

County of Santa Clara
Department of Planning and Development
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STAFF REPORT
Zoning Administration Hearing
September 5, 2024
Item # 3

Staff Contact: Buyan Batbaatar, Assistant Planner
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PLN23-195 (STANFORD UNIVERSITY)

Architecture and Site Approval – New Wireless Telecommunication Facility for Crown Castle at 30 Ryan Court, Stanford.

Summary: Architecture and Site Approval, for a new wireless telecommunication facility to construct a forty-nine (49) feet and eleven (11) inch tall monopole disguised as a pine tree and associated ground-based equipment. No grading, tree removal, landscaping, exterior lighting, or parking is proposed with this project.

Owner: Crown Castle/ Stanford University
Applicant: Erich Snow, Project Manager
Address: 30 Ryan Court., Stanford
APN: 142-21-084
Supervisory District: 5

Community Plan Designation:
Campus Open Space
Zoning: R1S
Project Area: 204 square feet
Present Land Use: Vacant

RECOMMENDED ACTIONS

- A. Approve the use of a prior California Environmental Quality Act (CEQA) document [2000 Stanford Community Plan and General Use Permit (GUP) Program Environmental Impact Report (EIR)].
- B. Grant Architecture & Site Approval (ASA), subject to conditions of approval outlined in Attachment B.

ATTACHMENTS INCLUDED

- Attachment A – CEQA Determination – Use of a Prior CEQA Document
- Attachment B – Preliminary ASA Conditions of Approval
- Attachment C – Location & Vicinity Map
- Attachment D – Project Description

- Attachment E – Proposed Plans
- Attachment F – Color Material Board
- Attachment G – Photo Simulation
- Attachment H – Radio Frequency Safety Predictive Report
- Attachment I – Noise Study

PROJECT DESCRIPTION

The proposed project is for a new wireless telecommunication facility to construct a forty-nine (49) feet and eleven (11) inch tall monopole and associated ground-based equipment. The monopole will be disguised to have the appearance of a pine tree with tree bark. The tower will include an antenna tri mount and three-panel antennas centered at forty-seven (47) feet level. Associated ground-based improvements include an eighty-five (85) square foot concrete pad, nine remote radio units, two H-frames, distribution panel, a fiberoptics cabinet and two cable ice bridges. The tower and ground equipment will be located within the 204 square foot leasehold area enclosed behind an eight-foot-tall chain link fence with black slats.

The project site is vacant and is surrounded by mature eucalyptus trees. The monopole will be accessed via an existing unpaved dirt road off of Raimundo Way. The facility will be unmanned and operate 24 hours a day. No grading, tree removal, landscaping or exterior lighting is proposed with this project.

REASONS FOR RECOMMENDATION

A. Environmental Review and Determination (CEQA)

The proposed project is in conformance with both the 2000 Stanford Community Plan (“SCP”) and General Use Permit (“GUP”) and has no new effects beyond those analyzed in the Program EIR, certified by the Board of Supervisors in December 2000. The Program EIR analyzed the environmental impacts of campus development allowed under the SCP and GUP. The proposed project is within the scope of the campus development analyzed in the 2000 GUP. Therefore, the use of the prior CEQA document is adequate for this project.

B. Project/Proposal

1. **Stanford Community Plan and GUP:** The project conforms to applicable Community Plan goals, strategies, and policies. Wireless telecommunication facility is a permitted use within the Low-Density Campus Residential land use designation, and as conditioned will satisfy the requirements of the GUP. The 2000 Community Plan and GUP govern development projects on the Stanford campus. This project conforms to the criteria set forth by the GUP and provisions identified within the Community Plan, and is subject to compliance with the preliminary conditions outlined in Attachment B.

2. ASA approval:

ASA approval standards, applicable regulations, and findings: The project substantially conforms to the requirements and guidelines in the SCP and GUP. These requirements meet all of the ASA Guidelines through the ASA approval process approved by the Zoning Administrator.

C. ASA Findings:

Pursuant to §5.40.040 of the County Zoning Ordinance, the Zoning Administrator may grant an Architecture & Site Approval contingent upon specific findings. In the following discussion, the scope of review findings are listed in **bold**, and an explanation of how the project meets the required standard is in plain text below.

