as well as a pathway and open space. The applicant has entered into a lease agreement with the City governing use of the site. Ground equipment will be primarily housed within a small concrete masonry unit shelter and thereby screened from

public view. The applicant has demonstrated that the project will not create a noise impact, and it will comply with applicable Federal Communications Commission regulations for exposure to radio frequency emissions.

2. The use applied at the location indicated is properly one for which a Use Permit is authorized.

   The site is located within a city-owned parcel that currently contains PG&E infrastructure and open space. The site is a preferred location. In accordance with the City's Wireless Policy, a use permit is permitted for this location with approval by the Planning Commission.

3. That the site for the proposed use is adequate in size and shape to accommodate such use, and all parking, and other features required.

   The site currently contains PG&E infrastructure, where the wireless antennas will be located. The site is adequate in size and shape to accommodate the necessary ground equipment shelter, associated utilities and other features required.

4. That the site abuts streets and highways adequate in width and pavement type to carry the kind of traffic generated by the proposed use.

   The project will generate minimal traffic, for maintenance purposes only.

5. The granting of such Use Permit will not adversely affect the comprehensive General Plan.

   The project complies with the City's Wireless Policy and relevant state and federal regulations. The granting of such a use permit will not adversely affect the comprehensive General Plan.

NOW, THEREFORE, BE IT RESOLVED AND DETERMINED that the Planning Commission hereby makes the following findings for approval of a wireless macro facility application pursuant to Section V.D.1. "Required Findings" of the City's Wireless Policy:

a. The approval authority can make all the findings required for a use permit in accordance with Antioch Municipal Code § 9-5.2703.

   The findings required for a use permit in accordance with Antioch Municipal Code § 9-5.2703 are contained within this resolution.

b. The proposed wireless facility complies with all applicable development standards in section V.B

The facility complies with the applicable development standards in section V.B. The facility will be located on top of an existing PG&E tower, and will blend in with the existing structure. The ground-level equipment will be housed within a small equipment shelter screening it from public view.

c. The applicant has demonstrated that its proposed wireless facility will be in compliance with all applicable FCC regulations and guidelines for human exposure to RF emissions.

   The applicant has provided a Radio Frequency (RF) Compliance Report confirming RF emissions are within FCC requirements.

d. The applicant has proposed to place the wireless facility in the most preferred location or, if the wireless facility is not proposed in the most preferred location, the applicant has demonstrated a good-faith effort to identify and evaluate more-preferred alternative locations through a meaningful comparative analysis.

   The applicant has provided an analysis of alternative locations which shows that for providing the desired coverage, this location is the most-preferred feasible alternative.

e. The applicant has provided the approval authority with a meaningful comparative analysis that shows all more-preferred alternative designs identified in the administrative record are either technically infeasible or unavailable.

   There are no more-preferred alternative designs identified in the administrative record.

NOW THEREFORE BE IT RESOLVED AND DETERMINED, that the Planning Commission of the City of Antioch does hereby **APPROVE** CELL2025-0001, to develop a new wireless macro facility located near Prewett Ranch Drive and Candlewood Way (APN: 056-240-032), subject to the attached conditions of approval (Exhibit A).

* * * * * * * * *

I HEREBY CERTIFY that the foregoing resolution was passed and adopted by the Planning Commission of the City of Antioch at a regular meeting thereof held on the 4th day of June 2025.

AYES:

NOES:

ABSTAIN:

ABSENT:

_____

DAVID A. STORER, AICP
SECRETARY TO THE PLANNING COMMISION

EXHIBIT A
CONDITIONS OF APPROVAL
(SEPARATE PAGE)

EXHIBIT A:
CONDITIONS OF APPROVAL
PREWETT RANCH DRIVE WIRELESS MACRO FACILITY
(CELL2025-0001)

GENERAL

1. **Project Approval.** This Use Permit and Design Review approval is for the Prewett Ranch Drive Wireless Macro Facility project located at near the intersection of Prewett Ranch Drive and Candlewood Way (APN: 056-240-032), as substantially shown and described on the project plans dated November 11, 2024, as presented to the Planning Commission on June 4, 2025 ("Approval Date"), except as required to be modified by conditions herein. For any condition herein that requires preparation of a final plan where the permittee has submitted a conceptual plan, the permittee shall submit final plan(s) in substantial conformance with the conceptual plan, but incorporate the modifications required by the conditions herein for approval by the City of Antioch ("City").

2. **Build-Out Period.** This permit will automatically expire one (1) year from the approval or deemed-granted date unless the permittee obtains all other permits and approvals required to install, construct and/or operate the approved wireless facility, which includes without limitation any permits or approvals required by the any federal, state or local public agencies with jurisdiction over the subject property, the wireless facility or its use. The Zoning Administrator may grant one written extension to a date certain, but not to exceed one (1) additional year, when the permittee shows good cause to extend the limitations period in a written request for an extension submitted at least 30 days prior to the automatic expiration date in this condition.

3. **Appeals.** Any interested person or entity may appeal any decision by the approval authority in accordance with the provisions in Antioch Municipal Code § 9-5.2705; provided, however, that appeals from an approval shall not be permitted when based solely on the environmental effects from radio frequency emissions that are compliant with applicable FCC regulations and guidelines.

4. **Requirement for Building Permit.** Approval granted by the Planning Commission does not constitute a building permit or authorization to begin any construction or demolition of an existing structure. An appropriate permit issued by the Community Development Department must be obtained before constructing, enlarging, moving, converting, or demolishing any building or structure within the City.

5. **Non-Planned Development Modification of Approved Plans.** The project shall be constructed as approved and with any additional changes required pursuant to the Zoning Administrator or Planning Commission Conditions of Approval. Planning staff may approve minor modifications to the project design as outlined in Antioch Municipal Code § 9-5.2708.

6. **Indemnification.** The permittee and, if applicable, the property owner upon which the wireless facility is installed shall defend, indemnify and hold harmless the City,

City Council and City boards, commissions, agents, officers, officials, employees and volunteers from any and all (1) damages, liabilities, injuries, losses, costs and expenses and from any and all claims, demands, law suits, writs and other actions or proceedings ("Claims") brought against the City or its agents, officers, officials, employees or volunteers to challenge, attack, seek to modify, set aside, void or annul the City's approval of this permit, and (2) other Claims of any kind or form, whether for personal injury, death or property damage, that arise from or in connection with the permittee's or its agents', directors', officers', employees', contractors', subcontractors', licensees', or customers' acts or omissions in connection with this permit or the wireless facility. In the event the City becomes aware of any Claims, the City will use best efforts to promptly notify the permittee and the private property owner and shall reasonably cooperate in the defense. The permittee expressly acknowledges and agrees that the City shall have the right to approve, which approval shall not be unreasonably withheld, the legal counsel providing the City's defense, and the property owner and/or permittee (as applicable) shall promptly reimburse City for any costs and expenses directly and necessarily incurred by the City in the course of the defense. The permittee expressly acknowledges and agrees that the permittee's indemnification obligations under this condition are a material consideration that motivates the City to approve this permit, and that such indemnification obligations will survive the expiration or revocation of this permit.

7. **Final Approval.** A final and unchallenged approval of this project supersedes any previous approvals that have been granted for this site.

8. **Site Maintenance.** The permittee shall keep the site, which includes without limitation any and all improvements, equipment, structures, access routes, fences and landscape features, in a neat, clean and safe condition in accordance with the Approved Plans and all conditions in this permit. The permittee shall keep the site area free from all litter and debris at all times. The permittee, at no cost to the City, shall remove and remediate any graffiti or other vandalism at the site within 48 hours after the permittee receives notice or otherwise becomes aware that such graffiti or other vandalism occurred.

9. **Compliance with Laws.** The permittee shall maintain compliance at all times with all federal, state and local statutes, regulations, orders or other rules that carry the force of law ("Laws") applicable to the permittee, the subject property, the wireless facility or any use or activities in connection with the use authorized in this permit, which includes without limitation any Laws applicable to human exposure to RF emissions. The permittee expressly acknowledges and agrees that this obligation is intended to be broadly construed and that no other specific requirements in these conditions are intended to reduce, relieve or otherwise lessen the permittee's obligations to maintain compliance with all Laws. In the event that the City fails to timely notice, prompt or enforce compliance with any applicable provision in the Antioch Municipal Code, any permit, any permit condition or any applicable law or

regulation, the permittee will not be relieved from its obligation to comply in all respects with all applicable provisions in the Antioch Municipal Code, any permit, any permit condition or any applicable law or regulation.

10. **Adverse Impacts on Other Properties.** The permittee shall use all reasonable efforts to avoid any and all unreasonable, undue or unnecessary adverse impacts on nearby properties that may arise from the permittee's or its authorized personnel's construction, installation, operation, modification, maintenance, repair, removal and/or other activities on or about the site. The permittee shall not perform or cause others to perform any construction, installation, operation, modification, maintenance, repair, removal or other work that involves heavy equipment or machines except during normal construction work hours authorized by the Antioch Municipal Code. The restricted work hours in this condition will not prohibit any work required to prevent an actual, immediate harm to property or persons, or any work during an emergency declared by the City or other state or federal government agency or official with authority to declare a state of emergency within the City. The Director or the Director's designee may issue a stop work order for any activities that violates this condition in whole or in part.

11. **Inspections; Emergencies.** The permittee expressly acknowledges and agrees that the City's officers, officials, staff or other designees may enter onto the site and inspect the improvements and equipment upon reasonable prior notice to the permittee, or at any time during an emergency. The City's officers, officials, staff or other designees may, but will not be obligated to, enter onto the site area without prior notice to support, repair, disable or remove any improvements or equipment in emergencies or when such improvements or equipment threatens actual, imminent harm to property or persons. The permittee, if present, may observe the City's officers, officials, staff or other designees while any such inspection or emergency access occurs.

12. **Permittee's Contact Information.** The permittee shall furnish the Director with accurate and up-to-date contact information for a person responsible for the wireless facility, which includes without limitation such person's full name, title, direct telephone number, facsimile number, mailing address and email address. The permittee shall keep such contact information up-to-date at all times and immediately provide the Director with updated contact information in the event that either the responsible person or such person's contact information changes.

13. **Permit Revocation.** In accordance with Antioch Municipal Code § 9-5.2707.1, the approval authority may recall this permit for review at any time due to complaints about noncompliance with applicable laws or any approval conditions attached to this permit. At a duly noticed public hearing and in accordance with all applicable laws, the approval authority may revoke this permit or amend these conditions as the approval authority deems necessary or appropriate to correct any such noncompliance.

14. **Record Retention.** The permittee must maintain complete and accurate copies of all permits and other regulatory approvals issued in connection with the wireless facility, which includes without limitation this approval, the approved plans and photo simulations incorporated into this approval, all conditions associated with this approval and any ministerial permits or approvals issued in connection with this approval. In the event that the permittee does not maintain such records as required in this condition, any ambiguities or uncertainties that would be resolved through an inspection of the missing records will be construed against the permittee. The permittee may keep electronic records; provided, however, that hard copies or electronic records kept in the City's regular files will control over any conflicts between such City controlled copies or records and the permittee's electronic copies, and complete originals will control over all other copies in any form.

15. **Abandoned Wireless Facilities.** The wireless facility authorized under this permit shall be deemed abandoned if not operated for any continuous six-month period. Within 90 days after a wireless facility is abandoned or deemed abandoned, the permittee and/or property owner shall completely remove the wireless facility and all related improvements and shall restore all affected areas to a condition compliant with all applicable laws, which includes without limitation the Antioch Municipal Code. In the event that neither the permittee nor the property owner complies with the removal and restoration obligations under this condition within said 90-day period, the City shall have the right (but not the obligation) to abate the nuisance by removal and restoration, store or sell the facility or any part thereof, with or without notice, and the permittee and property owner shall be jointly and severally liable for all costs and expenses incurred by the City in connection with such removal, storage and/or restoration activities. In accordance with Antioch Municipal Code Title 5, Chapter 1, Article 3, all costs associated with the abatement in connection with a facility on real property shall be assessed against the property as a lien to be recorded with the County of Contra Costa Recorder's Office. Within 60 calendar days after the lien amount is fully satisfied including costs and interest, the City shall cause the lien to be released with the County of Contra Costa Recorder's Office.

16. **Requirements for Signage.** No signs shall be installed on site without prior to City approval.

17. **Restricted Site Access.** The permittee shall keep all access points to the equipment enclosure locked at all times, except when active maintenance is performed.

18. **RF Signage**. The permittee shall install and at all times maintain in good condition an "RF Notice" sign and a network operations center sign adjacent to all access points of the equipment enclosure. The signs required in this condition must be

placed in a location where they are clearly visible to a person approaching the access point(s) whether in the open or closed positions. The permittee shall ensure that all signage complies with FCC OET Bulletin 65 and ANSI C95.2 for color, symbol, and content conventions. All such signage shall at all times provide a working local or toll-free telephone number to its network operations center, and such telephone number shall be able to reach a live person who can exert transmitter shut-down control over this site as required by the FCC.

FEES

19. **City Fees.** The permittee shall pay all City and other related fees applicable to the property, as may be modified by the conditions herein. Fees shall be based on the current fee structure in effect at the time the relevant permits are secured and shall be paid before issuance of said permit. Notice shall be taken specifically of plan check, engineering, fire, and inspection fees. The permittee shall also reimburse the City for direct costs of Planning, Building and Engineering Division plan check and inspection, as mutually agreed between the City and permittee.

    No permits or approvals, whether discretionary or mandatory, shall be considered if the permittee is not current on fees, balances, and reimbursements that are outstanding and owed to the City.

PUBLIC WORKS' STANDARD CONDITIONS

20. **City Standards.** All proposed improvements shall be designed and constructed to City standards or as otherwise approved by the City Engineer in writing. The permittee shall file for a City encroachment permit for all improvements within the public right of way, a grading permit for grading of the site, and a building permit for all buildings and utilities to be installed on the site.

CONSERVATION / NPDES

21. **C.3 Compliance.** Per State Regulations, all onsite and offsite impervious surfaces, including off-site roadways to be designed and constructed as part of the project, are subject to State C.3 requirements prior to building permit issuance.

AT BUILDING PERMIT ISSUANCE

22. **Encroachment Permit.** The permittee shall obtain an encroachment permit from the Engineering Division before commencing any construction activities within any existing or proposed public right- of-ways or easements.

23. **Demolition Permit.** Site demolition shall not occur until demolition permits are issued for the development project. All demolition shall be in accordance with

permits issued by the City of Antioch and Bay Area Air Quality Management District (BAAQMD).

DURING CONSTRUCTION

24. **Construction Notice.** The permittee shall inform the City of the start of construction of the project, the construction schedule and provide the below items, approximate area of disturbance, time frames for needed inspections, hours of work, construction detours, flagging, etc. The permittee shall provide the adjacent businesses and residents with a notice of construction by posting a flyer or sign, not to exceed 24" x 36" in size, in a publicly visible location at the construction site, such as on the exterior of the construction fence, containing the following information:
    Address of Work
    Start Date of Work
    End Date of Work
    Hours of Work
    Type of Work
    Contact Person
    Company Name
    Telephone

25. **Collection of Construction Debris.** During construction, the permittee shall place dumpsters or other containers on site to contain all construction debris. The dumpsters or other containers shall be emptied on a regular basis, consistent with Antioch Municipal Code § 6-3.2, the Construction and Demolition Debris Ordinance. Where appropriate, permittee shall use tarps on the ground to collect fallen debris or splatters that could contribute to stormwater pollution. The site shall be kept clean of all debris (boxes, junk, garbage, etc.) at all times.

26. **Construction Hours.** Construction activity shall be as outlined in the Antioch Municipal Code § 5-17.04 and § 5-17.05. Construction activity is limited to 7:00 AM to 6:00 PM Monday-Friday except that activity within 300 feet of occupied dwellings is limited to the hours of 8:00 AM to 5:00 PM on weekdays. On weekends and holidays, construction activity is allowed 9:00 AM to 5:00 PM, irrespective of the distance from an occupied dwelling. Extended hours may be approved in writing by the City Manager or designee.

27. **Driveway Access.** Driveway access to neighboring properties shall be maintained at all times during construction.

28. **Demolition, Debris, Recycling.** All debris, garbage spoils, unwanted materials and vegetation shall be removed from the project site in accordance with City requirements. All materials that can be recycled shall be taken to an approved recycling facility. The project shall be kept clean and in compliance with, and

shall supply all necessary documentation for compliance with Antioch Municipal Code § 6-3.2, the Construction and Demolition Debris Ordinance.

29. **Filter Materials at Storm Drain Inlet.** The permittee shall install filter materials (such as sandbags, filter fabric, etc.) at each storm drain inlet nearest the downstream side of the project site prior to:
    a. start of the rainy season (October 1).
    b. site dewatering activities.
    c. street washing activities.
    d. saw cutting asphalt or concrete; and
    e. in order to retain any debris or dirt flowing into the City storm drain system.

    Filter materials shall be maintained and/or replaced as necessary to ensure effectiveness, prevent street flooding and prevent erosion of soil onto City streets and draining into the storm drain system. Used filter particles shall be disposed of in the trash or at a local approved landfill facility.

30. **Archeological Remains.** In the event subsurface archeological remains are discovered during any construction or preconstruction activities on the site, all construction work within 100 feet of the find shall be halted, and the Community Development Department, along with a professional archeologist, certified by the Society of California Archeology and/or the Society of Professional Archeology, shall be notified. Site work in this area shall not occur until the archeologist has had an opportunity to evaluate the significance of the find and to outline appropriate mitigation measures, if deemed necessary. If prehistoric archeological deposits are discovered during development of the site, local Native American organizations shall be consulted and involved in making resource management decisions.

31. **Dust Control.** Standard dust control methods and designs shall be used to stabilize the dust generated by construction activities. The permittee shall post dust control signage with contact phone numbers for the permittee, City staff, and the Bay Area Air Quality Management District.

PRIOR TO CONSTRUCTION COMPLETION

32. **Site Landscaping.** All landscaping within the project site, including on all slopes, medians, C.3 drainage basins, retaining walls, bioretention basins, common areas, open space and park landscape areas, and any other areas that are to be landscaped, shall be installed prior to issuance of final certificate of occupancy.

33. **Damage to Street Improvements.** Any damage occurring during construction to existing streets and site improvements or adjacent property improvements in the immediate area of the project, shall be repaired and/or rebuilt to the

satisfaction of the City Engineer at the full expense of the permittee. This shall include sidewalks, asphalt and concrete pavement, slurry seal existing AC pavements, parking lot curbs and gutters, landscaping, street reconstruction along the project frontage, as may be required by the City Engineer, to restore the developed area.

34. **Right-of-Way Construction Standards.** All improvements within the public right-of-way, including curbs, gutters, sidewalks, driveways, paving and utilities, shall be constructed in accordance with the City approved plans and/or City specifications as directed by the City Engineer.

35. **RF Report Requirements.** All requirements established by the project's RF Compliance Report shall be shown on the building permit plans and installed prior to issuance of a certificate of occupancy.

ATTACHMENT "B"

Site Address: PREWETT RANCH DR. ANTIOCH, CA 94531 / 37°57'23.29"N, 121°45'58.19"W

Date: March 27, 2025

Prepared by: Alexander Herrera, Land Use Manager

RE: Prewett Ranch / Project Narrative and Justification

Dish Wireless is proposing a wireless telecommunications facility to be installed at an existing PG&E lattice tower, located on property owned by City of Antioch. The antennas and radios are to be mounted onto the PG&E lattice tower and the equipment shelter is to be located adjacent to the tower. The shelter design has been reviewed and approved by city staff and Telecom Law Firm prior to application submission.

The proposed facility is located on a parcel in which the current use (P-D) is considered a preferred location per Reso No. 2019/99 Chapter 5 B.1.b., as the property is open for public use (walking trail + park) and is owned by the city.

A total of three 6' panel antennas and six RRUs are proposed, one antenna per sector. The RRUs are to be mounted on the north-east leg of the lattice tower. The ancillary equipment is to be located within a new equipment shelter. The shelter location is adjacent to an existing telecommunications equipment for another carrier, which is north-west of the tower. To meet PG&E safety and access requirements, a firebreak (weed block and compacted rock) is proposed in and around the base of the lattice tower, and the around the equipment area. In addition, a staging area (weed block and compacted rock) between the tower and equipment area.

The equipment shelter is to house the following equipment:

- PG&E Meter and disconnect (wall-mounted)
- Fiber cabinet and Cienna (wall-mounted)
- PG&E shutdown switch (wall-mounted)
- PPC cabinet w/ camlock generator interface (wall-mounted)
- Equipment cabinet (ground-mounted onto concrete slab)
- Two 6" conduit stub-ups for hybrid cables (hybrid cable runs from equipment shelter to
- lattice tower, up the tower leg, and connects to tower-mounted equipment).
- GPS antennas (mounted on exterior of shelter)

The purpose of the proposed facility to fill the coverage gaps in the region and provide quality coverage for future customers and emergency services. As Dish Wireless/Boost Mobile builds a new network, as the fourth carrier, throughout California and the rest of the country, its vital that the connectivity to be provided by the facility is built to provide coverage in adjacent neighborhoods and communities. Currently, there is little to no coverage within the immediate area, as seen in the provided coverage plots.

dish WIRELESS

DISH WIRELESS SITE ID:

SFSFO00584B

SITE ADDRESS:

PREWETT RANCH DRIVE
ANTIOCH, CA 94531

PG&E SITE ID: CONTRA COSTA - LOS POSITAS -230 kv_004/030
SBA SITE ID: CA35912-L

CODE COMPLIANCE

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

CODE TYPE	CODE
BUILDING	2022 CBC
MECHANICAL	2022 CMC
ELECTRICAL	2022 CEC

SHEET INDEX

SCOPE OF WORK

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:
SECTOR SCOPE OF WORK:

- INSTALL (1) PROPOSED 12' TALL TOWER TOP HAT ON (E) PG&E TOWER (BY OTHERS)
- INSTALL (3) PROPOSED 6'-0" PANEL ANTENNAS (1 PER SECTOR) ON TOP HAT ABOVE CONDUCTORS
- INSTALL (2) PROPOSED RRU H-FRAMES BELOW CONDUCTORS WITH (6) PROPOSED RRUS
- INSTALL (1) INSIDE TOWER MOUNT WITH (1) RAYCAP
- INSTALL (1) 1.411"ø HYBRID CABLE FROM GROUND EQUIPMENT CABINET TO RAYCAP/RRUS
- INSTALL (24) 1/2"ø JUMPERS AND (3) RET CABLES FROM RRUS TO ANTENNAS

EQUIPMENT SCOPE OF WORK:

- INSTALL (1) PROPOSED EQUIPMENT SHELTER
- INSTALL (1) PROPOSED BBU IN CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED NEMA 3 TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS ANTENNA
- INSTALL CAMLOCK GEN LUG INTERSECT
- INSTALL NEW PG&E PAD MOUNTED TRANSFORMER AND BOLLARDS
- INSTALL PG&E EMERGENCY SHUTDOWN SWITCH
- NO BATTERIES PROPOSED

SITE PHOTO

UNDERGROUND SERVICE ALERT
UTILITY NOTIFICATION CENTER OF CALIFORNIA
(800) 422-4133
WWW.CALIFORNIA811.ORG
CALL 2-14 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

811

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 OR EFFECT ON DRAINAGE. NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED

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

SITE INFORMATION

TOWER OWNER:	PACIFIC GAS AND ELECTRIC
ADDRESS:	CITY OF ANTIOCH PO BOX 5007 ANTIOCH CA 94531
PROPERTY OWNER:	CITY OF ANTIOCH
ADDRESS:	200 H STREET ANTIOCH, CA 94509
SITE TYPE:	TRANSMISSION TOWER
COUNTY:	CONTRA COSTA COUNTY
LATITUDE (NAD 83):	37.956472°
LONGITUDE (NAD 83):	-121.766147°
ZONING JURISDICTION:	CITY OF ANTIOCH
ZONING DISTRICT:	P-D
PARCEL NUMBER:	056-240-032
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	V-B
POWER COMPANY:	PG&E
FIBER COMPANY:	TBD
DISH LEASE AREA:	278 SF
PG&E XFMR LEASE AREA:	120 SF

PROJECT DIRECTORY

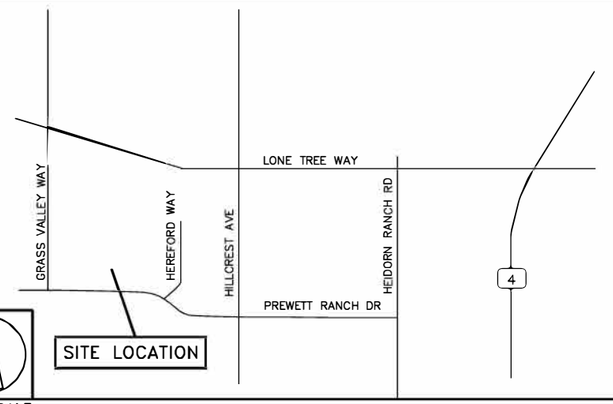
APPLICANT:	DISH WIRELESS 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
SITE DESIGNER:	CONNELL DESIGN GROUP INC 22431 ANTONIO PKWY., SUITE B160-131 RANCHO SANTA MARGARITA, CA 92688 DAN CONNELL (949) 306-4644
SITE ACQUISITION:	BUTLER AMERICA 1511 E. ORANGETHORPE AVE., SUITE D FULLERTON, CA 92831 KACEY MCCLAIN (562) 266-8472 kmcclain@butleramerica.com

DIRECTIONS

DIRECTIONS FROM SFO AIRPORT:

- GET ON US-101 N IN SOUTH SAN FRANCISCO FROM INTERNATIONAL TERMINAL ARRIVALS LEVEL
- HEAD NORTHWEST
- KEEP RIGHT AT THE FORK, FOLLOW SIGNS FOR MCDONNELL RD
- KEEP LEFT, FOLLOW SIGNS FOR INTERNATIONAL TERMINAL AND MERGE ONTO AIRPORT ACCESS RD
- SLIGHT LEFT ONTO INTERNATIONAL TERMINAL ARRIVALS LEVEL
- KEEP LEFT TO STAY ON INTERNATIONAL TERMINAL ARRIVALS LEVEL
- MERGE ONTO US-101 N VIA THE RAMP TO SAN FRANCISCO
- CONTINUE ON US-101 N. TAKE I-80 E, CA-24 E AND CA-4 E TO LONE TREE WAY IN ANTIOCH. TAKE EXIT 33 FROM CA-4 E
- MERGE ONTO US-101 N
- KEEP RIGHT AT THE FORK TO CONTINUE ON I-80 E, FOLLOW SIGNS FOR BAY BRG
- USE THE RIGHT 3 LANES TO TAKE EXIT 8B FOR I-580 E TOWARD DOWNTOWN OAKLAND/HAYWARD/STOCKTON/CA-24
- CONTINUE ONTO I-580 E
- USE THE RIGHT 2 LANES TO TAKE EXIT 19B TO MERGE ONTO CA-24 E TOWARD WALNUT CREEK
- KEEP LEFT TO STAY ON CA-24 E
- USE THE LEFT 3 LANES TO TAKE THE I-680 N EXIT TOWARD SACRAMENTO/CONCORD
- KEEP LEFT AND MERGE ONTO I-680 N
- KEEP RIGHT AT THE FORK TO CONTINUE ON CA-242 N, FOLLOW SIGNS FOR CONCORD/PITTSBURG/STATE ROUTE 242
- USE THE LEFT 3 LANES TO MERGE ONTO CA-4 E TOWARD STOCKTON/PITTSBURG
- TAKE EXIT 33 FOR LONE TREE WAY
- CONTINUE ON LONE TREE WAY. TAKE VISTA GRANDE DR TO PREWETT RANCH DR
- TURN RIGHT ONTO LONE TREE WAY
- TURN LEFT ONTO VISTA GRANDE DR
- TURN LEFT ONTO HILLCREST AVE
- USE ANY LANE TO TURN RIGHT AT THE 1ST CROSS STREET ONTO PREWETT RANCH DR

VICINITY MAP



NO SCALE

dish WIRELESS
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Butler America
1511 E. ORANGETHORPE AVE., SUITE D
FULLERTON, CA 92831

CDG
22431 ANTONIO PKWY
SUITE B160-131
RANCHO SANTA MARGARITA CA 92688
dconnell@connelldesigngroup.com
949-306-4644

LICENSED PROFESSIONAL ENGINEER
DANIEL M CONNELL
C 62543
EXP. 12/31/25
CIVIL
STATE OF CALIFORNIA

DATE STAMPED: 11/25/2024

DRAWN BY:	CHECKED BY:	APPROVED BY:
JPC	JPC	DC

RFDS FINAL REV #1 DATED 4/30/24

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
12	10/24/2023	ISSUED FOR 100% CD
13	02/01/2024	ISSUED FOR 100% CD
14	03/01/2024	ISSUED FOR 100% CD
15	03/20/2024	ISSUED FOR 100% CD
16	04/24/2024	ISSUED FOR 100% CD
17	04/30/2024	ISSUED FOR 100% CD
18	11/25/2024	ADD PG&E POWER DESIGN

(VENDOR) PROJECT NUMBER
SFSF000584B

DISH WIRELESS PROJECT NUMBER
SFSF000584B

PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

C1

NOTES

OWNER(S): CITY OF ANTIOCH

APN(S): 056–240–032–5

THIS DRAWING DOES NOT REPRESENT A BOUNDARY SURVEY OF ANY PARCEL OF LAND, NOR DOES IT IMPLY OR INFER THAT A BOUNDARY SURVEY WAS PERFORMED. THIS IS A SPECIALIZED TOPOGRAPHIC MAP WITH PROPERTY AND EASEMENTS BEING A GRAPHIC DEPICTION BASED ON INFORMATION GATHERED FROM VARIOUS SOURCES OF RECORD AND AVAILABLE MONUMENTATION. PROPERTY LINES AND LINES OF TITLE WERE NEITHER INVESTIGATED NOR SURVEYED AND SHALL BE CONSIDERED APPROXIMATE ONLY. NO PROPERTY MONUMENTS WERE SET.

THE EASEMENTS (IF ANY) THAT APPEAR ON THIS MAP HAVE BEEN PLOTTED BASED SOLELY ON INFORMATION CONTAINED IN THE PRELIMINARY TITLE REPORT BY: U.S. TITLE SOLUTIONS, FILE NO. UST74559, DATED MARCH 01, 2023. WITHIN SAID TITLE REPORT THERE ARE ZERO (0) EXCEPTIONS LISTED, ZERO (0) OF WHICH ARE EASEMENTS AND ZERO (0) OF WHICH CAN NOT BE PLOTTED.

THE UNDERGROUND UTILITIES (IF ANY) THAT APPEAR ON THIS MAP HAVE BEEN LOCATED BY FIELD OBSERVATION. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES STATE THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION AVAILABLE.

THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD RATE MAP FOR COMMUNITY NO. 060026, PANEL NO. 0335F, DATED JUNE 16, 2009 SHOWS THAT THE LOCATION OF THIS SITE FALLS WITHIN ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

THE LATITUDE AND LONGITUDE AT THE LOCATION AS SHOWN WAS DETERMINED BY GPS OBSERVATIONS.

LAT. 37° 57' 23.23" N. NAD 83
LONG. 121° 45' 58.14" W. NAD 83
ELEV. 224.7' NAVD 88 (BASIS OF DRAWING)

The information shown above meets or exceeds the requirements set forth in FAA order 8260.19D for 1–A accuracy (± 20' horizontally and ± 3' vertically). The horizontal datum (coordinates) are expressed as degrees, minutes and seconds, to the nearest hundredth of a second. The vertical datum (heights) are expressed in feet and decimals thereof and are determined to the nearest 0.1 foot.

LESSOR'S PROPOERTY LEGAL DESCRIPTION:

THE REAL PROPERTY TO BE SUBJECT TO THE DEED OF TRUST IS SITUATED NEAR THE CITY OF ANTIOCH, COUNTY OF CONTRA COSTA, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCEL 1:

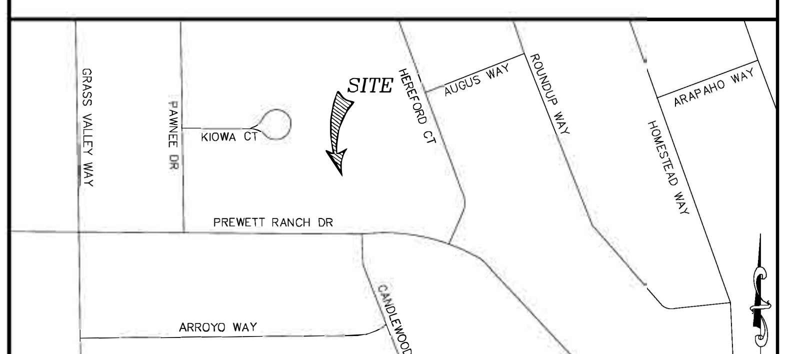
THE SOUTHWEST ¼ OF SECTION 29, TOWNSHIP 2 NORTH, RANGE 2 EAST, MOUNT DIABLO BASE AND MERIDIAN, CONSISTING 112 ACRES, MORE OR LESS.

EXCEPTING THEREFROM CONVEYANCES AND EASEMENTS OF RECORD.

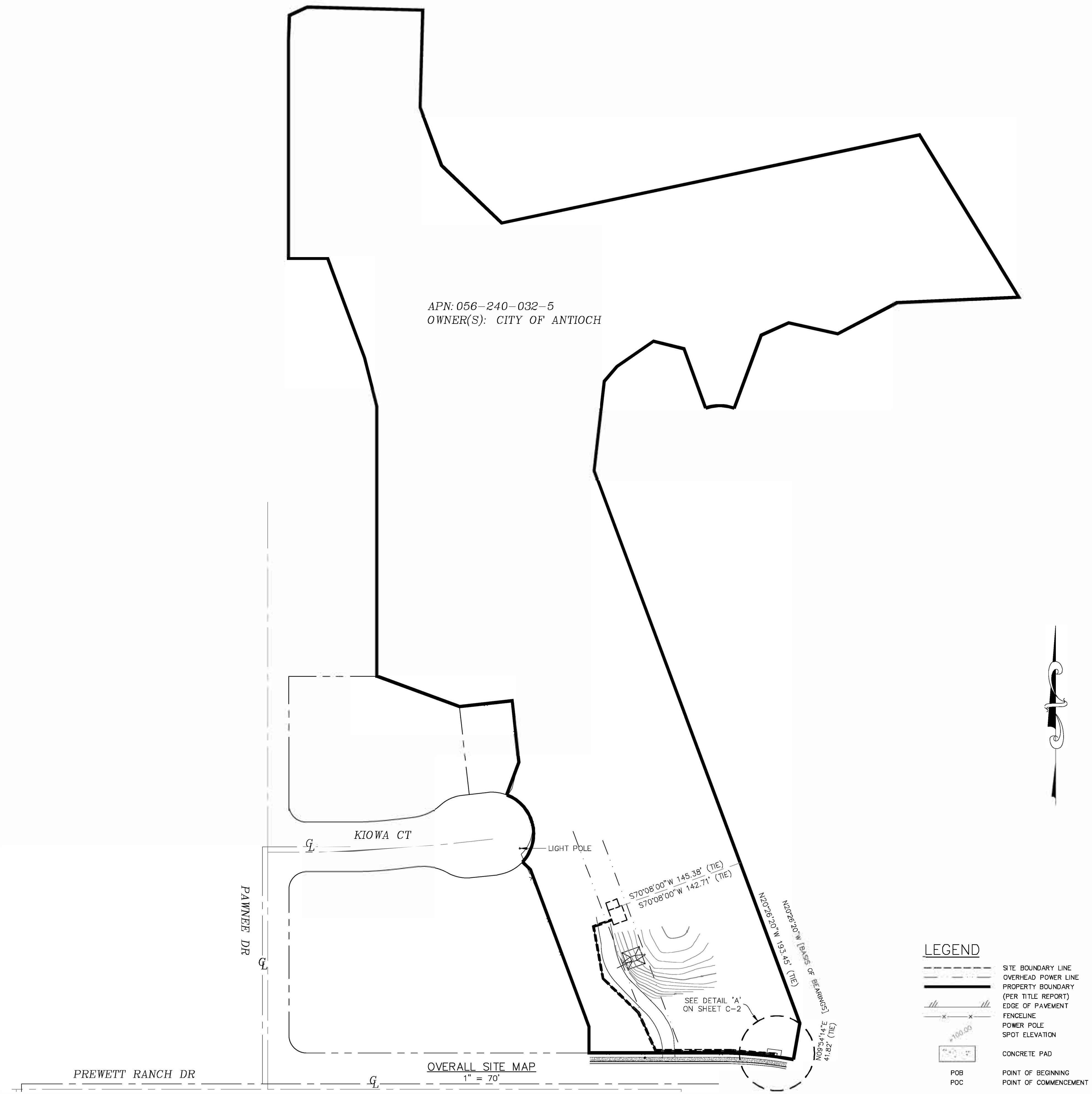
PARCEL 2:

THAT PORTION OF THE NORTHWEST ¼ OF SECTION 32, TOWNSHIP 2 NORTH, RANGE 2 EAST. MOUNT DIABLO BASE AND MERIDIAN. CONTAINING 15.68 ACRES, MORE OR LESS, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF THE NORTHWEST QUARTER OF SECTION 32, TOWNSHIP 7 NORTH, RANGE 2 EAST; THENCE WEST, 1266 FEET; SOUTH 50 DEGREES 17' EAST, 225 FEET; SOUTH 4 DEGREES 33' EAST, 13 FEET; SOUTH 55 DEGREES 12' EAST, 252 FEET; SOUTH 69 DEGREES 12' EAST, 171 FEET; SOUTH 55 DEGREES 6' EAST, 499.3 FEET; SOUTH 59 DEGREES 26' FEET EAST, 369 FEET; NORTH, 954 FEET TO THE POINT OF BEGINNING.



VICINITY MAP
N.T.S.



OVERALL SITE MAP
1" = 70'

dish wireless

PREPARED FOR:
CORE
DEVELOPMENT SERVICES

SMITHCO
SURVEYING ENGINEERING
P.O. BOX 81626 BAKERSFIELD, CA 93380
PHONE: (661) 393-1217 FAX: (661) 393-1218

SPACE RESERVED FOR PROFESSIONAL SEAL

LICENSED LAND SURVEYOR d'Artagnan Alba L.S. 9052 STATE OF CALIFORNIA
04/09/2024

REVISION			
NO.	DESCRIPTION	BY	DATE
0	PRELIM. ISSUE	CC	06/07/23
3	REVISION	EJ	10/25/23
4	REVISION	EJ	10/25/23
5	REVISION	EJ	10/25/23
6	REVISION	EJ	01/31/24
7	ADD CONTOURS	EJ	02/01/24
8	REDESIGN	EJ	04/03/24
9	IN–HOUSE REV.	EJ	04/03/24

DRAWN BY: CC
CHECKED BY: DA
DATE DRAWN: 06/07/23
SMITHCO JOB #: 56–1458

SITE NAME

SFSFO00584B

SITE ADDRESS

PREWETT RANCH DRIVE
ANTIOCH, CA 94531

CONTRA COSTA COUNTY

SHEET TITLE

SITE SURVEY

FOR EXAMINATION ONLY

SHEET

C–1

C2

PROPOSED EQUIPMENT LEASE AREA LEGAL DESCRIPTION:

BEING A PORTION PARCEL "A" AS SHOWN ON SUBDIVISION 7619 FILED JULY 8, 1993 IN BOOK 367 OF MAPS, PAGES 1 THROUGH 11, CONTRA COSTA COUNTY RECORDS, STATE OF CALIFORNIA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHEASTERLY MOST CORNER OF SAID PARCEL "A", THENCE ALONG THE SOUTHEASTERLY LINE OF SAID PARCEL N 09°54'14" E, A DISTANCE OF 41.82 FEET; THENCE CONTINUING ALONG SAID BOUNDARY LINE N 20°26'20" W, A DISTANCE OF 193.45 FEET; THENCE LEAVING SAID BOUNDARY LINE, S 70°08'00" W, A DISTANCE 142.71 FEET TO THE POINT OF BEGINNING:

COURSE 1) THENCE S19°52'00"E, A DISTANCE OF 17.33 FEET;
COURSE 2) THENCE S70°08'00"W, A DISTANCE OF 16.00 FEET;
COURSE 3) THENCE N19°52'00"W, A DISTANCE OF 6.00 FEET TO POINT "A";
COURSE 4) THENCE CONTINUING N19°52'00"W, A DISTANCE OF 11.33 FEET;
COURSE 5) THENCE N70°08'00"E, A DISTANCE OF 16.00 FEET TO THE POINT OF BEGINNING:

CONTAINING 278 SQUARE FEET, MORE OR LESS.

TOGETHER WITH THE TRANSFORMER LEASE AREA CONTAINING 398 SQUARE FEET MORE OR LESS.

PROPOSED TRANSFORMER LEASE AREA LEGAL DESCRIPTION:

BEING A PORTION PARCEL "A" AS SHOWN ON SUBDIVISION 7619 FILED JULY 8, 1993 IN BOOK 367 OF MAPS, PAGES 1 THROUGH 11, CONTRA COSTA COUNTY RECORDS, STATE OF CALIFORNIA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHEASTERLY MOST CORNER OF SAID PARCEL "A", THENCE ALONG THE SOUTHEASTERLY LINE OF SAID PARCEL N 09°54'14" E, A DISTANCE OF 41.82 FEET; THENCE CONTINUING ALONG SAID BOUNDARY LINE N 20°26'20" W, A DISTANCE OF 132.85 FEET; THENCE LEAVING SAID BOUNDARY LINE, S 70°08'00" W, A DISTANCE 145.38 FEET TO THE POINT OF BEGINNING:

COURSE 1) THENCE S70°08'00"W, A DISTANCE OF 13.33 FEET;
COURSE 2) THENCE N19°52'00"W, A DISTANCE OF 9.00 FEET;
COURSE 3) THENCE N70°08'00"E, A DISTANCE OF 13.33 FEET;
COURSE 4) THENCE S19°52'00"E, A DISTANCE OF 9.00 FEET TO THE POINT OF BEGINNING:

CONTAINING 120 SQUARE FEET, MORE OR LESS.

TOGETHER WITH THE EQUIPMENT LEASE AREA CONTAINING 398 SQUARE FEET MORE OR LESS.