A. Adequate traffic safety, on-site circulation, parking and loading areas, and insignificant effect of the development on traffic movement in the area;

The project site is located forty-eight (48) feet from Raimundo Way and 118 feet from Stanford Avenue. The application has been reviewed and approved by the Department of Roads and Airports. The proposed facility will be unmanned. Service technicians will visit the site periodically for routine maintenance and any emergency maintenance. Adequate on-street parking is currently available at the site. There will be no impact on existing traffic patterns. As such, the proposed wireless telecommunications facility would not result in any change in the amount of traffic and does not generate any new trips from a traffic impact perspective. The traffic would be consistent with that analyzed in the prior 2000 GUP EIR.

Short-term construction traffic

The project will result in short-term impacts related to construction activities; however, conditions of approval have been added to this project to mitigate these short-term impacts to a “*less than significant level*”. All construction trucks will be required to use approved truck routes, for transporting construction materials to and from the site. Furthermore, the project has been conditioned to restrict construction material deliveries to non-peak hours, as defined in the 2000 GUP EIR. Compliance with the Conditions of Approval (Attachment B) ensures that the short-term construction traffic associated with the project will not have a significant effect on traffic movement in the area.

For the reasons stated above, this finding can be made.

B. Appearance of proposed site development and structures, including signs will not be detrimental to the character of the surrounding neighborhood or zoning district;

The new wireless telecommunications facility will not be detrimental to the character of the surrounding neighborhood or zoning district as the project includes screening treatments that will blend the facility with the surrounding area. The new forty-nine (49) feet and eleven (11) inch high monopole will have exterior treatments to disguise it as a pine tree which complements the existing mature trees surrounding the project area (Attachment E & G). The tower and fenced enclosure are to be placed adjacent to an existing mature tree to shield the leasehold area from the residential development to the west and northeast. This placement will help to ensure the tower remains minimally visible to passersby along Raimundo Way and Stanford Avenue. The faux foliage and faux tree bark will use natural colors (greens for the foliage and brown for the bark). The condition of approval to paint the tower and antennas with a color of less than 45 light reflectivity value (LRV) will minimize the visibility of the installation.

The proposal minimizes removal or modification of site landscaping, minimizes visual impact through design, and siting, color and materials of the pole and antennas blend with the natural setting, and no exterior lighting is proposed. Thus, the project substantially conforms to applicable sections of the Wireless Telecommunication Facilities Design Guidelines.

For the reasons stated above, this finding can be made.

C. Appearance and continued maintenance of proposed landscaping will not be detrimental to the character of the surrounding neighborhood or zoning district;

No tree removal or landscaping is proposed as part of this project. The faux pine tree bark and foliage are used to camouflage the tower and blend with the surrounding mature trees in the vicinity, which provide screening for the monopole installation. As such, this finding can be made.

D. No significant, unmitigated adverse public health, safety and environmental effects of proposed development;

The Program GUP EIR certified by the Board of Supervisors in December 2000 analyzed the environmental impacts of Stanford campus development allowed under the SCP and GUP. The proposed wireless telecommunications facility is within the scope of the development analyzed in the 2000 GUP EIR. All appropriate conditions of approval have been added to ensure conformance with the 2000 GUP EIR.

The prior CEQA analysis concluded that the proposed wireless facility would not result in any significant environmental impacts as it relates to parking, traffic, construction noise, and air quality. The project has been reviewed with respect to all applicable regulations relating to public health and safety by County subject matter experts, including Land Development Engineering, the Department of Environmental Health, and the Fire Marshal. All subject matter experts have recommended approval of the project with Conditions and determined that the project will not result in significant, unmitigated adverse public health, safety, or environmental effects. Furthermore, the CEQA analysis for the project determined that with the conditions of approval, the project would not result in any significant environmental impacts (See Attachment A). As such, this finding can be made.

E. No adverse effect of the development on flood control, storm drainage, and surface water drainage;

The project site does not contain any creeks or streams and is not located within a 100-year flood zone. The project has been reviewed by County Land Development and Engineering staff with respect to all applicable regulations relating to drainage and flood control. As such, this finding can be made.

F. Adequate existing and proposed fire protection improvements to serve the development;

The Fire Marshal's Office has reviewed the project and determined that the existing fire protection improvements are sufficient to ensure fire safety for this proposal. For these reasons, this finding can be made.