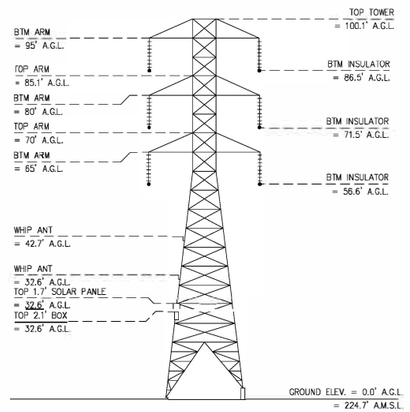
PROPOSED UTILITY EASEMENT LEGAL DESCRIPTION:

BEING A 2.00 FOOT WIDE STRIP UNDER ACROSS AND THROUGH PORTION OF PARCEL "A" AS SHOWN ON SUBDIVISION 7619 FILED JULY 8, 1993 IN BOOK 367 OF MAPS, PAGES 1 THROUGH 11, CONTRA COSTA COUNTY RECORDS, STATE OF CALIFORNIA, LYING 1.00 FEET ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE:

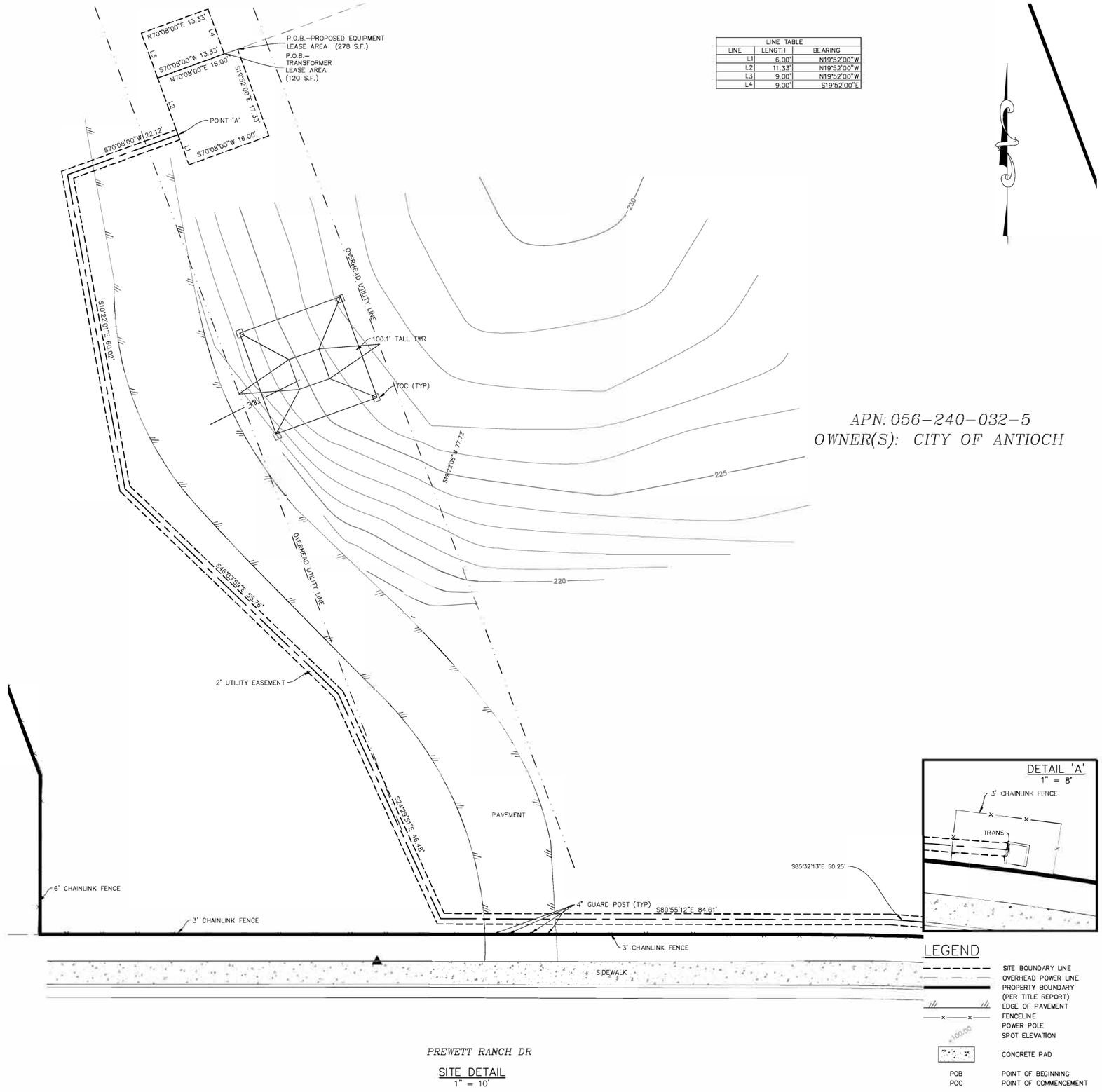
STRIP NO. 1

BEGINNING AT HEREINBEFORE DESCRIBED POINT 'A';

COURSE 1) THENCE S70°08'00"W, A DISTANCE OF 22.12 FEET;
COURSE 2) THENCE S10°22'01"E, A DISTANCE OF 60.02 FEET;
COURSE 3) THENCE S46°03'59"E, A DISTANCE OF 55.76 FEET;
COURSE 4) THENCE S24°29'51"E, A DISTANCE OF 46.48 FEET;
COURSE 5) THENCE S89°55'12"E, A DISTANCE OF 84.61 FEET;
COURSE 6) THENCE S85°32'13"E, A DISTANCE OF 50.25 FEET TO THE TERMINUES OF THIS DESCRIPTION.



ELEVATION VIEW
1" = 20'



LINE TABLE		
LINE	LENGTH	BEARING
L1	6.00'	N19°52'00"W
L2	11.33'	N19°52'00"W
L3	9.00'	N19°52'00"W
L4	9.00'	S19°52'00"E

SITE DETAIL
1" = 10'

DETAIL 'A'
1" = 8'

APN: 056-240-032-5
OWNER(S): CITY OF ANTIOCH

LEGEND

	SITE BOUNDARY LINE
	OVERHEAD POWER LINE
	PROPERTY BOUNDARY (PER TITLE REPORT)
	EDGE OF PAVEMENT
x x	FENCELINE
	POWER POLE
100.00	SPOT ELEVATION
	CONCRETE PAD
POB	POINT OF BEGINNING
POC	POINT OF COMMENCEMENT

dish wireless

PREPARED FOR:
CORE
DEVELOPMENT SERVICES

SMITHCO
SURVEYING & ENGINEERING
P.O. BOX 81626 BAKERSFIELD, CA 93380
PHONE: (661) 393-1217 FAX: (661) 393-1218

SPACE RESERVED FOR PROFESSIONAL SEAL

REVISION			
NO.	DESCRIPTION	BY	DATE
0	PRELIM. ISSUE	CC	06/07/23
3	REVISION	EJ	10/25/23
4	REVISION	EJ	10/25/23
5	REVISION	EJ	10/25/23
6	REVISION	EJ	01/31/24
7	ADD CONTOURS	EJ	02/01/24
8	REDESIGN	EJ	04/03/24
9	IN-HOUSE REV.	EJ	04/03/24

DRAWN BY:	CC
CHECKED BY:	DA
DATE DRAWN:	06/07/23
SMITHCO JOB #:	56-1458

SITE NAME

SFSFO00584B

SITE ADDRESS

PREWETT RANCH DRIVE
ANTIOCH, CA 94531

CONTRA COSTA COUNTY

SHEET TITLE

SITE SURVEY

FOR EXAMINATION ONLY

SHEET

C-2

C3

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.

(E) LIGHT POLE

2 / D-4 PROPOSED 10' GRAVEL FIRE BREAK AROUND ENCLOSURE AND TRANSFORMER

1 / A-2

ALPHA SECTOR AZIMUTH 30°

GAMMA SECTOR AZIMUTH 230°

STAGING AND RIGGING AREA. PATHWAY MUST BE CLOSED TO PEDESTRIAN TRAFFIC DURING TOWER WORK

(E) ACCESS ROAD

PROPOSED PG&E PULL BOXES AS NEEDED (TRAFFIC RATED) (SEE PG&E DESIGN ON E-3)

2 / D-2

(E) PAD MOUNTED TRANSFORMER #SW-21024 (PROPOSED DISH ELECTRICAL P.O.C.)

PROPOSED 4'X6.5'X5' PRIMARY ENCLOSURE (SEE PG&E DESIGN ON E-3)

(N) CONDUCTORS IN (2) (2) 2" CONDUIT (SEE PG&E DESIGN ON E-3)

2&3 / E-2

2&3 / E-2 PROPOSED UNDERGROUND FIBER CONDUIT (APPROX. 300 FEET)

PREWETT RANCH DRIVE

(E) FIBER PULL BOX (PACIFIC BELL LID) PROPOSED DISH FIBER P.O.C.

APPROXIMATE LOCATION OF (E) UNDERGROUND GAS LINES, ALL UTILITIES TO BE MARKED AND LOCATED PRIOR TO EXCAVATING

CANDLEWOOD WAY

BETA SECTOR AZIMUTH 130°

HEREFORD WAY

(N) CONDUCTORS IN (E) CONDUIT (SEE PG&E DESIGN ON E-3)

N

OVERALL SITE PLAN / UTILITY SITE PLAN

20' 10' 0 20' 40'
1"=20'

1

dish WIRELESS
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Butler America
1511 E. ORANGETHORPE AVE., SUITE D
FULLERTON, CA 92831

CDG
22431 ANTONIO PKWY
SUITE B160-131
RANCHO SANTA MARGARITA CA 92688
dconnell@connelldesigngroup.com
949-306-4644

LICENSED PROFESSIONAL ENGINEER
DANIEL W CONNELL
C 62543
EXP. 09/30/25
CIVIL
STATE OF CALIFORNIA

DATE STAMPED: 11/25/2024

DRAWN BY:	CHECKED BY:	APPROVED BY:
JPC	JPC	DC

RFDS FINAL REV #1 DATED 4/30/24

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
12	10/24/2023	ISSUED FOR 100% CD
13	02/01/2024	ISSUED FOR 100% CD
14	03/01/2024	ISSUED FOR 100% CD
15	03/20/2024	ISSUED FOR 100% CD
16	04/24/2024	ISSUED FOR 100% CD
17	04/30/2024	ISSUED FOR 100% CD
18	11/25/2024	ADD PG&E POWER DESIGN

(VENDOR) PROJECT NUMBER
SFSF000584B

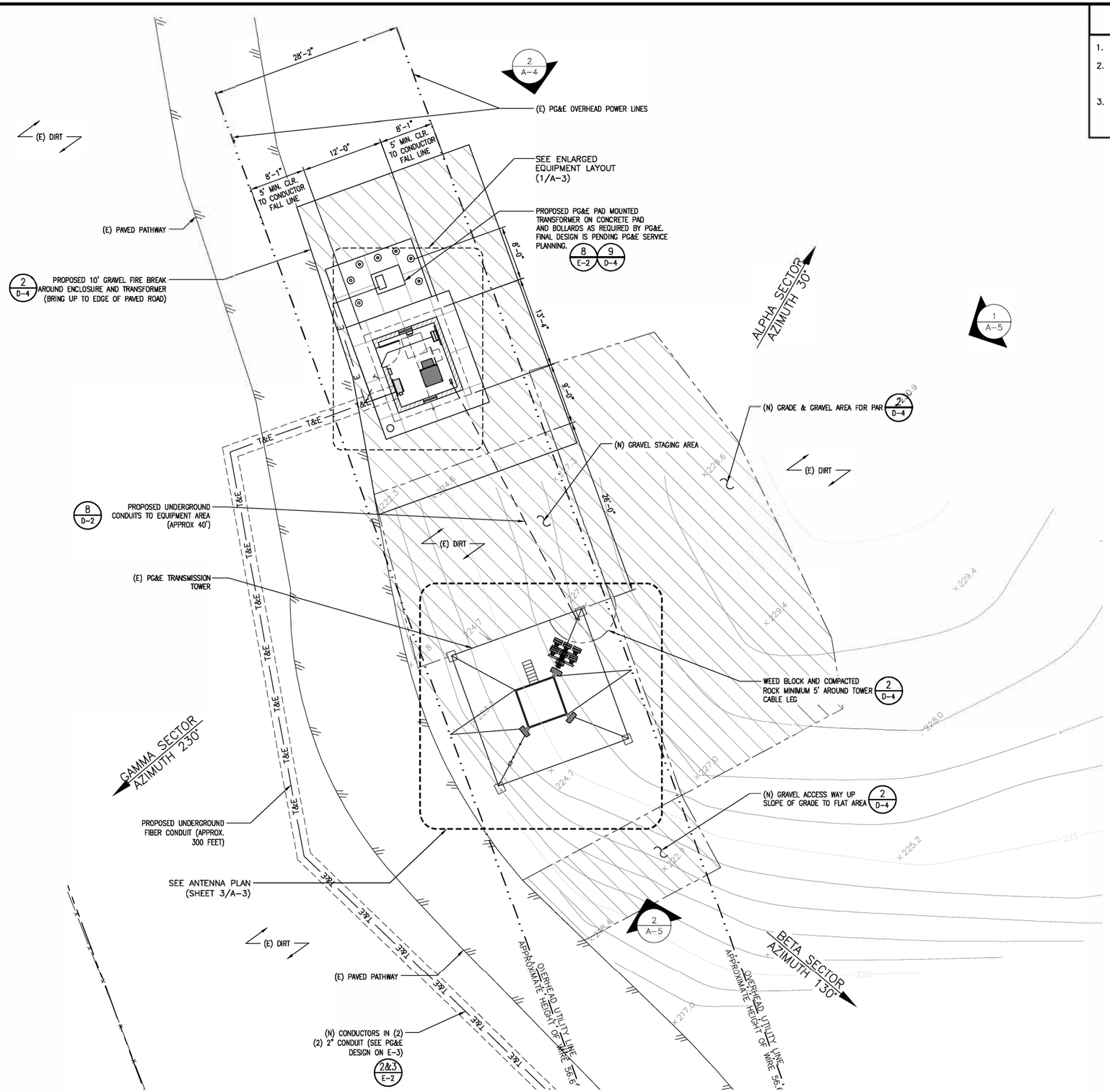
DISH WIRELESS PROJECT NUMBER
SFSF000584B

PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

SHEET TITLE
OVERALL SITE PLAN

SHEET NUMBER
A-1

C4



NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. CONTRACTOR TO VERIFY WITH DISH WIRELESS C.M. THE LOCATION OF THE POWER AND FIBER SOURCE PRIOR TO CONSTRICTION.

ENLARGED SITE PLAN

8' 4' 0 8' 16'
1/8"=1'-0"

1

dish WIRELESS
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Butler America
1511 E. ORANGETHORPE AVE., SUITE D
FULLERTON, CA 92831

CDG
22431 ANTONIO PKWY
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dconnell@connelldesigngroup.com
949-306-4644

LICENSED PROFESSIONAL ENGINEER
DANIEL W CONNELL
C 62543
EXP. 12/31/25
CIVIL
STATE OF CALIFORNIA

DATE STAMPED: 11/25/2024

DRAWN BY:	CHECKED BY:	APPROVED BY:
JPC	JPC	DC

RFDS FINAL REV #1 DATED 4/30/24

CONSTRUCTION DOCUMENTS

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16	04/24/2024	ISSUED FOR 100% CD
17	04/30/2024	ISSUED FOR 100% CD
18	11/25/2024	ADD PG&E POWER DESIGN

(VENDOR) PROJECT NUMBER
SFSF000584B

DISH WIRELESS PROJECT NUMBER
SFSF000584B

PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

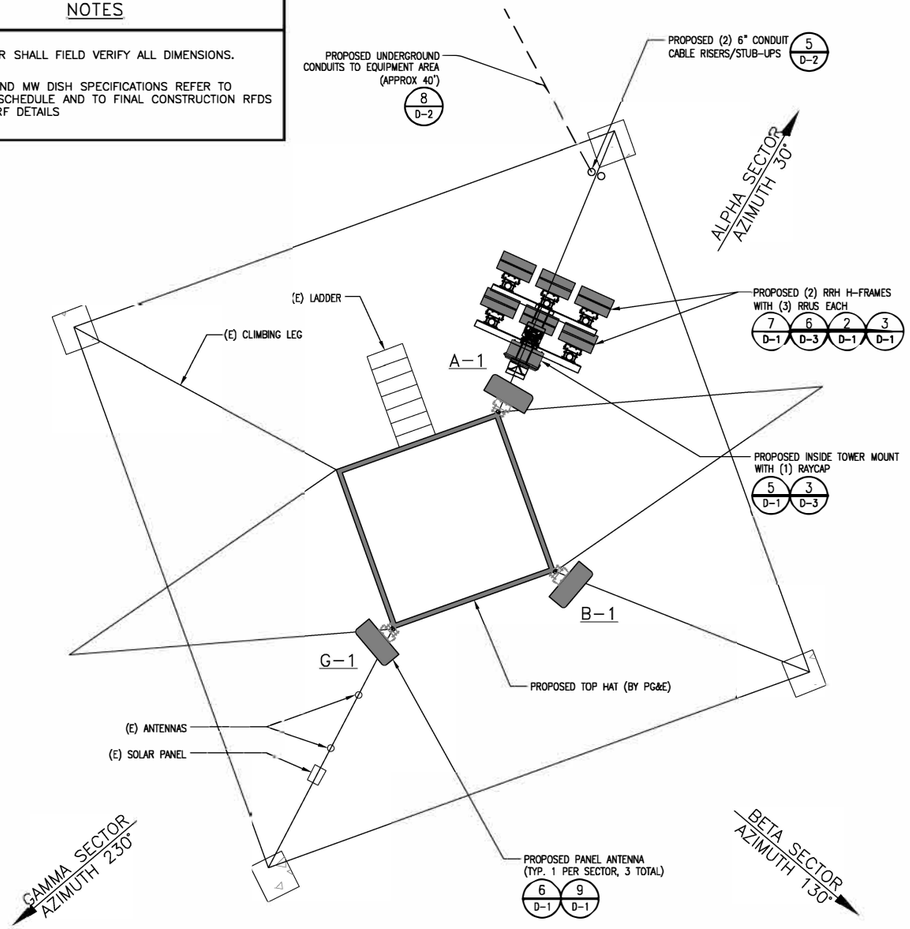
SHEET TITLE
ENLARGED SITE PLAN

SHEET NUMBER
A-2

C5

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS



ANTENNA LAYOUT

12" 6" 0 1' 2' 3' 4' 5'
1/2"=1'-0"

3

SECTOR	ANTENNA						RADIO			
	POSITION	EXISTING OR PROPOSED	SIZE (HxWxD)	AZIMUTH	RAD CENTER	TRANSMISSION CABLE FEED LINE TYPE AND LENGTH	POSITION	EXISTING OR PROPOSED	SIZE (HxWxD)	TRANSMISSION CABLE FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	KMW KE654L4H6-D 72"x18.1"x7.1"	30°	109'-0"	(8) COAX JUMPERS (±80' LONG)	A1	PROPOSED	SAMSUNG RF4450t-71A 16.5"x15.0"x11.02"	(1) HIGH-CAPACITY HYBRID CABLE (120' LONG)
							A1	PROPOSED	SAMSUNG RF4451d-70A 15.0"x15.0"x8.9"	
BETA	B1	PROPOSED	KMW KE654L4H6-D 72"x18.1"x7.1"	130°	109'-0"	(8) COAX JUMPERS (±80' LONG)	B1	PROPOSED	SAMSUNG RF4450t-71A 16.5"x15.0"x11.02"	
							B1	PROPOSED	SAMSUNG RF4451d-70A 15.0"x15.0"x8.9"	
GAMMA	G1	PROPOSED	KMW KE654L4H6-D 72"x18.1"x7.1"	230°	109'-0"	(8) COAX JUMPERS (±80' LONG)	G1	PROPOSED	SAMSUNG RF4450t-71A 16.5"x15.0"x11.02"	
							G1	PROPOSED	SAMSUNG RF4451d-70A 15.0"x15.0"x8.9"	

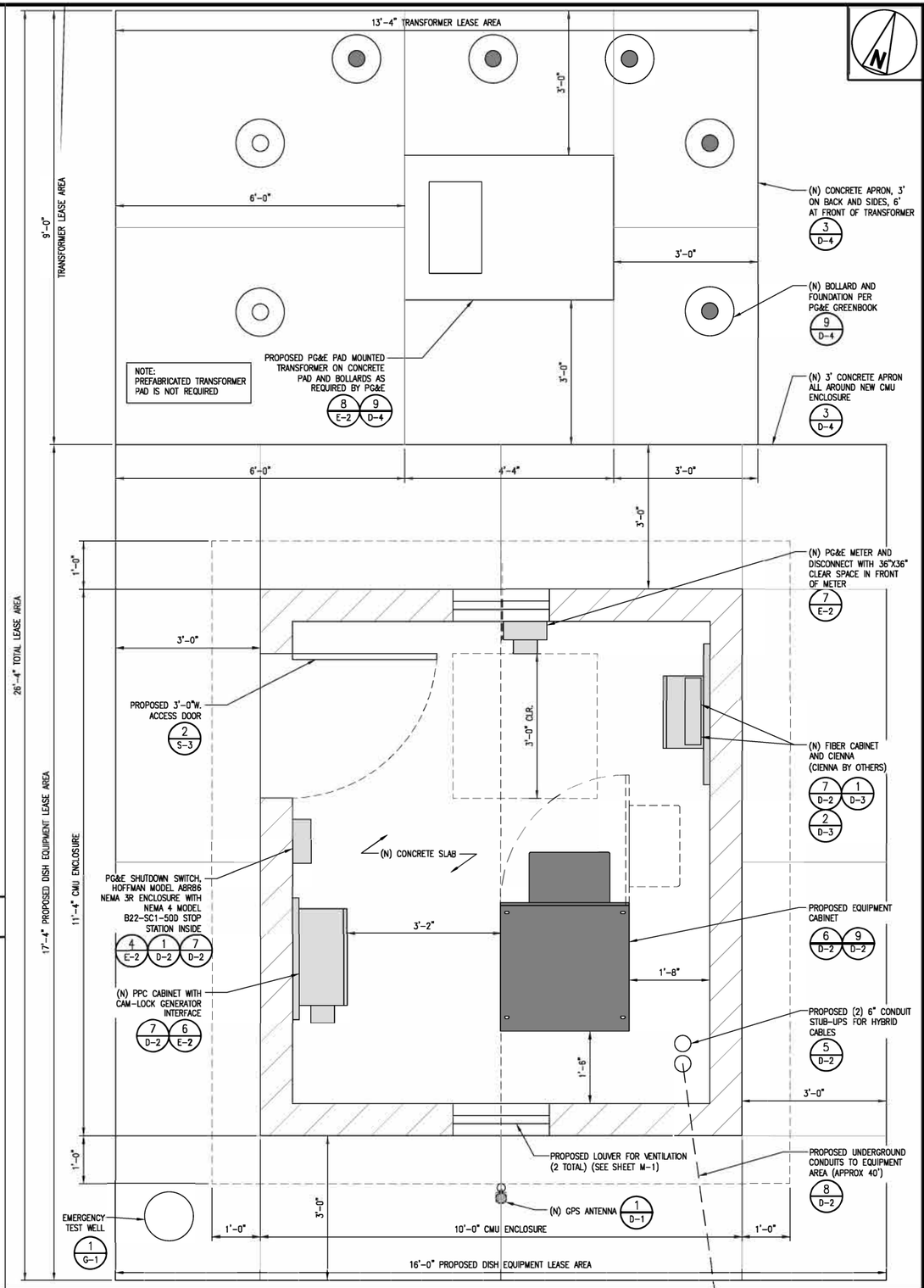
NOTES

1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.
2. ANTENNA OR RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.

ANTENNA SCHEDULE

NO SCALE

2



EQUIPMENT SHELTER LAYOUT

12" 6" 0 1' 2' 3'
3/4"=1'-0"

1

dish WIRELESS
5701 SOUTH SANTA FE DRIVE
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CIVIL
STATE OF CALIFORNIA

DATE STAMPED: 11/25/2024

DRAWN BY:	CHECKED BY:	APPROVED BY:
JPC	JPC	DC

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17	04/30/2024	ISSUED FOR 100% CD
18	11/25/2024	ADD PG&E POWER DESIGN

(VENDOR) PROJECT NUMBER
SFSF000584B

DISH WIRELESS PROJECT NUMBER
SFSF000584B

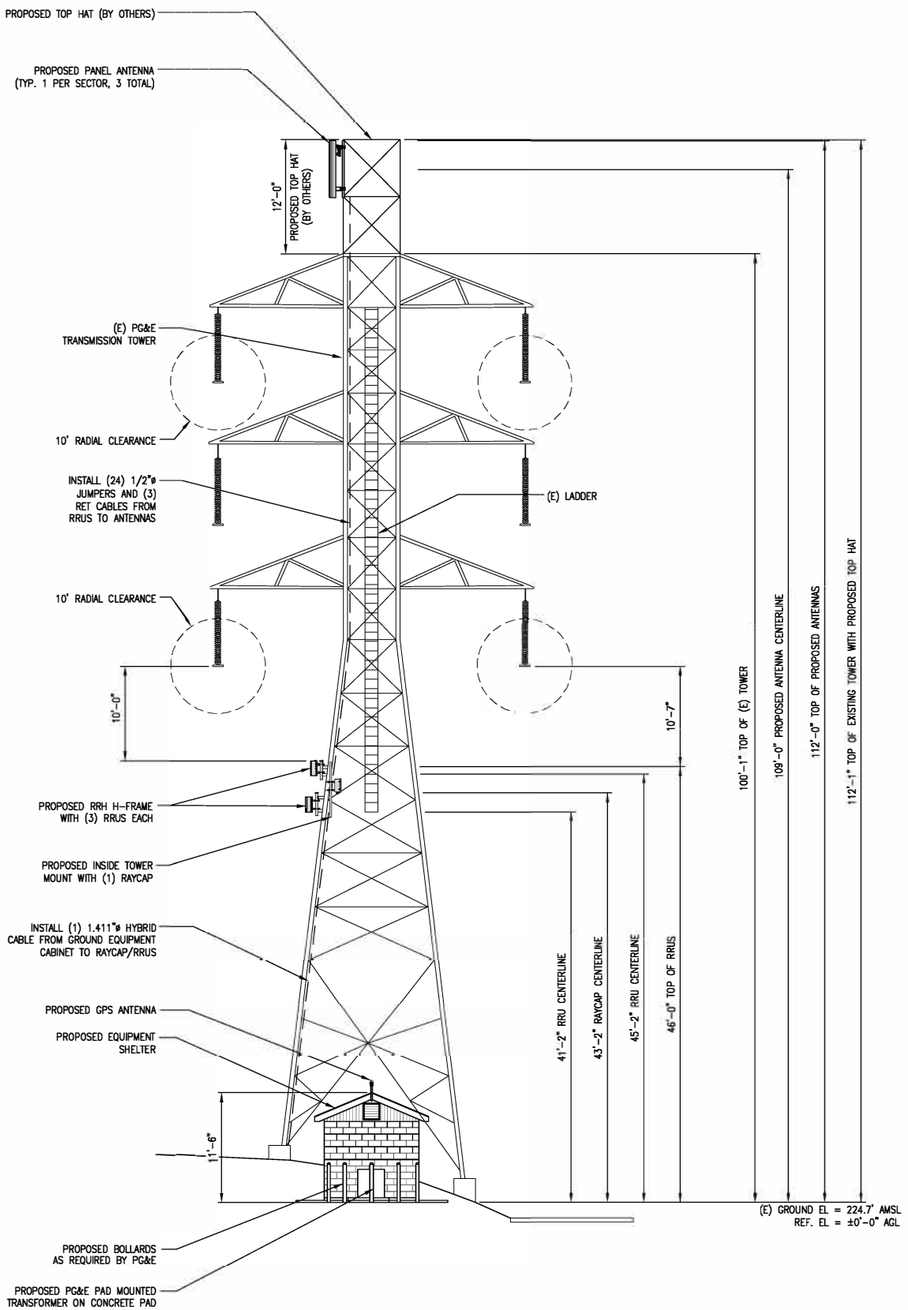
PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

SHEET TITLE
EQUIP / ANTENNA PLANS, AND SCHEDULE

SHEET NUMBER
A-3

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.



TOWER NORTH ELEVATION

8' 4' 0 8' 16'
1/8"=1'-0"

2

NOTES

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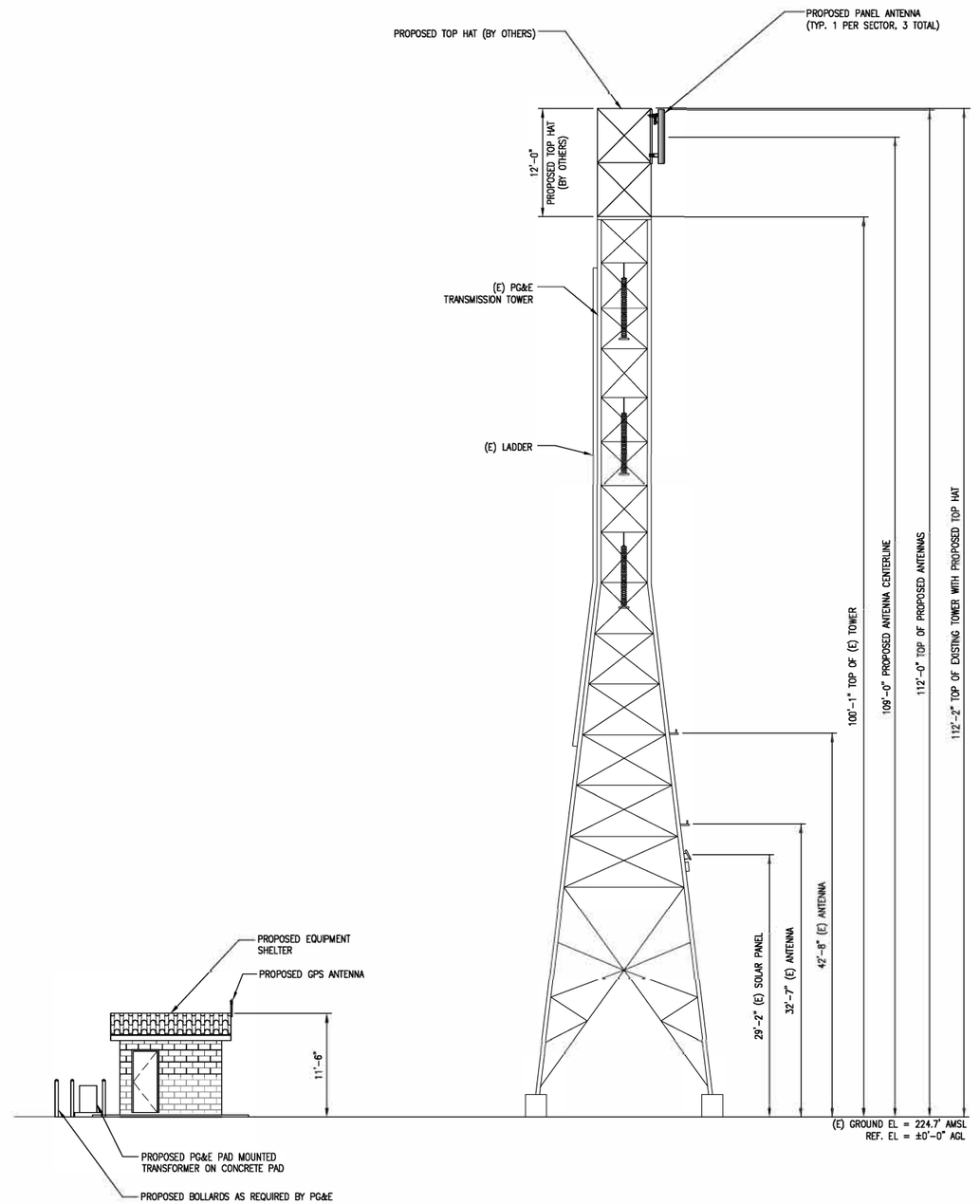
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.



TOWER WEST ELEVATION

8' 4' 0 8' 16'
1/8"=1'-0"

1

dish WIRELESS
5701 SOUTH SANTA FE DRIVE
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(VENDOR) PROJECT NUMBER
SFSF000584B

DISH WIRELESS PROJECT NUMBER
SFSF000584B

PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

SHEET TITLE
ELEVATIONS

SHEET NUMBER
A-4

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
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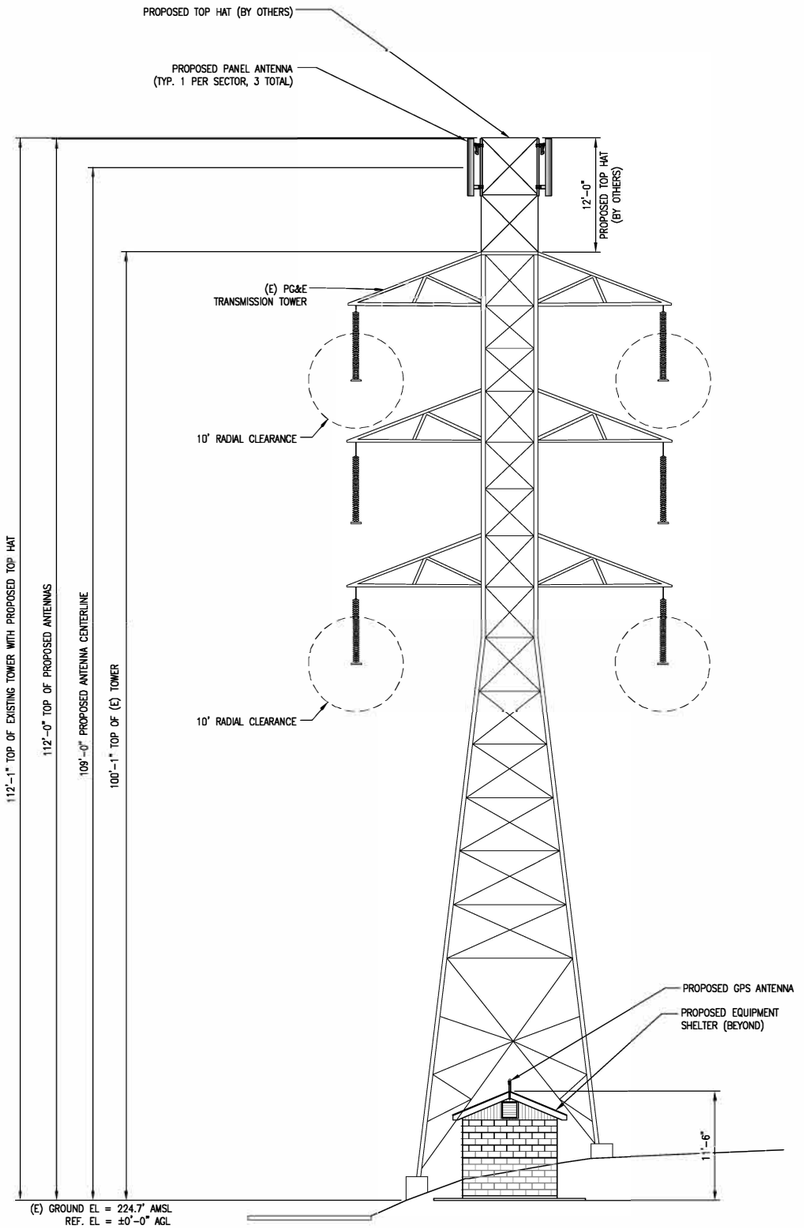


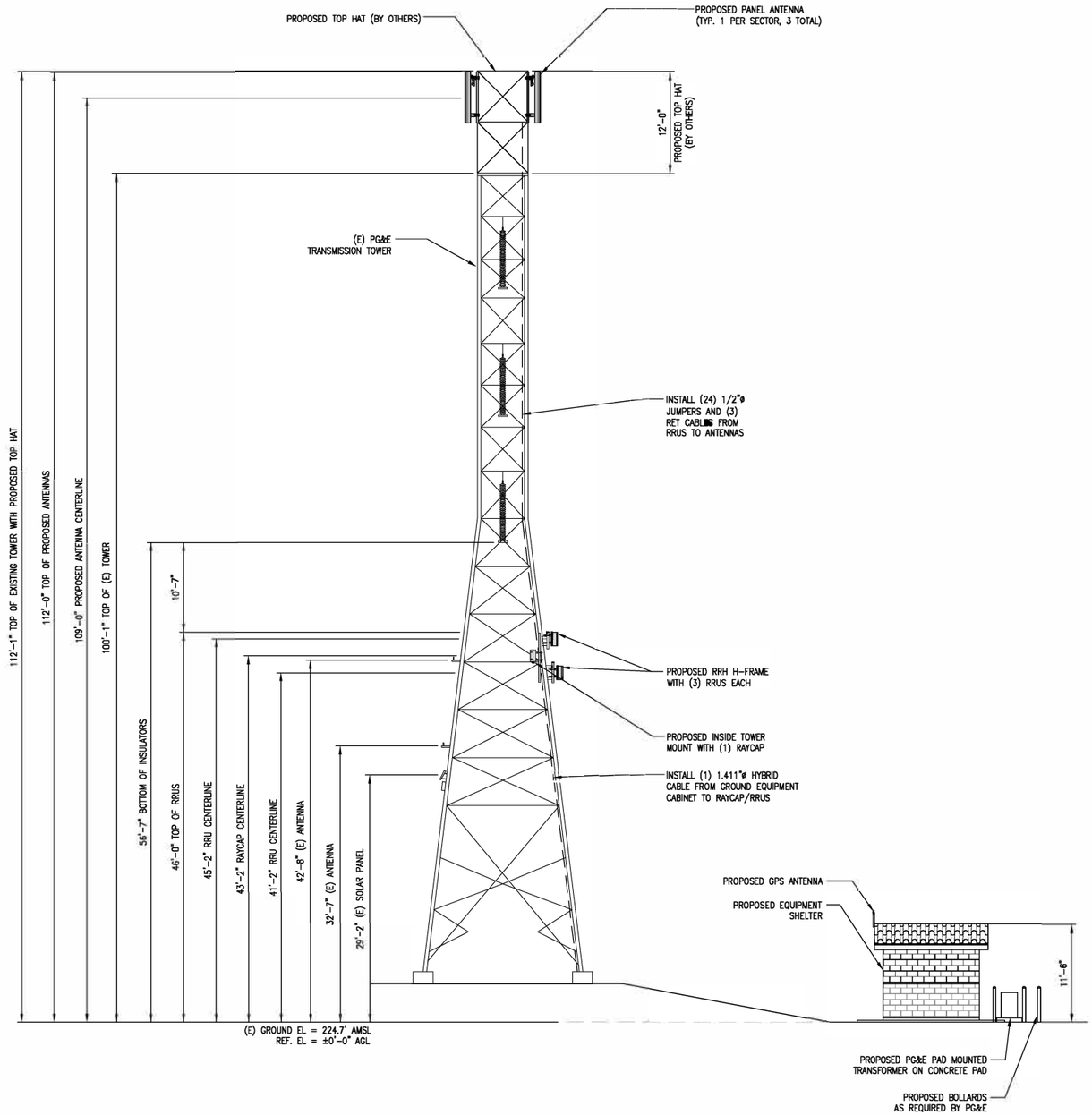
TOWER SOUTH ELEVATION

8' 4' 0 8' 16'
1/8"=1'-0"

2

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.



TOWER EAST ELEVATION

8' 4' 0 8' 16'
1/8"=1'-0"

1

dish WIRELESS
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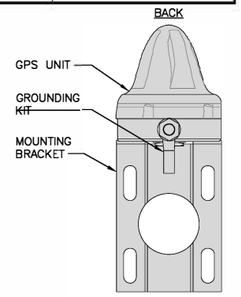
DISH WIRELESS PROJECT NUMBER
SFSF000584B

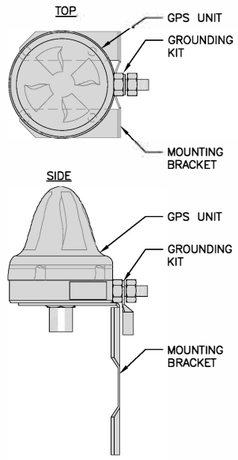
PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

SHEET TITLE
ELEVATIONS

SHEET NUMBER
A-5

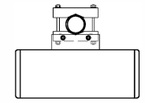
ROSENBERGER GPSGLONASS-36-N-S	
DIMENSION (DIA x H)	69mm x 98.5mm
WEIGHT (WITH ACCESSORIES)	515.74g
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1559 MHz ~ 1610.5MHz





GPS ANTENNA DETAIL | NO SCALE | 1

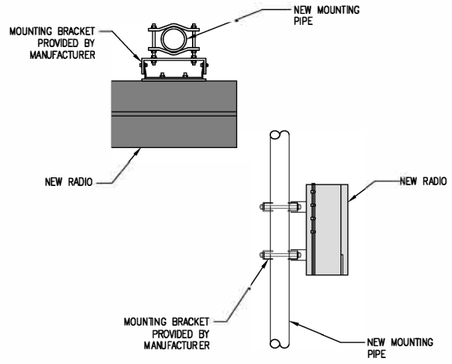
SAMSUNG TRI BAND RU RF4450t-71A	
DIMENSIONS (HxWxD) (IN)	16.5"x15.0"x11.02"
TOTAL WEIGHT LB (LB W/ BRACKET)	61.3 LB W/O BRACKET (71.3 LB± W/ BRACKET)
POWER SUPPLY VOLTAGE	-48Vdc (NOMINAL)


PLAN

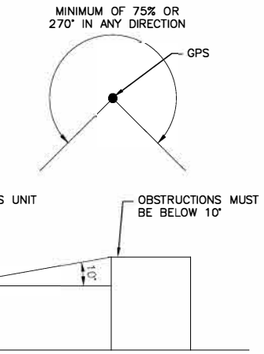

SIDE


FRONT

REMOTE RADIO HEAD DETAIL | NO SCALE | 2



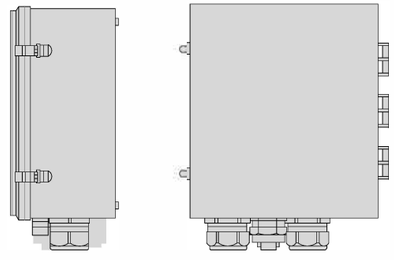
RRU MOUNT DETAIL | NO SCALE | 3



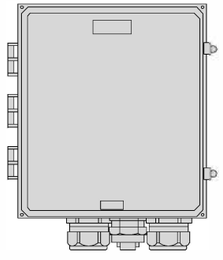
GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 4

RAYCAP RDIDC-9181-PF-48 SURGE PROTECTION DEVICE	
DIMENSIONS (HxWxD)	16" X 14" X 8"
WEIGHT	21.85 LBS


PLAN

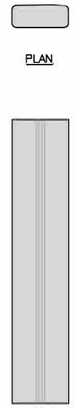

SIDE

BACK


FRONT

SURGE PROTECTION DEVICE DETAIL | NO SCALE | 5

KMW KE654L4H6-D	
DIMENSIONS (HxWxD)(MM/IN)	72"x18.1"x7.1"
TOTAL WEIGHT (kg/lb)	52.9lb
RF CONNECTOR INTERFACE	4.3-10 FEMALE

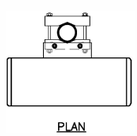

SIDE

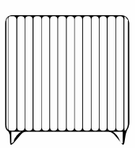
PLAN

FRONT

ANTENNA DETAIL | NO SCALE | 6

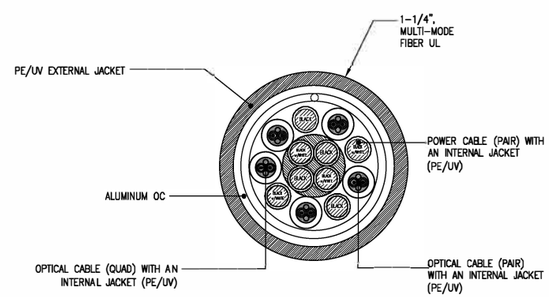
SAMSUNG DUAL BAND RU RF4451d-70A	
DIMENSIONS (HxWxD) (IN)	15"x15.0"x8.9"
TOTAL WEIGHT LB (LB W/ BRACKET)	61.3 LB W/O BRACKET (71.3 LB± W/ BRACKET)
POWER SUPPLY VOLTAGE	-48Vdc (NOMINAL)


PLAN

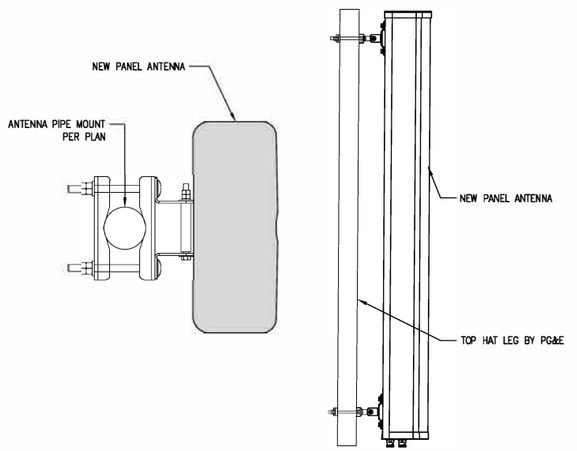

SIDE


FRONT

REMOTE RADIO HEAD DETAIL | NO SCALE | 7



HYBRID CABLE DETAIL (FOR REFERENCE) | NO SCALE | 8



ANTENNA MOUNTING DETAIL | NO SCALE | 9

dish WIRELESS
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(VENDOR) PROJECT NUMBER
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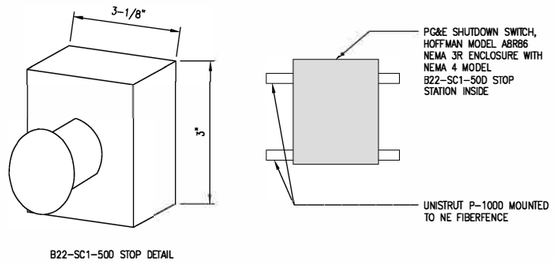
DISH WIRELESS PROJECT NUMBER
SFSF000584B

PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

SHEET TITLE
DETAILS

SHEET NUMBER
D-1

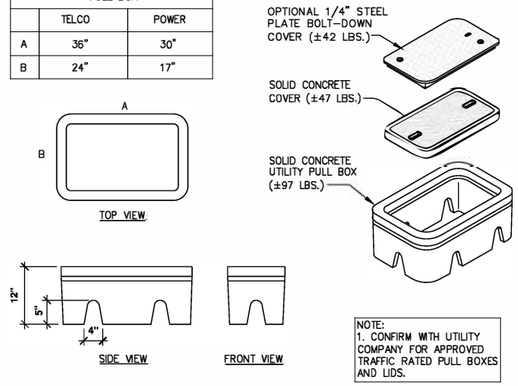
C9



B22-SC1-500 STOP DETAIL

PG&E SHUTDOWN SWITCH DETAIL — NO SCALE — 1

PULL BOX		
	TELCO	POWER
A	36"	30"
B	24"	17"



NOTE:
1. CONFIRM WITH UTILITY COMPANY FOR APPROVED TRAFFIC RATED PULL BOXES AND LIDS.