G. No significant increase in noise levels;

There would be no increase in noise levels due to the operation of this project. The project may create short-term/temporary construction noise impacts due to construction activities and construction traffic. The project has been conditioned to require the submittal of a Traffic and Construction Management Plan prior to building permit issuance. Furthermore, construction activities shall be limited to the hours of 7 AM and 7 PM, Monday through Saturday, with no construction activity occurring after 7 PM, or on Sundays. Therefore, as conditioned, this finding can be made.

H. Conformance with zoning standards, unless such standards are expressly eligible for modification by the Zoning Administrator as specified in the Zoning Ordinance.

The project site is zoned R1S, which is the "Campus Residential - Low Density" zoning district. This district was established to implement the 2000 Stanford University Community Plan policies for the Campus Residential – Low Density land use designation, to maintain a low-density residential character and are used for housing University faculty, staff, and other workers near the academic portions of the campus. Allowable uses include wireless telecommunication facilities per County Zoning Ordinance Table 2.30-2. The standards applicable to development within this zoning district are listed in Table 2.30-3, which establishes a 35-foot maximum height requirement and a front setback of 25 feet for the R1S district.

The proposed project site is located seven (7) inches from the property line. However, the adjacent parcel APN: 142-21-083 is a strip of vacant land along Raimundo Way and Stanford Avenue (See Attachment C). Therefore, the project site is located forty-eight (48) feet away from Raimundo Way. The height of the proposed monopole is forty-nine (49) feet and eleven (11) inch. Pursuant to Note 6 of Table 2.30-3, for permitted non-residential uses, setbacks and height limits for applications subject to Architecture & Site Approval may be modified by the Zoning Administrator with proper justification to (a) promote quality design and functionality, (b) to assure adequate buffering and compatibility with adjacent land use and development, and (c) for consistency with the general purposes of ASA.

The proposed height is required to propagate the antenna signal within the existing tree canopies while also using them to screen the monopole from view. The facility is designed at the lowest functional height. The condition of approval to paint the tower and antennas with a color of less than 45 light reflectivity value (LRV) will minimize the visibility of the installation. The proposal minimizes impact on the natural environment to the extent possible through design, screening, and siting. As such, Staff recommends support of the increase to the height limitations for this project, and this finding can be made.

I. Conformance with the general plan and any applicable area or specific plan, or, where applicable, city general plan conformance for property located within a city’s urban service area; and

The Stanford academic campus is primarily designated as Major Educational and Institutional Use within the Santa Clara County general plan. The Community Plan identifies the project site as Campus Open Space. The proposed project complies with the applicable policies set forth in the Community Plan with reference to SCP-LU12 and SCP-LU13, which state that uses within the Campus Open Space land use designation must retain land in open space while being consistent with the individual character of the area and no new permanent buildings or structures for occupancy are permitted. The proposed wireless telecommunication facility maintains the character of the area within a residential neighborhood and blends with the surrounding tree canopy concealed as a pine tree. As such, this finding can be made.

J. Substantial conformance with the adopted “Guidelines for Architecture and Site Approval” and other applicable guidelines adopted by the County.

The proposed project complies with the Wireless Telecommunication Facilities Design Guidelines as no tree removal or landscaping modification is proposed, visual impact through design, and siting is minimized, color and materials of the pole and antennas blend with the natural setting, and no exterior lighting is proposed. As such, conformance with the provisions noted above ensures compliance with the Guidelines for Architecture and Site Approval. As such, this finding can be made.

In conclusion, based on the analysis of the facts described in the body of this report, staff recommends that the Zoning Administration Hearing Officer approve the land use entitlement request for Architecture and Site Approval (ASA). As noted throughout the Staff Report, the proposed project meets all applicable development standards for a new telecommunications monopole facility and satisfies all of the applicable findings to grant ASA. Staff further recommends that the Zoning Administration Hearing Officer accept staff’s determination that the use of a prior California Environmental Quality Act (CEQA) document “2000 Stanford Community Plan and General Use Permit (GUP) Program Environmental Impact Report (EIR)” is acceptable for this project (Attachment A).

BACKGROUND

On October 31, 2023, an application for Architecture and Site Approval was submitted for a new wireless telecommunications facility and was deemed incomplete on November 30, 2023. The resubmission of the application took place on June 27, 2024 and the application was deemed complete on July 26, 2024. The proposed project is considered new facility as defined in 47 Code of Federal Regulations (CFR) 1.6002(l) and is subject to 150-day shot clock for permit approval as established by Federal Communications Commission (FCC) for wireless telecommunications facility (wireless shot clock). The 150-day wireless shot-clock for this application ends on October 22, 2024.

As of the writing of this report, no public comments were received for this project. A public notice was mailed to all property owners within a 300-foot radius on August 22, 2024, and was also published in the Post Records on [August 19, 2024](#)¹.

STAFF REPORT REVIEW

Prepared by: Buyan Batbaatar, Assistant Planner

Buyan Batbaatar

Reviewed by: Charu Ahluwalia, Senior Planner

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Charu Ahluwalia
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Reviewed by: Samuel Gutierrez, Principal Planner

DocuSigned by:
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¹ San Jose Post Record – Legal Notices August 19, 2024; <https://www.postrecord.news/home.cfm?ref=legalnotices&disp=2>

ATTACHMENT A

Use of a Prior CEQA Document

USE OF A PRIOR CEQA DOCUMENT PROGRAM ENVIRONMENTAL IMPACT REPORT (EIR)

Pursuant to Section 15162 of the CEQA Guidelines, the County of Santa Clara has determined that the project described below is pursuant to or in furtherance of an Environmental Impact Report which has been previously adopted and does not involve new significant impacts beyond those analyzed in the previous Environmental Impact Report.

File Number	APN(s)	Date
PLN23-195	142-21-084	August 28, 2024
Project Name	Project Type	
New Wireless Telecommunication Facility for Crown Castle in the Faculty Subdivision	Architecture and Site Approval	
Owner	Applicant	
Crown Castle/ Stanford University	Erich Snow, Project Manager	
Project Location		
30 Ryan Court., Stanford		
Project Description		
<p>The proposed project is for a new forty-nine (49) feet and eleven (11) inch high wireless telecommunication facility and associated ground-based equipment at 30 Ryan Court, Stanford. The monopole will be located within a 204-square-foot leasehold area disguised as a pine tree to help minimize visual impacts to passers-by. The proposed telecommunications tower will include antenna tri mount and three-panel antennas centered at forty-seven (47) feet level. Associated ground-based improvements include eighty-five (85) square foot concrete pad, nine remote radio units, two H-frames, distribution panel, fiberoptics cabinet and two cable ice bridges. The monopole and associated telecommunication equipment will be located behind an eight-foot-tall chain link fence with black slats. No grading, landscaping, tree removal, parking or exterior lighting is proposed with this project.</p>		
Background and Summary of Findings		

Per the California Environmental Quality Act (CEQA) of 1970 (as amended), all development permits processed by the County Planning Office which require discretionary approval are subject to environmental review. A new Negative Declaration or EIR is not required if a previous CEQA document has been prepared and adopted or certified which adequately addresses all the possible environmental impacts of the proposed project and (a) no substantial changes are proposed in the project which will result in new significant environmental effects, (b) no substantial changes have occurred with respect to the circumstances under which will result in the identification of new significant impacts, or (c) no new information is available which shows that the project will have new significant impacts or mitigation measures and alternatives which were previously found to be infeasible would now in fact be feasible (CEQA Guidelines 15162).

The Planning Office evaluated the project described above and has determined that none of the circumstances exist that would require additional environmental review. As such the environmental impacts of the project have been adequately evaluated in the Environmental Impact Report adopted by the Board of Supervisors on December 15, 2000, for the project entitled "Stanford University Community Plan and General Use Permit" and no further environmental review is required under the California Environmental Quality Act.

<p>Approved by: Buyan Batbaatar, Assistant Planner</p>	<p><i>Buyan Batbaatar</i> _____ Signature</p>	<p>8/28/2024 _____ Date</p>
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ATTACHMENT B

Preliminary Conditions of Approval

ATTACHMENT B
PRELIMINARY CONDITIONS OF APPROVAL
FOR
ARCHITECTURE & SITE APPROVAL

Date: August 28, 2024
Owner/Applicant: Eric Snow, Stanford University
Location: 30 Ryan Court., Stanford (APN: 142-21-084)
File Number: PLN23-195
CEQA: Prior CEQA - 2000 Stanford Community Plan and General Use Permit (GUP) Program Environmental Impact Report (EIR)
Project Description: Architecture and Site Approval for a new wireless telecommunication facility to construct a forty-nine (49) feet and eleven (11) inch tall monopole disguised as a pine tree and associated ground-based equipment. A 204-square-foot leasehold area will house all of the associated telecommunication equipment, including the monopole. The tower will include an antenna tri mount and three-panel antennas centered at forty-seven (47) feet level. Associated ground-based improvements include eighty-five (85) square foot concrete pad, nine remote radio units, two H-frames, distribution panel, fiberoptic cabinet and two cable ice bridges. The tower and the ground equipment will be located behind an eight-foot-tall chain-link fence with black slats. No grading, landscaping, tree removal, parking or exterior lighting is proposed with this project.