TRAFFIC RATED PULL BOX DETAIL — NO SCALE — 2

LT-PM63915xN4

2. PRODUCT DESCRIPTION

The CUBE is a single equipment compartment with 39RU of 23" horizontal rack mount spacing with a 600A 48VDC rack mounted ABB power system. The PM639155N4 has a 6000W heat exchanger, and the PM63915IN4 has a 6000BTU HVAC system.

Figure 2 shows the CUBE dimensions. Figures 3 and 4 show the main components of each CUBE.

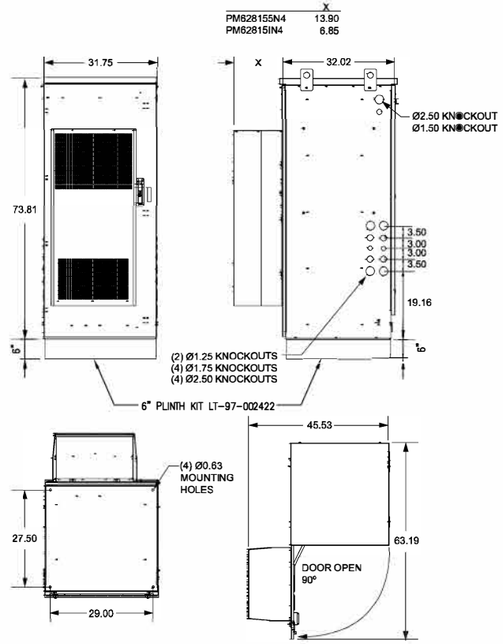
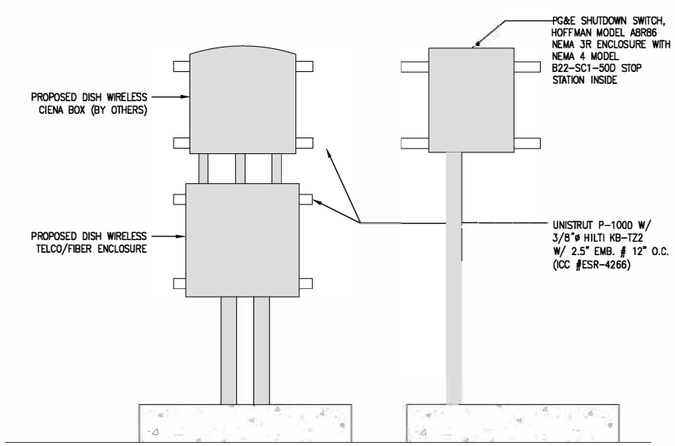


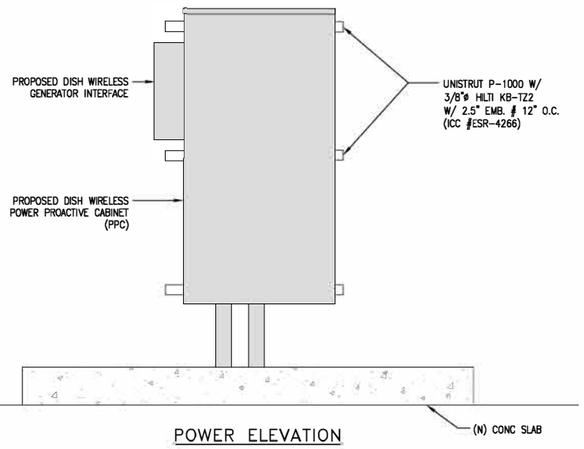
Figure 2 CUBE Dimensions (in inches)
All dimensions are common to both models except for depth of thermal unit.

CABINET DETAIL W/ PLINTH KIT — NO SCALE — 6



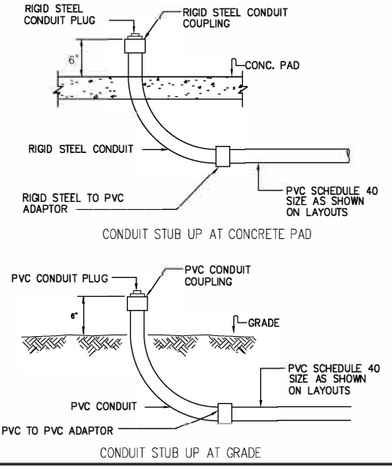
TELCO ELEVATION

PG&E SHUTDOWN ELEVATION



POWER ELEVATION

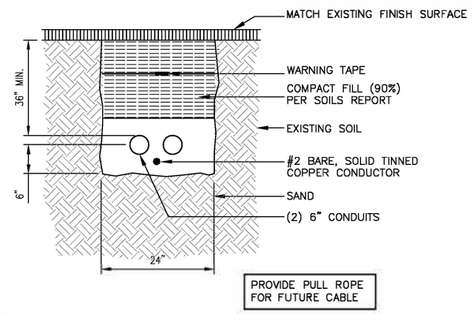
UTILITY ELEVATIONS — NO SCALE — 7



CONDUIT STUB UP AT CONCRETE PAD

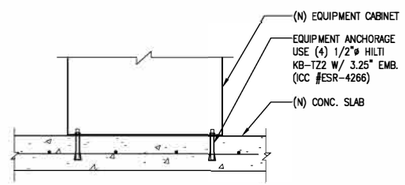
CONDUIT STUB UP AT GRADE

CONDUIT STUB-UPS — NO SCALE — 5



NOTES:
1. EXCAVATE TO REQUIRED DEPTH
2. VERIFY ALL TRENCHING REQUIREMENTS WITH SERVING UTILITIES.
3. CALL BEFORE YOU DIG. CONTACT SERVING UTILITIES

HYBRID CABLE TRENCH DETAIL — NO SCALE — 8



CABINET MOUNT DETAIL — NO SCALE — 9

dish WIRELESS
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Butler America
1511 E. ORANGETHORPE AVE., SUITE D
FULLERTON, CA 92831

CDG
22431 ANTONIO PKWY
SUITE B160-131
RANCHO SANTA MARGARITA CA 92688
dconnell@connelldesigngroup.com
949-306-4644

LICENSED PROFESSIONAL ENGINEER — DANIEL W CONNELL — C 62543 — EXP. 12/31/25 — CIVIL — STATE OF CALIFORNIA

DATE STAMPED: 11/25/2024

DRAWN BY:	CHECKED BY:	APPROVED BY:
JPC	JPC	DC

RFDS FINAL REV #1 DATED 4/30/24

CONSTRUCTION DOCUMENTS

SUBMITTALS

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14	03/01/2024	ISSUED FOR 100% CD
15	03/20/2024	ISSUED FOR 100% CD
16	04/24/2024	ISSUED FOR 100% CD
17	04/30/2024	ISSUED FOR 100% CD
18	11/25/2024	ADD PG&E POWER DESIGN

(VENDOR) PROJECT NUMBER
SFSF000584B

DISH WIRELESS PROJECT NUMBER
SFSF000584B

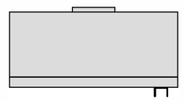
PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

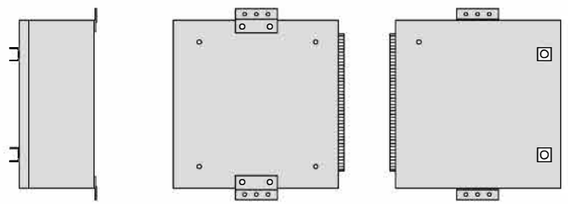
SHEET TITLE
DETAILS

SHEET NUMBER
D-2

CHARLES CFIT-PF2020DSH1 FIBER TELCO ENCLOSURE

DIMENSIONS (HxWxD)	20"x20"x9"
TOTAL WEIGHT	20 lbs
MOUNTING	WALL OR H-FRAME
COMPLIANCE	TYPE 4

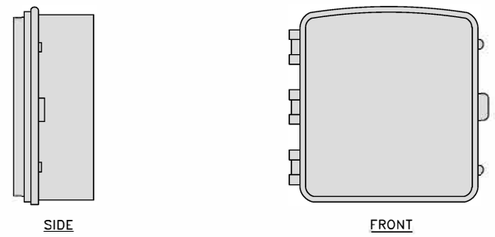




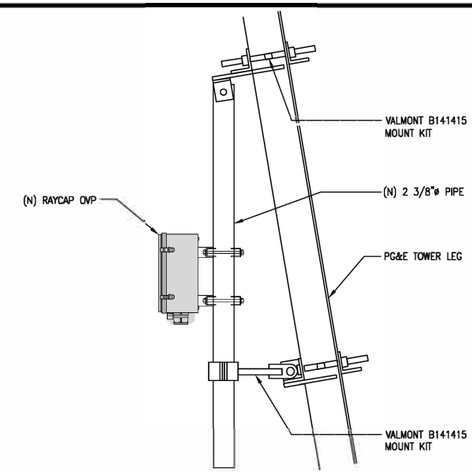
FIBER ENCLOSURE DETAIL | NO SCALE | 1

CIENA 3931 FIBER NID ENCLOSURE

DIMENSIONS (HxWxD)	17"x16.8"x7"
TOTAL WEIGHT	25.6 lbs



FIBER NID DETAIL | NO SCALE | 2



PG&E TOWER INSIDE-MOUNT | NO SCALE | 3

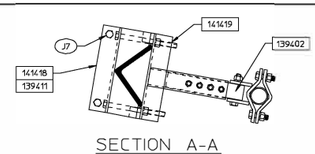
PARTS LIST

MARK	DESCRIPTION	QTY
141419	BRKT WELDMENT	2
139402	TUBE STEEL	2
139408	BRKT WELDMENT	2
141418	PLATE	2
139411	ANGLE	2
B1534	FORMED PLATE	2

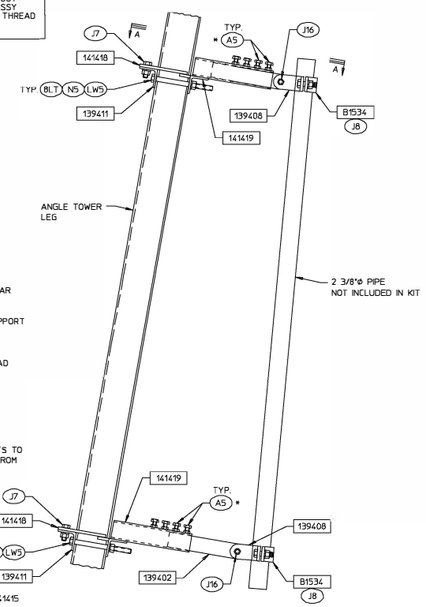
HARDWARE LIST

SYM	QTY	DESCRIPTION
A5	8	1/2ø X 1 1/2 SET SCREW
J7	4	5/8ø X 1 3/4 G5 BOLT ASSY
J8	4	5/8ø X 2 G5 BOLT ASSY
J16	2	5/8ø X 4 G5 BOLT ASSY
BLT	4	5/8ø X 8 BOLT W/6" THREAD
N5	4	5/8ø NUT
LW5	4	5/8ø LOCKWASHER

* A MINIMUM OF 2 SET SCREWS MUST BE IN CONTACT WITH PART NO. "139402"



SECTION A-A

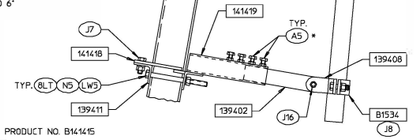


THIS PRODUCT IS USED TO SUPPORT RRUs ON INSIDE OF TOWER. IT HAS 6" OF ADJUSTMENT TO HELP CLEAR INTERNAL OBSTRUCTIONS

PRODUCT IS RATED TO SUPPORT THE FOLLOWING LOADS:

350 LB. DEAD LOAD
500 LB. LATERAL WIND LOAD

NOTE: PIPE MOUNT ADJUSTS TO FIT ANGLE TOWER LEGS FROM 2 1/2" TO 6"



PRODUCT NO. B141415

INSTALLATION DRAWING
INSIDE MOUNT FOR RRUs
FOR 4-LEG ANGLE TOWERS

MICROFLECT
3575 25TH STREET SE
SALEM, OR 97302-0965
(503)363-9267 FAX (503) 363-4613

BY	AH
CK	MF
DATE	31MAR15
S.O.	------

DWG NO. B-141415 | SHEET 1 OF 1 | REV A

VALMONT B141415 | NO SCALE | 7

PARTS LIST

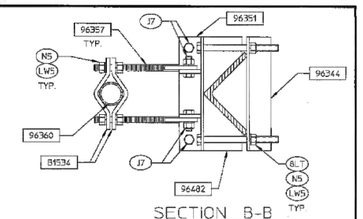
B1709 PIPE MOUNT ASSEMBLY

MARK	DESCRIPTION	QTY
B1534	FORMED PLATE	2
16259	CLIP ANGLE	2
96344	ANGLE 1"	2
96351	ANGLE WELDMENT	1
96357	THREADED ROD WELDMENT	2
96360	PIPE 2 3/8ø X 69"	1
96480	PLATE, 5#	1
96481	ANGLE, 1#	1
96482	PLATE, 6#	1

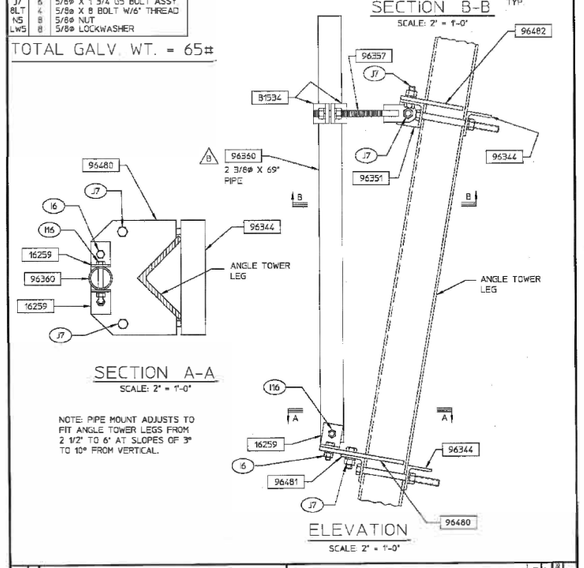
HARDWARE LIST

SYM	QTY	DESCRIPTION
J16	1	1/2ø X 4 G5 BOLT ASSY.
J6	2	1/2ø X 1 1/2 G5 BOLT ASSY
J7	6	5/8ø X 1 3/4 G5 BOLT ASSY
BLT	4	5/8ø X 8 BOLT W/6" THREAD
N5	8	5/8ø NUT
LW5	8	5/8ø LOCKWASHER

TOTAL GALV. WT. = 65#



SECTION B-B
SCALE: 2" = 1'-0"



SECTION A-A
SCALE: 2" = 1'-0"

NOTE: PIPE MOUNT ADJUSTS TO FIT ANGLE TOWER LEGS FROM 2 1/2" TO 6" AT SLOPES OF 3" TO 10" FROM VERTICAL.

ELEVATION
SCALE: 2" = 1'-0"

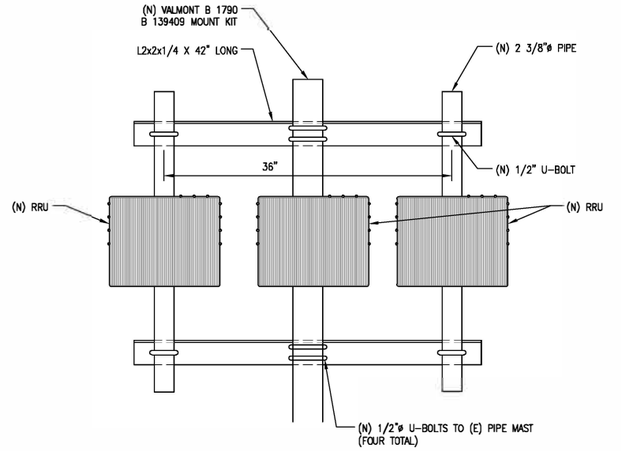
31-B1709
PCS PIPE MOUNT ASSEMBLY
FOR 4-LEG ANGLE TOWERS

MICROFLECT
3575 25TH STREET SE
SALEM, OR 97302-0965
(503)363-9267 FAX (503) 363-4613

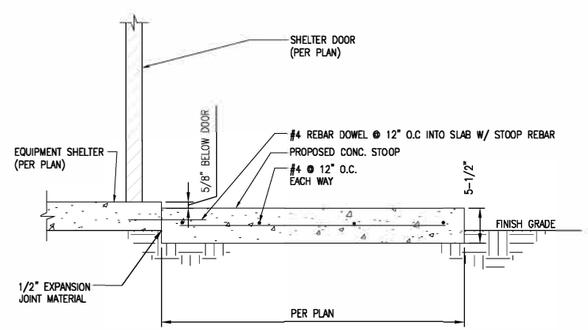
BY	PM
CK	GS
DATE	30JAN97
S.O.	

DWG NO. B-94247 | SHEET 1 OF 1 | REV A

VALMONT B1709 | NO SCALE | 8



PG&E RRU H-FRAME (DWG #395456) | NO SCALE | 6



CONC. STOOP DETAIL | NO SCALE | 9

dish WIRELESS
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Butler America
1511 E. ORANGETHORPE AVE., SUITE D
FULLERTON, CA 92831

CDG
22431 ANTONIO PKWY
SUITE B160-131
RANCHO SANTA MARGARITA CA 92688
dconnell@connelldesigngroup.com
949-306-4644

LICENSED PROFESSIONAL ENGINEER
DANIEL W CONNELL
C 62543
EXP. 12/31/25
CIVIL
STATE OF CALIFORNIA

DATE STAMPED: 11/25/2024

DRAWN BY:	CHECKED BY:	APPROVED BY:
JPC	JPC	DC

RFDS FINAL REV #1 DATED 4/30/24

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16	04/24/2024	ISSUED FOR 100% CD
17	04/30/2024	ISSUED FOR 100% CD
18	11/25/2024	ADD PG&E POWER DESIGN

(VENDOR) PROJECT NUMBER
SFSF000584B

DISH WIRELESS PROJECT NUMBER
SFSF000584B

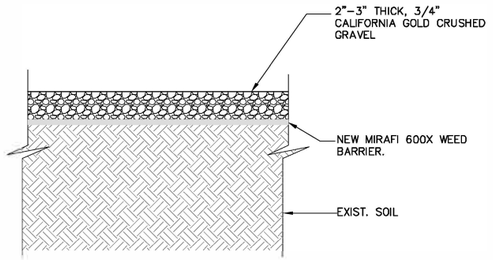
PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

SHEET TITLE
DETAILS

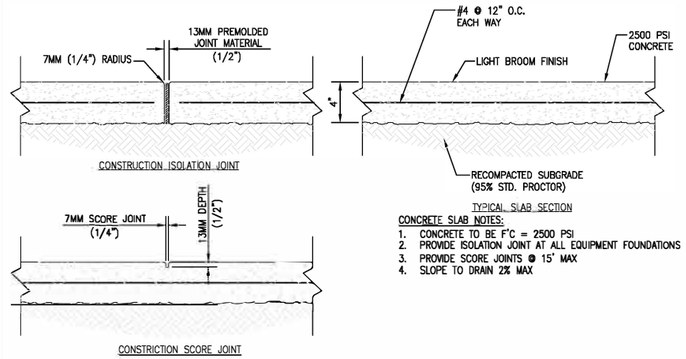
SHEET NUMBER
D-3

C11

NOT USED | NO SCALE | 1



GRAVEL GROUND COVER | NO SCALE | 2



CONCRETE SLAB NOTES:
1. CONCRETE TO BE F'C = 2500 PSI
2. PROVIDE ISOLATION JOINT AT ALL EQUIPMENT FOUNDATIONS
3. PROVIDE SCORE JOINTS @ 15' MAX
4. SLOPE TO DRAIN 2% MAX

CONC. APRON DETAIL | NO SCALE | 3

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

BOLLARD DETAIL | NO SCALE | 9

UG-1: General Greenbook

Clearances and Location Requirements for Enclosures, Pads, and Underground Equipment

17. Placement of Metal Barrier Posts and Details

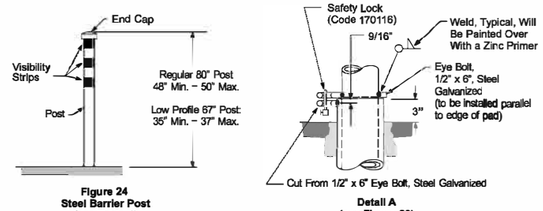


Figure 24 Steel Barrier Post (see Table 4)

Detail A (see Figure 26)

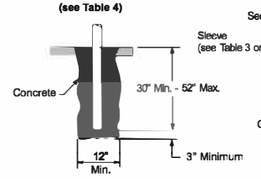


Figure 25 Footing for Fixed Steel Post Detail (see Table 4)

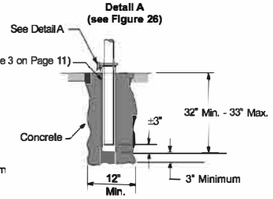


Figure 26 Footing for Removable Steel Post Detail (see Table 4)

Table 4 Description and Codes for Steel Barrier Posts [1]

Description	Length (inches)	Code	Doc
Galvanized Fixed Post, 4", Steel Pipe, Standard, Schedule 40	80	155107	–
	67 [2]	155108	–
Removable Post, 4", Galvanized Steel Pipe, Standard, Schedule 40 With 5" Galvanized Steel Pipe Sleeve, 36" Long, Standard, Schedule 40	80	155105	–
	67 [2]	155106	–
Replacement 4" Removable Barrier Post Galvanized Steel Pipe With Cap Less Sleeve and Eye Bolt	67	150265	–
	80	150266	–
End Cap, 4", Galvanized Malleable Iron, May Be Screwed	–	021882	–
Strip, Visibility Reflective Yellow Adhesive Sheet, 2" X 12", Pacific Utilities #PEM212F, Almetek #DL-RY2X12-A	–	013163	022168
Safety Lock	–	170116	–

[1] Posts fabricated from 20-foot lengths of galvanized steel pipe, Code 011794.
[2] 67" post length is for single-phase transformer.

Rev. #22: 03-25-22

051122 Page 25 of 28

dish WIRELESS
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Butler America
1511 E. ORANGETHORPE AVE., SUITE D
FULLERTON, CA 92831

CDG
22431 ANTONIO PKWY
SUITE B160-131
RANCHO SANTA MARGARITA CA 92688
dconnell@connelldesigngroup.com
949-306-4644

LICENSED PROFESSIONAL ENGINEER
DANIEL M CONNELL
C 62543
EXP 12/31/25
CIVIL
STATE OF CALIFORNIA

DATE STAMPED: 11/25/2024

DRAWN BY:	CHECKED BY:	APPROVED BY:
JPC	JPC	DC

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16	04/24/2024	ISSUED FOR 100% CD
17	04/30/2024	ISSUED FOR 100% CD
18	11/25/2024	ADD PG&E POWER DESIGN

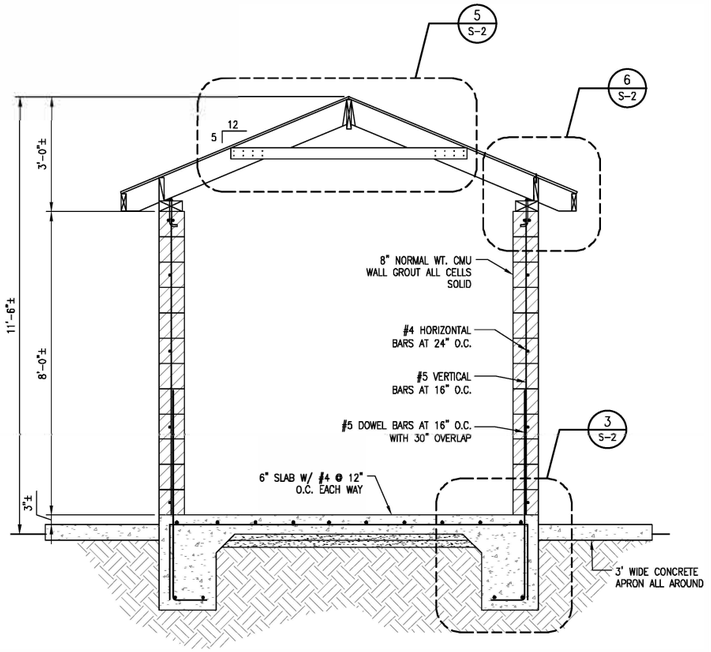
(VENDOR) PROJECT NUMBER
SFSF000584B

DISH WIRELESS PROJECT NUMBER
SFSF000584B

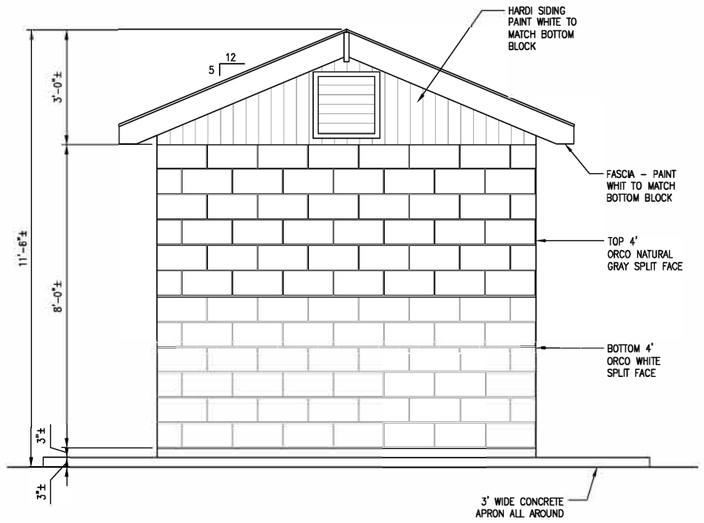
PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

SHEET TITLE
DETAILS

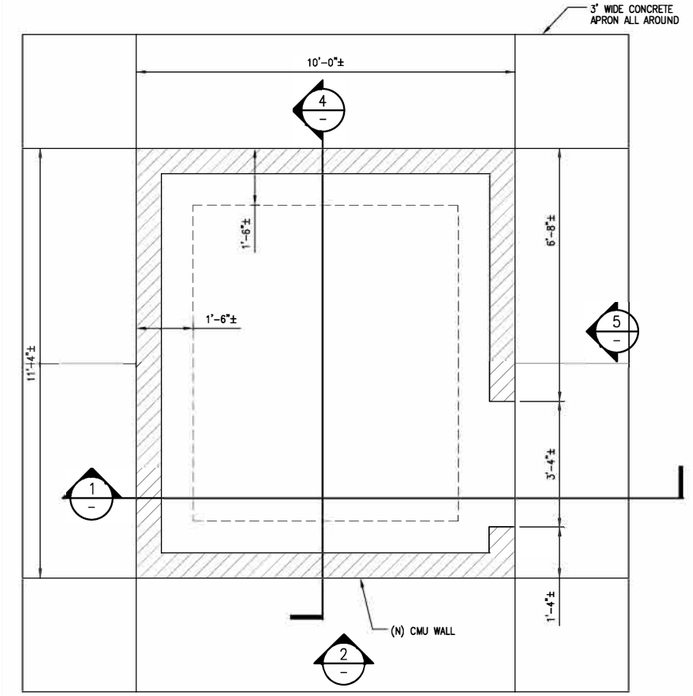
SHEET NUMBER
D-4



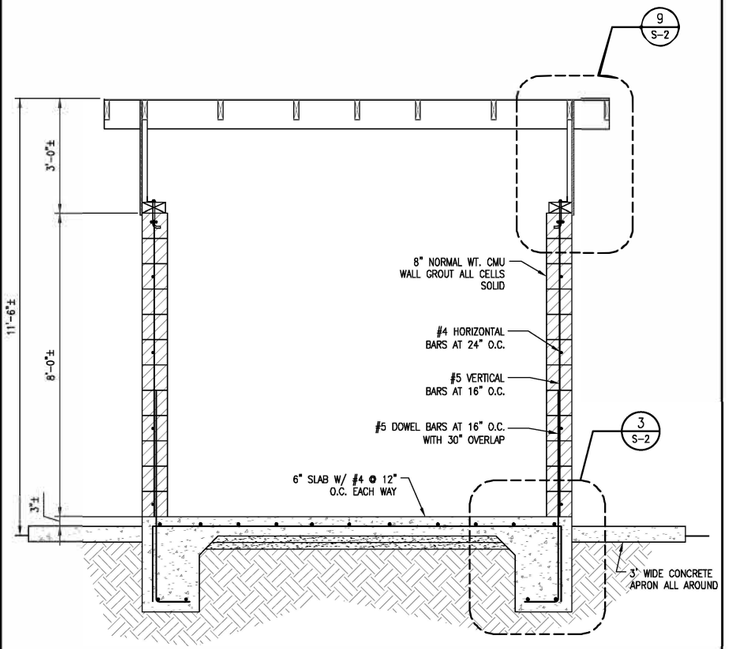
END SECTION | SCALE: 1/2"=1'-0" | 0 1' 2' | 1



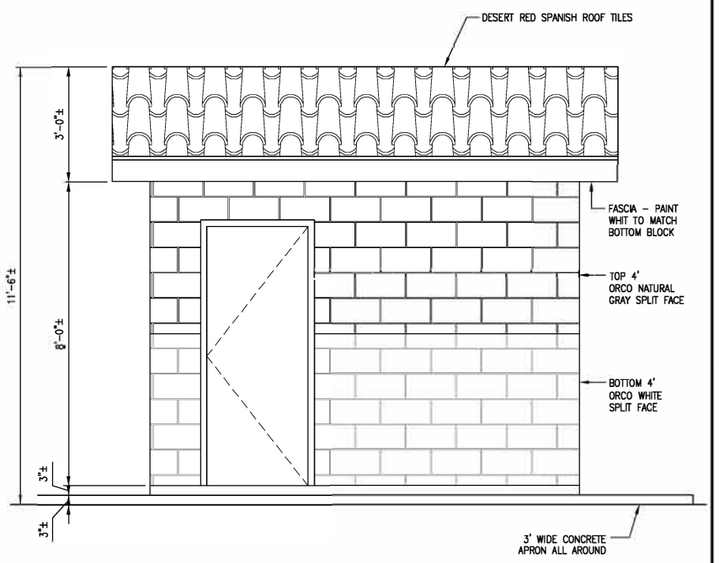
END ELEVATION | SCALE: 1/2"=1'-0" | 0 1' 2' | 2



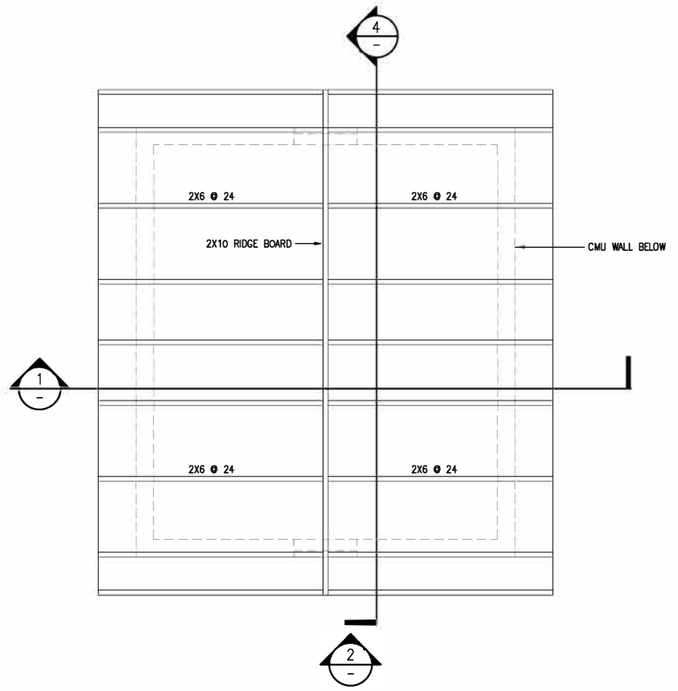
FOUNDATION PLAN | SCALE: 1/2"=1'-0" | 0 1' 2' | 3



SIDE SECTION | SCALE: 1/2"=1'-0" | 0 1' 2' | 4



SIDE ELEVATION | SCALE: 1/2"=1'-0" | 0 1' 2' | 5



ROOF FRAMING PLAN | SCALE: 1/2"=1'-0" | 0 1' 2' | 6

dish WIRELESS
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Butler America
1511 E. ORANGETHORPE AVE., SUITE D
FULLERTON, CA 92831

CDG
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RANCHO SANTA MARGARITA CA 92688
dconnell@connelldesigngroup.com
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LICENSED PROFESSIONAL ENGINEER
DANIEL M CONNELL
C 62543
EXP. 12/31/25
CIVIL
STATE OF CALIFORNIA

DATE STAMPED: 11/25/2024

DRAWN BY:	CHECKED BY:	APPROVED BY:
JPC	JPC	DC

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17	04/30/2024	ISSUED FOR 100% CD
18	11/25/2024	ADD PG&E POWER DESIGN

(VENDOR) PROJECT NUMBER
SFSF000584B

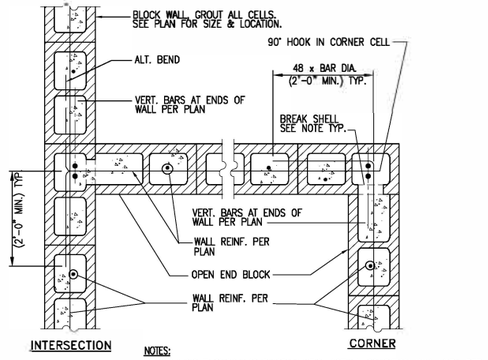
DISH WIRELESS PROJECT NUMBER
SFSF000584B

PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

SHEET TITLE
FOUNDATION / ROOF PLAN & ELEVATIONS

SHEET NUMBER
S-1

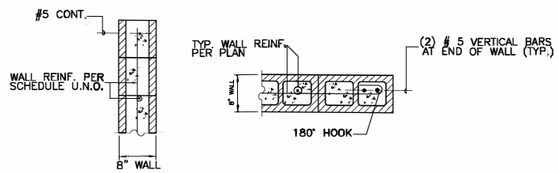
C13



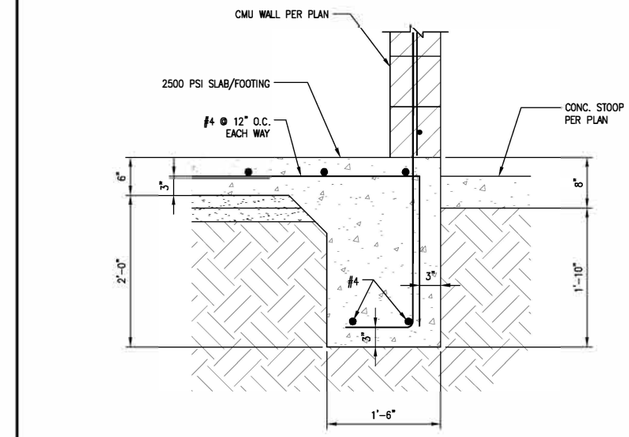
NOTES:

BLOCK LAYOUT SHOWN IS DIAGRAMMATIC. ACTUAL CONDITION WILL VARY PER RUNNING BOND PATTERN. USE APPROPRIATE UNITS OR BREAK CMU SHELL AS REQUIRED FOR REINFORCING PLACEMENT AND FLOW OF GROUT.

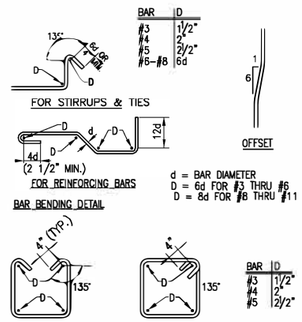
CMU @ CORNER/INTERSECTION | NO SCALE | 1



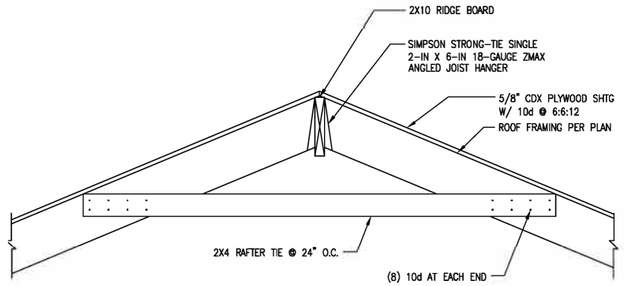
CMU DETAIL @ TOP / END | NO SCALE | 2



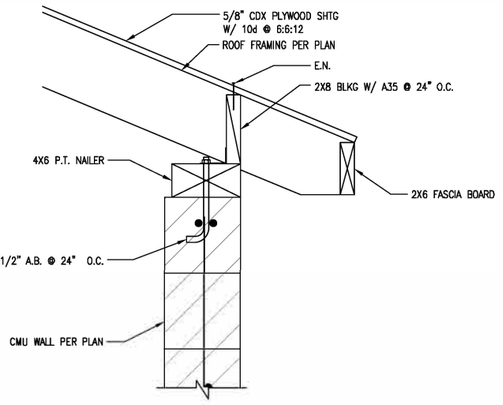
FOOTING DETAIL | NO SCALE | 3



REBAR DETAIL | NO SCALE | 4



RIDGE DETAIL | NO SCALE | 5

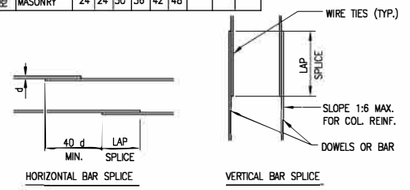


EAVE DETAIL | NO SCALE | 6

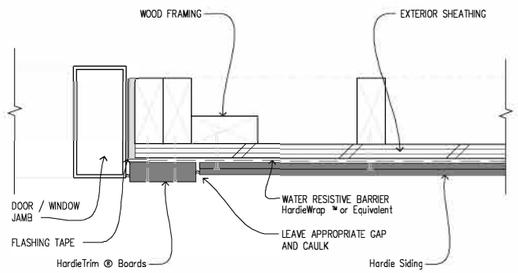
	CONC. F'c P.S.I.	BAR SIZE								
		3	4	5	6	7	8	9	10	11
		LAP SPLICE (INCHES)								
HORIZONTALLY PLACED REINFORCING	2000	24	24	36	50	69	91	115	145	178
	3000	24	29	36	46	63	82	104	132	165
	4000	24	29	36	43	54	71	90	115	141
	MASONRY	24	24	30	36	42	48			

NOTES :

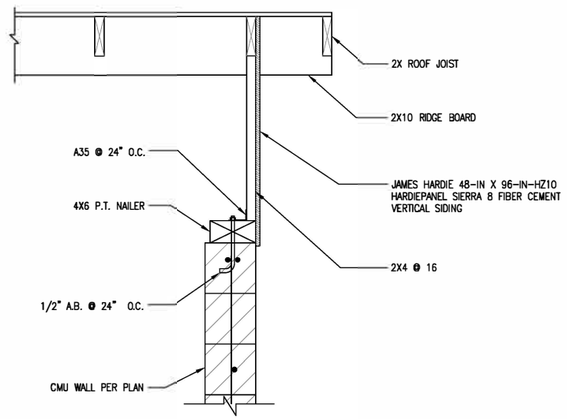
1. ALL VERTICAL REINFORCING FOR COL., PIERS & WALLS SHALL BE DOWELED AS SHOWN EXCEPT SPECIFIC DETAILS ON DRAWINGS SHALL GOVERN IN CASES OF CONFLICT.
2. DOWELS SHALL BE THE SAME GRADE, SIZE AND NUMBER AS VERTICAL REINFORCING.



TYP. BAR LAP SPLICE | NO SCALE | 7



SIDING DETAIL | NO SCALE | 8



GABLE END DETAIL | NO SCALE | 9

dish WIRELESS
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

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1511 E. ORANGETHORPE AVE., SUITE D
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LICENSED PROFESSIONAL ENGINEER DANIEL W CONNELL C 62543 EXP 12/31/25 CIVIL STATE OF CALIFORNIA

DATE STAMPED: 11/25/2024

DRAWN BY:	CHECKED BY:	APPROVED BY:
JPC	JPC	DC

RFDS FINAL REV #1 DATED 4/30/24

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
12	10/24/2023	ISSUED FOR 100% CD
13	02/01/2024	ISSUED FOR 100% CD
14	03/01/2024	ISSUED FOR 100% CD
15	03/20/2024	ISSUED FOR 100% CD
16	04/24/2024	ISSUED FOR 100% CD
17	04/30/2024	ISSUED FOR 100% CD
18	11/25/2024	ADD PG&E POWER DESIGN

(VENDOR) PROJECT NUMBER
SFSF000584B

DISH WIRELESS PROJECT NUMBER
SFSF000584B

PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

SHEET TITLE
SECTIONS & DETAILS

SHEET NUMBER
S-2

C14

GENERAL STRUCTURAL NOTES:

1. THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE DRAWINGS OF ALL OTHER DISCIPLINES AND THE SPECIFICATIONS. THE CONTRACTOR SHALL VERIFY THE REQUIREMENTS OF OTHER TRADES AS TO SLEEVES, CHASES, HANGERS, INSERTS, ANCHORS, HOLES AND OTHER ITEMS TO BE PLACED OR SET IN THE STRUCTURAL WORK.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL THE SAFETY PRECAUTIONS AND REGULATIONS DURING THE WORK. THE ENGINEER WILL NOT ADVISE ON NOR ISSUE DIRECTION AS TO SAFETY PRECAUTIONS AND PROGRAMS.

3. THE STRUCTURAL DRAWINGS HEREIN REPRESENT THE FINISHED STRUCTURE. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY GUYING AND BRACING REQUIRED TO ERECT AND HOLD THE STRUCTURE IN PROPER ALIGNMENT UNTIL ALL STRUCTURAL WORK AND CONNECTIONS HAVE BEEN COMPLETED. THE INVESTIGATION, DESIGN, SAFETY, ADEQUACY AND INSPECTION AND ERECTION OF BRACING, SHORING, TEMPORARY SUPPORTS, ETC. IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

4. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE METHODS, TECHNIQUES AND SEQUENCES OF PROCEDURES TO PERFORM THE WORK. THE SUPERVISION OF THE WORK IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

5. DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY SHOWN, SIMILAR DETAILS OF CONSTRUCTION ARE TO BE USED, SUBJECT TO THE APPROVAL OF THE ENGINEER.

6. ALL STRUCTURAL SYSTEMS WHICH ARE TO BE COMPOSED OF COMPONENTS TO BE FIELD ERECTED SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE AND ERECTION IN ACCORDANCE WITH SUPPLIERS INSTRUCTIONS AND REQUIREMENTS.

7. LOADING APPLIED TO THE STRUCTURE DURING THE PROCESS OF CONSTRUCTION SHALL NOT EXCEED THE SAFE LOAD-CARRYING CAPACITY OF THE STRUCTURAL MEMBERS. THE LIVE LOADING USED IN THE DESIGN OF THIS STRUCTURE ARE INDICATED IN THE "DESIGN CRITERIA NOTES". DO NOT APPLY ANY CONSTRUCTION LOADS UNTIL STRUCTURAL FRAMING IS PROPERLY CONNECTED TOGETHER AND UNTIL ALL TEMPORARY BRACING IS IN PLACE.

8. ALL ASTM AND OTHER REFERENCES ARE PER THE LATEST EDITIONS OF THESE STANDARDS, UNLESS OTHERWISE NOTED.

9. SHOP DRAWINGS AND OTHER ITEMS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION. ALL SHOP DRAWINGS SHALL BE REVIEWED BY THE GENERAL CONTRACTOR BEFORE SUBMITTAL. THE ENGINEERS REVIEW IS TO BE FOR CONFORMANCE WITH THE DESIGN CONCEPT AND GENERAL COMPLIANCE WITH THE RELEVANT CONTRACT DOCUMENTS. THE ENGINEERS REVIEW DOES NOT RELIEVE THE CONTRACTOR OF THE SOLE RESPONSIBILITY TO REVIEW, CHECK AND COORDINATE THE SHOP DRAWINGS PRIOR TO SUBMISSION. THE CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR THE ERRORS AND OMISSIONS ASSOCIATED WITH THE PREPARATION OF SHOP DRAWINGS AS THEY PERTAIN TO MEMBER SIZES, DETAILS, DIMENSIONS, ETC.

10. SUBMIT SHOP DRAWINGS IN THE FORM OF TWO HALF-SIZE PRINTS OR ELECTRONICALLY. IN NO CASE SHALL REPRODUCTION OF THE CONTRACT DRAWINGS BE USED AS SHOP DRAWINGS. AS A MINIMUM, SUBMIT THE FOLLOWING ITEMS FOR REVIEW.
   A. CONCRETE MIX DESIGN(S)
   B. REINFORCING STEEL SHOP DRAWINGS.
   C. STRUCTURAL STEEL SHOP DRAWINGS.
   D. STEEL JOIST / GIRDER SHOP DRAWINGS.
   E. METAL DECKING SHOP DRAWINGS.
   F. PRE-MANUFACTURED WOOD SYSTEM / TRUSS SHOP DRAWINGS (SEE NOTES)
   G. PRE-ENGINEERED METAL BUILDING SYSTEM (SEE NOTES)

OTHER SUBMITTALS MAY BE REQUIRED FOR THE "SCHEDULE OF SPECIAL INSPECTIONS" OR THE SEPARATE NOTES CONTAINED HEREIN.

11. IN ACCORDANCE WITH CHAPTER 17 OF THE 2022 CBC, SPECIAL INSPECTIONS WILL BE REQUIRED FOR THIS PROJECT. THE CONTRACTOR SHALL NOTIFY THE SPECIAL INSPECTOR AT LEAST 48 HOURS IN ADVANCE FOR WORK THAT WILL REQUIRE INSPECTION OR TESTING.

12. UNLESS OTHERWISE INDICATED, ALL ITEMS NOTED TO BE DEMOLISHED SHALL BECOME THE CONTRACTORS PROPERTY AND BE REMOVED FROM THE SITE.

13. CONTRACTORS SHALL VISIT THE SITE PRIOR TO BID TO ASCERTAIN CONDITIONS WHICH MAY ADVERSELY AFFECT THE WORK OR COST THEREOF.

CONCRETE:

1. CONCRETE MIXES SHALL BE DESIGNED BY A QUALIFIED TESTING LABORATORY AND REVIEWED BY THE ENGINEER. MINIMUM COARSE AGGREGATE SIZE IS 1/2 INCH.
2. CEMENT SHALL CONFORM TO ASTM C150.
3. ADMIXTURES MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER. ADMIXTURES USED TO INCREASE THE WORKABILITY OF THE CONCRETE SHALL NOT BE CONSIDERED TO REDUCE THE SPECIFIED MIN. CEMENT CONTENT. (CALCIUM CHLORIDE SHALL NOT BE USED.)
4. ALL CONCRETE TO BE HARDROCK WITH THE FOLLOWING 28 DAY ULTIMATE COMPRESSIVE STRENGTH (F'c) : 2500 PSI.
5. READY MIX CONCRETE SHALL CONFORM TO ASTM-C94
6. PLACEMENT OF CONCRETE SHALL CONFORM TO ACI STANDARD 304 AND PROJECT SPECIFICATIONS. ALL CONCRETE SURFACES AGAINST WHICH CONCRETE IS TO BE PLACED SHALL BE THOROUGHLY CLEANED. LAITANCE AND STANDING WATER SHALL BE REMOVED.
7. IF COLUMN AND WALL CONCRETE IS PLACE WITH FLOOR, TWO HOURS MUST ELAPSE BETWEEN END OF COLUMN OR WALL PLACEMENT AND BEGINNING OF FLOOR PLACEMENT.
8. ALL REINFORCING BARS, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION PRIOR TO PLACING CONCRETE.
9. REINFORCING STEEL SHALL HAVE A MINIMUM CONCRETE COVER AS FOLLOWS (UNLESS OTHERWISE NOTED):
   A- CONCRETE AGAINST EARTH (UNFORMED) 3 IN.
   B- CONCRETE AGAINST EARTH (FORMED OR EXPOSED TO WEATHER):
      BARS #6 & LAGER 2 IN.
      BARS #5 & SMALLER 1-1/2 IN.
   C- CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH EARTH:
      SLABS & WALLS (#11 BARS & SMALLER) 3/4 IN.
      BEAMS, COLUMNS (TIES, STIRRUPS, SPIRALS) 1-1/2 IN.
      UNPROTECTED COLUMNS 2-1/2 IN.
10. CONDUIT OR PIPE SIZE (O.D.) SHALL NOT EXCEED 30 PERCENT OF SLAB THICKNESS AND SHALL BE PLACED BETWEEN TOP AND BOTTOM REINFORCING, UNLESS SPECIFICALLY DETAILED OTHERWISE. CONCENTRATION OF CONDUITS OR PIPES SHALL BE AVOIDED EXCEPT WHERE DETAILED OPENINGS ARE PROVIDED.
11. PROJECTING CORNERS OF BEAMS, WALLS, COLUMNS, ETC., SHALL BE FORMED WITH A 3/4 IN. CHAMFER, UNLESS OTHERWISE NOTED ON ARCHITECTURAL DRAWINGS.
12. PROVIDE SLEEVES FOR PLUMBING AND ELECTRICAL OPENINGS IN CONCRETE BEFORE PLACING. CORING IN CONCRETE IS NOT PERMITTED EXCEPT AS SHOWN. NOTIFY THE STRUCTURAL ENGINEER IN ADVANCE OF CONDITIONS NOT SHOWN ON THE DRAWINGS.
13. CURING COMPOUNDS USED ON CONCRETE THAT IS TO RECEIVE A RESILIENT TILE FINISH SHALL BE APPROVED BY THE TILE MANUFACTURER BEFORE USE.

CONCRETE MASONRY UNITS (CMU)

1. MASONRY CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR MASONRY STRUCTURES" (ACI 530) AND THE 2022 CALIFORNIA BUILDING CODE.
2. HOLLOW LOAD BEARING MASONRY UNITS SHALL CONFORM TO ASTM C-90, GRADE N-1 AND BE MADE WITH NORMAL WEIGHT AGGREGATE. THE MINIMUM COMPRESSIVE STRENGTH ($f'm$) SHALL BE 1550 PSI AT 28 DAYS, AS PERMITTED BY THE UNIT STRENGTH METHOD OF ACI 530.1.
3. FILL ALL CELLS SOLIDLY WITH GROUT. GROUT SHALL CONFORM TO ASTM C-476 AND SHALL OBTAIN A MIN 28 DAY COMPRESSIVE STRENGTH OF 2500 PSI.
4. REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM A-615 GRADE 60. SHOP FABRICATE REINFORCING BARS WHICH ARE SHOWN TO BE HOOKED OR BENT. PROVIDE MINIMUM LAP OF 48 X BAR DIAMETER AT ALL SPLICES UNLESS INDICATED OTHERWISE.
5. MORTAR SHALL CONFORM TO ASTM C-270, TYPE S. ALL MORTAR SHALL MEET THE "PROPORTION SPECIFICATION" OF ASTM A-270 AND BE MADE WITH PORTLAND CEMENT/LIME (NON AIR ENTRAINED)
6. PROVIDE REBAR DOWELS FROM FOUNDATIONS TO MATCH VERTICAL REINFORCEMENT SIZE AND SPACING. DOWELS SHALL HAVE STANDARD 90° HOOKS AND LAP WITH THE FIRST LIFT OF REINFORCING.
7. THE MASONRY CONTRACTOR SHALL PROVIDE ALL REQUIRED TEMPORARY BRACING DURING CONSTRUCTION.
8. SPECIAL INSPECTION REQUIRED FOR ALL CMU CONSTRUCTION.

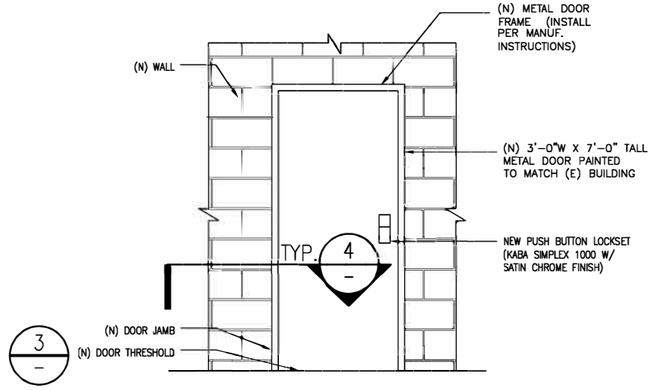
FOUNDATION:

1. FOUNDATION DESIGN BASED ON SOILS VALUES FROM THE 2022 CBC A GEOTECHNICAL REPORT HAS NOT BEEN PERFORMED
2. CONTRACTOR TO PROVIDE FOR DE-WATERING OF EXCAVATIONS FROM EITHER SURFACE, GROUND, OR SEEPAGE WATER.
3. CONTRACTOR SHALL PROVIDE FOR DESIGN AND INSTALLATION OF ALL CRIBBING, SHEATHING, AND SHORING REQUIRED TO SAFELY RETAIN THE EARTH BANKS.
4. FOOTING ELEVATIONS SHOWN ARE FOR BIDDING PURPOSES ONLY AND ARE ASSUMED TO BE IN SUITABLE BEARING MATERIALS. THE ACTUAL ADEQUACY OF THE BEARING MATERIAL SHALL BE DETERMINED BY GEOTECHNICAL ENGINEER PRIOR TO PLACING OF REINFORCING AND CONCRETE. FOOTING ELEVATIONS, IF NECESSARY, SHALL BE LOWERED AS DIRECTED BY GEOTECHNICAL ENGINEER.
5. ALL EXCAVATIONS SHALL BE PROPERLY BACKFILLED. DO NOT PLACE BACKFILL BEHIND RETAINING WALLS BEFORE CONCRETE HAS ATTAINED FULL DESIGN STRENGTH. CONTRACTOR SHALL BRACE OR PROTECT ALL BUILDING AND PIT WALLS BELOW GRADE FROM LATERAL LOADS UNTIL SUPPORTING FLOORS ARE IN PLACE AND HAVE ATTAINED FULL STRENGTH.
6. FOOTING BACKFILL AND UTILITY TRENCH BACKFILL WITHIN BUILDING AREA SHALL BE MECHANICALLY COMPACTED IN LAYERS TO THE APPROVAL OF THE GEOTECHNICAL ENGINEER. FLOODING WILL NOT BE PERMITTED.
7. ALL ABANDONED FOOTINGS, UTILITIES, ETC. THAT INTERFERE WITH NEW CONSTRUCTION SHALL BE REMOVED.
8. BOTTOM OF DRILLED CAISSONS SHALL BE IN SUITABLE FORMATIONAL MATERIAL, AS RECOMMENDED AND DETERMINED IN FIELD BY GEOTECHNICAL ENGINEER. BOTTOM OF EACH CAISSON SHALL BE INSPECTED BY GEOTECHNICAL ENGINEER BEFORE FILLING IT WITH CONCRETE.
9. FOOTING ELEVATIONS SHOULD BE LOCATED SUCH THAT THE BASES OF THE FOUNDATIONS ARE A MINIMUM HORIZONTAL DISTANCE OF FIVE FEET FROM THE FACE OF THE SLOPE (IN EXISTING FORMATIONAL SOILS OR APPROVED RECOMPACTED FILL).

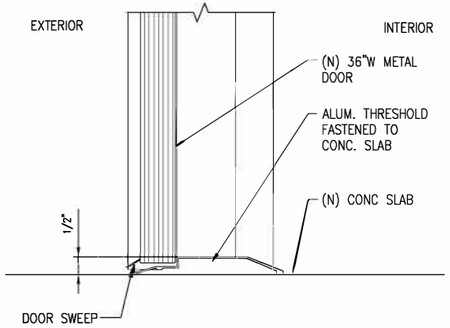
REINFORCING STEEL:

1. DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS (UNLESS OTHERWISE NOTED) MUST FOLLOW THE ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES ACI 315, LATEST EDITION.
2. REINFORCING BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615 OR A706 (DEFORMED BARS). NO. 3 BARS – GRADE 40, ALL OTHERS – GRADE 60. REINFORCING TO BE WELDED SHALL CONFORM TO A706.
3. ALL REINFORCING BAR BENDS SHALL BE MADE COLD.
4. ALL WELDING OF MILD STEEL SHALL BE DONE IN ACCORDANCE WITH THE LATEST AWS SPECIFICATIONS.
5. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
6. MINIMUM LAP OF WELDED WIRE FABRIC SHALL BE 6" OR ONE FULL MESH PLUS 2", WHICHEVER IS GREATER.

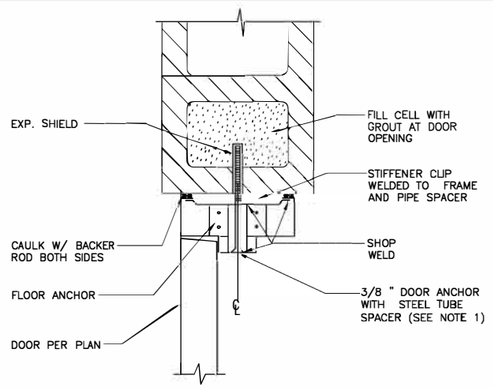
STRUCTURAL NOTES | NO SCALE | 1



ACCESS DOOR DETAIL | NO SCALE | 2



DOOR THRESHOLD | NO SCALE | 3



NOTES:

1. NUMBER OF ANCHORS & SPACING SHALL BE AS PER DOOR MFR'S WRITTEN INSTRUCTIONS

DOOR JAMB | NO SCALE | 4

dish WIRELESS
5701 SOUTH SANTA FE DRIVE
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LICENSED PROFESSIONAL ENGINEER
DANIEL W CONNELL
C 62543
EXP. 12/31/25
CIVIL
STATE OF CALIFORNIA

DATE STAMPED: 11/25/2024

DRAWN BY:	CHECKED BY:	APPROVED BY:
JPC	JPC	DC

RFDS FINAL REV #1 DATED 4/30/24

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
12	10/24/2023	ISSUED FOR 100% CD
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14	03/01/2024	ISSUED FOR 100% CD
15	03/20/2024	ISSUED FOR 100% CD
16	04/24/2024	ISSUED FOR 100% CD
17	04/30/2024	ISSUED FOR 100% CD
18	11/25/2024	ADD PG&E POWER DESIGN

(VENDOR) PROJECT NUMBER
SFSF000584B

DISH WIRELESS PROJECT NUMBER
SFSF000584B

PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

SHEET TITLE
DETAILS & NOTES

SHEET NUMBER
S-3

C15

PROJECT DESCRIPTION:
1. PROVIDE MECHANICAL EXHAUST FANS TO REMOVE HEAT FROM EQUIPMENT ROOM.
2. PROVIDE MAKE UP AIR FANS TO ALLOW CROSS VENTILATION.
3. CONTROL EXHAUST FAN WITH LINE VOLTAGE T-STAT SET @ 85°F.
4. PROVIDE HIGH TEMP LINE VOLTAGE STAT SET @ 105°F TO SEND ALARM SIGNAL TO OPERATOR.

GENERAL NOTES:
5. ALL WORK AND MATERIALS TO BE IN ACCORDANCE WITH CITY, STATE, AND FEDERAL CODES, LAWS AND REGULATIONS
6. PROVIDE APPROVED INDEPENDENT ELECTRICAL DISCONNECT FOR EACH PIECE OF EQUIPMENT, WITHIN SIGHT OF
7. EQUIPMENT, WHEN SUPPLY VOLTAGE EXCEEDS 50 VOLTS [CMC 308]
8. FACTORY MADE DUCTS SHALL COMPLY WITH REFERENCE STANDARD AND CHAPTER 17. SUPPORT OF DUCTS, INSTALLER
9. SHALL PROVIDE THE MFR. FIELD FABRICATION AND INSTALLATION INSTRUCTIONS [CMC 309.2] DUCT SIZES ARE NET INSIDE FOR ALL LINED DUCTS
10. PRIOR TO COMMENCING THE WORK, CONTRACTOR TO VISIT SITE AND ASCERTAIN ALL CONDITIONS PERTAINING TO THE PROJECT

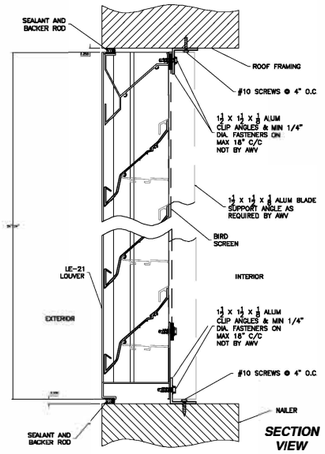
SPECIFICATIONS:
11. ORDINANCES REGULATIONS AND CODES: THE INSTALLATION SHALL COMPLY WITH ALL OF THE LATEST APPLICABLE ORDINANCES, REGULATIONS, CODES AND REQUIREMENTS OF AGENCY HAVING JURISDICTION, INCLUDING BUT NOT LIMITED TO THE STATE FIRE MARSHALL, THE 2022 CALIFORNIA MECHANICAL CODE, FIRE AND BUILDING CODES, AND THE CALIFORNIA ENERGY COMMISSION.

SHEET METAL WORK:
12. SHEET METAL DUCT CONSTRUCTION TO COMPLY WITH LOCAL CODES, CMC 2022, AND THE S.M.A.C.N.A. DUCT
13. MANUAL PUBLISHED Y THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION.
14. JOINT AND SEEMS SHALL BE SEALED TO INSURE AIRTIGHT CONSTRUCTION
15. FLASHING: ALL WALL PENETRATIONS TO BE WATER PROOFED BY GENERAL CONTRACTOR SPECIFIED ROOFING CONTRACTOR.

EQUIPMENT:
16. APPLIANCES DESIGNED TO BE FIXED IN POSITION SHALL BE SECURELY FASTENED IN PLACE. SUPPORTS FOR APPLIANCE SHALL BE DESIGNED AND CONSTRUCTED TO SUSTAIN VERTICAL & HORIZONTAL LOADS WITHIN THE STRESS LIMITATIONS OF THE BLDG CODE. (CMC 303.4)

APPLICABLE CODES:
2022 CBC AND 2022 CALIFORNIA AMENDMENTS (01 CBC – PART 2, TITLE 24, CCR)
2022 CEC AND 2022 CALIFORNIA AMENDMENTS (01 CEC – PART 3, TITLE 24, CCR)
2022 CMC, 2022 CALIFORNIA AMENDMENTS (01 CMC – PART 4, TITLE 24, CCR)-(PUBLISHER: IAPMO)
2022 CPC AND CALIFORNIA AMENDMENTS (01 CPC – PART 5 TITLE 24 CCR-(PUBLISHER: IAPMO)
2022 UFC AND 2022 CALIFORNIA AMENDMENTS (01 CALIFORNIA FIRE CODE – PART 9, TITLE 24, CCR)

MECHANICAL NOTES | NO SCALE | 1



SECTION VIEW

LOUVER DETAIL | NO SCALE | 2

Johnson Controls

Code No. LIT-1927010
Issued February 1, 2009

A19 Series

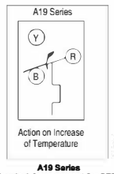
Remote Bulb Control

Description

The A19 Series are single-stage temperature controls that incorporate environmentally friendly liquid-filled sensing elements.

Features

- wide temperature ranges available
- constant differential throughout the entire range
- compact enclosure
- fixed or adjustable differential available
- variety of sensing element styles
- unaffected by cross-ambient conditions



A19 Series
Terminal Arrangement for SPDT


A19ABC-24

Applications

The A19 is suitable for temperature control in heating, ventilating, air conditioning, and refrigeration

Selection Charts

A19 Series Remote Bulb Control[1]

Code Number	Switch Action	Range °F (°C)	Diff F° (C°)	Bulb and Capillary	Bulb Well No. (order separately)	Range Adjuster	Max. Bulb Temp. °F (°C)
Adjustable Differential (Wide Range)							
A19ABA-40C [2]	SPST Open Low	-30 to 100 (-34 to 38)	3 to 12 (1.7 to 6.7)	3/8 in. x 4 in., 6 ft. Cap.	WEL14A-602R	Screwdriver Slot	140 (60)
A19ABC-4C	SPDT	50 to 130 (10 to 55)	3 1/2 to 14 (1.9 to 8)	3/8 in. x 5 in., 8 ft. Cap.	WEL14A-603R	Knob	170 (77)
A19ABC-24C [3]	SPDT	-30 to 100 (-34 to 38)	3 to 12 (1.7 to 6.7)	3/8 in. x 4 in., 8 ft. Cap.	WEL14A-602R	Convertible	140 (60)
A19ABC-39C	SPDT	-30 to 100 (-34 to 38)	3 to 12 (1.7 to 6.7)	3/8 in. x 4 in., 20 ft. Cap.	WEL14A-602R	Convertible	140 (60)
A19ABC-37C	SPDT	-30 to 100 (-34 to 38)	3 to 12 (1.7 to 6.7)	3/8 in. x 4 in., 10 ft. Cap	WEL14A-602R	Screwdriver slot	140 (60)
A19ABC-74C	SPDT	-30 to 100 (-34 to 38)	3 to 12 (1.7 to 6.7)	3/8 in. x 4 in., 6 ft. Cap.	WEL14A-602R	Screwdriver slot	140 (60)
Fixed Differential							
A19AAF-12C	SPDT	25 to 225 (4 to 107)	3 1/2 (1.9)	3/8 in. x 3 in., 10 ft. Cap	WEL14A-602R	Screwdriver slot	275 (135)
Fixed Differential (Case Compensated)							
A19AAC-4C	SPDT	0 to 80 (-18 to 27)	5 (2.8)	3/8 in. x 4 in., 6 ft. Cap.	WEL14A-602R	Screwdriver slot	140 (60)
A19AAD-12C	SPST Open Low	-30 to 50 (-34 to 10)	2 1/2 (1.4)	3/8 in. x 4 in., 7 ft. Cap.	WEL14A-602R	Screwdriver slot	140 (60)
Fixed Differential (Close)							
A19AAD-5C [4]	SPST Open Low	30 to 50 (-1 to 10) (Bulk Milk Cooler)	2 1/2 (1.4)	3/8 in., x 2 5/8 in., 6 ft. Cap	WEL18A-601R	Screwdriver slot	190 (88)
A19AAF-20C	SPDT	-30 to 100 (-34 to 38)	2 1/2 (1.4)	3/8 in. x 4 in., 6 ft. Cap.	WEL14A-602R	Screwdriver slot	140 (60)
A19AAF-21C	SPDT	40 to 90 (4 to 32)	1 1/2 (0.8)	3/8 in. x 5 3/4 in., 6 ft. Cap	WEL14A-603R	Screwdriver slot	140 (60)
Manual Reset							
A19ACA-14C	SPST Open Low	-30 to 100 (-34 to 38)	Manual Reset	3/8 in. x 4 in. 6 ft. Cap.	WEL14A-602R	Screwdriver slot	140 (60)
A19ACA-15C	SPST Open Low	-30 to 100 (-34 to 38)	Manual Reset	3/8 in., x 4 in. 10 ft. Cap.	WEL14A-602R	Screwdriver slot	140 (60)
A19ADB-1C	SPST Open High	100 to 240 (38 to 116)	Manual Reset	3/8 in. x 3 1/2 in. 6 ft. Cap.	WEL14A-602R	Knob	290 (143)
A19ADN-1C	SPST Open High	100 to 240 (38 to 116)	Manual Reset	3/8 in., x 4 in. 6 ft. Cap.	WEL14A-602R	Screwdriver slot	290 (143)

1. Specify the control model code number, packing nut code number (if required), and bulb well code number (if required)
2. Replaces White-Rodgers 1609-101
3. Replaces White-Rodgers 1609-12, -13; Ranco 010-1408, -1409, -1410, -1490, 060-110; Honeywell L6018C-1006, L6021A-1005, T678A-1011, -1508, -1516, -1821, T4351A-1009, T8031A-1011, T8031A-1029
4. Case-Compensated

Johnson Controls

Remote Bulb Control (Continued)

Selection Charts (Continued)

Replacement Parts

Code Number	Description
CVR28A-617R	Concealed adjustment cover
CVR28A-618R	Visible scale cover
KHB28A-662R	Replacement Knob Kit

Accessories

A packing nut is available for closed tank application.
Specify the part number **FTG13A-600R**.

Bulb wells (WEL14A Series) are available for liquid immersion applications.
Refer to the selection chart or to *Bulb Wells Catalog Page, LIT-1922135.*

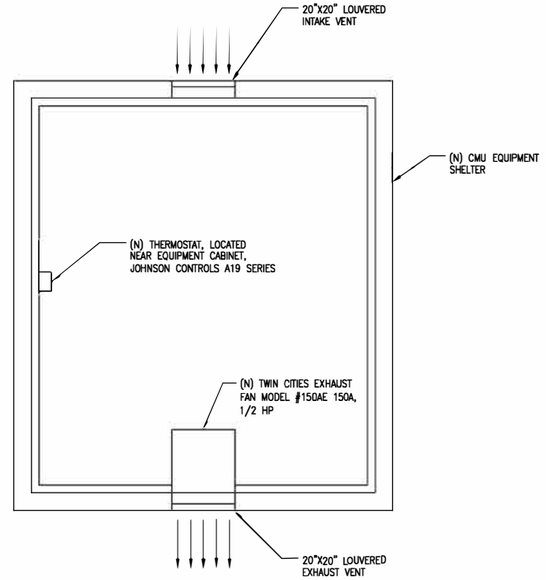
Technical Specifications

Electrical Ratings

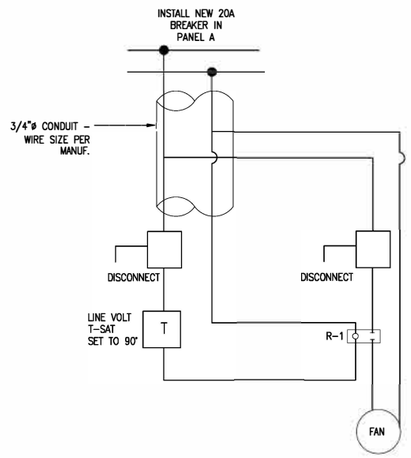
Motor Ratings VAC	120	208	240
Wide Range – Adjustable Differential			
AC Full Load A	16.0	9.2	8.0
AC Locked Rotor A	96.0	55.2	48.0
Non-Inductive A	22 A, 120 to 277 VAC		
Pilot Duty – 125 VA, 24 to 600 VAC			
Fixed Differential and Close Differential			
AC Full Load A	8.0	3.4	3.0
AC Locked Rotor A	36.0	20.4	18.0
Non-Inductive A	10 A, 24 to 277 VAC		
Pilot Duty – 125 VA, 24 to 277 VAC			
Case Compensated – Fixed Differential A19AAC-4			
AC Full Load A	16.0	9.2	8.0
AC Locked Rotor A	96.0	55.2	48.0
Non-Inductive A	22 A, 120 to 277 VAC		
Pilot Duty – 125 VA, 24 to 600 VAC			
A19AAD-12			
AC Full Load A	8.0	3.4	3.0
AC Locked Rotor A	36.0	20.4	18.0
Non-Inductive A	10 A, 24 to 277 VAC		
Pilot Duty – 125 VA, 24 to 600 VAC			
Manual Reset			
AC Full Load A	16.0	9.2	8.0
AC Locked Rotor A	96.0	55.2	48.0
Non-Inductive A	16.0	9.2	8.0
Pilot Duty – 125 VA, 24 to 600 VAC			

1. SPST and N.O. contact of SPDT control;
SPDT N.C. contact- 16 amps 120 to 277 VAC

THERMOSTAT SPEC SHEET | NO SCALE | 8



MECHANICAL PLAN | NO SCALE | 6



WIRING DIAGRAM | NO SCALE | 9

dish WIRELESS
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Butler America
1511 E. ORANGETHORPE AVE., SUITE D
FULLERTON, CA 92831

CDG
22431 ANTONIO PKWY
SUITE B160-131
RANCHO SANTA MARGARITA CA 92688
dconnell@connelldesigngroup.com
949-306-4644

LICENSED PROFESSIONAL ENGINEER
DANIEL M CONNELL
C 62543
EXP. 12/31/25
CIVIL
STATE OF CALIFORNIA

DATE STAMPED: 11/25/2024

DRAWN BY:	CHECKED BY:	APPROVED BY:
JPC	JPC	DC

RFDS FINAL REV #1 DATED 4/30/24

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
12	10/24/2023	ISSUED FOR 100% CD
13	02/01/2024	ISSUED FOR 100% CD
14	03/01/2024	ISSUED FOR 100% CD
15	03/20/2024	ISSUED FOR 100% CD
16	04/24/2024	ISSUED FOR 100% CD
17	04/30/2024	ISSUED FOR 100% CD
18	11/25/2024	ADD PG&E POWER DESIGN

(VENDOR) PROJECT NUMBER
SFSF000584B

DISH WIRELESS PROJECT NUMBER
SFSF000584B

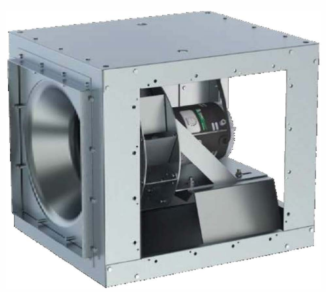
PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

SHEET TITLE
MECHANICAL PLAN NOTES & DETAILS

SHEET NUMBER
M-1

C16

ELECTRONICALLY COMMUTATED MOTORS



Model DSI
With GridSmart™ EC Motor

Twin City Fan & Blower offers its own line of custom engineered Electronically Commutated (EC) motors. Electronic commutation is the latest motor technology to be used in direct drive fans. Also known in the industry as Brush Free or Brushless DC, the EC motors utilize an electronic circuit board to control the functionality of the motor. The motor operates off of single phase AC power, which is converted to DC power within the motor's circuitry. TCF has motor options available for 115V, 208-230V or 277V single phase electrical power. The result is a highly efficient motor, even at part load, with an expanded speed control range and a variety of speed control options from which to choose. EC motors are available in ODP, TENV and TEFC enclosures.

GRIDSMART™ EC MOTORS

TCF TWIN CITY FAN

Benefits

- Efficiencies up to 85%
- Constant efficiency as the motor speed is varied
- Up to 66% energy savings over traditional PSC motors
- Performance range comparable to a belt drive fan with reduced maintenance benefits of a direct drive fan
- 80% usable turndown range as compared with 40% maximum on PSC motors
- Soft start gives fans smooth, quiet start
- Lower operating temperatures result in longer life and reduces energy consumption
- Heavy-duty ball bearings are permanently lubricated
- Elimination of VFD results in lower initial cost

EC Motor Options

1/6HP to 1HP

- 1/6HP: 115V, single phase
- 1/4HP – 1HP: 115V, 208-230V, 277V, single phase
- ODP or TENV Enclosure
- Motor mounted speed control dial as standard
- 0-10VDC control leads as standard
- Available with remote mounted speed control dial

1HP & 2HP

- 1HP: 115V, 208-230V, single phase
- 2HP: 208-230V, single phase
- TEFC enclosure (totally enclosed fan cooled)
- Available with motor mounted speed dial or 0-10VDC control lead

1HP & 2HP
GridSmart™ EC Motors

1/6HP to 1HP
GridSmart™ EC Motors

PERFORMANCE DATA

DSI – 60 Hz

EC MOTOR SIZE	EC MTR HP	PSC MOTOR SIZE	PSC MTR HP	RPM	MAX. BHP	0	0.125	0.25	0.375	0.50	0.625	0.75	1.00	1.25	1.50	1.75	2.00	FAN EFF GRADE
						STATIC PRESSURE (INCHES W.G.) — CFM / SONE												
080AE	1/6	080A	1/8	860	0.01	323 / 4.2	247 / 3.4											N/A
			1/8	1160	0.03	436 / 7.4	382 / 6.3	321 / 8.1	232 / 5.5									
			1/8	1650	0.10	620 / 10.4	583 / 10.4	545 / 8.7	505 / 8.0	459 / 8.6	403 / 8.3	335 / 7.3						
		—	—	1750	0.12	658 / 10.9	623 / 10.9	587 / 9.5	550 / 8.8	510 / 9.0	461 / 8.7	405 / 8.0						
090AE	1/4	090A	1/8	860	0.02	495 / 5.9	390 / 4.4											N/A
			1/8	1160	0.05	668 / 9.8	592 / 8.2	510 / 7.9	401 / 6.4									
			1/8	1650	0.14	950 / 13.0	897 / 13.0	843 / 11.2	789 / 10.3	729 / 11.1	660 / 10.7	578 / 8.5						
		—	---	1750	0.17	1008 / 13.7	958 / 13.7	907 / 12.3	856 / 11.3	803 / 11.4	742 / 11.8	673 / 10.9						
100AE	1/2	100A	1/8	860	0.04	787 / 7.8	666 / 6.0	520 / 8.2										N/A
			1/8	1160	0.11	1061 / 13.3	973 / 12.1	882 / 10.0	780 / 10.9	651 / 9.0								
			1/3	1750	0.36	1601 / 17.8	1543 / 17.8	1484 / 17.6	1424 / 15.9	1365 / 14.7	1303 / 14.8	1236 / 15.6	1083 / 14.9	877 / 11.7				
120AE	3/4	120A	1/6	860	0.07	1047 / 5.8	961 / 5.3	830 / 5.1	586 / 4.3									N/A
			1/4	1160	0.16	1413 / 9.3	1344 / 9.3	1268 / 8.1	1183 / 7.7	1079 / 8.3	923 / 6.9							
			3/4	1750	0.63	2132 / 17.9	2087 / 17.9	2041 / 17.9	1993 / 17.7	1942 / 16.5	1889 / 15.5	1834 / 14.8	1709 / 15.6	1561 / 16.1	1288 / 14.2			
135ANE	3/4	135AN	1/8	860	0.08	1041 / 8.9	941 / 8.2	810 / 5.5	670 / 5.2									N/A
			1/4	1160	0.20	1404 / 11.4	1352 / 11.4	[illegible] / 9.6	[illegible] / 6.4	1070 / 9.1	962 / 9.1	823 / 7.9						
			3/4	1750	0.89	2118 / 17.8	2071 / 17.8	2024 / 17.9	1974 / 17.8	1922 / 16.9	1867 / 15.7	1808 / 15.4	1685 / 15.9	1554 / 16.6	1401 / 14.8	1203 / 14.8	899 / 14.6	
Outlet Area: 3.22 ft²																		
135AE	1, 2	135A	1/4	860	0.13	1437 / 7.1	1331 / 6.7	1208 / 5.9	1041 / 6.1									FEG56
			1/2	1160	0.31	1938 / 11.2	1862 / 11.2	1780 / 10.7	1691 / 9.4	1591 / 9.4	1471 / 10.0	1306 / 8.9						
			1*	1750	1.07	2924 / 22	2875 / 22	2824 / 22	2771 / 22	2717 / 21	2660 / 20	2601 / 19.0	2476 / 18.3	2334 / 19.4	2161 / 19.6	1918 / 17.5		
Outlet Area: 3.90 ft²																		
150ANE	1, 2	150AN	1/4	860	0.13	1385 / 8.2	1277 / 7.9	1150 / 6.3	1005 / 6.9	810 / 5.9								FEG63
			1/2	1160	0.32	1868 / 13.7	1790 / 13.7	1707 / 12.1	1615 / 10.5	1513 / 10.1	1407 / 11.0	1288 / 11.0	940 / 9.5					
			1*	1750	1.11	2818 / 21	2767 / 21	2715 / 21	2662 / 21	2606 / 20	2549 / 19.8	2488 / 18.6	2359 / 18.0	2221 / [illegible]	2077 / 19.7	1913 / 18.5	1713 / 17.2	
Outlet Area: 3.90 ft²																		
150AE	1	150A	1/4	860	0.20	1913 / 8.5	1798 / 8.5	1688 / 7.1	1513 / 7.5	1286 / 6.7								FEG56
			1/2	1160	0.50	2580 / 13.5	2497 / 13.5	2409 / 13.3	2315 / 11.9	2213 / 11.3	2099 / 11.4	1965 / 12.1	1514 / 10.0					
	1		1 1/2*	1200	0.55	2689 / 20	2589 / 20	2504 / 20	2414 / 20	2317 / 19.3	2212 / 18.2	2091 / 17.5	1742 / 17.2	18.3	17.0			
	2			1750	1.72	3892 / 26	3836 / 26	3783 / 26	3726 / 26	3667 / 26	3607 / 25	3545 / 24	3414 / 22	3273 / 22	3116 / 22	2931 / 23	2699 / 22	
Outlet Area: 4.83 ft²																		
165ANE	1**	165AN	1/4	860	0.23	2094 / 7.7	1953 / 7.6	1805 / 6.9	1647 / 7.2	1472 / 7.3	1248 / 7.2							FEG60
			1/2	1160	0.56	2825 / 12.4	2721 / 12.4	2615 / 12.0	2506 / 11.4	2394 / 11.0	2277 / 11.2	2155 / 12.0	1877 / 11.2	1457 / 11.3				
	2		2*	1750	1.38	4261 / 22	4193 / 22	4124 / 22	4054 / 22	3984 / 21	3912 / 21	3840 / 21	3694 / 20	3543 / 20	3386 / 21	3223 / 22	3048 / 23	
Outlet Area: 4.83 ft²																		
165AE	1	165A	1/2	860	0.33	2898 / 10.1	2683 / 9.8	2499 / 8.9	2323 / 9.2	2069 / 9.4	1773 / 8.2							FEG60
			1	1160	0.81	3909 / 13.5	3744 / 16.5	3592 / 15.6	3452 / 14.7	3327 / 14.2	3199 / 14.8	3044 / 15.7	2640 / 13.7	2152 / 13.5				
	2		3*	1500	1.76	5055 / 24	4925 / 24	4802 / 24	4684 / 23	4571 / 22	4465 / 21	4368 / 21	4174	3941 / 22	3637 / 22	3310 / [illegible]	2935 / 19.8	
	—			1750	2.8	5898 / 30	5786 / 30	5678 / 30	5574 / 30	5473 / 29	5375 / 28	5281 / 27	5109 / 26	4945 / 26	4769 / 27	4552 / 28	4289 / 27	

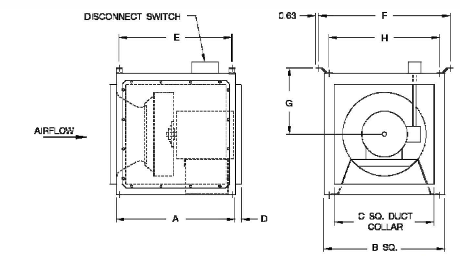
* Designates motors that cannot be used with speed controller.
EC Motor is an Electronically Commutated Motor.
PSC Motor is a Permanent Split Capacitor Motor.

** Performance available with 1 HP 1160 RPM ECODP motors or 1 HP 1750 RPM ECTEFC motors. 1160 RPM maximum.

NOTES:
1. Performance certified is for Installation Type B: Free inlet, ducted outlet.
2. Performance ratings do not include the effects of appurtenances (accessories).
3. The sound ratings shown are loudness values in fan sones at 1.5m (5 ft.) in a hemispherical free field calculated per AMCA International Standard 301.
4. Values shown are for Installation Type B: free inlet hemispherical sone levels.

DIMENSIONAL DATA

Model DSI, Direct Drive



MODEL DSI	EC MOTOR SIZES	A	B	C	D	E	F	G	H	DAMPER SIZE	AVG. SHIP WT. (LBS.)	SIDE DISCHARGE SIZE
080A	080AE	19.00	15.33	11.88	1.00	16.50	19.50	8.63	13.56	12.00 x 12.00	93	11.88 x 11.88
090A	090AE	19.00	15.33	11.88	1.00	16.50	19.50	8.63	13.56	12.00 x 12.00	96	11.88 x 11.88
100A	100AE	20.50	17.81	13.88	1.00	19.00	21.06	10.38	16.00	14.00 x 14.00	106	13.88 x 13.88
120A	120AE	21.50	19.38	15.88	1.00	20.00	22.06	11.13	17.00	16.00 x 16.00	127	15.88 x 15.88
135A/135AN	135AE/ANE	23.00	21.56	17.88	1.00	21.50	24.25	12.19	19.16	18.00 x 18.00	132	17.88 x 17.88
150A/150AN	150AE/ANE	24.00	23.82	19.88	1.00	22.50	26.38	13.29	21.31	20.00 x 20.00	187	19.88 x 19.88
165A/165AN	165AE/ANE	26.00	26.50	22.88	1.00	24.50	29.06	14.64	24.00	23.00 x 23.00	167	22.88 x 22.88

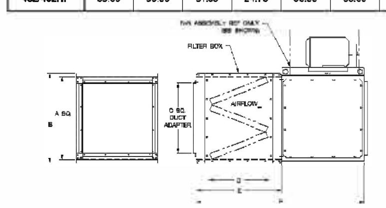
D-4210J

Notes:
1. All figures are in inches unless noted otherwise.
2. Average ship weight is for fan and motor assembly
3. Dimensions are not to be used for construction.

Filter Box Assembly

SIZE	A SQ	B	C	D	E	F	FILTER SIZE	FILTER QTY.	AVG. SHIP WT. (LBS.)
080/090	16.00	18.50	11.88	21.44	28.38	47.38	25x16x2	1	99
100	18.06	20.56	13.88	19.88	26.75	47.25	25x16x2	1	113
120/120HP	19.62	22.12	15.88	24.50	31.38	52.88	25x16x2	2	148
135/135HP	21.75	24.25	17.88	24.00	32.00	55.00	25x20x2	2	181
150/150HP	23.94	26.44	19.88	23.75	32.00	56.00	25x20x2	2	200
165/165HP	26.62	29.12	22.88	19.56	28.00	54.00	25x20x2	3	203
180/180HP	29.12	31.62	23.88	19.25	26.50	55.00	25x20x2	3	220
210/210HP	32.44	34.94	27.88	21.00	31.00	63.00	25x16x2	4	290
225/225HP	34.25	36.75	29.88	24.00	33.00	67.00	25x16x2	6	397
245/245HP	37.75	40.25	32.88	18.88	30.00	56.50	25x20x2	2	439
							25x16x2	2	
270/270HP	40.25	42.75	35.88	23.00	33.00	72.00	25x20x2	6	566
300/300HP	44.25	46.75	39.88	24.00	33.00	74.50	25x20x2	8	654
330/330HP	48.94	51.44	43.88	23.50	34.00	79.50	25x16x2	12	842
365/365HP	50.25	52.75	45.88	19.75	30.50	77.38	25x20x2	12	850
402/402HP	55.50	58.00	51.88	24.75	36.00	86.00	25x20x2	12	1150
							25x16x2	8	

D-4205-1



Notes:
1. All figures are in inches unless noted otherwise.
2. Filter box option is shipped separately for field installation
3. For filter box information, see page 7.