If you have any questions regarding the following preliminary conditions of approval, call the person whose name is listed as the contact for that agency. They represent a specialty or office and can provide details about the conditions of approval.

Agency	Name	Phone	E-mail
Planning	Buyan Batbaatar	(408) 299-6724	buyan.batbaatar@pln.sccgov.org
Environmental Health	Darrin Lee	(408) 573-2464	darrin.lee@cep.sccgov.org
Fire Marshall	Alex Goff	(408) 299-5763	alex.goff@sccfd.org
Land Development and Engineering	Darrell Wong	(408) 299-5735	darrell.wong@pln.sccgov.org
Roads and Airport	Thomas Esch	(408) 573-2450	tom.esch@rda.sccgov.org

STANDARD CONDITIONS OF APPROVAL

Building Inspection

1. For detailed information about the requirements for a building permit, obtain a Building Permit Application Instruction handout from the Office of Building Inspection or visit their website (www.sccbldg.org).

Planning

2. Development and maintenance of the project site shall take place in accordance with approved plans, received by the Planning Department on June 26, 2024, and as approved by the Zoning Administrator. The project establishes a new forty-nine (49) feet and eleven (11) inch tall monopole and associated ground-based equipment. The plans submitted into Plan Check shall be in substantial conformance with the approved plans. Any changes to the approved project included such as (but not limited to) the design, quantity, location or other modifications to the approved plans are required to be submitted for review by the Planning Office and may result in a Modification to the approved ASA, and may be subject to additional review under the California Environmental Quality Act (CEQA).
3. Future additional telecommunication alterations / additions shall incorporate a similar design and finish as those included in this approval.
4. All painted, or otherwise treated, surfaces of the faux pine tree, antennas, fence enclosure and all ground-based equipment shall be maintained at all times to avoid paint peeling or bare material surfaces from being exposed. If the exterior surfaces are improperly maintained, the approval may be revoked and subject to violation and fines.
5. Flags, banners, streamers, or other devices are not approved and may not be attached to the tower, antennas, fence enclosure or any supporting structures.
6. The permittee shall keep the project site free of graffiti. "Graffiti" means any unauthorized inscription, writing, lettering, word, figure, mark, design or other inscribed material that is written, marked, etched, scratched, drawn, painted or otherwise placed on any structures, fences, or other permanent or temporary surfaces.
7. All telecommunications equipment installed on-site shall comply with the standards of the Federal Communications Commission (FCC) for health, safety, and other pertinent requirements.
8. No signs are approved at this time, except for (1) informational sign that provides phone numbers to be used in case of an emergency posted at the outer perimeter of the project site as indicated in the "Radio Frequency Safety Predictive Report" prepared for this application on July 24, 2024. Sign must be in compliance with FCC rules regarding required telecommunication facility signage. Such signs shall be limited to an area of one square foot or the minimum area required by the applicable FCC rules.
9. The project shall comply with the Stanford University 2000 General Use Permit Conditions of Approval, and approved Stanford University 2000 GUP Mitigation Monitoring and Reporting Program.