FAN SPEC SHEETS

NO SCALE | 1

dish WIRELESS
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Butler America
1511 E. ORANGETHORPE AVE., SUITE D
FULLERTON, CA 92831

CDG
22431 ANTONIO PKWY
SUITE B160-131
RANCHO SANTA MARGARITA CA 92688
dconnell@connelldesigngroup.com
949-306-4644

DATE STAMPED: 11/25/2024

DRAWN BY:	CHECKED BY:	APPROVED BY:
JPC	JPC	DC

RFDS FINAL REV #1 DATED 4/30/24

CONSTRUCTION DOCUMENTS

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17	04/30/2024	ISSUED FOR 100% CD
18	11/25/2024	ADD PG&E POWER DESIGN

(VENDOR) PROJECT NUMBER
SFSF000584B

DISH WIRELESS PROJECT NUMBER
SFSF000584B

PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

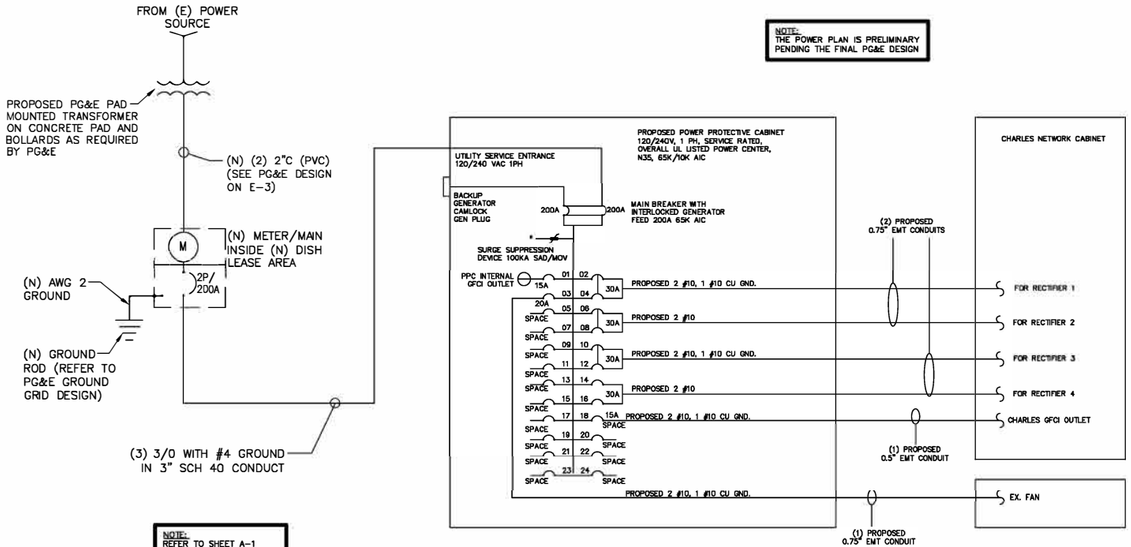
SHEET TITLE
FAN SPEC SHEETS

SHEET NUMBER
M-2

ELECTRICAL NOTES

1. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL LOCAL AND STATE CODE, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC STANDARDS.
2. CONTRACTOR SHALL COORDINATE WITH LOCAL POWER COMPANY FOR REQUIREMENTS OF POWER SERVICE LINE TO THE METER BASE. POWER SERVICE REQUIREMENT IS COMMERCIAL AC NOMINAL 120/208 VOLT OR 120/240 VOLT, SINGLE PHASE WITH 200 AMP RATING.
3. CONTRACTOR SHALL COORDINATE WITH LOCAL TELEPHONE COMPANY FOR REQUIREMENTS OF "T1" SERVICE LINE TO TERMINATE AT THE PPC CABINET.
4. CONTRACTOR SHALL FURNISH AND INSTALL ELECTRIC METER BASE AND 200A DISCONNECT SWITCH PER SITE PLAN AND DETAIL DRAWINGS. THE METER BASE SHOULD BE LOCATED IN A MANNER WHERE ACCESSIBLE BY THE LOCAL POWER COMPANY.
5. LOCAL POWER COMPANY SHALL PROVIDE 200 AMP ELECTRIC METER. CONTRACTOR SHALL COORDINATE INSTALLATION OF METER WITH LOCAL POWER COMPANY.
6. UNDERGROUND POWER AND TELCO SERVICE LINES SHALL BE ROUTED IN A COMMON TRENCH. ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40 AND CONDUIT EXPOSED ABOVE GROUND SHALL BE RIGID GALVANIZED STEEL UNLESS OTHERWISE INDICATED.
7. ALL TELCO CONDUIT LINES SHALL BE 4" SCH. 40 PVC CONDUIT UNLESS OTHERWISE INDICATED. THE TELCO CONDUIT FROM THE PPC SHALL BE ROUTED AND TERMINATED AT DESIGNATED TELCO DEMARCATION OR 2-FEET OUTSIDE FENCED AREA, NEAR UTILITY POLE (IN FENCED AREA), OR END CAP OFF AND PROVIDE MARKER STAKE PAINTED BRIGHT ORANGE WITH DESIGNATION FOR TELCO SERVICE.
8. CONDUITS INSTALLED AT PCS EQUIPMENT ENDS PRIOR TO THE EQUIPMENT INSTALLATION SHALL BE STUBBED AND CAPPED AT 6" ABOVE GRADE OR PLATFORM. IF SERVICE LINES CAN'T BE INSTALLED INITIALLY, PROVIDE NYLON PULL CORD IN CONDUITS.
9. THE DISH WIRELESS CABINET, INCLUDING 200 AMP LOAD PANEL AND TELCO PANEL, SHALL BE PROVIDED BY OWNER AND INSTALLED BY THE CONTRACTOR. CONTRACTOR IS TO INSTALL BREAKER(S) NOT PROVIDED BY MANUFACTURER. SEE PANEL SCHEDULE ON THIS SHEET FOR BREAKER REQUIREMENTS.
10. LOCATION OF ELECTRIC METER AND DISCONNECT SWITCH TO BE COORDINATED BY ELECTRICAL CONTRACTOR AND FIELD CONSTRUCTION MANAGER.
11. #2 WIRE TO BE UTILIZED IN ELECTRIC SERVICE RUNS EXCEEDING 100'.
12. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTORS FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
13. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO ROUGH-IN.
14. THE CONDUIT RUNS AS SHOWN ON THE PLANS ARE APPROXIMATE. EXACT LOCATION AND ROUTING SHALL BE PER EXISTING FIELD CONDITIONS.
15. PROVIDE PULL BOXES AND JUNCTION BOXES WHERE SHOWN OR REQUIRED BY NEC.
16. ALL CONDUITS SHALL BE MET WITH BENDS MADE IN ACCORDANCE WITH NEC TABLE 346-10. NO RIGHT ANGLE DEVICE OTHER THAN STANDARD CONDUIT ELBOWS WITH 12" MINIMUM INSIDE SWEEPS FOR ALL CONDUITS 2" OR LARGER.
17. ALL CONDUIT TERMINATIONS SHALL BE PROVIDED WITH PLASTIC THROAT INSULATING GROUNDING BUSHINGS.
18. ALL WIRE SHALL BE TYPE THWN, SOLID, ANNEALED COPPER UP TO SIZE #10 AWG (#8 AND LARGER SHALL BE CONCENTRIC STRANDED) 75 DEGREE C, (167 DEGREES F), 98% CONDUCTIVITY, MINIMUM #12.
19. ALL WIRES SHALL BE TAGGED AT ALL PULL BOXES, J-BOXES, EQUIPMENT BOXES AND CABINETS WITH APPROVED PLASTIC TAGS, ACTION CRAFT, BRADY, OR APPROVED EQUAL.
20. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
21. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION TO CONFLICTS. VERIFY WITH MECHANICAL CONTRACTOR AND COMPLY AS REQUIRED.
22. ALL PANEL DIRECTORIES SHALL BE TYPEWRITTEN NOT HAND WRITTEN.
23. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, STARTERS, AND EQUIPMENT CABINETS.
24. THE CONTRACTOR SHALL PREPARE AS-BUILT DRAWINGS, DOCUMENT ANY AND ALL WIRING AND EQUIPMENT CONDITIONS AND CHANGES WHILE COMPLETING THIS CONTRACT. SUBMIT AT SUBSTANTIAL COMPLETION.
25. ALL DISCONNECT SWITCHES AND OTHER CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM (NO EXCEPTIONS.)
26. ALL ELECTRICAL DEVICES AND INSTALLATIONS OF THE DEVICES SHALL COMPLY WITH (ADA) AMERICANS WITH DISABILITIES ACT AS ADOPTED BY THE APPLICABLE STATE.
27. PROVIDE CORE DRILLING AS NECESSARY FOR PENETRATIONS OR RISERS THROUGH BUILDING. DO NOT PENETRATE STRUCTURAL MEMBERS WITHOUT CONSTRUCTION MANAGERS APPROVAL. SLEEVES AND/OR PENETRATIONS IN FIRE RATED CONSTRUCTION SHALL BE PACKED WITH FIRE RATED MATERIAL WHICH SHALL MAINTAIN THE FIRE RATING OF THE WALL OR STRUCTURE. FILL FOR FLOOR PENETRATIONS SHALL PREVENT PASSAGE OF WATER, SMOKE, FIRE AND FUMES. ALL MATERIAL SHALL BE UL APPROVED FOR THIS PURPOSE.
28. ELECTRICAL CHARACTERISTICS OF ALL EQUIPMENT (NEW AND EXISTING) SHALL BE FIELD VERIFIED WITH THE OWNER'S REPRESENTATIVE AND EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN OF CONDUIT AND WIRE. ALL EQUIPMENT SHALL BE PROPERLY CONNECTED ACCORDING TO THE NAMEPLATE DATA FURNISHED ON THE EQUIPMENT (THE DESIGN OF THESE PLANS ARE BASED UPON BEST AVAILABLE INFORMATION AT THE TIME OF DESIGN AND SOME EQUIPMENT CHARACTERISTICS MAY VARY FROM DESIGN AS SHOWN ON THESE DRAWINGS).
29. LOCATION OF ALL OUTLET, BOXES, ETC., AND THE TYPE OF CONNECTION (PLUG OR DIRECT) SHALL BE CONFIRMED WITH THE OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN.

ELECTRICAL NOTES | NO SCALE | 3



GENERAL NOTES:
1. GENERAL CONTRACTOR TO NOTIFY CDG IF THERE ARE ANY DISCREPANCIES BETWEEN THE ACTUAL SITE CONDITIONS AND THE DRAWINGS
2. ALL WORK TO BE COMPLIED WITH NFPA 70E AND OSHA TITLE 29.
3. ALL BOXES AND ENCLOSURES (INCLUDING TRANSFER SWITCHES, GENERATORS AND POWER PANELS) FOR EMERGENCY CIRCUITS SHALL BE PERMANENTLY MARKED SO THEY WILL BE READILY IDENTIFIABLE AS A COMPONENT OF AN EMERGENCY CIRCUIT OR SYSTEM.

NOTE: BRANCH CIRCUIT WIRING SUPPLYING RECTIFIERS ARE TO BE RATED UL1015, 105°C, 600V, AND PVC INSULATED, IN THE SIZE SHOWN IN THE ONE-LINE DIAGRAM. CONTRACTOR MAY SUBSTITUTE UL1015 WIRE FOR THWN-2 FOR CONVENIENCE OUTLET BRANCH CIRCUIT

BREAKERS REQUIRED:
(4) 30A, 2P BREAKER - SQUARE D P/N: QO230
(2) 15A, 1P BREAKER. - SQUARE D P/N: QO115

NOTES

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED SHORT CIRCUIT CALCULATIONS AND THE AIC RATING FOR EACH DEVICE IS ADEQUATE TO PROTECT THE EQUIPMENT AND THE ELECTRICAL SYSTEM.

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED VOLTAGE DROP CALCULATIONS AND ALL BRANCH CIRCUIT AND FEEDERS COMPLY WITH NEC (LISTED ON 1-1) ARTICLE 210.19(A)(1) FPN NO. 4.

THE (2) CONDUITS WITH (4) CURRENT CARRYING CONDUCTORS EACH, SHALL APPLY THE ADJUSTMENT FACTOR OF 80% PER 2014/17 NEC TABLE 310.15(B)(3)(A) OR 2020 NEC TABLE 310.15(C)(1) FOR UL1015 WIRE.

#12 FOR 15A-20A/1P BREAKER: 0.8 X 30A = 24.0A
#10 FOR 25A-30A/2P BREAKER: 0.8 X 40A = 32.0A
#8 FOR 35A-40A/2P BREAKER: 0.8 X 55A = 44.0A
#6 FOR 45A-60A/2P BREAKER: 0.8 X 75A = 60.0A

CONDUIT SIZING: AT 40% FILL PER NEC CHAPTER 9, TABLE 4, ARTICLE 358

0.5" CONDUIT = 0.122 SQ. IN AREA
0.75" CONDUIT = 0.213 SQ. IN AREA
2.0" CONDUIT = 1.316 SQ. IN AREA
3.0" CONDUIT = 2.907 SQ. IN AREA

CABINET CONVENIENCE OUTLET CONDUCTORS (1 CONDUIT): USING THWN-2, CU.

#10 = 0.0211 SQ. IN X 2 = 0.0422 SQ. IN
#10 = 0.0211 SQ. IN X 1 = 0.0211 SQ. IN <GROUND
TOTAL = 0.0633 SQ. IN

0.5" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (3) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

RECTIFIER CONDUCTORS (2 CONDUITS): USING UL1015, CU.

#10 = 0.0265 SQ. IN X 4 = 0.1064 SQ. IN
#10 = 0.0082 SQ. IN X 1 = 0.0082 SQ. IN <BARE GROUND
TOTAL = 0.1146 SQ. IN

0.75" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (5) WIRES, INCLUDING GROUND WIRES, AS INDICATED ABOVE.

PPC FEED CONDUCTORS (1 CONDUIT): USING THWN, CU.

3/0 = 0.2679 SQ. IN X 3 = 0.8037 SQ. IN
#6 = 0.0507 SQ. IN X 1 = 0.0507 SQ. IN <GROUND
TOTAL = 0.8544 SQ. IN

3.0" SCH 40 PVC CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (4) WIRES INCLUDING GROUND WIRE, AS INDICATED ABOVE.

SINGLE LINE DIAGRAM | NO SCALE | 1

PROPOSED PANEL SCHEDULE
RAYCAP PPC CABINET
200A, 120/240V, 1ø, 3W, 65kA

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI	180		15A	1	A	2	30A	2880		RECTIFIER #1
EX. FAN		400	20A	3	B	4			2880	
				5	A	6	30A	2880		RECTIFIER #2
				7	B	8			2880	
				9	A	10	30A	2880		RECTIFIER #3
				11	B	12			2880	
				13	A	14	30A	2880		RECTIFIER #4
				15	B	16			2880	
				17	A	18	15A	180		CHARLES GFCI
				19	B	20				
				21	A	22				
				23	B	24				
				25	A	26				
				27	B	28				
				29	A	30				
VOLT AMPS	180	400						11700	11520	
200A MCB, 1ϕ, 3W, 120/240V			L1		L2					
MB RATING: 22,000 AIC			11880		11920		VOLT AMPS			
			49.5		49.67		AMPS			
			97.2				MAX AMPS			
			124				MAX 125%			

PANEL SCHEDULE | NO SCALE | 2

dish WIRELESS
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Butler America
1511 E. ORANGETHORPE AVE., SUITE D
FULLERTON, CA 92831

CDG
22431 ANTONIO PKWY
SUITE B160-131
RANCHO SANTA MARGARITA CA 92688
dconnell@connelldesigngroup.com
949-306-4644

LICENSED PROFESSIONAL ENGINEER
DANIEL W CONNELL
C 62543
EXP. 12-31-25
CIVIL
STATE OF CALIFORNIA

DATE STAMPED: 11/25/2024

DRAWN BY:	CHECKED BY:	APPROVED BY:
JPC	JPC	DC

RFDS FINAL REV #1 DATED 4/30/24

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
12	10/24/2023	ISSUED FOR 100% CD
13	02/01/2024	ISSUED FOR 100% CD
14	03/01/2024	ISSUED FOR 100% CD
15	03/20/2024	ISSUED FOR 100% CD
16	04/24/2024	ISSUED FOR 100% CD
17	04/30/2024	ISSUED FOR 100% CD
18	11/25/2024	ADD PG&E POWER DESIGN

(VENDOR) PROJECT NUMBER
SFSF000584B

DISH WIRELESS PROJECT NUMBER
SFSF000584B

PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

SHEET TITLE
S.L.D., PANEL SCHEDULE & NOTES

SHEET NUMBER
E-1

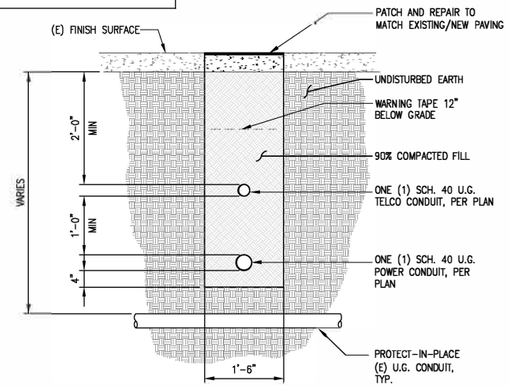
C18

DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND −48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY −48V.

1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
2. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL STATE AND LOCAL CODES, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC STANDARDS.
3. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.
4. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH THE MECHANICAL EQUIPMENT CONTRACTOR AND COMPLY AS REQUIRED.
5. CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETE SYSTEM.
6. CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED BY THE NEC ARTICLE 314.
7. CONTRACTOR SHALL PROVIDE ALL STRAIN RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
8. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM.
9. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC 250. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, AND EQUIPMENT CABINETS.
10. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
11. PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.

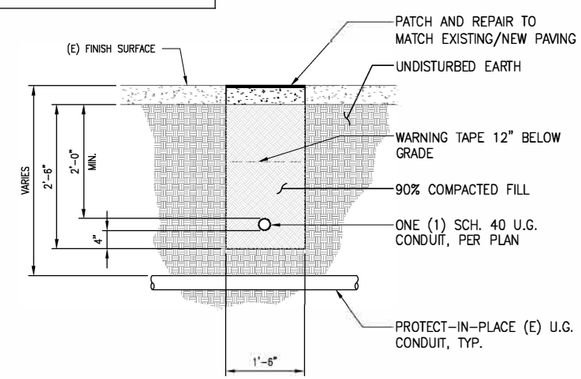
ELECTRICAL NOTES | NO SCALE | 1

NOTE:
1. VERIFY (E) CONDUIT LOCATION AND CONDITION. DO NOT DAMAGE (E) CONDUIT. (E) CONDUIT TO BE ENCASED IN CONCRETE IF UNDER (N) CONCRETE PAD FOOTING.

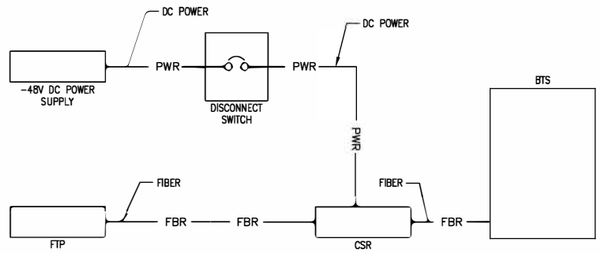


JOINT TRENCH DETAIL | NO SCALE | 2

NOTE:
1. VERIFY (E) CONDUIT LOCATION AND CONDITION. DO NOT DAMAGE (E) CONDUIT. (E) CONDUIT TO BE ENCASED IN CONCRETE IF UNDER (N) CONCRETE PAD FOOTING.

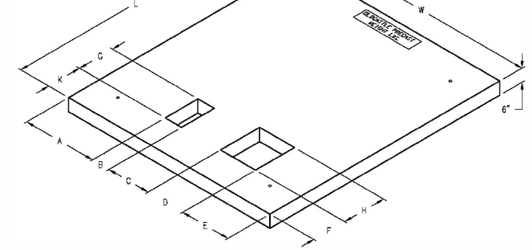


TRENCH DETAIL | NO SCALE | 3



PG&E SHUTDOWN SWITCH WIRING DIAGRAM | NO SCALE | 4

DRAWING MAY NOT CONFORM TO THE MOST CURRENT SPECIFICATION — PGE-23



STYLE	KVA SIZE	WEIGHT (LBS)	A	B	C	D	E	F	G	H	K	L	W	CODE NO
II B AND II F	225	3,100	23"	8"	19"	17"	13"	15"	16"	19"	15"	78"	80"	04-3538
	300	3,100	23"				13"					78"	80"	04-3539
	500	4,895	29"				23"					100"	96"	04-0242
	750	5,630	32"				22"					112"	98"	04-0243
	1,000	6,390	35"				26"					117"	106"	04-0244
II C AND II F	1,500	6,500	31"	8"	23"	17"	26"	15"	16"	19"	15"	120"	105"	04-0245
	2,000													
	2,500													
II D AND II E	75	2,375	17"	15"	15"	18"	13"	10"	8"	17"	14"	61"	80"	04-0291
	112.50													
	150													
	225													
II E	300	4,830	22"	15"	15"	20"	17"	20"	8"	19"	26"	106"	90"	04-0292
	500													
	750													
	1,000													
	1,500													
	2,000													
	2,500													

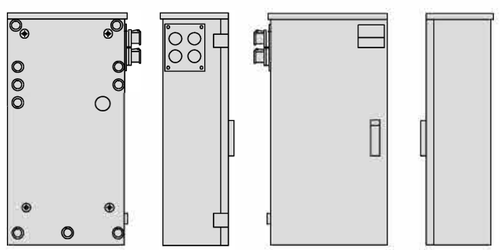
Oldcastle Precast — Northern California — Modesto • Morgan Hill • Pleasanton • Santa Rosa • Stockton • Tulare — Phone: 925-750-6550 Fax: 925-750-6660

T. PADS — FILE NAME: PGE-23.DWG — REVISED: MARCH 2018 — www.oldcastleprecast.com

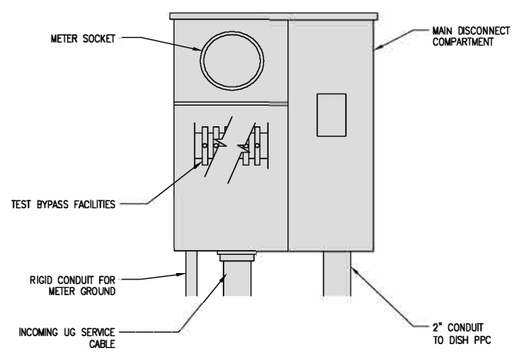
VARIES (O.D.) TRANSFORMER PADS PG&E

TRANSFORMER SLAB | NO SCALE | 8

RAYCAP PPC RDIAC-2465-P-240-MTS	
DIMENSIONS (HxWxD)	39"x22.7"x12.6"
TOTAL WEIGHT	80 lbs
OPERATING AC VOLTAGE	120/240 1ø 3W



POWER PROTECTION CABINET (PPC) DETAIL | NO SCALE | 6



PG&E METER DETAIL | NO SCALE | 7

dish WIRELESS
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Butler America
1511 E. ORANGETHORPE AVE., SUITE D
FULLERTON, CA 92831

CDG
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LICENSED PROFESSIONAL ENGINEER — DANIEL W CONNELL — C 62543 — EXP. 12/31/25 — CIVIL — STATE OF CALIFORNIA

DATE STAMPED: 11/25/2024

DRAWN BY:	CHECKED BY:	APPROVED BY:
JPC	JPC	DC

RFDS FINAL REV #1 DATED 4/30/24

CONSTRUCTION DOCUMENTS

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(VENDOR) PROJECT NUMBER
SFSF000584B

DISH WIRELESS PROJECT NUMBER
SFSF000584B

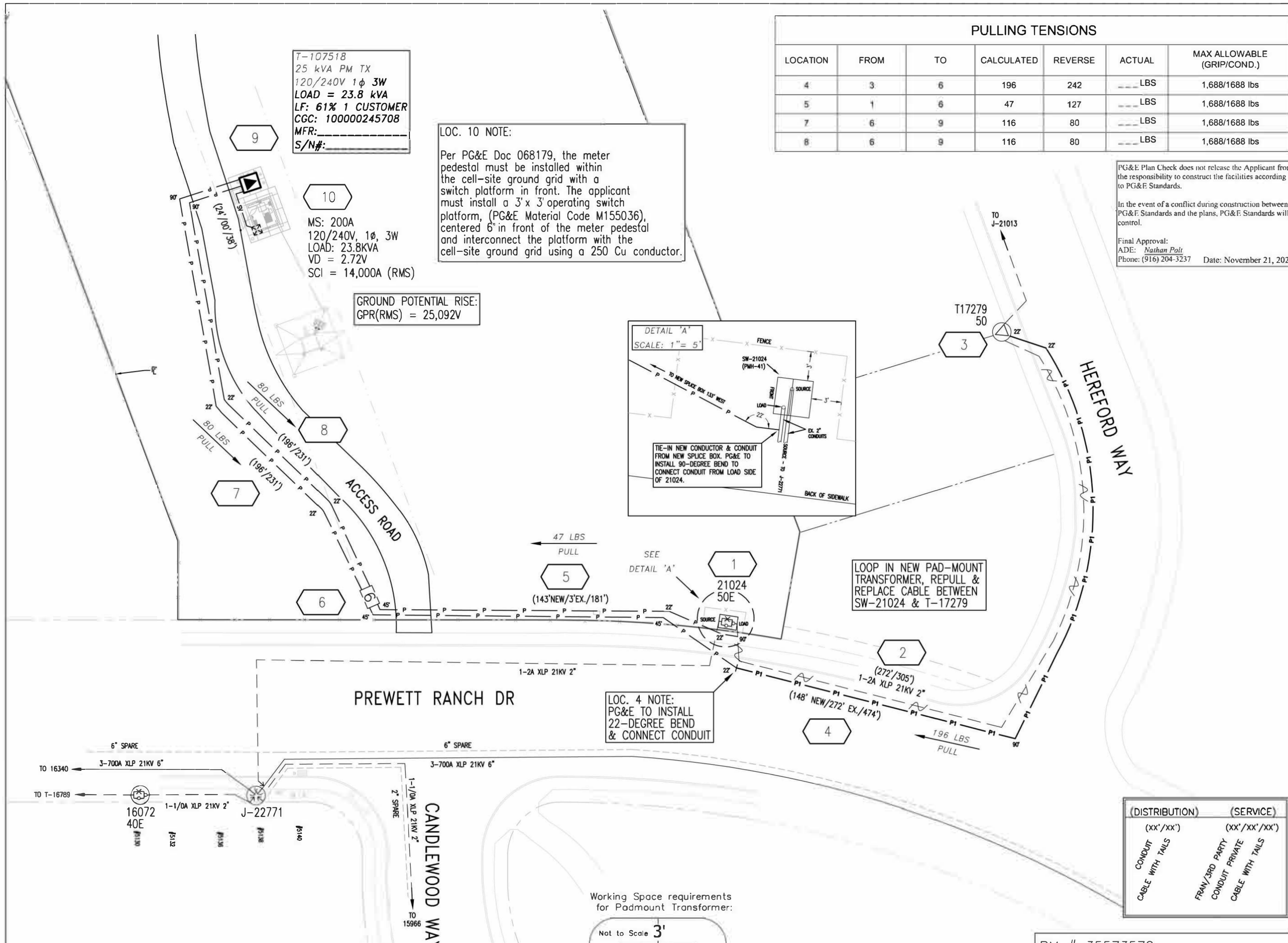
PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2

C19

NOTE: PG&E PLAN SHOWN FOR REFERENCE ONLY, REFER TO COMPLETE PG&E DESIGN DOCUMENTS AND VERIFY WITH PG&E PRIOR TO CONSTRUCTION



PULLING TENSIONS

LOCATION	FROM	TO	CALCULATED	REVERSE	ACTUAL	MAX ALLOWABLE (GRIP/COND.)
4	3	6	196	242	___ LBS	1,688/1688 lbs
5	1	6	47	127	___ LBS	1,688/1688 lbs
7	6	9	116	80	___ LBS	1,688/1688 lbs
8	6	9	116	80	___ LBS	1,688/1688 lbs

PG&E Plan Check does not release the Applicant from the responsibility to construct the facilities according to PG&E Standards.

In the event of a conflict during construction between PG&E Standards and the plans, PG&E Standards will control.

Final Approval:
ADE: *Nathan Polt*
Phone: (916) 204-3237 Date: November 21, 2024

INSTALL LEGEND

- P — 1-1/0A EPR-CONC 25KV IN NEW 1-2" CONDUIT
- P1 — 1-1/0A EPR-CONC 25KV IN EX. 1-2" CONDUIT
- SV — 1-4/0A TPX IN 1-3" CONDUIT
- PAD-MOUNT TRANSFORMER
- 6 — 4' X 6'6" X 5' PRIMARY ENCLOSURE
- METER

EXISTING LEGEND

- UNDERGROUND PRIMARY, 3-PHASE
- UNDERGROUND PRIMARY, 1-PHASE
- SUBSURFACE TRANSFORMER
- PAD-MOUNTED FUSED SWITCH (PMH-41)
- 600A JUNCTION WITH 200A TAPS
- SUBSURFACE FUSED SWITCH

SUBSTRUCTURE LOCATIONS MUST BE STAKED BY A LICENSED SURVEYOR PRIOR TO CONSTRUCTION.

CONSTRUCTION NOTES

APPLICANT TO INSTALL ALL SUBSTRUCTURES, UNLESS OTHERWISE NOTED. PG&E TO INSTALL ALL ELECTRICAL CABLE & EQUIPMENT AND COMPLETE ALL HOT TIE-IN WORK.

NOTES

1. CALL UNDERGROUND SERVICE ALERT @ 811 AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. LOCATE ALL UNDERGROUND FACILITIES PRIOR TO TRENCHING OR EXCAVATION.
2. CONTACT PG&E INSPECTOR BEFORE BEGINNING CONSTRUCTION. PG&E REQUIRES UP TO TWO DAYS NOTICE FOR INSPECTIONS.
3. TRENCH TO BE ELECTRIC ONLY.
4. CITY PERMITS REQUIRED AND WILL BE OBTAINED BY CONTRACTOR.
5. SEE JOINT TRENCH COMPOSITE DRAWING FOR ACTUAL TRENCH LOCATIONS.
6. FOOTAGES ARE LISTED AS {CONDUIT / CABLE}.
7. ALL R/O/W REQUIREMENTS TO BE ARRANGED BY DEVELOPER.
8. ALL SECONDARY AND SERVICE CONDUITS ENTER BOXES WITH 90° VERTICAL SWEEPS.
9. CLEARANCES PER PG&E DRAWING 051122 TO BE MAINTAINED AT ALL TIMES.
10. 315° MAX BENDS IN ANY SECONDARY CONDUIT RUN 200' OR LESS. 300° MAX BENDS IN ANY PRIMARY CONDUIT RUN.
11. PROVIDE SMART METER ANTENNA AS REQ. SEE PG&E DRAWING TC-7001B-005.

RIGHT OF WAY NOTES

PG&E WILL VERIFY THAT THERE ARE ADEQUATE RIGHTS FOR EXISTING OR PROPOSED FACILITIES. IT IS THE DEVELOPERS RESPONSIBILITY TO ACQUIRE ANY RIGHTS IN THE NAME OF PG&E.

PG&E'S PLAN CHECK DOES NOT RELEASE THE APPLICANT FROM RESPONSIBILITY TO CONSTRUCT THE FACILITIES ACCORDING TO PG&E STANDARDS.
IN THE EVENT OF A CONFLICT DURING CONSTRUCTION BETWEEN PG&E STANDARDS AND THE PLANS, PG&E STANDARDS WILL CONTROL.

DEVELOPER, GENERAL CONTRACTOR & ELECTRICAL CONTRACTOR:

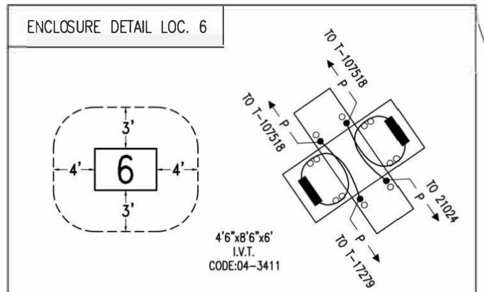
BEFORE BEGINNING SUBSTRUCTURE WORK, PLEASE CONTACT PG&E UNDERGROUND INSPECTOR AT LEAST TWO BUSINESS DAYS PRIOR TO REQUESTING AN INSPECTION. REQUESTS RECEIVED AFTER 12:00PM WILL NOT BE INSPECTED UNTIL THE THIRD WORKING DAY.
Phone: ??
Fax: ??
WORK NOT PROPERLY INSPECTED MAY BE REJECTED

LAND RIGHTS:

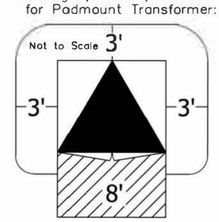
APPLICANT TO PROVIDE ALL NECESSARY PUBLIC UTILITY EASEMENTS OR R/O/W TO PG&E. APPLICANT WILL INCUR ANY AND ALL COSTS NECESSARY TO OBTAIN LAND RIGHTS. PG&E LAND DEPARTMENT TO VERIFY THAT ADEQUATE RIGHTS HAVE BEEN OBTAINED. TRANSFORMERS, PM-J BOXES AND 3' x 5' ENCLOSURE INSTALLATIONS REQUIRE RIGHTS FOR ENCLOSURE OR PAD ALONG WITH 3' OF OPERATING SPACE ON ENDS, SIDES AND ALONG THE PROPERTY SIDE OF THE EQUIPMENT. 4'6" x 8'6" ENCLOSURES REQUIRE RIGHTS FOR THE ENCLOSURE ALONG WITH 5' OPERATING SPACE ON ENDS AND 3' OPERATING SPACE ALONG THE PROPERTY SIDE OF ENCLOSURE. RIGHTS FOR OTHER TYPES OF EQUIPMENT SHALL BE AS NECESSARY FOR THE SPECIFIC EQUIPMENT REQUIREMENTS. LAND RIGHTS SHALL INCLUDE NECESSARY OPERATING ROOM AS PER PG&E STANDARD 051122 AND SPECIFIC EQUIPMENT REQUIREMENTS.

(DISTRIBUTION) (XX'/XX') CONDUIT / CABLE WITH TAILS
(SERVICE) (XX'/XX'/XX') FRAN/3RD PARTY CONDUIT / PRIVATE CABLE WITH TAILS

ENCLOSURE DETAIL LOC. 6



Working Space requirements for Padmount Transformer:



Maintain a clear, level working space as shown, per PG&E drawing 051122.

Electric Conduit
Minimum Bend Radius for New Construction Service

Conduit Diameter	Vertical Radius	Horizontal Radius
3"	24"	36"
4"	36"	60"
5"	36"	60"

ENVIRONMENTAL ISSUES
- [x] NONE APPARENT (IF PROJECT DESIGN CHANGES, CONTACT ADE)
  - [ ] BASED ON APPLICANT/DEVELOPER-SUPPLIED PLANS
- [ ] PERMITS
- [ ] TAILBOARD
- [ ] OTHER
- [ ] APPLICANT DESIGN/RESPONSIBILITY (CHECK PERMITS BOX IF PERMIT CONDITIONS APPLY TO PG&E ACTIONS.)

SIGNATURE

THE TYPES, LOCATIONS, SIZES AND/OR DEPTHS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS TOPOGRAPHIC SURVEY WERE OBTAINED FROM SOURCES OF VARYING RELIABILITY. THE CONTRACTOR IS CAUTIONED THAT ONLY ACTUAL EXCAVATION WILL REVEAL THE TYPES, EXTENTS, SIZES, LOCATIONS AND DEPTHS OF SUCH UNDERGROUND FACILITIES. (A REASONABLE EFFORT HAS BEEN MADE TO LOCATE AND DELINEATE ALL UNKNOWN UNDERGROUND UTILITIES.) HOWEVER, THE ENGINEER CAN ASSUME NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF IT'S DELINEATION OF SUCH UNDERGROUND UTILITIES WHICH MAY BE ENCOUNTERED, BUT WHICH ARE NOT SHOWN ON THESE DRAWINGS.

PM # 35573572
NOTIF # 128912285
CIRCUIT: LONE TREE 2101
MAP # AR122-N23
SSD # 21024
CLIMATE ZONE: S
INS DIST: B
PRI. VOLT. AREA: 1
PEAK SEASON: INTERIOR
LIGHTNING DIST: 2
FIRE AREA: LRA
FIRE THREAT DISTRICT: TIER 1
SNOW LOADING: LIGHT
CORROSION AREA: NON-CORROSION
RAPTOR ZONE: YES

Underground Service Alert
Call: TOLL FREE
811
TWO WORKING DAYS BEFORE YOU DIG

PG&E GAS CONFLICTS IDENTIFIED FOR THIS PROJECT
GAS PLATS: 3413-D3

PG&E GAS FACILITIES IN CONFLICT WITH EXCAVATION AT LOC(S):
N/A

PG&E GAS FACILITIES IN PROXIMITY WITH EXCAVATION AT LOC(S):
2,4,5

N
0 10 20 40

ELECTRIC CONSTRUCTION SKETCH
PREWETT RANCH DRIVE
TELECOMMUNICATION
DISH WIRELESS NETWORK
ANTIOCH CALIFORNIA

Vizion Utility PARTNERS

PROJ. NO: 24-529
SCALE: 1" = 20'
PM: J. MORENO
DRAWN BY: G. MARTINELLI
PG&E QUALIFIED DESIGNER: G. MARTINELLI
LAST UPDATED: 11-06-2024
DRAWING NO: E-1
SHEET: 1 OF 1

DATE OF SIGNATURE 11-06-2024

dish WIRELESS
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Butler America
1511 E. ORANGETHORPE AVE., SUITE D
FULLERTON, CA 92831

CDG
22431 ANTONIO PKWY
SUITE B160-131
RANCHO SANTA MARGARITA CA 92688
dconnell@connelldesigngroup.com
949-306-4644

LICENSED PROFESSIONAL ENGINEER DANIEL M CONNELL C 62543 EXP. CIVIL STATE OF CALIFORNIA
DATE STAMPED: 11/25/2024

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
JPC	JPC	DC

RFDS FINAL REV #1 DATED 4/30/24

CONSTRUCTION DOCUMENTS

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16	04/24/2024	ISSUED FOR 100% CD
17	04/30/2024	ISSUED FOR 100% CD
18	11/25/2024	ADD PG&E POWER DESIGN

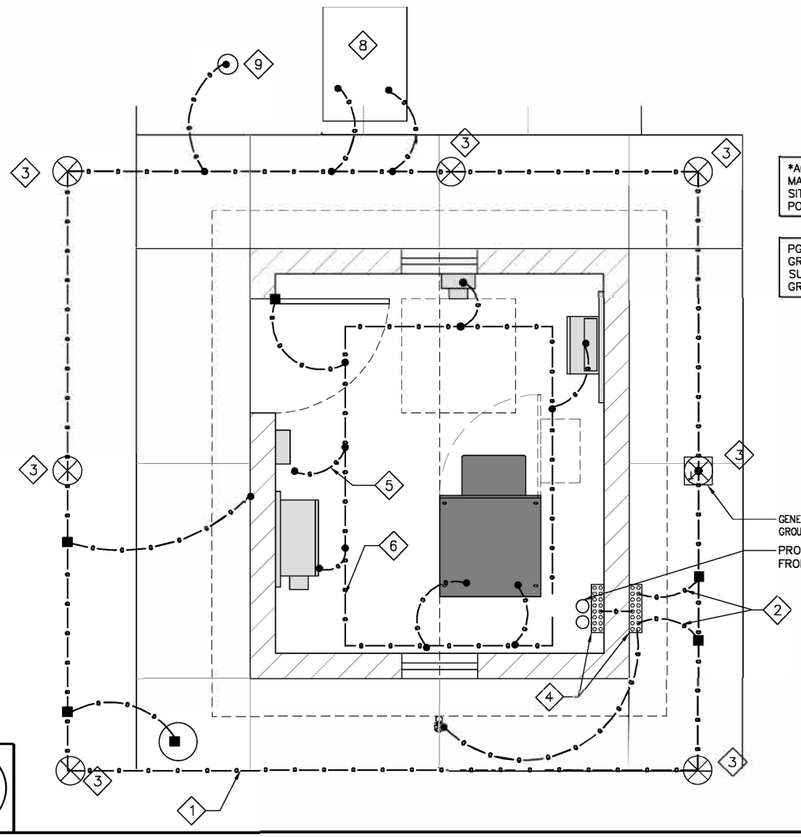
(VENDOR) PROJECT NUMBER
SFSF00584B

DISH WIRELESS PROJECT NUMBER
SFSF00584B

PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

SHEET TITLE
PG&E POWER DESIGN

SHEET NUMBER
E-3



*ACTUAL LAYOUT MAY VARY. SEE SITE PLAN FOR POSITIONS

PG&E GROUND GRID TO SUPERSEDE ALL GROUNDING

KEY NOTES

1. (N) GROUND RING BURIED 30" BELOW GRADE (REFER TO PG&E GROUND GRID DESIGN)
2. (N) AWG 2 BCW
3. (N) GROUND ROD
4. (N) EQUIPMENT GROUND BAR
5. (N) AWG 2 INSULATED COPPER GROUND
6. (N) HALO GROUND RING
7. (N) EMERGENCY TEST WELL
8. (N) PG&E TRANSFORMER
9. (N) BOLLARD, TYP.

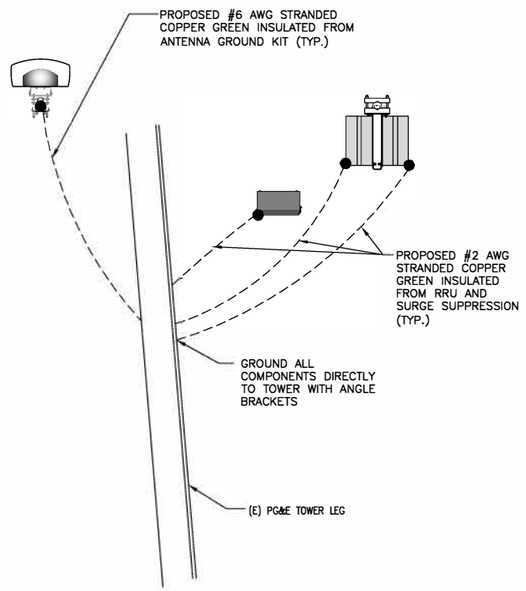
GROUNDING LEGEND

- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- GROUND BUS BAR
- GROUND ROD
- TEST GROUND ROD WITH INSPECTION SLEEVE
- #6 AWG STRANDED & INSULATED
- #2 AWG SOLID COPPER TINNED

GROUNDING NOTES

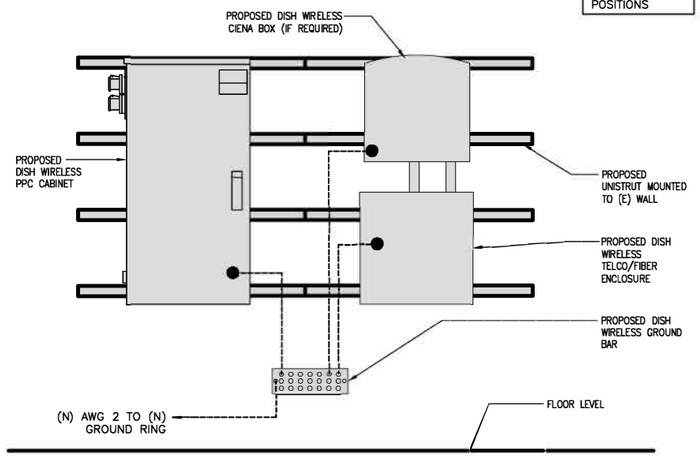
1. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
2. CONTRACTOR SHALL GROUND ALL EQUIPMENT AS A COMPLETE SYSTEM. GROUNDING SHALL BE IN COMPLIANCE WITH NEC SECTION 250 AND DISH WIRELESS GROUNDING AND BONDING REQUIREMENTS AND MANUFACTURER'S SPECIFICATIONS.
3. ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.
4. NO EXOTHERMIC WELDING ON ROOFTOP

GROUNDING PLAN | NO SCALE | 3

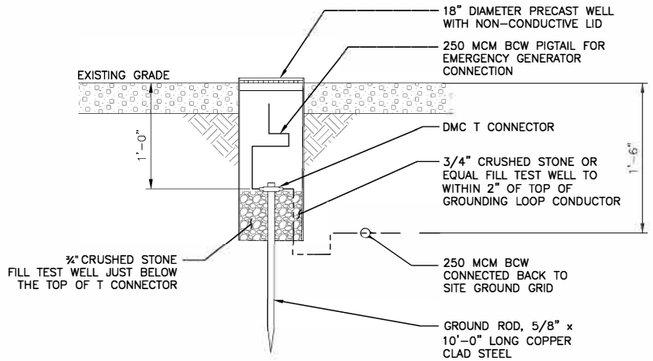


TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 5

*ACTUAL LAYOUT MAY VARY. SEE SITE PLAN FOR POSITIONS



H-FRAME GROUNDING DETAIL | NO SCALE | 4



EMERGENCY GENERATOR GROUND TEST WELL | NO SCALE | 1

(A) EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.

(B) TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.

(C) INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.

BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.

GROUND ROD: UL LISTED COPPER CLAD STEEL. MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.

(D) CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.

(E) HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.

(H) EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE.

(J) TOWER EXIT GROUND BAR: #2 AWG SOLID TINNED COPPER BOND TO THE TOWER GROUND RING.

(K) TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR AND EXTERIOR GROUND RING.

(L) FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK. BOND THE FRAME GROUND TO THE "I" SECTION OF THE CELL REFERENCE GROUND BAR OR SUPPLEMENTARY CONDUCTOR. (SHEET G3 DETAIL1)

(M) INTERIOR UNIT BONDS: METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.

(N) FENCE AND GATE GROUNDING: METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.

(P) EXTERIOR UNIT BONDS: METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. USING #2 TINNED SOLID COPPER WIRE

(Q) ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.

(R) DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR

(S) ALL TOWER – TOP BUSSBARS ARE TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT.

REFER TO DISH WIRELESS GROUNDING NOTES.

GROUNDING KEY NOTES | NO SCALE | 2

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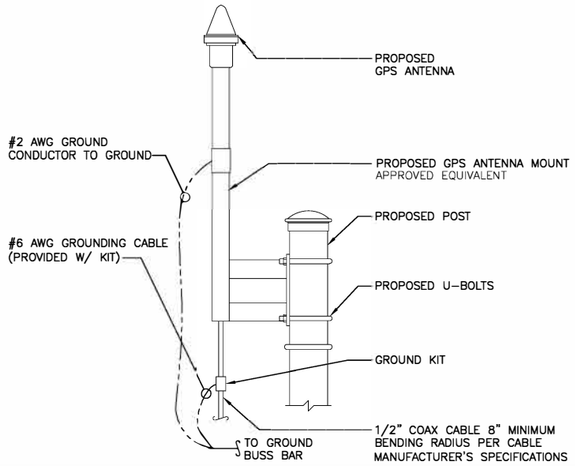
ANTIOCH, CA 94531
LATTICE TOWER

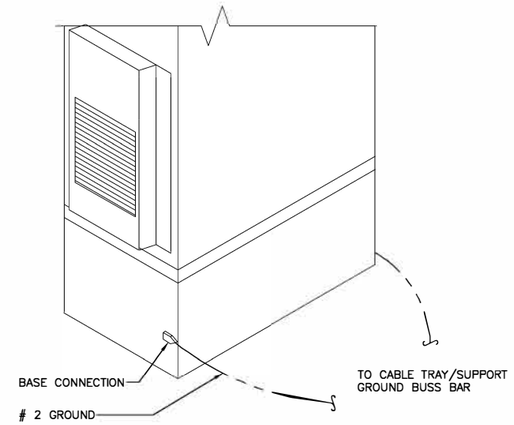
SHEET TITLE
GROUNDING PLAN/NOTES

SHEET NUMBER
G-1

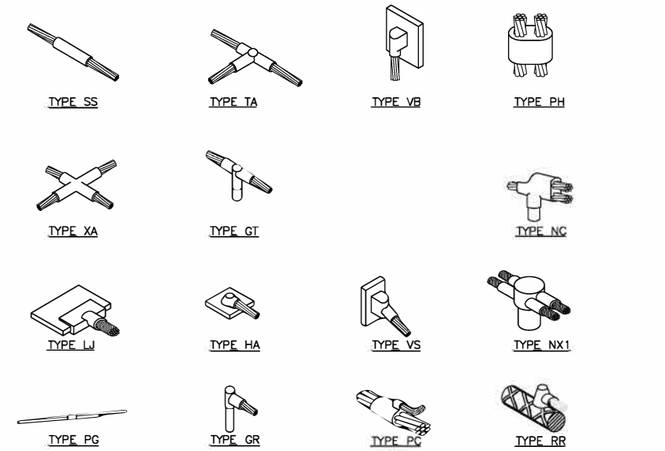
C21



TYPICAL GPS UNIT GROUNDING | NO SCALE | 1



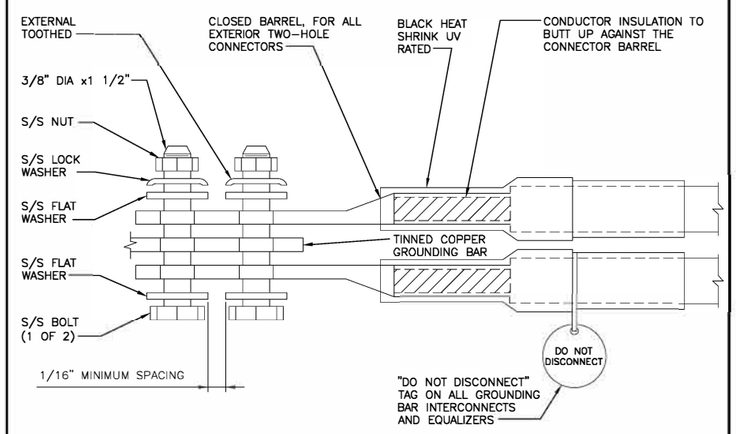
OUTDOOR CABINET GROUNDING | NO SCALE | 2



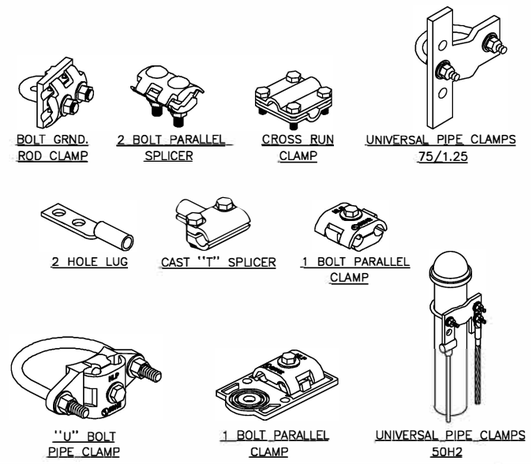
CADWELD CONNECTIONS | NO SCALE | 3

1. EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUND BAR. ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. ALL GROUND BARS SHALL BE STAMPED IN TO THE METAL "IF STOLEN DO NOT RECYCLE." THE CONTRACTOR SHALL USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P", "A", "I") WITH 1" HIGH LETTERS.
3. ALL HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
4. 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.
5. DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUNDING BUS.
6. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE.
7. ALL GROUNDING PARTS AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED, PROVIDING 50% SPARE CONNECTION POINTS.
9. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).

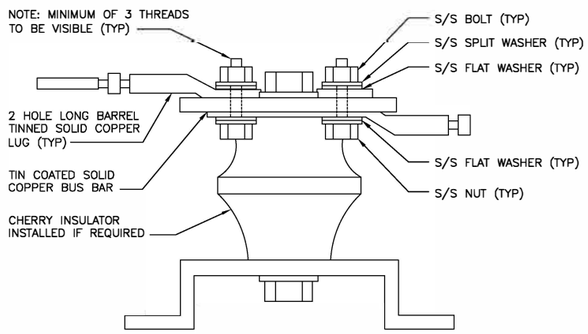
TYPICAL GROUNDING NOTES | NO SCALE | 4



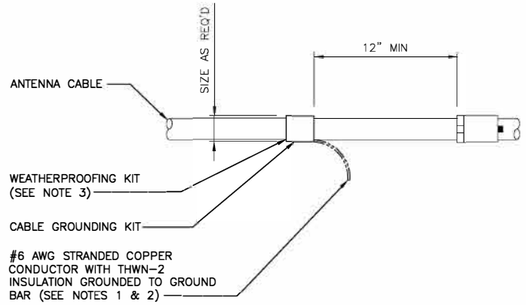
TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 5



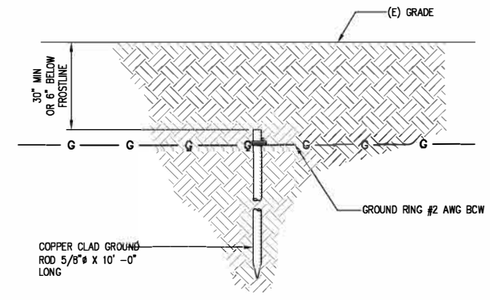
MECHANICAL CONNECTIONS | NO SCALE | 6



LUG DETAIL | NO SCALE | 7



CONNECTION OF HYBRID CABLE GROUNDING KIT TO HYBRID TRUNK | NO SCALE | 8



GROUND ROD DETAIL | NO SCALE | 9

dish WIRELESS
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Butler America
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LICENSED PROFESSIONAL ENGINEER
DANIEL W CONNELL
C 62543
EXP 12/31/25
CIVIL
STATE OF CALIFORNIA
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SFSF000584B

PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-2

C22

The following design details MUST BE incorporated into the final engineering and construction drawings for the cell site ground grid. Where conflicts arises between these details and cell vendor generic details, these details SHALL prevail.

REQUIRED DESIGN DETAILS:

❑_____1. All grounding connections and grid intersections SHALL be made using approved 'DMC' GroundLok System' compression components. Carrier to supply 250MCM BCW pigtail with DMC 2-hole NEMA connector. Final connection to the tower legs SHALL be made per the Theft Deterrent Tower Ground Arrangement.

❑_____2. Ground grid safety calculations are based on the ground grid conductors being at 18" below natural grade with a concrete equipment pad of no more than 8" thick. Any pad thickness greater than 8" MUST be verified as acceptable by the grounding designer.

❑_____3. No metallic equipment SHALL be installed outside CMU wall. At door swings, metallic equipment must be 3'-0" minimum from edge of concrete pad.

❑_____4. All concrete SHALL contain #4 rebar with a 1'-0" maximum grid spacing. All rebar intersections MUST be securely tied together. If concrete is poured in separate sections, each section must be connected to ground grid with 2-250 MCM BCW or equivalent.

❑_____5. Coax ground MUST be connected to the ground grid with 2-250 MCM BCW or equivalent. If more than one ground bus is used, all ground buses must be either connected together or connected to ground grid separately with #2 BCW or larger.

❑_____6. CMU wall rebar MUST be attached to the concrete pad rebar

❑_____7. Electric meter MUST be located within the boundary of the CMU wall on the concrete pad. Any exception to this MUST be cleared Steve Maddix prior to construction. Special service requirements may be required to isolate ground grid from other customer neutral wires.

❑_____8. Meter ground rod MUST be attached to the cell site ground grid with a 250 MCM BCW or equivalent.

❑_____9. Ground grid backfill material (at least 6") covering the 250 MCM BCW MUST be clean loamy material (or conductive material) and be free of rocks and foreign material.

❑_____10. If drilling is required to achieve ground rod depth, a minimum 2" hole is required. The hole MUST be backfilled with bentonite (or equivalent) material.

❑_____11. For safety reasons, the ground grid MUST be completely installed (fully covered), the concrete pad MUST be completed before the ground grid is attached to the tower legs. Do not allow ground pigtails to come into contact with tower until the final connection is ready to be made.

❑_____12. Concrete pad size or any dimension stated on sheet 1 can not be changed without prior authorization from the grounding designer.

Carrier: Dish
Title: Contra Costa-Las Positas-230 kV_CO47030
Site No.: SFSF000584B
Co-Location: None
Line Name: Contra Costa-Las Positas / Contra Costa-LoneTree, 230 kV
Tower No.: CO47030
Tower SAP No.: 40872936

Designed By: Steve Maddix E-mail: sgm1@pge.com	SIZE 0	PG&E Proj Mgr: Steven Milliken Phone: 925-222-0536	DWG NO SFSF000584B	REV 0
	From DrawingsDated: 3/1/2024	Issue Date: 4/15/2024	SHEET 2 of 2	

Pacific Gas and Electric Company

Report Date: 4/15/24
Revision: 0

High Voltage Transmission Tower Cell Site Datasheet

Site Information

Company:	Dish		
Site name:	Contra Costa-Las Positas 230 kV	Site number:	SFSFO00584B
Site address:	Prewett Ranch Dr & Candlewood Way, Antioch, CA		
PG&E Contact:	Steve Maddix	Phone:	(925) 866-5410

Soil Data

Soil Model:	Horizontal 3 layer		
	Top Layer	75.0 Ohm-meters	5.0 Feet
	Middle	42.0 Ohm-meters	43.0 Feet
	Bottom	23.7 Ohm-meters	Infinite thickness

GPR Information

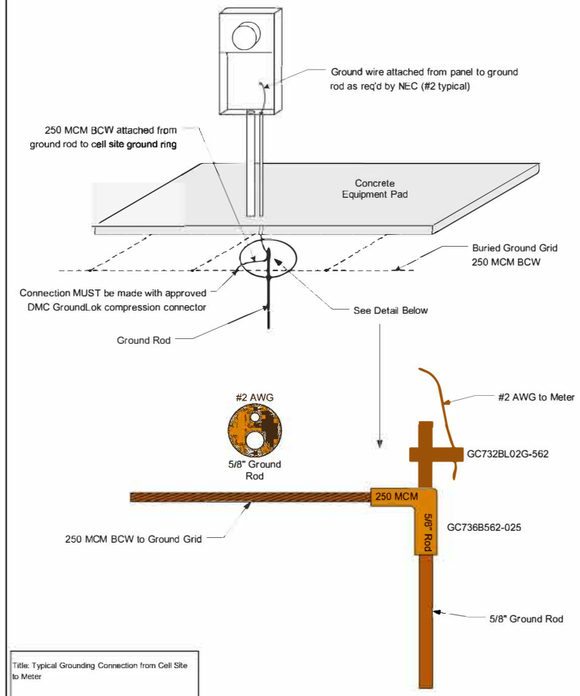
Grid Area	1,663	Ft^2
Grid Resistance	1.2	Ohms
Ground Fault Duty	20,782	Amps $_{RMS}$
X/R Ratio	8.4	
Voltage (Line-Line)	230	kV $_{RMS}$
DC Offset	1.69	
GPR $_{RMS}$	25,092	Volts $_{RMS}$
GPR Peak Symmetrical	35,486	Volts (Peak Symmetrical)
GPR Peak with DC Offset	59,899	Volts (Peak Asymmetrical)

Steve Maddix
PG&E Representative

4/15/2024
Date

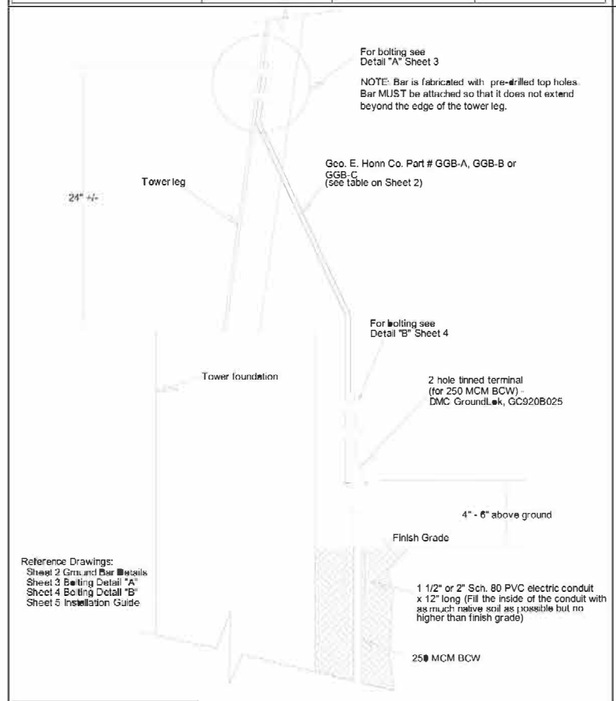
Public

'DETAIL D'
Typical Meter Connection to Ground Grid



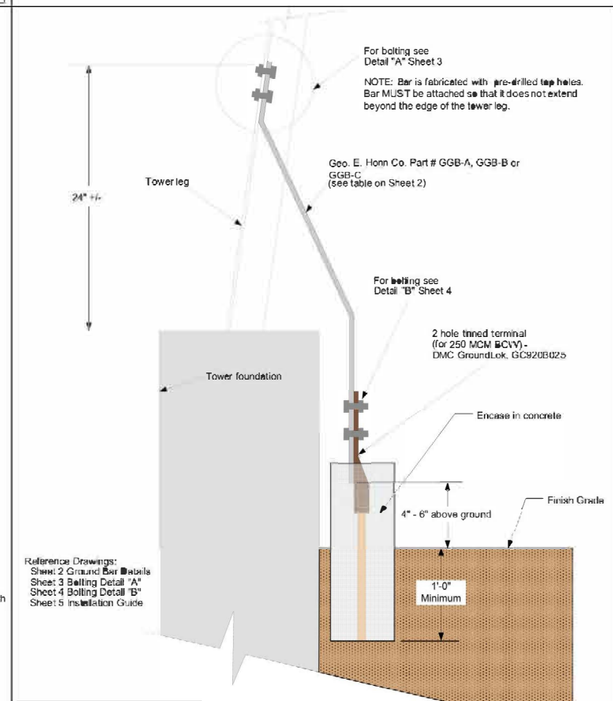
Title: Typical Grounding Connection from Cell Site to Meter

Drawn By: Steve Maddix	SIZE 0	Revision Date: 8/4/2011	DWGNO Meter Connection – Detail 'D'	REV 3
Approved By: Marcia Eblen, PE	SCALE none		SHEET 1 of 1	



Title: Theft Deterrent Tower Ground Arrangement

Drawn By: Bill DeHart Revision Drawn By: Steve Maddix	SIZE 0	Revision Date: 7/29/09	DWG NO	REV 5
Approved By: Marcia Eblen	SCALE none		SHEET 1 of 5	



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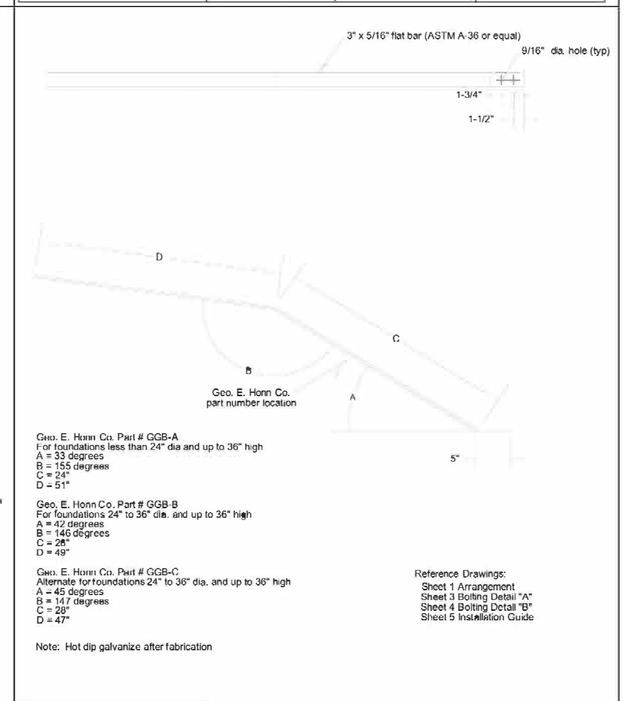
Drawn By: Bill DeHart Revision Drawn By: Steve Maddix	SIZE 0	Revision Date: 7/29/09	DWG NO	REV 5
Approved By: Marcia Eblen	SCALE none		SHEET 1 of 5	



Title: Theft Deterrent Tower Ground Bar Details

Drawn By: Bill DeHart Revision Drawn By: Steve Maddix	SIZE 0	Revision Date: 7/29/09	DWG NO	REV 2
Approved By: Marcia Eblen	SCALE none		SHEET 2 of 5	

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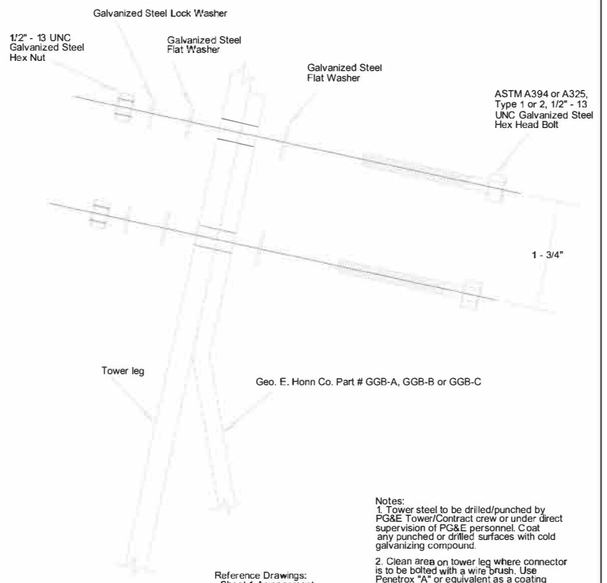
SHEET TITLE
PG&E GROUND GRID DESIGN (1/2)

SHEET NUMBER
G-3

Connection Detail "A"

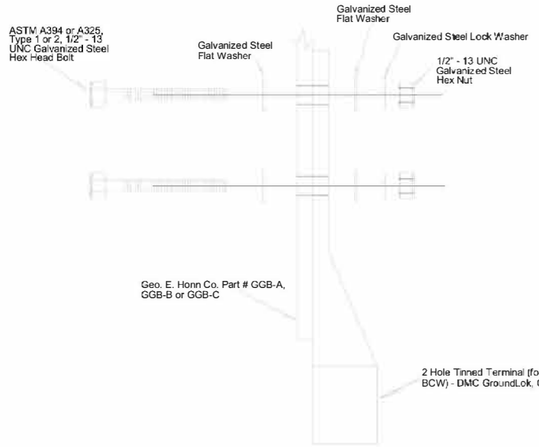


Reference Drawings:
Sheet 1 Arrangement
Sheet 2 Ground Bar Details
Sheet 4 Bolting Detail "B"
Sheet 5 Installation Guide

Notes:
1. Tower steel to be drilled/punched by PG&E Tower/Contract crew or under direct supervision of PG&E personnel. Coat any punched or drilled surfaces with cold galvanizing compound.
2. Clean area on tower leg where connector is to be bolted with a wire brush. Use Penetrox "A" or equivalent as a coating between connector and tower leg.
3. All bolting material per ASTM A 394 or A325, Type 1 or 2. Bolts to be torqued to 480 in/lbs.
4. After torquing, center punch the bolt threads in at least one location at the Hex Nut interface.

Title: Theft Deterrent Tower Ground Bolting Detail 'A'				
Drawn By: Bill DeHart Revision Drawn By: Steve Maddix	SIZE: D	Revision Date: 7/29/09	DWG NO	REV: 2
Approved By: Marcia Ebien	SCALE: none		SHEET: 3 of 5	

Connection Detail "B"



Reference Drawings:
Sheet 1 Arrangement
Sheet 2 Ground Bar Details
Sheet 3 Bolting Detail "A"
Sheet 5 Installation Guide

Notes:
1. Coat any cut or drilled surfaces with cold galvanizing compound.
2. Clean area on flat bar where connector is to be bolted with a wire brush. Use Penetrox "A" or equivalent as a coating between connector and tower leg.
3. All bolting material per ASTM A 394 or A325, Type 1 or 2. Bolts to be torqued to 480 in/lbs.
4. After installation and torquing, center punch the bolt threads in at least one location at the Hex Nut interface.

Title: Theft Deterrent Tower Ground Bolting Detail 'B'				
Drawn By: Bill DeHart Revision Drawn By: Steve Maddix	SIZE: 0	Revision Date: 7/29/09	DWG NO	REV: 3
Approved By: Marcia Ebien	SCALE: none		SHEET: 4 of 5	

Installation Guide

1. Select connection bar that best fits site conditions (Geo. E. Honn Co. Part # GGB-A,GGB-B or GGB-C). Use table on Sheet 2 as a guide.
2. Install with pre-drilled holes at top. Fit bar to tower leg per arrangement on Sheet 1. If bar needs to be cut to fit, cut from bottom.
3. Slip 1 1/2" or 2" Sch. 80 PVC sleeve over 250 MCM BCW (2" sleeve may be put on before Step 7).
4. Attach DMC GroundLok to 250 MCM BCW per manufacturer's instructions.
5. Drill or punch bar to accommodate DMC GroundLok fitting per Sheet 1. Coat any cut/punched/drilled surfaces with cold galvanizing compound per manufacturer's instructions.
6. Using a wire brush, clean the GroundLok/bar contact surfaces. Coat the contact surfaces with Penetrox "A" or equivalent.
7. Connect the DMC GroundLok to the bar with bolts, lock washers, flat washers and nuts per Sheet 4. Torque bolts to 480 in/lbs.
8. Center punch the bolt threads in at least one location at the hex nut interface.
9. Temporarily clamp bar to tower leg at the location determined in step 2.
10. Backfill to finish grade keeping the top of the PVC sleeve against the bottom of the flat bar and 4" to 6" above grade.
11. Remove the clamp holding the bar to the tower leg and insert a length of 4" PVC conduit over the bar conduit to the tower leg to temporarily insulate the bar from the tower leg until the ground grid system is completed. Secure the conduit to the tower leg.

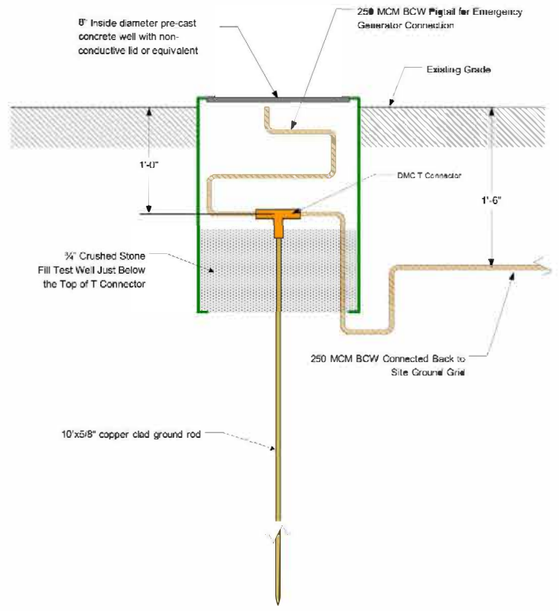
DO NOT PROCEED TO STEP 12 UNTIL GROUND GRID SYSTEM IS COMPLETED

12. Punch or drill tower leg to accommodate the bar to tower connection. Tower steel to be drilled or punched by PG&E Tower/ Contract crew or under direct supervision of PG&E personnel.
13. Coat any punched or drilled surfaces with cold galvanizing compound per manufacturer's instructions.
14. Using a wire brush, clean the bar/tower leg contact surfaces. Coat the contact surfaces with Penetrox "A" or equivalent.
15. Connect the bar to the tower leg with bolts, lock washers, flat washers and nuts per Sheet 3. Torque bolts to 480 in/lbs.
16. Center punch the bolt threads in at least one location at the hex nut interface

Reference Drawings:
Sheet 1 Arrangement
Sheet 2 Ground Bar Details
Sheet 3 Bolting Detail "A"
Sheet 4 Bolting Detail "B"

Title: Theft Deterrent Tower Ground Installation Guide				
Drawn By: Bill DeHart Revision Drawn By: Steve Maddix	SIZE: 0	Revision Date: 7/29/09	DWG NO	REV: 5
Approved By: Marcia Ebien	SCALE: none		SHEET: 5 of 5	

Detail 'J'
Emergency Generator Grounding Test Well

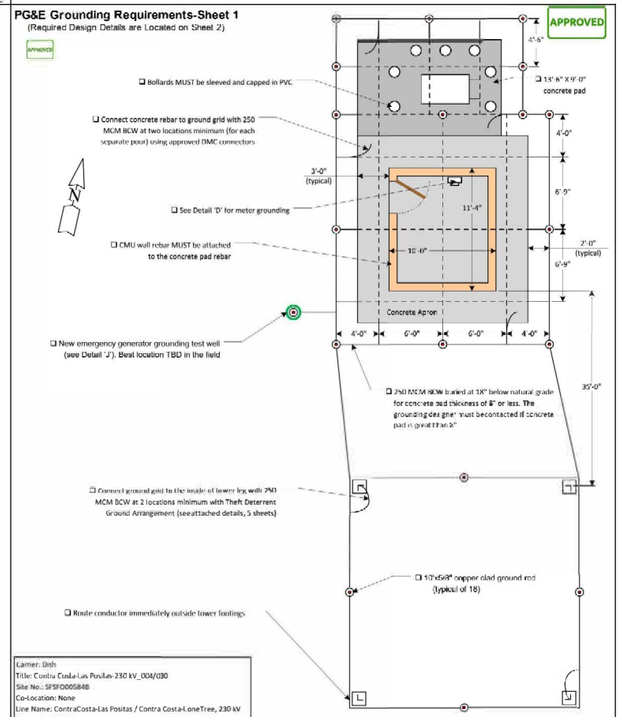


Title: Typical Test Well for Emergency Generator Connection				
Redrawn By: Greg Chang	SIZE: 0	Revision Date: 3/24/2022	DWG NO: Emergency Generator Grounding Test Well Detail 'J'	REV: 1
	SCALE: none		SHEET: 1 of 1	

PG&E Grounding Requirements-Sheet 1

(Required Design Details are Located on Sheet 2)

APPROVED



Carrier: Dish Title: Contra Costa-Las Positas-230 kV_004/030 Site No.: SFSF000584B Co-Location: None Line Name: ContraCosta-Las Positas / Contra Costa-LoneTree, 230 kV Tower No.: 004/030 Tower SAP No.: 40872736 Designed By: Steve Maddix E-mail: sgm3@pge.com	SIZE: 0	PG&E Proj Mgr: Steven Milliken Phone: 925-222-0536	DWG NO: SFSF000584B	REV: 0
	From DrawingsDated: 3/1/2024	Issue Date: 4/15/2024	SHEET: 1 of 2	

dish WIRELESS
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Butler America
1511 E. ORANGETHORPE AVE., SUITE D
FULLERTON, CA 92831

CDG
22431 ANTONIO PKWY
SUITE B160-131
RANCHO SANTA MARGARITA CA 92688
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949-306-4644

LICENSED PROFESSIONAL ENGINEER
DANIEL M CONNELL
C 62543
EXP. 12/31/25
CIVIL
STATE OF CALIFORNIA

DATE STAMPED: 11/25/2024

DRAWN BY:	CHECKED BY:	APPROVED BY:
JPC	JPC	DC

RFDS FINAL REV #1 DATED 4/30/24

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
12	10/24/2023	ISSUED FOR 100% CD
13	02/01/2024	ISSUED FOR 100% CD
14	03/01/2024	ISSUED FOR 100% CD
15	03/20/2024	ISSUED FOR 100% CD
16	04/24/2024	ISSUED FOR 100% CD
17	04/30/2024	ISSUED FOR 100% CD
18	11/25/2024	ADD PG&E POWER DESIGN

(VENDOR) PROJECT NUMBER
SFSF000584B

DISH WIRELESS PROJECT NUMBER
SFSF000584B

PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

SHEET TITLE
PG&E GROUND GRID DESIGN (2/2)

SHEET NUMBER
G-4

C24

RF DESIGN SHEET

dish wireless

Issue Date	4/30/2024
Revision	2

RFDS Status	Final
Created By	Ly, Steven

SITE INFORMATION	
DISH Site Number	SFSFO00584B
DISH Site Name	
Prequal Asset ID	
AOI	SFO
PEA	004
Latitude	37.956472
Longitude	-121.766147
Address	Prewett Ranch Drive
City	Antioch
State	CA
ZIP Code	94531
County	Contra Costa
Rad Center (ft)	109
RAD Confirmed	Confirmed
Structure Type	Utility Transmission Tower

PROJECT ASSIGNMENTS	
Market Manager	Mark Sika
Site Development Mgr.	Jake Wooten
RF Engineer	Steven Ly
Site Acq Specialist/Develop. Cord.	Ellen Evans / Ellen Evans
SAQ Vendor/A&E Vendor	BUTLER AMERICA TELECOM INC / BUTLER AMERICA TELECOM INC
Asset Owner/Asset #	Pacific Gas / TBD
Construction Mgr. (Lead/Field)	Curtis Gardner / Curtis Gardner
Contractor (General/Tower/Civil)	/ /
Power Company / Transport Provider	PG&E - CA /

LEASE AREA	
Dimensions (ft.)	5x7
Type	Concrete Pad
Baseband Cabinet	Charles(Amphenol)-H/EX
Dimensions (in)	32" x 32.1" x 74"
Baseband	gNB-CU
Generator Required	No
Make/Model	

EMERGENCY CONTACT INFORMATION	
Name	Temporary Emergency Line
Phone	866-624-6874

DESIGN COMMENTS

Antennas are on TOP HAT of PG&E tower with fixed bracket (2 kg).
(1) Antenna Per Sector, (3) Sectors Total.

RRUs and OVP are BELOW CONDUCTORS
(2) RRUs Per Sector, (3) Sectors Total.

RFDS Template V1 | DISH Network Confidential

RF EQUIPMENT INFORMATION

dish wireless

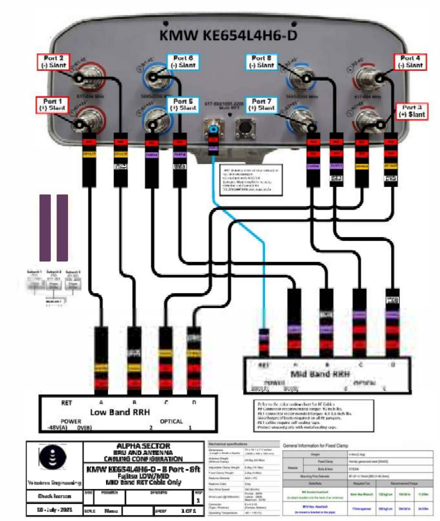
Issue Date/Revision	4/30/2024	Revision	2
Site ID	SFSFO00584B		
Site Address	Prewett Ranch Drive, Antioch CA 94531		
Structure Type	Utility Transmission Tower		
Structure >20' agent?	No	Confirmed RAD?	Confirmed
Latitude	37.956472	Longitude	-121.766147
Prequal Asset ID			

SOW / RF Comments: Dish will require a 5x7 lease area for ground equipment. Antennas are on TOP HAT of PG&E tower with fixed bracket (2 kg). (1) Antenna Per Sector, (3) Sectors Total. RRUs and OVP are BELOW CONDUCTORS. (2) RRUs Per Sector, (3) Sectors Total.

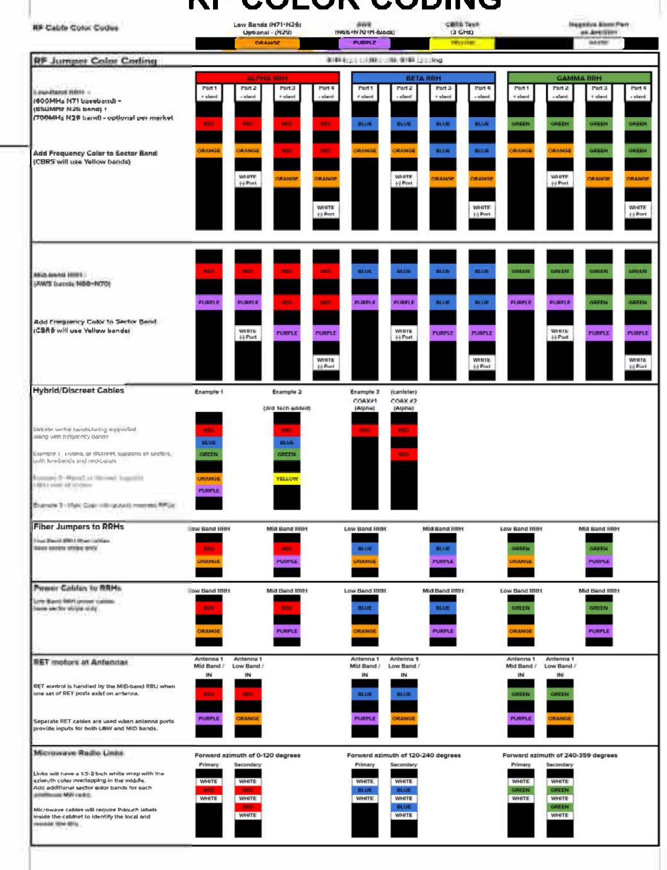
	Sector 1 (Alpha)			Sector 2 (Beta)			Sector 3 (Gamma)		
ANTENNA									
Antenna Mount Position	1	2	3	1	2	3	1	2	3
Antenna ID		1			2			3	
Manufacturer		KMW			KMW			KMW	
Model Number		KE654L4H6-D			KE654L4H6-D			KE654L4H6-D	
Dimensions H x W x D (in)		72" x 18.1" x 7.1"			72" x 18.1" x 7.1"			72" x 18.1" x 7.1"	
Weight (lbs.)		52.9			52.9			52.9	
TX Power Output (watts)		40000			40000			40000	
ERP (dBm)		78.03			78.03			78.03	
RAD Centerline Height (ft.)		109			109			109	
Azimuths (True North)		30°			150°			270°	
Mech Down Tilt		0°			0°			0°	
Default Mount		Generic			Generic			Generic	
LOW BAND/RADIO #1									
Manufacturer		Samsung			Samsung			Samsung	
Model Number		RF4450t-71A			RF4450t-71A			RF4450t-71A	
Dimensions H x W x D (in.)		16.5" x 15.0" x 11.0"			16.5" x 15.0" x 11.0"			16.5" x 15.0" x 11.0"	
Weight (lbs.)		94.58			94.58			94.58	
Location		Below Conductors			Below Conductors			Below Conductors	
Band		n71 |			n71 |			n71 |	
Quantity		1			1			1	
Port Assignment		Port 1-4			Port 1-4			Port 1-4	
Elec Down Tilt		4°			4°			2°	
MID BAND/RADIO #2									
Manufacturer		Samsung			Samsung			Samsung	
Model Number		RF4451d-70A			RF4451d-70A			RF4451d-70A	
Dimensions H x W x D (in)		15.0" x 15.0" x 8.9"			15.0" x 15.0" x 8.9"			15.0" x 15.0" x 8.9"	
Weight (lbs.)		61.3			61.3			61.3	
Location		Below Conductors			Below Conductors			Below Conductors	
Quantity		1			1			1	
Band		n70 | n66			n70 | n66			n70 | n66	
Port Assignment		Port 5-8			Port 5-8			Port 5-8	
Elec Down Tilt		2°			2°			2°	
OVP (Junction Box)									
Manufacturer		Raycap							
Model Number		RDIDC-9181-PF-48							
Dimensions H x W x D (in.)		16" x 14" x 8"							
Weight (lbs.)		21							
Quantity		1							
LINE DETAILS									
Line Type	Hybrid	Jumper Cable	RET Cable		Jumper Cable	RET Cable		Jumper Cable	RET Cable
Manufacturer	Cables Unlimited								
Model Number	CUI2PSM9P8XXX_8AWG	Generic 1/2" Coax Cable			Generic 1/2" Coax Cable			Generic 1/2" Coax Cable	
Diameter (O.D. in.)	1.411"	1/2"			1/2"			1/2"	
Weight (lbs. per ft.)	1.058 lbs/ft								
Quantity	1	8	1		8	1		8	1
Approx. Cable Length	120	80	80		80	80		80	80
OTHER EQUIPMENT									
Type of Equipment									
Manufacturer									
Model Number									
Dimensions H x W x D (in)									
Weight (lbs.)									
Equipment Location									
Quantity									

Frequencies	n29	n66	n70	n71
Downlink (TX)	-	|2155 - 2160| |2180 - 2200|	|1995 - 2020|	|617 - 652|
Uplink (RX)		|1755 - 1780|	|1695 - 1710|	|663 - 698|

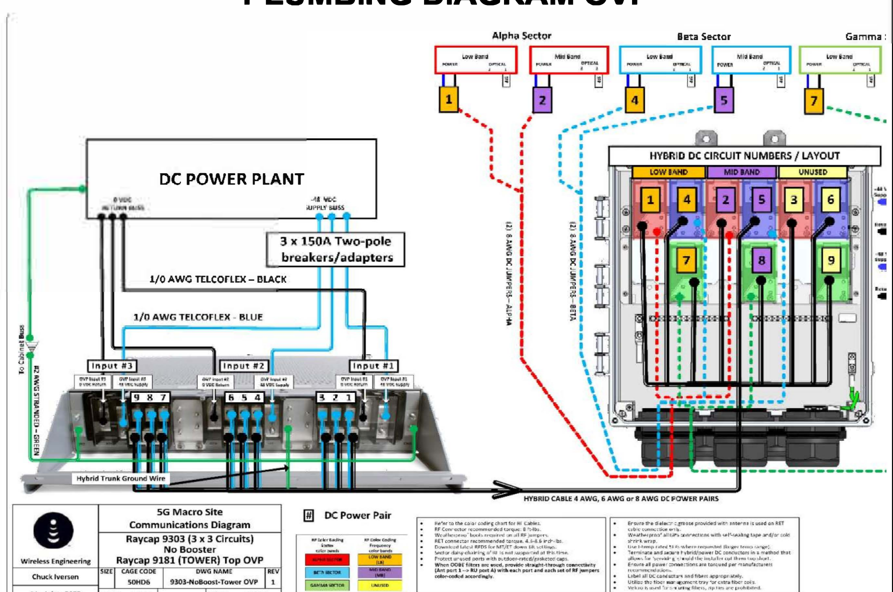
PLUMBING DIAGRAM ANTENNA



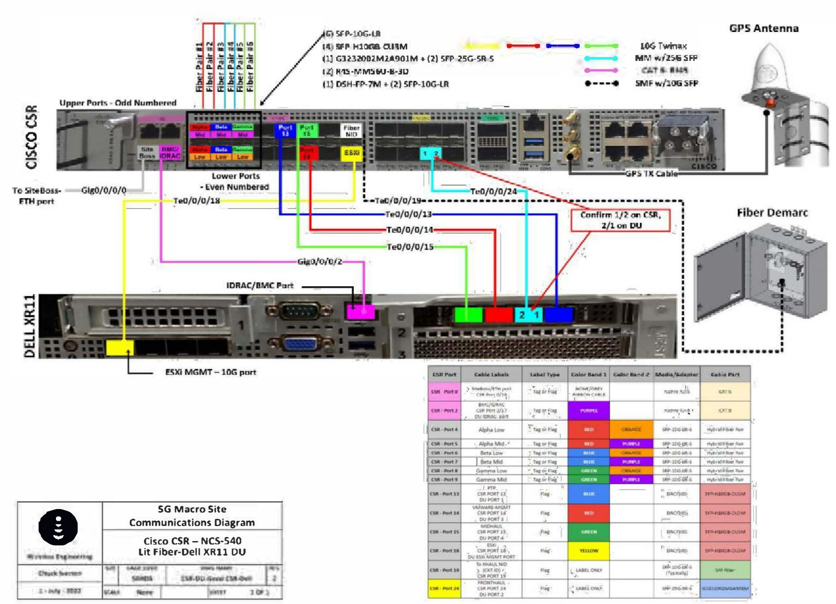
RF COLOR CODING



PLUMBING DIAGRAM OVP



PLUMBING DIAGRAM NETWORK



dish WIRELESS
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LICENSED PROFESSIONAL ENGINEER DANIEL M. CONNELL C 62543 EXP. 12/31/25 CIVIL STATE OF CALIFORNIA

DATE STAMPED: 11/25/2024

DRAWN BY:	CHECKED BY:	APPROVED BY:
JPC	JPC	DC

RFDS FINAL REV #1 DATED 4/30/24

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
12	10/24/2023	ISSUED FOR 100% CD
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16	04/24/2024	ISSUED FOR 100% CD
17	04/30/2024	ISSUED FOR 100% CD
18	11/25/2024	ADD PG&E POWER DESIGN

(VENDOR) PROJECT NUMBER
SFSFO00584B

DISH WIRELESS PROJECT NUMBER
SFSFO00584B

PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

SHEET TITLE
RF DATA

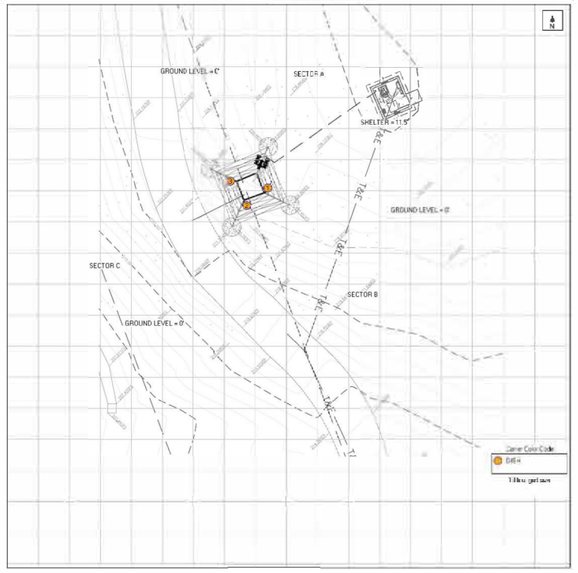
SHEET NUMBER
RF-1

C25

RF-EME Compliance Report
EBI Project No. 6223002043

Site No. SFSFO00584B
Prewett Ranch Drive, Antioch, California

Dish Wireless Safety (Signage) Plan



Post 10 feet above ground level at the base of the transmission tower.