10. Stanford shall be responsible for paying all reasonable costs associated with work by the County Planning Department, or with work conducted under the supervision of the County Planning Office, in conjunction with, or in any way related to the conditions of approval identified in this project. This includes but is not limited to costs for staff time, consultant fees, and direct costs associated with report production and distribution.
11. In the event that previously unidentified historic or prehistoric archaeological resources are discovered during construction, the contractor shall cease work in the immediate area and the County Planning Office and Campus Archaeologist shall be contacted. An independent qualified archaeologist retained by the County at the expense of Stanford shall assess the significance of the find and make mitigation recommendations.
12. If archeological resources are discovered as described above, construction monitoring shall be conducted at any time ground-disturbing activities (greater than 12 inches in depth) are taking place in the immediate vicinity of the identified resources. If monitoring does not produce evidence of significant cultural resources within the project area, further mitigation shall be limited to construction monitoring, unless additional testing or other specific mitigation measures are determined by a qualified archaeologist to be necessary to ensure avoidance of damage to significant archaeological resources. A technical report of findings describing the results of all monitoring shall be prepared in accordance with professional standards. The archaeological monitoring program shall be implemented by an individual meeting the Secretary of Interior Professional Qualifications Standards in Archaeology (36 CFR 61); individual field monitors shall be qualified in the recognition of cultural resources and possess sufficient academic and field training as required to conduct the work effectively and without undue delay.
13. In the event that human skeletal remains are encountered, the applicant is required by County Ordinance No. B6-18 to immediately notify the County Coroner. Upon determination by the County Coroner that the remains are Native American, the coroner shall contact the California Native American Heritage Commission, pursuant to subdivision (c) of section 7050.5 of the Health and Safety Code and the County Coordinator of Indian affairs. No further disturbance of the site may be made except as authorized by the County Coordinator of Indian Affairs in accordance with the provisions of state law and this chapter. If artifacts are found on the site a qualified archaeologist shall be contacted along with the County Planning Office. No further disturbance of the artifacts may be made except as authorized by the County Planning Office.
14. In the event that fossilized shell or bone is uncovered during any earth-disturbing operation, contractors shall stop work in the immediate area of the find and notify the Campus Archaeologist and the County Building Inspector assigned to the project. The Campus Archaeologist shall visit the site and make recommendations for treatment of the find (including but not limited to consultation with a paleontologist and excavation, if warranted), which would be sent to the County Building Inspection Office and the County Planning Office. If a fossil find is confirmed, it will be recorded with the United States Geological Survey and curated in an appropriate repository.

Environmental Health

15. All construction activities shall be in conformance with the Santa Clara County Noise Ordinance Section B11-154 and prohibited between the hours of 7:00 p.m. and 7:00 a.m. on weekdays and Saturdays, or at any time on Sundays for the duration of construction.

Land Development and Engineering

16. Property owner is responsible for the adequacy of any drainage facilities and for the continued maintenance thereof in a manner that will preclude any hazard to life, health or damage to adjoining property.

CONDITIONS OF APPROVAL TO BE COMPLETED PRIOR TO BUILDING PERMIT ISSUANCE

Planning

17. The color of all exterior surfaces shall be non-reflective, have a Light Reflectivity Value (LRV) of 45 or less and blend in with the surrounding tree canopy and minimize visual impact. Label the elevations indicating the green and brown color and compliant LRV level. Prior to issuance of the Building Permit, submit a color sample for the faux tree foliage, the faux tree bark, and any other equipment visible from outside the fence enclosure to the Planning Office.
18. Place a construction note on the site plan that states the following: *“All construction contractors shall properly maintain the equipment and where feasible, use “clean fuel” equipment and emissions control technology (e.g., CNG fired engines, catalytic converters, particulate traps, etc.). Measures to reduce diesel emission would be considered feasible when they are capable of being used on equipment without interfering substantially with equipment performance.”*
19. Submit a Final Construction Management and Logistics Plan for approval by Planning and Land Development Engineering, **prior to issuance of any building permits.**
20. The following tree removal/protection requirements shall apply:
 - A. No tree removal is approved with this project.
 - B. All trees in the project area shall remain and are protected after the approval of this ASA.
 - C. If any trees are proposed to be removed after the approval of the ASA, further review by the Planning Office may be required to assess the visual impact of the tree removal to the project and surrounding area.
 - D. Final plans shall show the size and species of all trees over 12 inches in diameter (at 4.5 feet above grade) within the proposed work area for the project and clearly label all trees.
21. No landscaping is approved with this project.
22. No exterior lighting is approved with this project.

23. Adequate signs shall be posted along the street frontages or in front of the project site, no smaller than 1,296 square inches in size, containing the name, telephone number, and email address of the appropriate Stanford person the public may contact to register a complaint about construction noise. Additionally, Stanford shall create an outreach and information portal to facilitate information and alerts to be delivered to the immediate neighborhoods on construction activities. Stanford shall keep a written record of all such complaints and shall provide copies of these records to the County Planning Office.
24. Preconstruction surveys for nesting raptors and migratory birds shall be conducted by a qualified ornithologist to identify active nests that may be disturbed during project implementation. Between January 1 and April 30, preconstruction surveys shall be conducted no more than 14 days **prior to the initiation of construction activities or tree removal**. Between May 1 and August 31, preconstruction surveys no more than 30 days **prior to the initiation of these activities**. Stanford University shall conduct an additional preconstruction survey within 24 hours of initiation of construction activities, by the Campus Biologist, to verify no new nesting has occurred. If an active nest is found near, or in close proximity to, the construction area where the nest could be disturbed by these activities, the ornithologist or Campus Biologist, shall, in consultation with the California Department of Fish and Game, designate a construction free buffer zone (typically 250 feet) around the nest.