RF-EME Compliance Report
EBI Project No. 6223002043

Site No. SFSFO00584B
Prewett Ranch Drive, Antioch, California

Final Compliance Configuration	GUIDELINES	NOTICE	CAUTION	WARNING	NOC INFO	BARRIER / MARKER
Access Point(s)	0	0	1	0	1	N/A
Alpha	0	0	0	0	0	N/A
Beta	0	0	0	0	0	N/A
Gamma	0	0	0	0	0	N/A

Sign	Posting Instructions	Required Signage / Mitigation
	NOC Information Information signs are used to provide contact information for any questions or concerns for personnel accessing the site.	Securely post 10 feet above ground level at the base of the transmission tower in a manner conspicuous to all individuals entering thereon as indicated in the signage plan.
	Guidelines Informational sign used to notify workers that there are active antennas installed and provide guidelines for working in RF environments.	Signage not required.
	Notice Used to notify individuals they are entering an area where the power density emitted from transmitting antennas may exceed the FCC's MPE limit for the general public or occupational exposures.	Signage not required.
	Caution Used to notify individuals that they are entering a hot spot where either the general public or occupational FCC's MPE limit is or could be exceeded.	Securely post 10 feet above ground level at the base of the transmission tower in a manner conspicuous to all individuals entering thereon as indicated in the signage plan.
	Warning Used to notify individuals that they are entering a hot zone where the occupational FCC's MPE limit has been exceeded by 10x	Signage not required.

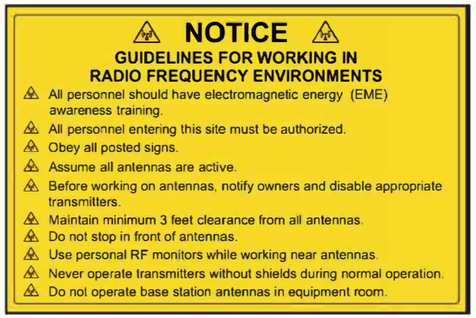
NOTE:
REFER TO RF--EME COMPLIANCE REPORT BY EBI CONSULTING EBI PROJECT NO. 6222002346 MAY 12, 2023 FOR ADDITIONAL INFORMATION AND REQUIREMENTS

EME SIGNAGE DETAILS | 1

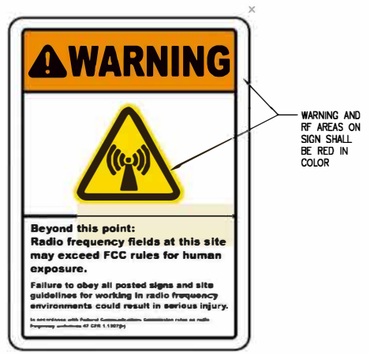
NOT USED | 2

EMERGENCY CONTACT SIGN | 3

NOTICE SIGN DETAIL | 4



GUIDELINES SIGN DETAIL | 5



WARNING SIGN DETAIL | 6

CAUTION SIGN DETAIL | 7

dish wireless.
Emergency Contact Information:
Network Operations Control Center
Phone: 1-833-347-4602
Site Name: "SFSFO00584B "

dish WIRELESS
5701 SOUTH SANTA FE DRIVE
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LICENSED PROFESSIONAL ENGINEER
DANIEL M CONNELL
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EXP. 12/31/25
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DATE STAMPED: 11/25/2024

DRAWN BY:	CHECKED BY:	APPROVED BY:
JPC	JPC	DC

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CONSTRUCTION DOCUMENTS

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16	04/24/2024	ISSUED FOR 100% CD
17	04/30/2024	ISSUED FOR 100% CD
18	11/25/2024	ADD PG&E POWER DESIGN

(VENDOR) PROJECT NUMBER
SFSF000584B

DISH WIRELESS PROJECT NUMBER
SFSF000584B

PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

SHEET TITLE
RF SIGNAGE

SHEET NUMBER
RF-2

LEGEND

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE

FLUORESCENT LIGHTING FIXTURE
(2) TWO LAMPS 48–T8

SMOKE DETECTION (DC)

EMERGENCY LIGHTING (DC)

SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW
LED–1–25A400/51K–SR4–120–PE–DDBTXD

CHAIN LINK FENCE

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE

UNDERGROUND POWER

UNDERGROUND TELCO

OVERHEAD POWER

OVERHEAD TELCO

UNDERGROUND TELCO/POWER

ABOVE GROUND POWER

ABOVE GROUND TELCO

ABOVE GROUND TELCO/POWER

WORKPOINT

SECTION REFERENCE

DETAIL REFERENCE

ABBREVIATIONS

AB	ANCHOR BOLT
ABV	ABOVE
AC	ALTERNATING CURRENT
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AGL	ABOVE GROUND LEVEL
AIC	AMPERAGE INTERRUPTION CAPACITY
ALUM	ALUMINUM
ALT	ALTERNATE
ANT	ANTENNA
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BTC	BARE TINNED COPPER CONDUCTOR
BOF	BOTTOM OF FOOTING
CAB	CABINET
CANT	CANTILEVERED
CHG	CHARGING
CLG	CEILING
CLR	CLEAR
COL	COLUMN
COMM	COMMON
CONC	CONCRETE
CONSTR	CONSTRUCTION
DBL	DOUBLE
DC	DIRECT CURRENT
DEPT	DEPARTMENT
DF	DOUGLAS FIR
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DWG	DRAWING
DWL	DOWEL
EA	EACH
EC	ELECTRICAL CONDUCTOR
EL.	ELEVATION
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
ENG	ENGINEER
EQ	EQUAL
EXP	EXPANSION
EXT	EXTERIOR
EW	EACH WAY
FAB	FABRICATION
FF	FINISH FLOOR
FG	FINISH GRADE
FIF	FACILITY INTERFACE FRAME
FIN	FINISH(ED)
FLR	FLOOR
FDN	FOUNDATION
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FOW	FACE OF WALL
FS	FINISH SURFACE
FT	FOOT
FTG	FOOTING
GA	GAUGE
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GLB	GLUE LAMINATED BEAM
GLV	GALVANIZED
GPS	GLOBAL POSITIONING SYSTEM
GND	GROUND
GSM	GLOBAL SYSTEM FOR MOBILE
HDG	HOT DIPPED GALVANIZED
HDR	HEADER
HGR	HANGER
HVAC	HEAT/VENTILATION/AIR CONDITIONING
HT	HEIGHT
IGR	INTERIOR GROUND RING
IN	INCH
INT	INTERIOR
LB(S)	POUND(S)
LF	LINEAR FEET
LTE	LONG TERM EVOLUTION
MAS	MASONRY
MAX	MAXIMUM
MB	MACHINE BOLT
MECH	MECHANICAL
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
MTS	MANUAL TRANSFER SWITCH
MW	MICROWAVE
NEC	NATIONAL ELECTRIC CODE
NM	NEWTON METERS
NO.	NUMBER
#	NUMBER
NTS	NOT TO SCALE
OC	ON–CENTER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OPNG	OPENING
P/C	PRECAST CONCRETE
PCS	PERSONAL COMMUNICATION SERVICES
PCU	PRIMARY CONTROL UNIT
PRC	PRIMARY RADIO CABINET
PP	POLARIZING PRESERVING
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
PWR	POWER CABINET
QTY	QUANTITY
RAD	RADIUS
RECT	RECTIFIER
REF	REFERENCE
REINF	REINFORCEMENT
REQ'D	REQUIRED
RET	REMOTE ELECTRIC TILT
RF	RADIO FREQUENCY
RMC	RIGID METALLIC CONDUIT
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
RWY	RACEWAY
SCH	SCHEDULE
SHT	SHEET
SIAD	SMART INTEGRATED ACCESS DEVICE
SIM	SIMILAR
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
TEMP	TEMPORARY
THK	THICKNESS
TMA	TOWER MOUNTED AMPLIFIER
TN	TOE NAIL
TOA	TOP OF ANTENNA
TOC	TOP OF CURB
TOF	TOP OF FOUNDATION
TOP	TOP OF PLATE (PARAPET)
TOS	TOP OF STEEL
TOW	TOP OF WALL
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
UPS	UNITERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
VIF	VERIFIED IN FIELD
W	WIDE
W/	WITH
WD	WOOD
WP	WEATHERPROOF
WT	WEIGHT

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DATE STAMPED: 11/25/2024

DRAWN BY:	CHECKED BY:	APPROVED BY:
JPC	JPC	DC

RFDS FINAL REV #1 DATED 4/30/24

CONSTRUCTION DOCUMENTS

SUBMITTALS

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17	04/30/2024	ISSUED FOR 100% CD
18	11/25/2024	ADD PG&E POWER DESIGN

(VENDOR) PROJECT NUMBER
SFSF000584B

DISH WIRELESS PROJECT NUMBER
SFSF000584B

PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

SHEET TITLE
LEGEND AND ABBREVIATIONS

SHEET NUMBER
GN-1

SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH WIRELESS AND TOWER OWNER NOC & THE DISH WIRELESS AND TOWER OWNER CONSTRUCTION MANAGER.

2. "LOOK UP" – DISH WIRELESS AND TOWER OWNER SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR DISH WIRELESS AND DISH WIRELESS AND TOWER OWNER POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.

3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.

4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND DISH WIRELESS AND TOWER OWNER STANDARDS, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).

5. ALL SITE WORK TO COMPLY WITH DISH WIRELESS AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH WIRELESS AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."

6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH WIRELESS AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.

10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.

11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.

12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF DISH WIRELESS AND TOWER OWNER, AND/OR LOCAL UTILITIES.

14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.

15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.

16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.

17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.

18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS AND RADIOS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1.FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH WIRELESS

TOWER OWNER:TOWER OWNER

2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.

3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.

4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.

5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.

6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CARRIER POC AND TOWER OWNER.

7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.

12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF DISH WIRELESS AND TOWER OWNER

13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

DISCLAIMER NOTE:

THE DESIGN SHOWN IN THESE PLANS ASSUME THAT ALL EXISTING STRUCTURAL ITEMS ARE IN "LIKE NEW" CONDITION AND THAT THE STRUCTURES HAVE BEEN PROPERLY MAINTAINED BY THE OWNER, INCLUDING ALL TOWER AND BUILDING COMPONENTS.

INSTALLATION PROCEDURES AND RELATED LOADINGS ARE NOT WITHIN THE SCOPE OF THIS DESIGN/DRAWING. A CONTRACTOR EXPERIENCED IN SIMILAR WORK SHOULD PERFORM ALL INSTALLATION WORK. THE ENGINEERING SERVICES PROVIDED BY CDG ARE LIMITED TO THE DESIGN OF THE STRUCTURE WITH THE PROPOSED AND EXISTING LOADS. THESE DRAWINGS ARE CONSIDERED VOID IF THE LOADING MENTIONED IN THESE DRAWINGS IS CHANGED OR IS DIFFERENT AS INSTALLED. IT IS ASSUMED THAT THE EXISTING STRUCTURE IS PROPERLY MAINTAINED AND IS IN GOOD CONDITION FREE OF ANY DEFECTS. ALSO THE VERIFICATION OF ANCHORAGE, PLATE AND BOLTS ARE NOT CHECKED AS COMPLETE ENGINEERING DATA IN NOT AVAILABLE FOR VERIFICATION. THE SCOPE OF THESE DRAWINGS DOES NOT INCLUDE EXISTING CONNECTIONS, EXCEPT AS NOTED. ALL EXISTING & PROPOSED ANTENNA/STRUCTURE DATA WAS PROVIDED BY OWNER. CDG IS NOT RESPONSIBLE FOR THE ACCURACY OF ANY EXISTING DATA.

THESE DRAWINGS GENERATED BY CDG ARE FOR THE SCOPE GIVEN BY CDG, INC. AND THEIR CLIENT ONLY. WE DISCLAIM ANY RESPONSIBILITY OF THIS DRAWING BEING USED BY ANY PARTY OTHER THAN OUR CLIENT. CDG DOES NOT MAKE ANY WARRANTIES, EXPRESSED OR IMPLIED IN CONNECTION WITH THIS ENGINEERING DRAWING AND DISCLAIMS ANY LIABILITY ARISING FROM DEFICIENCIES OR ANY EXISTING CONDITIONS OF THE ORIGINAL STRUCTURE. CDG WILL NOT BE RESPONSIBLE FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES SUSTAINED BY ANY PARTIES AS A RESULT OF ANY DATA OR CONCLUSIONS INCLUDED IN THIS DRAWING. THE MAXIMUM LIABILITY OF CDG PURSUANT TO THIS DRAWING SHALL BE LIMITED TO THE CONSULTING FEE RECEIVED FOR THE PREPARATION OF THE REPORT. ALL SERVICES ARE PERFORMED, RESULTS OBTAINED AND RECOMMENDATIONS MADE ARE IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRINCIPLES AND PRACTICES. CDG IS NOT RESPONSIBLE FOR THE CONCLUSIONS, OPINIONS AND RECOMMENDATIONS MADE BY OTHERS BASED ON THE INFORMATION OR DATA PROVIDED BY US.

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DATE STAMPED: 11/25/2024

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(VENDOR) PROJECT NUMBER
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DISH WIRELESS PROJECT NUMBER
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PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.

2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.

3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.

4. CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.

5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

- CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
- CONCRETE EXPOSED TO EARTH OR WEATHER:
- #6 BARS AND LARGER 2"
- #5 BARS AND SMALLER 1-1/2"
- CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
- SLAB AND WALLS 3/4"
- BEAMS AND COLUMNS 1-1/2"

7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.

2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.

3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.

4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.

4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.

4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.

5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.

6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).

7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.

8. TIE WRAPS ARE NOT ALLOWED.

9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.

12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).

14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.

18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.

20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.

21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).

22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).

23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.

24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3 (OR BETTER) FOR EXTERIOR LOCATIONS.

25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.

26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.

27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR DISH WIRELESS AND TOWER OWNER BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.

29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH WIRELESS".

30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

dish WIRELESS
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Butler America
1511 E. ORANGETHORPE AVE., SUITE D
FULLERTON, CA 92831

CDG
22431 ANTONIO PKWY
SUITE B160-131
RANCHO SANTA MARGARITA CA 92688
dconnell@connelldesigngroup.com
949-306-4644

DATE STAMPED: 11/25/2024

DRAWN BY:	CHECKED BY:	APPROVED BY:
JPC	JPC	DC

RFDS FINAL REV #1 DATED 4/30/24

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
12	10/24/2023	ISSUED FOR 100% CD
13	02/01/2024	ISSUED FOR 100% CD
14	03/01/2024	ISSUED FOR 100% CD
15	03/20/2024	ISSUED FOR 100% CD
16	04/24/2024	ISSUED FOR 100% CD
17	04/30/2024	ISSUED FOR 100% CD
18	11/25/2024	ADD PG&E POWER DESIGN

(VENDOR) PROJECT NUMBER
SFSF000584B

DISH WIRELESS PROJECT NUMBER
SFSF000584B

PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-3

GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.

4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.

7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.

8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.

11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.

13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.

14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.

15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.

17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.

19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).

21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.

dish WIRELESS
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Butler America
1511 E. ORANGETHORPE AVE., SUITE D
FULLERTON, CA 92831

CDG
22431 ANTONIO PKWY
SUITE B160-131
RANCHO SANTA MARGARITA CA 92688
dconnell@connelldesigngroup.com
949-306-4644

LICENSED PROFESSIONAL ENGINEER
DANIEL M CONNELL
C 62543
EXP. 12/31/25
CIVIL
STATE OF CALIFORNIA

DATE STAMPED: 11/25/2024

DRAWN BY:	CHECKED BY:	APPROVED BY:
JPC	JPC	DC

RFDS FINAL REV #1 DATED 4/30/24

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
12	10/24/2023	ISSUED FOR 100% CD
13	02/01/2024	ISSUED FOR 100% CD
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(VENDOR) PROJECT NUMBER
SFSF000584B

DISH WIRELESS PROJECT NUMBER
SFSF000584B

PREWETT RANCH DRIVE
ANTIOCH, CA 94531
LATTICE TOWER

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-4

ATTACHMENT "D"

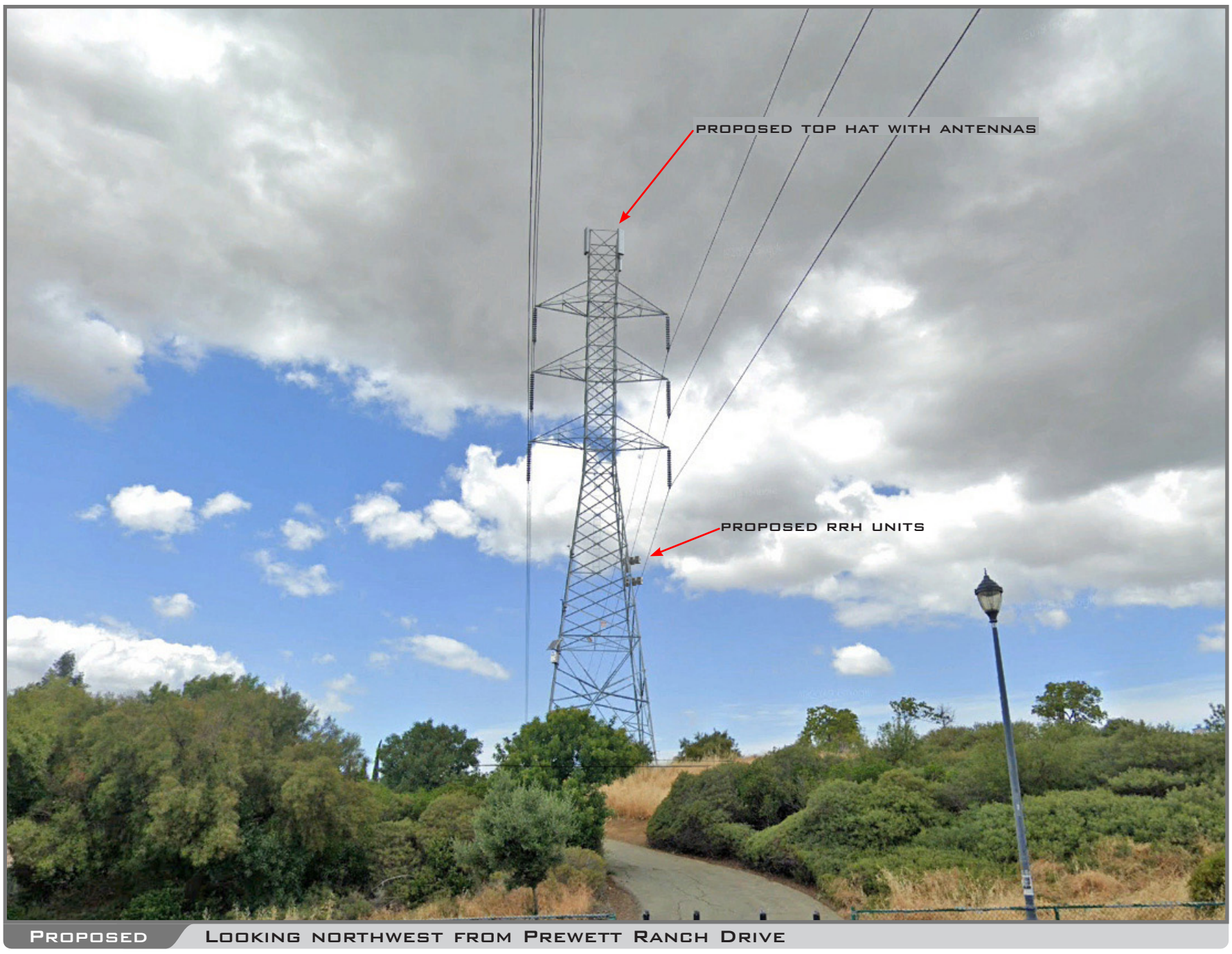
SFSF000584B

PREWETT RANCH DRIVE ANTIOCH CA 94531

ARTISTIC engineering
AEsims.com
877.9AE.sims

VIEW 1

EXISTING



PROPOSED LOOKING NORTHWEST FROM PREWETT RANCH DRIVE

D1

ACCURACY OF PHOTO SIMULATION BASED UPON INFORMATION PROVIDED BY PROJECT APPLICANT.

SFSF000584B

PREWETT RANCH DRIVE ANTIOCH CA 94531

ARTISTIC engineering
AEsims.com
877.9AE.sims

VIEW 2

EXISTING

PROPOSED LOOKING SOUTHWEST FROM HEREFORD WAY

D2

ACCURACY OF PHOTO SIMULATION BASED UPON INFORMATION PROVIDED BY PROJECT APPLICANT.

SFSF000584B

PREWETT RANCH DRIVE ANTIOCH CA 94531

ARTISTIC engineering
AEsims.com
877.9AE.sims

VIEW 3

EXISTING

PROPOSED TOP HAT WITH ANTENNAS

PROPOSED LOOKING SOUTHEAST FROM KIOWA COURT

D3

ACCURACY OF PHOTO SIMULATION BASED UPON INFORMATION PROVIDED BY PROJECT APPLICANT.

MD ACOUSTICS Sound Solutions for Planning and Design
EBI Consulting environmental | engineering | due diligence
www.mdacoustics.com | www.ebiconsulting.com

AZ Office
4960 S. Gilbert Rd, Suite 1-461
Chandler, AZ 85249
p. (602) 774-1950

CA Office
1197 Los Angeles Ave, Suite C-256
Simi Valley, CA 93065
p. (805) 426-4477

January 14, 2025

Dish Wireless - SFO
2121 N California Blvd
Walnut Creek, CA 94596

Subject: Dish Wireless – SFSFO00584B – Noise Review Letter – Antioch, CA

MD Acoustics, LLC (MD) has completed a noise review letter for Dish Wireless – SFSO00584B project located at Prewett Ranch Drive, in Antioch, CA 94531. Sheet T-1 from the plans provides the project summary and equipment which was reviewed from a noise standpoint.

The project is located in the City of Antioch, CA. The city of Antioch Municipal Code lacks specifics for noise limits. As such, MD will refer to the City of Antioch General Plan as a point of comparison. Section 11.8.1 from the city's General Plan specifies a noise limit of 60 dBA CNEL for residential properties adjacent to the project site.

Therefore, this study evaluates the telecommunication's worst-case noise levels and compares the results to the city's residential noise standards of 60 dBA CNEL.

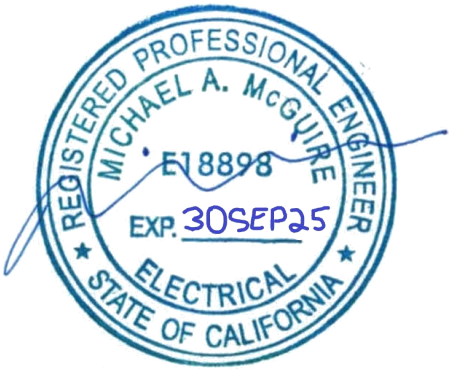
MD has reviewed three (3) KMW KE654L4H6-D Antenna, and the Three (3) Samsung RF4450t-71A and three (3) Samsung RF4451d-10A Radios equipment for the proposed project as it relates to noise and has determined that none of the new equipment will be a significant noise producer. All Equipment either makes no noise or will make no more noise than what is already on site. Therefore, noise levels at the nearest adjacent property lines will have no change in noise level and no additional noise mitigation is required as the project will have the same noise levels before and after installation of the new equipment at the site and surrounding properties.

MD is pleased to provide this noise review for this project. The project will comply with the City's applicable noise allowable limits based on the proposed design. If you have any questions regarding this letter, please call our office at (805) 426-4477.

Sincerely,
MD Acoustics, LLC

Robert Pearson
Acoustical Consultant

Reviewed and Approved by:



sealed 15jan2025

Michael A McGuire PE
Electrical Engineer
mike@h2dc.com

Note that EBI's scope of work is limited to an evaluation of the Noise the antennas and broadcast equipment noted in this report. The engineering and design of the structure, as well as the impact of the antennas and broadcast equipment on the structural integrity of the structure, are specifically excluded from EBI's scope of work.

Exhibit A
Manufacturers Cut Sheet

817~869MHz, XX-pol., H65º / V8º, ET0~8º
1850~1995MHz, XX-pol., H60º / V5º, ET0~8º
2496~2690MHz, XXXX-pol., H70º / V5º, ET0~6º

● Electrical Specification

Product Number		ETCR-654L12H6		
Frequency Range		817~869MHz	1850~1995MHz	2496~2690MHz
3dB Beam-Width	Horizontal	65 ±5˚	60 ±5˚	70 ±5˚
	Vertical	8˚ ±1˚	5˚ ±1˚	5˚ ±1˚
Gain (dBi)		15.0 ±0.5	18.0 ±0.5	18.0 ±0.5
Electrical Down Tilt Range		0 ~ 8˚	0 ~ 8˚	0 ~ 6˚
1st Upper Sidelobe Suppression		> 18dB (up to 15˚ EL)	> 18dB (up to 10˚ EL)	> 18dB (up to 10˚ EL)
Front-to-Back Ratio @180±15° (Total power)		> 25dB	> 28dB	> 28dB
Polarization Type		Dual, Slant ±45˚	Dual, Slant ±45˚	Dual, Slant ±45˚
Cross –Polar Discrimination(XPD)	-3dB HBW	> 15dB	> 15dB	> 13dB
	±60°	> 10dB	> 10dB	> 7dB
Input Maximum CW Power		250W	250W	250W
Impedance		50Ω	50Ω	50Ω
VSWR		< 1.43 : 1	< 1.43 : 1	< 1.43 : 1
Port Isolation	Intra Array	>26dB	>28dB	>26dB
	Inter Array	>28dB, Co Pol.		>24dB, Co Pol.
	Inter Band	800MHz // 1900MHz : > 28dB 800MHz // 2600MHz : > 28dB 1900MHz // 2600MHz : > 28dB		
Passive Intermodulation, IM3 (@2x43dBm)		≤ -110dBm	≤ -110dBm	≤ -105dBm
Operation temperature		-40˚C to +55˚C		
Antenna Control Interface		Field Replaceable Internal RET, AISG2.0		

● Beamforming Specification

Cross Pole Configuration @2600MHz			0.65λ
Broadcasting beam	Gain, dBi		17.5
	Horizontal Beamwidth, deg.		65˚ ± 5˚
Service beam	boresight	Gain, dBi	22.5 ±0.5
		Horizontal BW, deg.	20˚

● Mechanical Specification

Dimension (Length x Width x Depth)	2156mm x 533mm x 160mm(84.9” x 21.0” x 6.3”)
Antenna Weight	38.5kg / 84.9lbs
Adjustable Clamp Weight	6.4kg / 14.1lbs
Fixed Clamp Weight	1.8kg / 4.0lbs
Max. Wind Speed	67m/s (150mph)
Wind Load (@100mph), Front / Side / Rear	1763 N /529 N /1763 N (397 lbf /119 lbf /397 lbf)
Connector (Type / Position)	8 x 7/16” DIN(Female), 8 x MINI DIN(Female), 1 x N type(Cal Port, Female) / Bottom

• Specifications are subject to change without notice. September 23rd, 2016

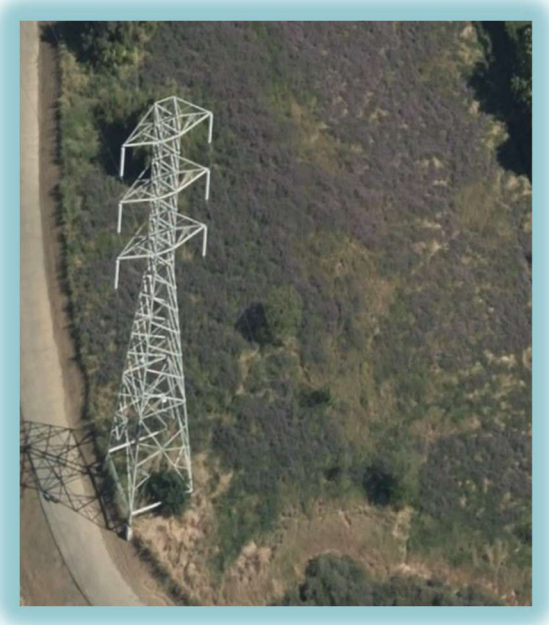
ATTACHMENT "F"

Radio Frequency - Electromagnetic Energy (RF-EME) Report

Site No. SFSFO00584B

Prewett Ranch Drive
Antioch, California 94531
37° 57' 23.30" N, -121° 45' 58.13" W NAD83

EBI Project No. 031499-PR
Revised: October 15, 2024
Original Report: June 13, 2023



Prepared for:

Dish Wireless

Prepared by:

EBI Consulting
environmental | engineering | due diligence

TABLE OF CONTENTS

APPENDICES

REFERENCE DOCUMENTS (NOT ATTACHED)
CDs: SFSFO00584B_FINALSTAMPEDCDS_20240522162729
RFDS: RFDS-SFSFO00584B-FINAL-20240430-V.2_2024043011021 9

EXECUTIVE SUMMARY

Purpose of Report

EnviroBusiness Inc. (dba EBI Consulting) has been contracted by Dish Wireless to conduct radio frequency electromagnetic (RF-EME) modeling for Dish Wireless Site SFSFO00584B located near Prewett Ranch Drive in Antioch, California to determine RF-EME exposure levels from proposed Dish Wireless communications equipment at this site. As described in greater detail in Appendix C of this report, the Federal Communications Commission (FCC) has developed Maximum Permissible Exposure (MPE) Limits for the general public and for occupational activities. This report summarizes the results of RF-EME modeling in relation to relevant FCC RF-EME compliance standards for limiting human exposure to RF-EME fields.

Statement of Compliance

A site is considered out of compliance with FCC regulations if there are areas that exceed the FCC exposure limits and there are no RF hazard mitigation measures in place. Any carrier which has an installation that contributes more than 5% of the applicable MPE must participate in mitigating these RF hazards.

As presented in the sections below, based on worst-case predictive modeling, there are no modeled exposures on any accessible ground walking/working surface related to DISH's proposed antennas that exceed the FCC's occupational and/or general public exposure limits at this site. Additionally, there are areas where workers who may be elevated above the ground may be exposed to power densities greater than the occupational limits. Therefore, workers should be informed about the presence and locations of antennas and their associated fields.

At the nearest walking/working surfaces to the Dish Wireless antennas, the maximum power density generated by the DISH antennas is approximately **0.31** percent of the FCC's general public limit (**0.06** percent of the FCC's occupational limit).

The composite exposure level from all carriers on this site is approximately **0.31** percent of the FCC's general public limit (**0.06** percent of the FCC's occupational limit) at the nearest walking/working surface to each antenna.

Recommended control measures are outlined in Section 4.0 and within the Site Safety Plan (attached); Dish Wireless should also provide procedures to shut down and lockout/tagout this wireless equipment in accordance with their own standard operating protocol. Non-telecom workers who will be working in areas of exceedance are required to contact Dish Wireless since only DISH has the ability to lockout/tagout the facility, or to authorize others to do so.

1.0 INTRODUCTION

Radio frequency waves are electromagnetic waves from the portion of the electromagnetic spectrum at frequencies lower than visible light and microwaves. The wavelengths of radio waves range from thousands of meters to around 30 centimeters. These wavelengths correspond to frequencies as low as 3 cycles per second (or hertz [Hz]) to as high as one gigahertz (one billion cycles per second).

Personal Communication (PCS) facilities used by Dish Wireless in this area will potentially operate within a frequency range of 600 to 5000 MHz. Facilities typically consist of: 1) electronic transceivers (the radios or cabinets) connected to wired telephone lines; and 2) antennas that send the wireless signals created by the transceivers to be received by individual subscriber units (PCS telephones). Transceivers are typically connected to antennas by coaxial cables.

Because of the short wavelength of PCS services, the antennas require line-of-site paths for good propagation and are typically installed a distance above ground level. Antennas are constructed to concentrate energy towards the horizon with as little energy as possible scattered towards the ground or the sky. This design, combined with the low power of PCS facilities, generally results in no possibility for exposure to approach Maximum Permissible Exposure (MPE) levels, with the exception of in areas in the immediate vicinity of the antennas.

MPE limits do not represent levels where a health risk exists since they are designed to provide a substantial margin of safety. These limits apply for continuous exposures and are intended to provide a prudent margin of safety for all persons regardless of age, gender, size, or health.

2.0 SITE DESCRIPTION

This project site includes the following proposed wireless telecommunication antennas on a transmission tower located near Prewett Ranch Drive in Antioch, California.

Ant #	Operator	Antenna Make	Antenna Model	Frequency (MHz)	Azimuth (°)	Mechanical Downtilt (°)	Horizontal Beamwidth (°)	Aperture (feet)	Total Power Input (Watts)	Gain (dBd)	Total ERP (Watts)	Total EIRP (Watts)
1	Dish	KMW	KE654L4H6-D 02DT 600	600	30	0	70	6.0	240	11.89	3305.30	5420.70
1	Dish	KMW	KE654L4H6-D 02DT 2000	2000	30	0	62	6.0	160	16.56	6458.33	10591.66
1	Dish	KMW	KE654L4H6-D 02DT 2100	2100	30	0	62	6.0	160	16.54	6428.65	10542.99
2	Dish	KMW	KE654L4H6-D 02DT 600	600	130	0	70	6.0	240	11.89	3305.30	5420.70
2	Dish	KMW	KE654L4H6-D 02DT 2000	2000	130	0	62	6.0	160	16.56	6458.33	10591.66
2	Dish	KMW	KE654L4H6-D 02DT 2100	2100	130	0	62	6.0	160	16.54	6428.65	10542.99
3	Dish	KMW	KE654L4H6-D 02DT 600	600	230	0	70	6.0	240	11.89	3305.30	5420.70
3	Dish	KMW	KE654L4H6-D 02DT 2000	2000	230	0	62	6.0	160	16.56	6458.33	10591.66
3	Dish	KMW	KE654L4H6-D 02DT 2100	2100	230	0	62	6.0	160	16.54	6428.65	10542.99

• Note there is 1 Dish Wireless antenna per sector at this site. For clarity, the different frequencies for each antenna are entered on separate lines.

Ant #	NAME	X	Y	Antenna Radiation Centerline	Z-Height Ground
1	Dish	0.6	2.7	109.0	109.0
2	Dish	2.3	2.3	109.0	109.0
3	Dish	2.9	3.9	109.0	109.0

• Note the Z-Height represents the distance from the antenna centerline in feet.

The above tables contain an inventory of proposed Dish Wireless antennas and other carrier antennas if sufficient information was available to model them. Note that EBI uses an assumed set of antenna specifications and powers for unknown and other carrier antennas for modeling purposes. The FCC guidelines incorporate two separate tiers of exposure limits that are based upon occupational/controlled exposure limits (for workers) and general population/uncontrolled exposure limits for members of the general public that may be exposed to antenna fields. While access to this site is considered uncontrolled, the analysis has considered exposures with respect to both controlled and uncontrolled limits as an untrained worker may access adjacent rooftop locations. Additional information regarding controlled/uncontrolled exposure limits is provided in Appendix C. Appendix B presents a site safety plan that provides a plan view of the transmission tower with antenna locations.

3.0 WORST-CASE PREDICTIVE MODELING

EBI has performed theoretical MPE modeling using RoofMaster™ software to estimate the worst-case power density at the site's nearby broadcast levels resulting from operation of the antennas. RoofMaster™ is a widely-used predictive modeling program that has been developed by Waterford Consultants to predict RF power density values for rooftop and tower telecommunications sites produced by vertical collinear antennas that are typically used in the cellular, PCS, paging and other communications services. Using the computational methods set forth in Federal Communications Commission (FCC) Office of Engineering & Technology (OET) Bulletin 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields" (OET-65), RoofMaster™ calculates predicted power density in a scalable grid based on the contributions of all RF sources characterized in the study scenario. At each grid location, the cumulative power density is expressed as a percentage of the FCC limits. Manufacturer antenna pattern data is utilized in these calculations. RoofMaster™ models consist of the Far Field model as specified in OET-65 and an implementation of the OET-65 Cylindrical Model (Sula9). The models utilize several operational specifications for different types of antennas to produce a plot of spatially-averaged power densities that can be expressed as a percentage of the applicable exposure limit.

For this report, EBI utilized antenna and power data provided by Dish Wireless and compared the resultant worst-case MPE levels to the FCC's occupational/controlled exposure limits outlined in OET Bulletin 65. The assumptions used in the modeling are based upon information provided by Dish Wireless and information gathered from other sources. Elevations of walking/working surfaces were estimated based on elevations provided and available aerial imagery. Sector orientation assignments were made assuming coverage is directed to areas of site. Changes to antenna mount heights or placement will impact site compliance. The parameters used for modeling are summarized in the Site Description antenna inventory table in Section 2.0.

There are no other wireless carriers with equipment installed at this site.

Based on worst-case predictive modeling, there are no modeled exposures on any accessible ground walking/working surface related to DISH's proposed antennas that exceed the FCC's occupational and/or general public exposure limits at this site.

At the nearest walking/working surfaces to the Dish Wireless antennas, the maximum power density generated by the Dish Wireless antennas is approximately 0.31 percent of the FCC's general public limit (0.06 percent of the FCC's occupational limit). The composite exposure level from all carriers on this site is approximately 0.31 percent of the FCC's general public limit (0.06 percent of the FCC's occupational limit) at the nearest walking/working surface to each antenna.

The Site Safety Plan also presents areas where Dish Wireless antennas contribute greater than 5% of the applicable MPE limit for a site. A site is considered out of compliance with FCC regulations if there are

areas that exceed the FCC exposure limits and there are no RF hazard mitigation measures in place. Any carrier which has an installation that contributes more than 5% of the applicable MPE must participate in mitigating these RF hazards.

The inputs used in the modeling are summarized in the Site Description antenna inventory table in Section 2.0. A graphical representation of the RoofMaster™ modeling results is presented in Appendix B.

4.0 MITIGATION/SITE CONTROL OPTIONS

EBI's modeling indicates that there are no areas in front of the Dish Wireless antennas that exceed the FCC standards for occupational or general public exposure. All exposures above the FCC's safe limits require that individuals be elevated above the rooftop and/or ground. In order to alert people accessing the transmission tower, a Warning sign and an NOC Information sign are recommended for installation 10 feet above ground level at the base of the transmission tower.

Barriers are recommended for installation when possible to block access to the areas in front of the antennas that exceed the FCC general public and/or occupational limits. Barriers may consist of rope, chain, or fencing. Painted stripes should only be used as a last resort. Barriers are not recommended for installation because there are no exceedances on any walking/working surface.

These protocols and recommended control measures have been summarized and included with a graphic representation of the antennas and associated signage and control areas in a RF-EME Site Safety Plan, which is included as Appendix B. Individuals and workers accessing the transmission tower should be provided with a copy of the attached Site Safety Plan, made aware of the posted signage, and signify their understanding of the Site Safety Plan.

To reduce the risk of exposure, EBI recommends that access to areas associated with the active antenna installation be restricted and secured where possible. All workers and individuals, including arborists and landscapers, accessing the transmission tower along with nearby elevated structures or trees within areas exceeding the general public MPE must be made aware of the presence and locations of antennas and their associated fields, where applicable.

Implementation of the signage recommended in the Site Safety Plan and in this report will bring this site into compliance with the FCC's rules and regulations.

5.0 SUMMARY AND CONCLUSIONS

EBI has prepared a Radiofrequency – Electromagnetic Energy (RF-EME) Compliance Report for telecommunications equipment installed by Dish Wireless Site Number SFSFO00584B located near Prewett Ranch Drive in Antioch, California to determine worst-case predicted RF-EME exposure levels from wireless communications equipment installed at this site. This report summarizes the results of RF-EME modeling in relation to relevant Federal Communications Commission (FCC) RF-EME compliance standards for limiting human exposure to RF-EME fields.

As presented in the sections above, based on the FCC criteria, there are no modeled exposures on any accessible ground walking/working surface related to DISH's proposed antennas that exceed the FCC's occupational and/or general public exposure limits at this site.

Workers should be informed about the presence and locations of antennas and their associated fields. Recommended control measures are outlined in Section 4.0 and within the Site Safety Plan (attached); Dish Wireless should also provide procedures to shut down and lockout/tagout this wireless equipment in accordance with their own standard operating protocol. Non-telecom workers who will be working in

areas of exceedance are required to contact Dish Wireless since only Dish Wireless has the ability to lockout/tagout the facility, or to authorize others to do so.

6.0 LIMITATIONS

This report was prepared for the use of Dish Wireless. It was performed in accordance with generally accepted practices of other consultants undertaking similar studies at the same time and in the same locale under like circumstances. The conclusions provided by EBI are based solely on the information provided by the client. The observations in this report are valid on the date of the investigation. Any additional information that becomes available concerning the site should be provided to EBI so that our conclusions may be revised and modified, if necessary. This report has been prepared in accordance with Standard Conditions for Engagement and authorized proposal, both of which are integral parts of this report. No other warranty, expressed or implied, is made.

Appendix A

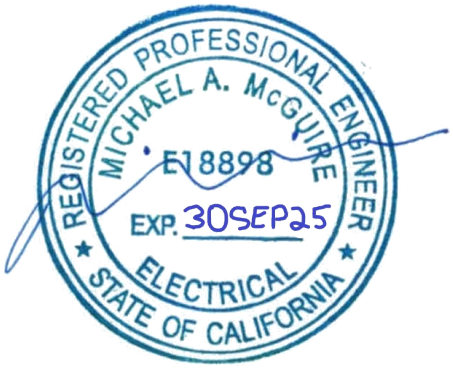
Certifications

Preparer Certification

I, Colin Mounce, state that:

- I am an employee of EnviroBusiness Inc. (d/b/a EBI Consulting), which provides RF-EME safety and compliance services to the wireless communications industry.
- I have successfully completed RF-EME safety training, and I am aware of the potential hazards from RF-EME and would be classified "occupational" under the FCC regulations.
- I am fully aware of and familiar with the Rules and Regulations of both the Federal Communications Commissions (FCC) and the Occupational Safety and Health Administration (OSHA) with regard to Human Exposure to Radio Frequency Radiation.
- I have reviewed the data provided by the client and incorporated it into this Site Compliance Report such that the information contained in this report is true and accurate to the best of my knowledge.

Reviewed and Approved by:



sealed 16oct2024

Michael McGuire
Electrical Engineer
mike@h2dc.com

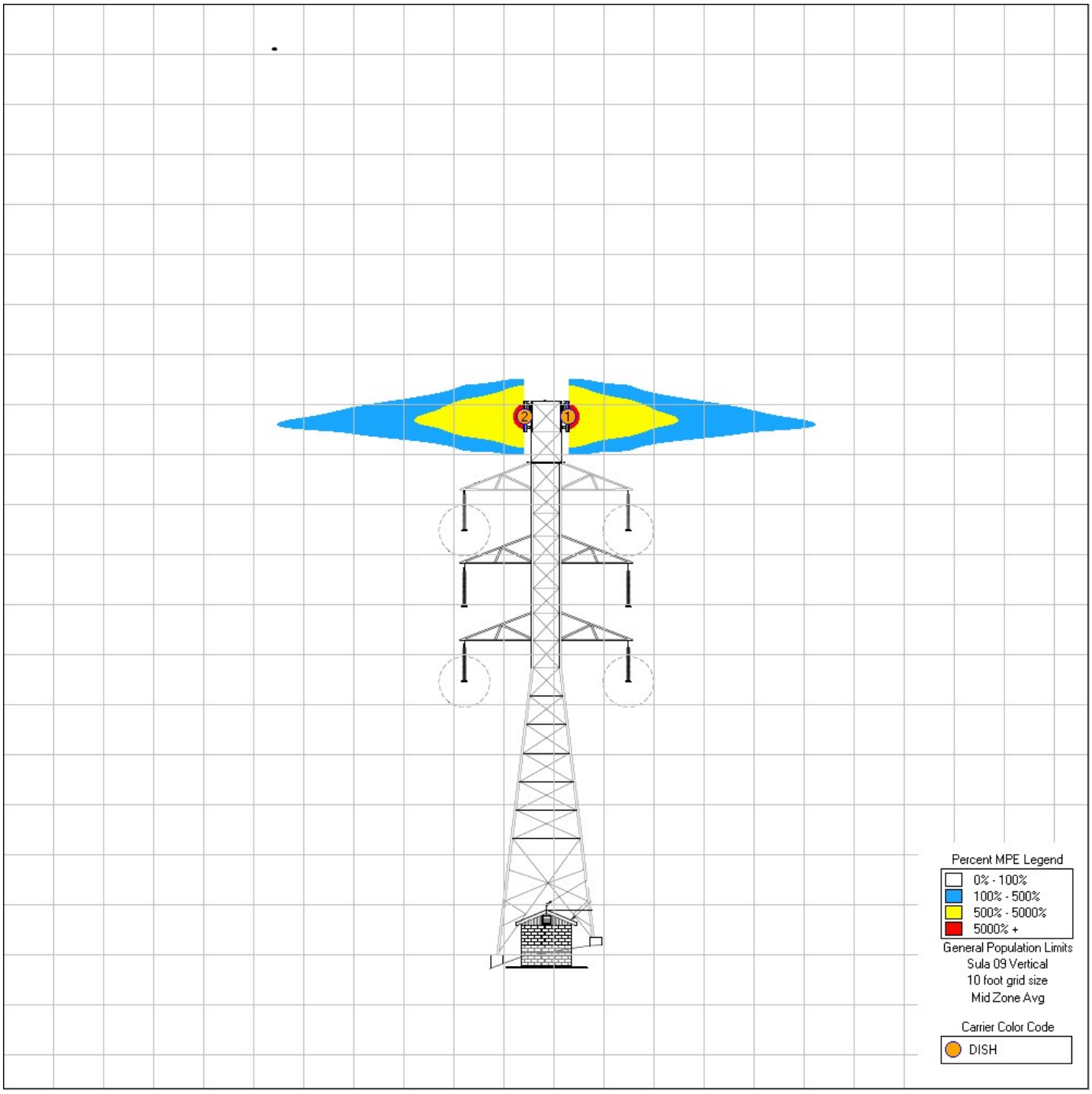
Note that EBI's scope of work is limited to an evaluation of the Radio Frequency – Electromagnetic Energy (RF-EME) field generated by the antennas and broadcast equipment noted in this report. The engineering and design of the building and related structures, as well as the impact of the antennas and broadcast equipment on the structural integrity of the building, are specifically excluded from EBI's scope of work.

Appendix B

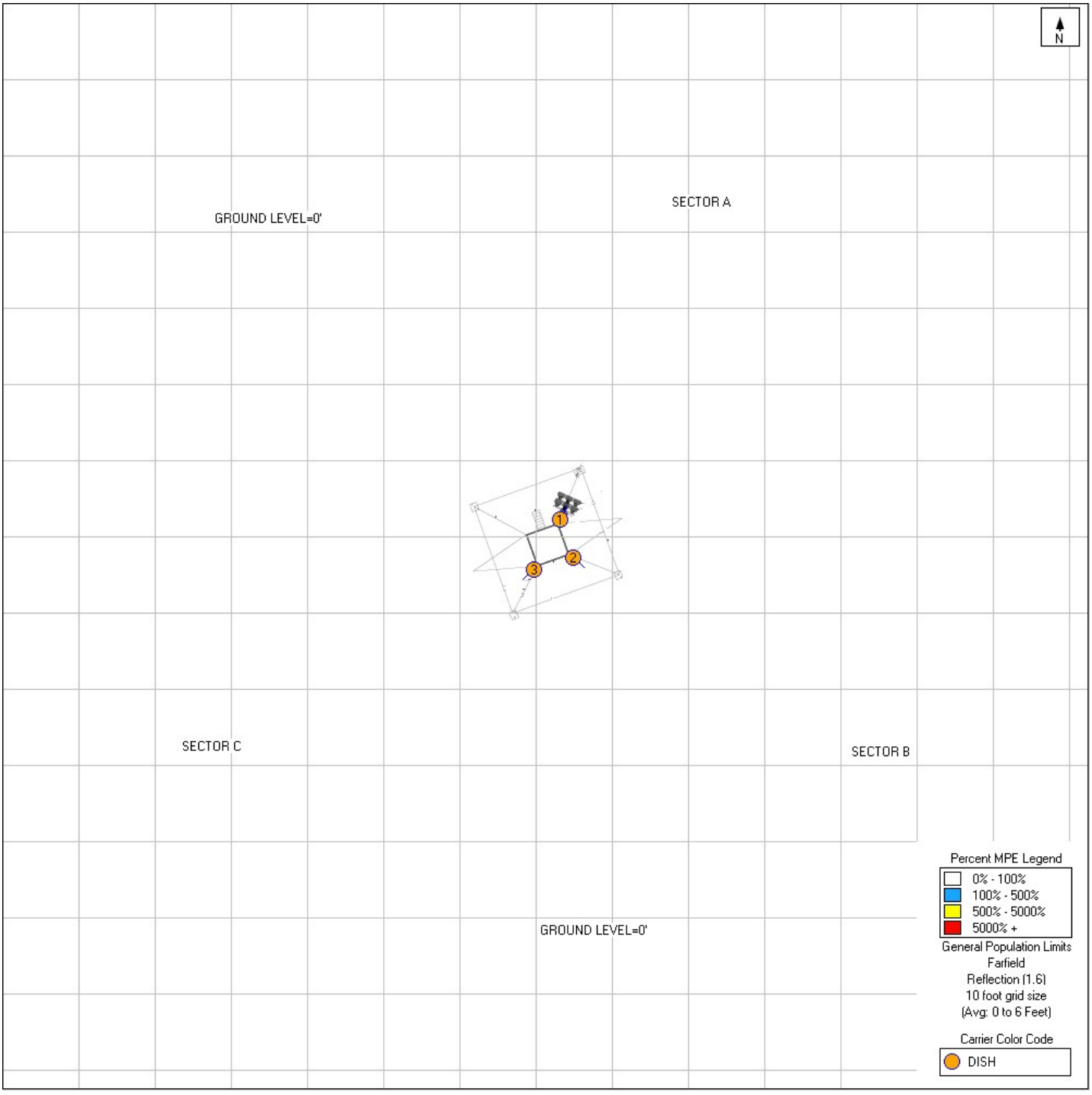
Radio Frequency Electromagnetic Energy

Safety Information and Signage Plans

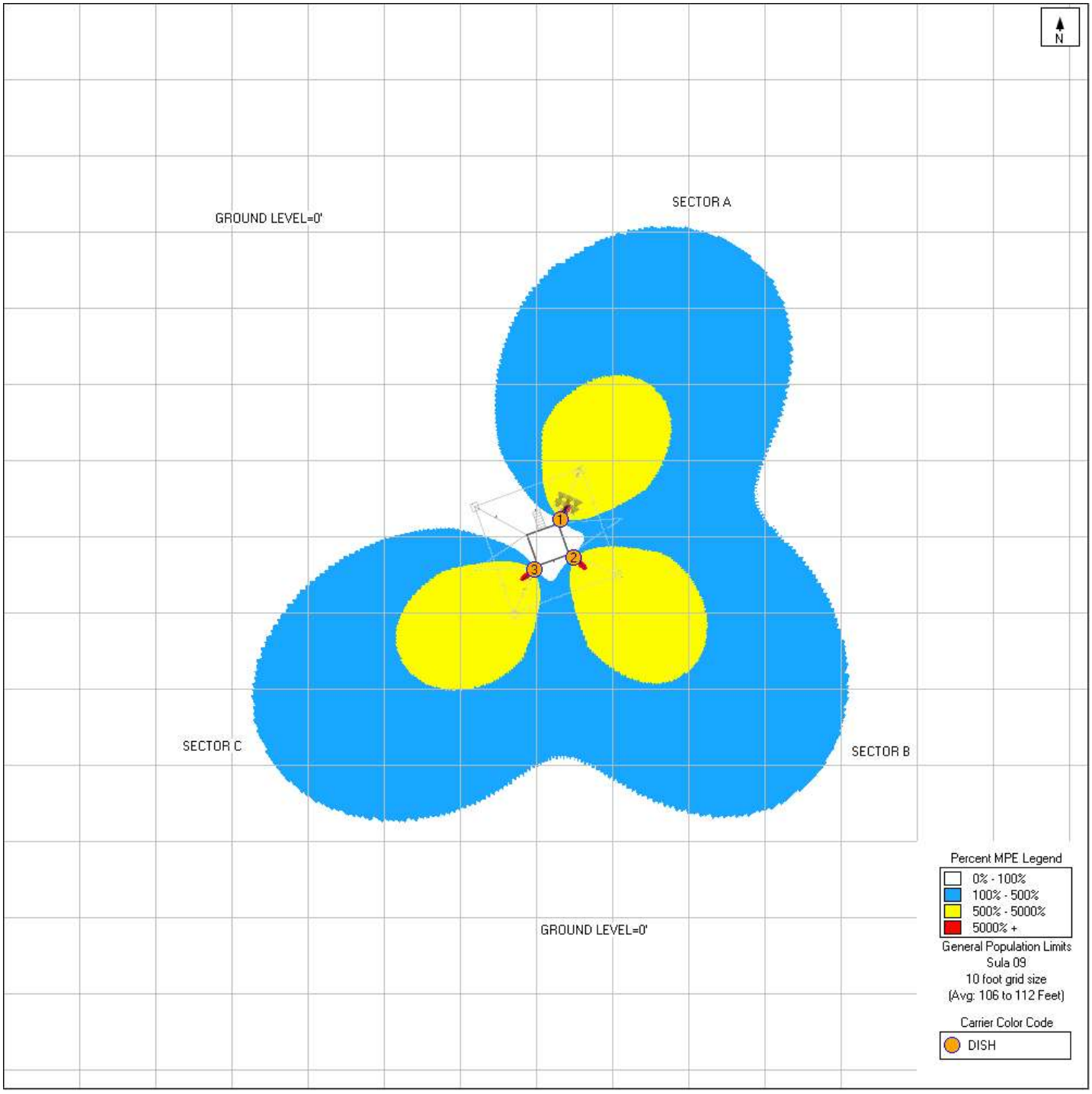
Elevation Reference View



Nearest Walking Surface (Ground Level) Simulation



Antenna Face Level Simulation



Dish Wireless Safety (Signage) Plan

Post 10 feet above ground level at the base of the transmission tower.

Final Compliance Configuration						
	GUIDELINES	NOTICE	CAUTION	WARNING	NOC INFO	BARRIER / MARKER
Access Point(s)	0	0	0	1	1	N/A
Alpha	0	0	0	0	0	N/A
Beta	0	0	0	0	0	N/A
Gamma	0	0	0	0	0	N/A

Sign	Posting Instructions	Required Signage / Mitigation
	**NOC Information** Information signs are used to provide contact information for any questions or concerns for personnel accessing the site.	Securely post 10 feet above ground level at the base of the transmission tower in a manner conspicuous to all individuals entering thereon as indicated in the signage plan.
	**Guidelines** Informational sign used to notify workers that there are active antennas installed and provide guidelines for working in RF environments.	Signage not required.
	**Notice** Used to notify individuals they are entering an area where the power density emitted from transmitting antennas may exceed the FCC's MPE limit for the general public or occupational exposures.	Signage not required.
	**Caution** Used to notify individuals that they are entering a hot spot where either the general public or occupational FCC's MPE limit is or could be exceeded.	Signage not required.
	**Warning** Used to notify individuals that they are entering a hot zone where the occupational FCC's MPE limit has been exceeded by 10x.	Securely post 10 feet above ground level at the base of the transmission tower in a manner conspicuous to all individuals entering thereon as indicated in the signage plan.

Appendix C

Federal Communications

Commission (FCC) Requirements

The FCC has established Maximum Permissible Exposure (MPE) limits for human exposure to Radiofrequency Electromagnetic (RF-EME) energy fields, based on exposure limits recommended by the National Council on Radiation Protection and Measurements (NCRP) and, over a wide range of frequencies, the exposure limits developed by the Institute of Electrical and Electronics Engineers, Inc. (IEEE) and adopted by the American National Standards Institute (ANSI) to replace the 1982 ANSI guidelines. Limits for localized absorption are based on recommendations of both ANSI/IEEE and NCRP.

The FCC guidelines incorporate 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. 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 public/uncontrolled limits (see below), as long as the exposed person has been made fully 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 may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment-related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

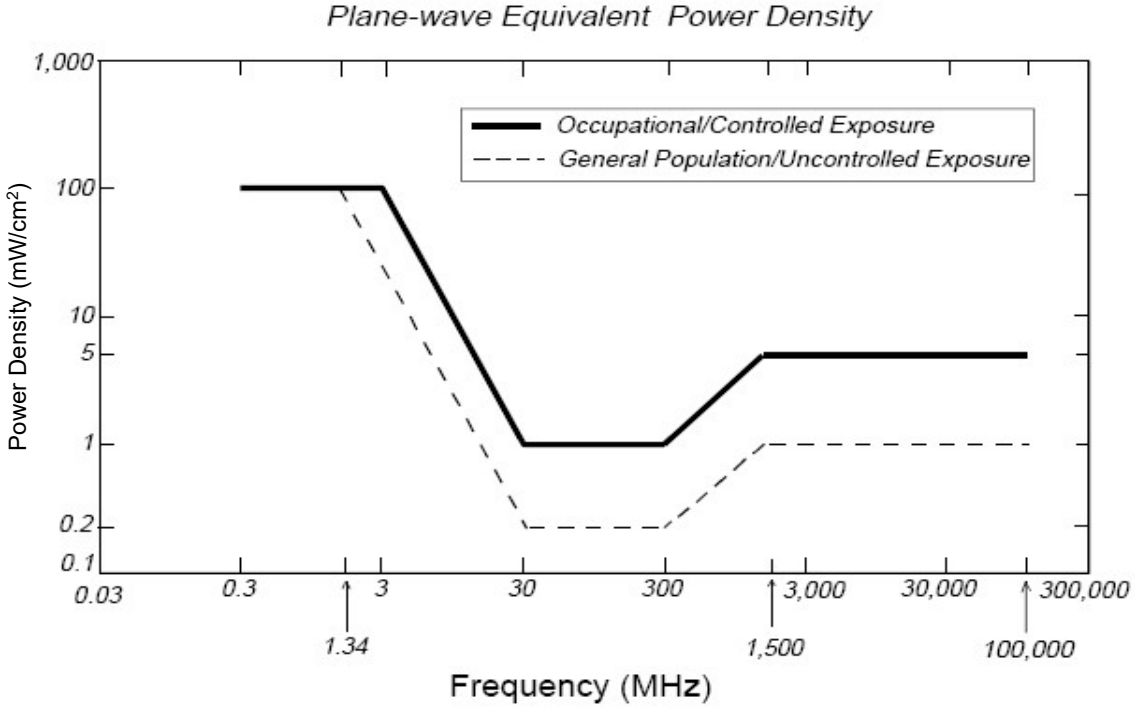
Table 1 and Figure 1 (below), which are included within the FCC's OET Bulletin 65, summarize the MPE limits for RF emissions. These limits are designed to provide a substantial margin of safety. They vary by frequency to take into account the different types of equipment that may be in operation at a particular facility and are "time-averaged" limits to reflect different durations resulting from controlled and uncontrolled exposures.

The FCC's MPEs are measured in terms of power (mW) over a unit surface area (cm^2). Known as the power density, the FCC has established an occupational MPE of 5 milliwatts per square centimeter (mW/cm^2) and an uncontrolled MPE of 1 mW/cm^2 for equipment operating in the 1900 MHz frequency range. For the Dish Wireless equipment operating at 600 MHz or 850 MHz, the FCC's occupational MPE is 2.83 mW/cm^2 and an uncontrolled MPE of 0.57 mW/cm^2. For the Dish Wireless equipment operating at 1900 MHz, the FCC's occupational MPE is 5.0 mW/cm^2 and an uncontrolled MPE limit of 1.0 mW/cm^2. These limits are considered protective of these populations.

Table 1: Limits for Maximum Permissible Exposure (MPE)				
(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
300-1,500	--	--	f/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Public/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
300-1,500	--	--	f/1,500	30
1,500-100,000	--	--	1.0	30

f = Frequency in (MHz)
* Plane-wave equivalent power density

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



Based on the above, the most restrictive thresholds for exposures of unlimited duration to RF energy for several personal wireless services are summarized below:

Personal Wireless Service	Approximate Frequency	Occupational MPE	Public MPE
Microwave (Point-to-Point)	5,000 - 80,000 MHz	5.00 mW/cm^2	1.00 mW/cm^2
Broadband Radio (BRS)	2,600 MHz	5.00 mW/cm^2	1.00 mW/cm^2
Wireless Communication (WCS)	2,300 MHz	5.00 mW/cm^2	1.00 mW/cm^2
Advanced Wireless (AWS)	2,100 MHz	5.00 mW/cm^2	1.00 mW/cm^2
Personal Communication (PCS)	1,950 MHz	5.00 mW/cm^2	1.00 mW/cm^2
Cellular Telephone	870 MHz	2.90 mW/cm^2	0.58 mW/cm^2
Specialized Mobile Radio (SMR)	855 MHz	2.85 mW/cm^2	0.57 mW/cm^2
Long Term Evolution (LTE)	700 MHz	2.33 mW/cm^2	0.47 mW/cm^2
Most Restrictive Frequency Range	30-300 MHz	1.00 mW/cm^2	0.20 mW/cm^2

MPE limits are designed to provide a substantial margin of safety. These limits apply for continuous exposures and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health.

Personal Communication (PCS) facilities used by Dish Wireless in this area will potentially operate within a frequency range of 600 to 5000 MHz. Facilities typically consist of: 1) electronic transceivers (the radios or cabinets) connected to wired telephone lines; and 2) antennas that send the wireless signals created by the transceivers to be received by individual subscriber units (PCS telephones). Transceivers are typically connected to antennas by coaxial cables.

Because of the short wavelength of PCS services, the antennas require line-of-site paths for good propagation, and are typically installed above ground level. Antennas are constructed to concentrate energy towards the horizon, with as little energy as possible scattered towards the ground or the sky. This design, combined with the low power of PCS facilities, generally results in no possibility for exposure to approach Maximum Permissible Exposure (MPE) levels, with the exception of areas directly in front of the antennas.

FCC Compliance Requirement

A site is considered out of compliance with FCC regulations if there are areas that exceed the FCC exposure limits and there are no RF hazard mitigation measures in place. Any carrier which has an installation that contributes more than 5% of the applicable MPE must participate in mitigating these RF hazards.

Butler America

Site ID:	SFSF000584B
Site Address:	PREWETT RANCH DRIVE ANTIOCH, CA 94531
Date:	3/14/2025
Prepared by:	Alexander Herrera + Frank Ahmadkhanlo

RE: Cell2024-0004 – Prewett Ranch / Alternative Site Analysis (Coverage Analysis)

Current Coverage Objectives within Antioch

Prior to covering the coverage analysis for this specific proposed facility, it is important to understand that this project is directly related to other proposed telecommunications facilities to meet Dish Wireless coverage goals. Dish Wireless has entered the telecommunications industry as the nation's fourth carrier, the company has, and still is, building their network from the ground up. When building the foundation for a new network, it is vital that early years of the network is built in a way that maximizes coverage in both a regional and local level. To maximize coverage and reduce the amount of telecommunications facility needed in every municipality, the primary strategy is to utilize existing structures that allow for the optimal coverage between facilities while avoiding major coverage gaps.

The challenges of providing quality coverage vary region to region. The primary challenges, within the city boundaries of Antioch, in the areas we need to provide coverage to are nearly all residential development/zones, and various hills throughout which significantly impacts/limits coverage. To maximize the coverage in the area while minimizing the number of facilities required within this area, we typically look for colocation onto tall cell towers or buildings, or mount onto PG&E lattice towers. The strategy chosen for this area is proposing Dish Wireless facility at PG&E lattice towers to utilize existing structures that typically fulfill the need for height.

In Figure 1 below, the map shows the coverage objectives (blue dashed boxes) within the City of Antioch. In Figure 2, the map shows the proposed coverage implement the three proposed facilities currently in the entitlement process. All the coverage objectives needs are sufficiently met by utilizing existing PG&E lattice towers to provide coverage to immediate areas and surrounding neighborhoods. The coverage analysis will cover the coverage objective for SFSF000584B/CELL2024-0004.

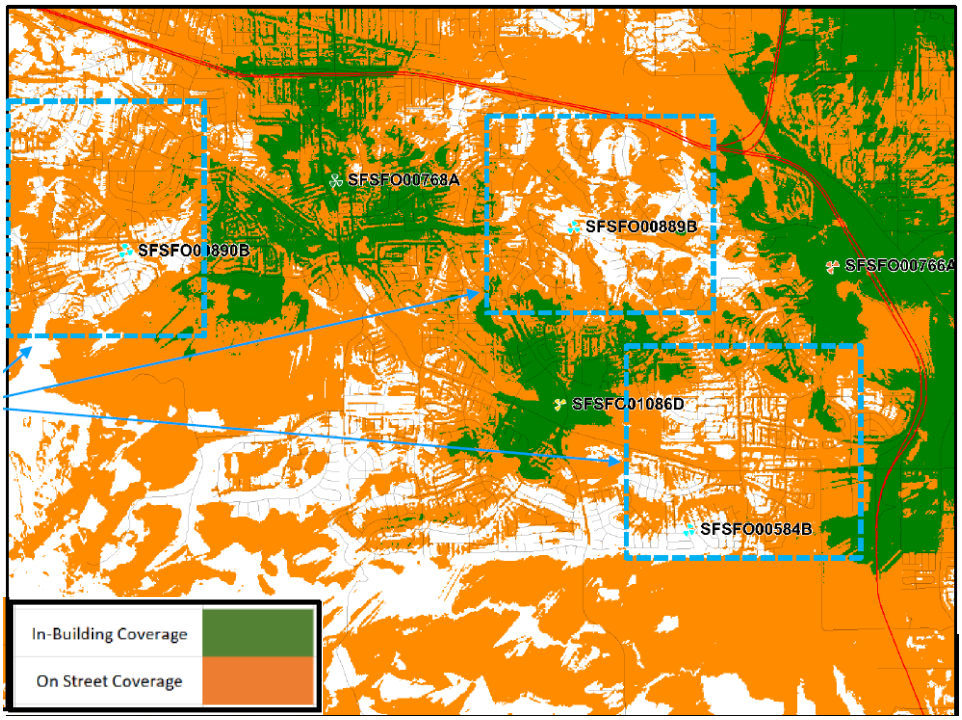


Figure 1. Map of Coverage objectives and current coverage

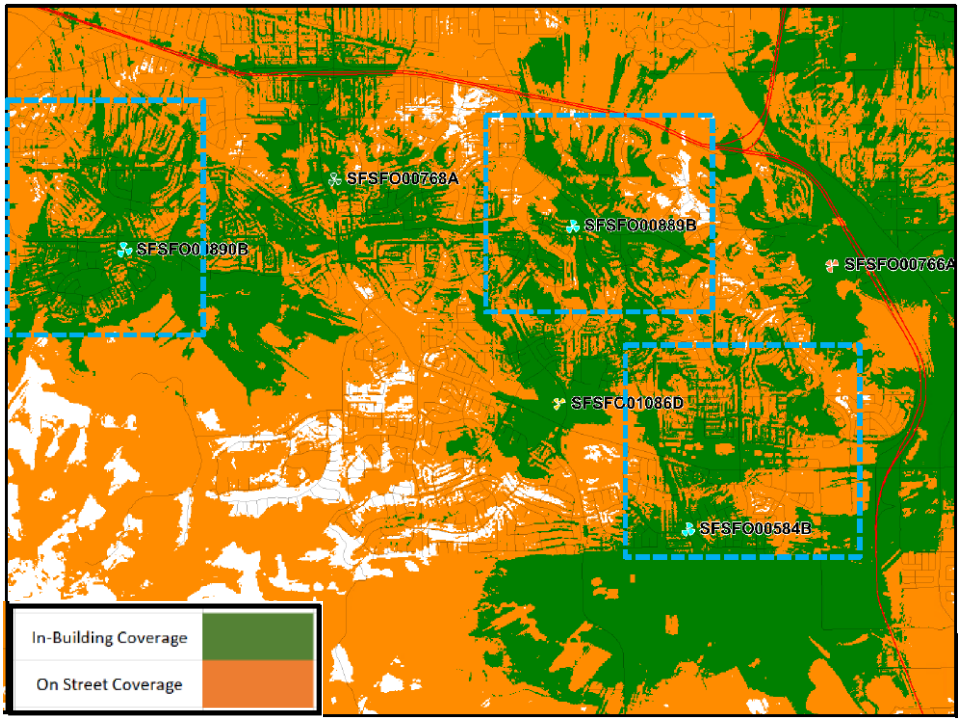
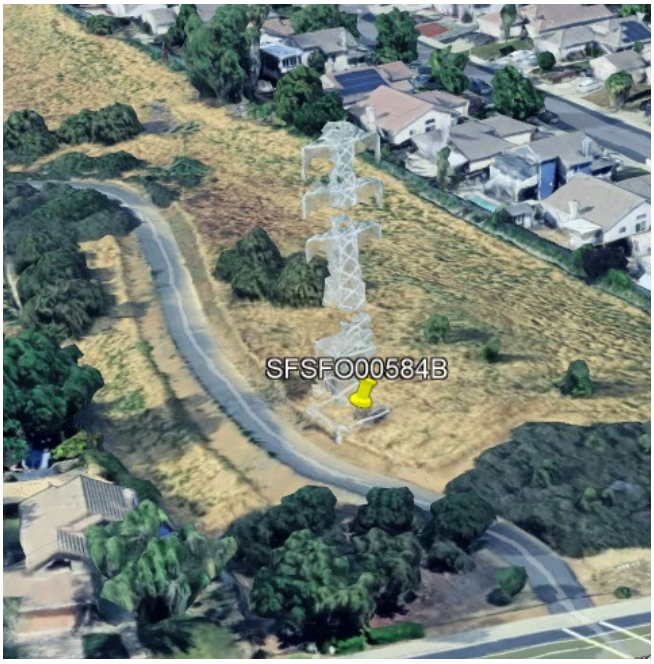


Figure 2. Current Coverage + Proposed coverage w/ three proposed facilities

Butler America

Coverage Objective + Proposed Coverage

Candidate	Pops
SFSFO00584A	3483
SFSFO00584B	7587
SFSFO00584D	2884
SFSFO00584E	2947
SFSFO00584F	3980



- Coords: 37°57'23.29"N, 121°45'58.19"W
- ASML: 289'
- Facility type: PG&E tower
- proposed rad: 109'
- Pop count: 7587

The primary candidate SFSFO00584B provides sufficient indoor/outdoor coverage (Blue square below) covering around Lone Tree Way connecting our sites SFSFO01086D & SFSFO00532E. Coverage provided by other alternative candidates, as shown in later pages, do not meet the coverage objective. The covered Pops above clearly shows how the improved coverage with candidate B will positively impact the mobile customers.

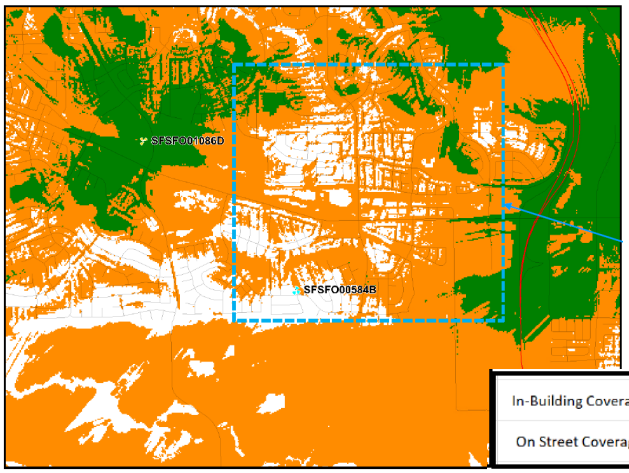


Figure 3. Map of Current coverage

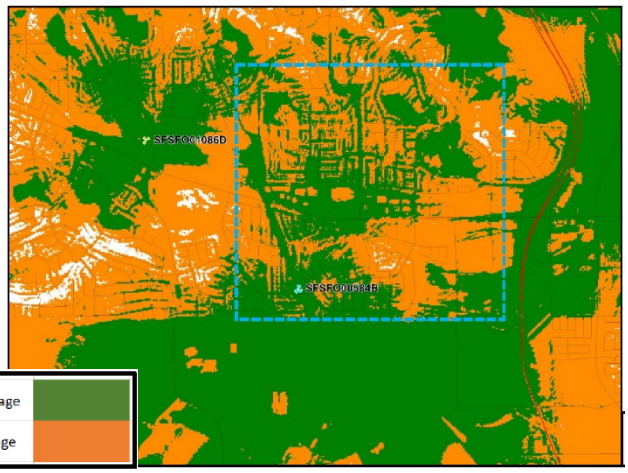


Figure 4. Cell2024-0004/SFSFO00584B – Map of Anticipated Coverage

Alternative Candidates + Coverage

SFSFO00584A:

- Coords: 37.963442, -121.761814
- ASML: 168'
- Facility type: Rooftop
- proposed rad: ~26'
- building roof height: ~20'
- Pop count: 3483

SFSFO00584A does not provide the intended coverage within the coverage objective shown by the red ellipses below, compared to the primary candidate B. While the candidate is near the center of the coverage objective, its low height results in large coverage holes especially on the south-southwest.

Additionally, leasing onto buildings occupied by large companies, like Walmart, are nearly impossible and typically results in alternative candidates to be chosen even if it happened to be best option within a coverage area.

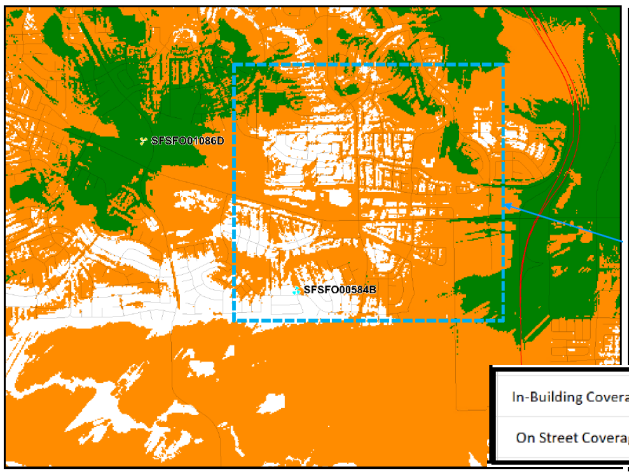


Figure 5. Map of Current Coverage

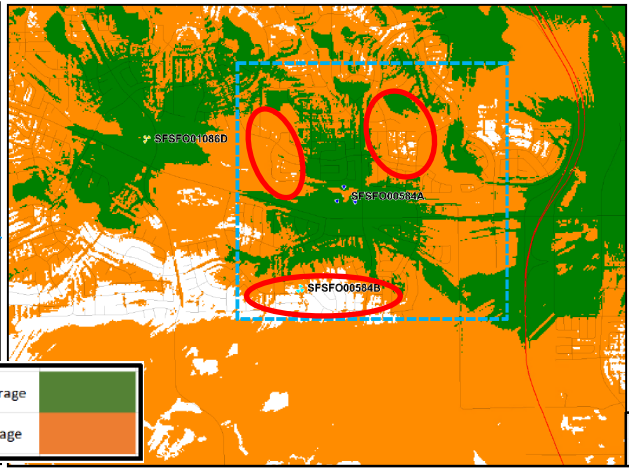


Figure 6. SFSFO00584A – Map of Anticipated Coverage

SFSFO00584D:

- Coords: 37.9517926, -121.7761839
- ASML: 223'
- Facility type: Rooftop
- proposed rad: 38'
- building roof height: 31'
- Pop count: 2884

As shown below, SFSFO00584D does not provide adequate coverage within the coverage objective. For this reason alone, the candidate was not pursed further after confirming anticipated coverage.

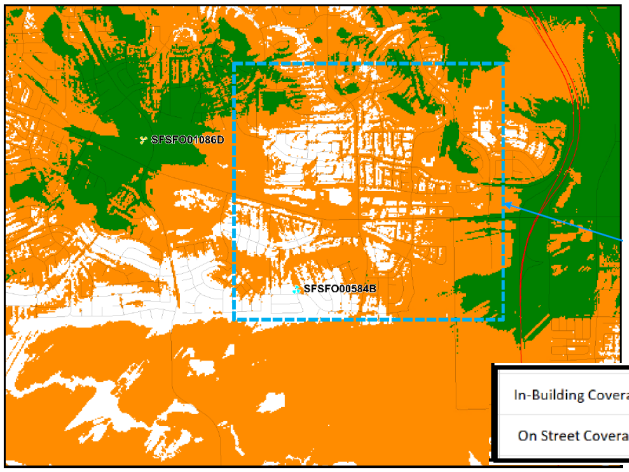


Figure 7. Map of Current Coverage

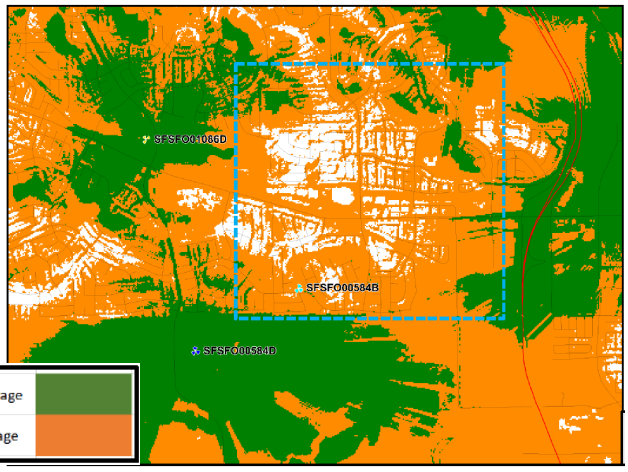


Figure 8. SFSFO00584D - Map of Anticipated Coverage

SFSFO00584E

- Coords.: 37.949488, -121.775429
- ASML: 221
- Facility type: Monopole
- Rad center: 40'
- Pop count: 2947

As shown below, SFSFO00584E does not provide adequate coverage within the coverage objective. For this reason alone, the candidate was not pursed further after confirming anticipated coverage.

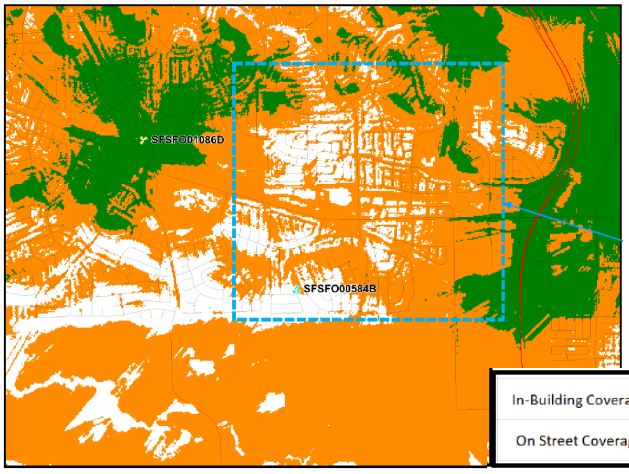


Figure 9. Map of Current Coverage

Figure 10. SFSFO00584E - Map of Anticipated Coverage

SFSFO00584F:

- Coords.: 37.954265, -121.765081
- ASML: 190'
- Facility type: PG&E Lattice tower
- proposed rad: 45'
- Pop count: 3980

As shown below, SFSFO00584F does not provide adequate coverage within the coverage objective. While it is within the coverage objective, significant coverage holes remain, making this candidate ineffective. If a higher rad height were possible, the candidate may have been suitable.

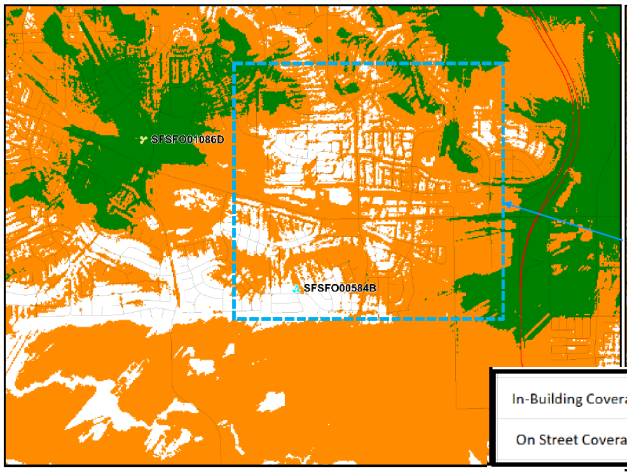


Figure 11. Map of Current Coverage

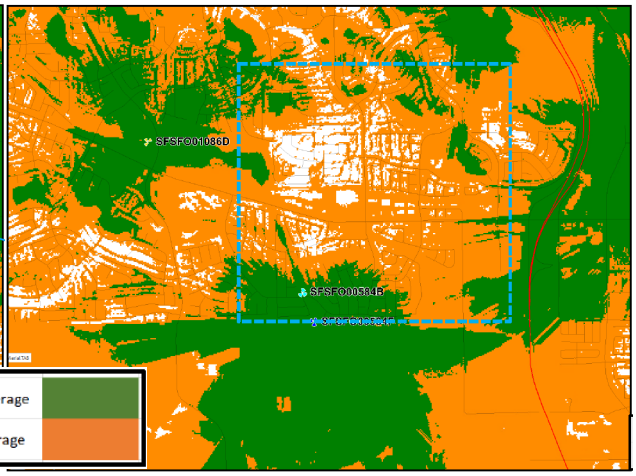
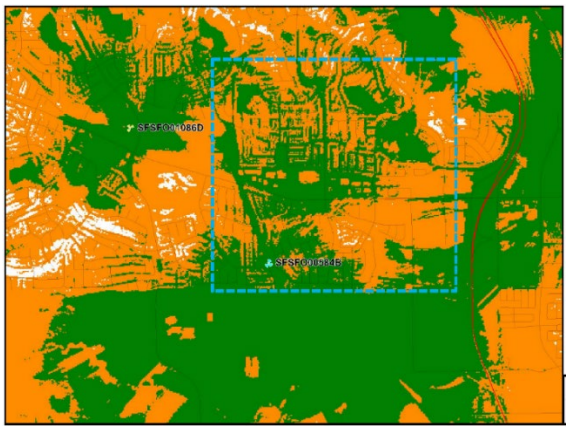
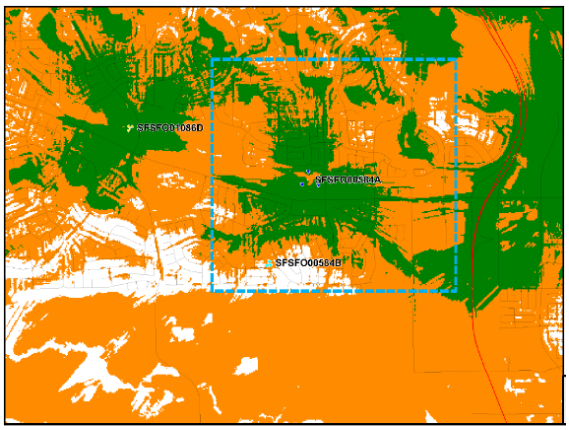


Figure 12. SFSFO00584F - Map of Anticipated Coverage

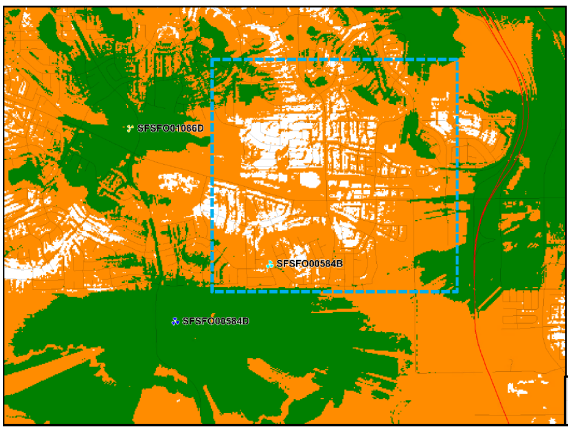
Side-by-side Coverage Maps Comparison



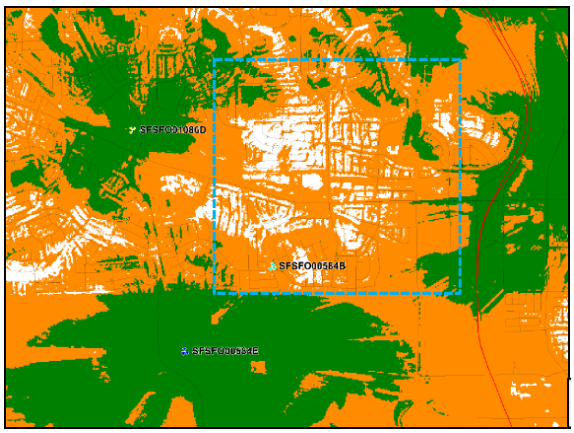
Cell2024-0004/SFSFO00584B



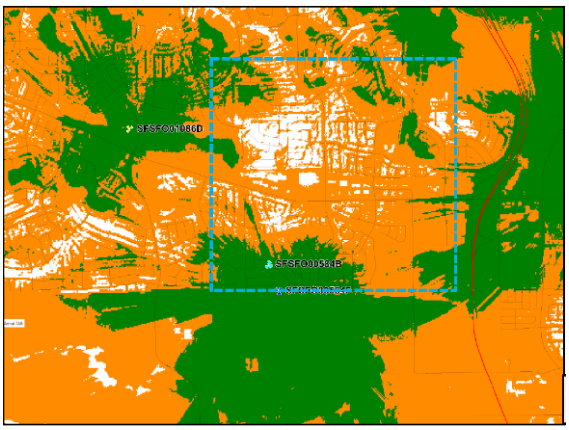
SFSFO00584A



SFSFO00584D



SFSFO00584E



SFSFO00584F

Summary

When comparing the five candidate options for addressing the coverage objective, the currently proposed facility's propagation throughout the area is significantly better when compared to all other candidates. As for comparing estimated pop counts, the proposed facility's pop count is nearly double the amount of estimated pop counts of the 2nd highest candidate (SFSF000584F), which is a difference of 3607. The reason the proposed site has better coverage compared to the alternatives is due to being located near the center of the coverage objective and the proposed antenna height (rad center) is significantly higher which maximizes the antennas propagation.

Additionally, all alternative candidates leave large coverage holes in most areas of the coverage objective, clearly all are poor choices as it would require an additional macro facility to fill the significant coverage hole(s). The issue is it may not be possible to propose additional macro facility in those areas in the near future, when considering the existing development of those areas, zoning, and physical limitations.

Overall, the proposed facility was selected as the best option in this area for its excellent propagation due to the PG&E lattice tower's height and near the center of the coverage objective. This facility is the ideal candidate for Dish Wireless coverage needs/objectives.

Please contact me if you need more information

Ahmadkhanlou, F
---------- Date: 03/14/2025

Frank Ahmadkhanlou
Senior RF Engineer
San Francisco Market
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Walnut Creek, CA 94596