Environmental Health

25. Submit plans and associated documentation and required fees to the Hazardous Materials Compliance Division (HMCD) of the Department of Environmental Health at 1555 Berger Drive, Suite 300, San Jose, CA 95112-2716. Contact HMCD at (408) 918-3400 to ensure all necessary materials are included in the plan submittal. This is a separate submittal to DEH and additional fees may apply.
26. Submit a completed Hazardous Materials Clearance Form (available at www.EHinfo.org/hazmat) to the Hazardous Materials Compliance Division of the Department of Environmental Health (1555 Berger Drive, Suite 300 San Jose CA 95112). This is a separate submittal to DEH and additional fees may apply. As evidence of achieving hazmat clearance through Environmental Health, provide/ furnish a copy of the signed hazmat clearance as part of the formal building permit application.

Fire Marshall

27. Any fuel or battery quantities (including kWh) to be shown at Building Permit submittal. This includes back-up power such as a generator to be reviewed per CFC limits. A separate Fire Hazmat Permit will be required if CFC limits are exceeded.

Land Development and Engineering

28. Survey monuments shall be shown on the building plans to provide sufficient information to locate the proposed improvements and the property lines. Existing monuments must be exposed, verified and noted on the grading plans. Where existing monuments are below grade, they shall be field verified by the surveyor and the grade shall be restored and a temporary stake shall be placed identifying the location of the found monument. If existing

survey monuments are not found, temporary staking delineating the property line may be placed prior to construction and new monuments shall be set prior to final acceptance of the improvements. The permanent survey monuments shall be set pursuant to the State Land Surveyor's Act. The Land Surveyor / Engineer in charge of the boundary survey shall file appropriate records pursuant to Business and Professions Code Section 8762 or 8771 of the Land Surveyors Act with the County Surveyor.

29. The building plans shall include an Erosion and Sediment Control Plan that outlines seasonally appropriate erosion and sediment controls during the construction period). Include the County's Standard Best Management Practice Plan Sheets BMP-1 and BMP-2 with the Plan Set.
30. All applicable easements affecting the parcel(s) with benefactors and recording information shall be shown on the improvement plans.

Utilities

31. All new on-site utilities, mains and services shall be placed underground and extended to serve the proposed development. All extensions shall be included in the building plans. Off-site work should be coordinated with any other undergrounding to serve other properties in the immediate area.

Storm Water Treatment – SF Bay Watershed

32. It's recommended that the developer include one of the following site design measures in the project design:
 - A. direct hardscape and/or roof runoff onto vegetated areas or
 - B. construct hardscape (driveway, walkways, patios, etc.) with permeable surfaces.

Though only one site design measure is required, it is encouraged to incorporate as many site design measures as possible into the project. For additional information, please refer to the C.3 Stormwater Handbook (April 2012) available at the following website:

§ www.scvurppp.org > Resources > reports and work products > New Development and Redevelopment > C.3 Stormwater Handbook

Roads and Airport

33. Stanford Avenue is a County Maintained Road. The signalized intersection at Stanford Avenue and Raimundo Way is County maintained. Improvement plans must indicate the following: Stanford Avenue is a County Maintained Road, Raimundo Way is Not County maintained.
34. Obtain a Santa Clara County Roads and Airports Department Encroachment Permit that is specific for the improvements that will occur in the County ROW, and/or for traffic control within the County ROW. The process for obtaining an Encroachment Permit and the forms that are required can be found at: <https://countyroads.sccgov.org/encroachment-permits>.

35. Improvement plans submitted for the County Encroachment Permit must clearly indicate existing and proposed site conditions within the County ROW, including but not limited to, edge of pavement, existing ROW line, above and below ground utility lines, easements, drainage facilities, trees, landscaping, and other structures and features. All utility relocations, replacements, abandonments, temporary facilities, and new facilities shall be shown.
36. Improvement plans must show County utilities. Contact County Roads and Airports (Land Development and Permits unit) to obtain as-built information for the signalized intersection.

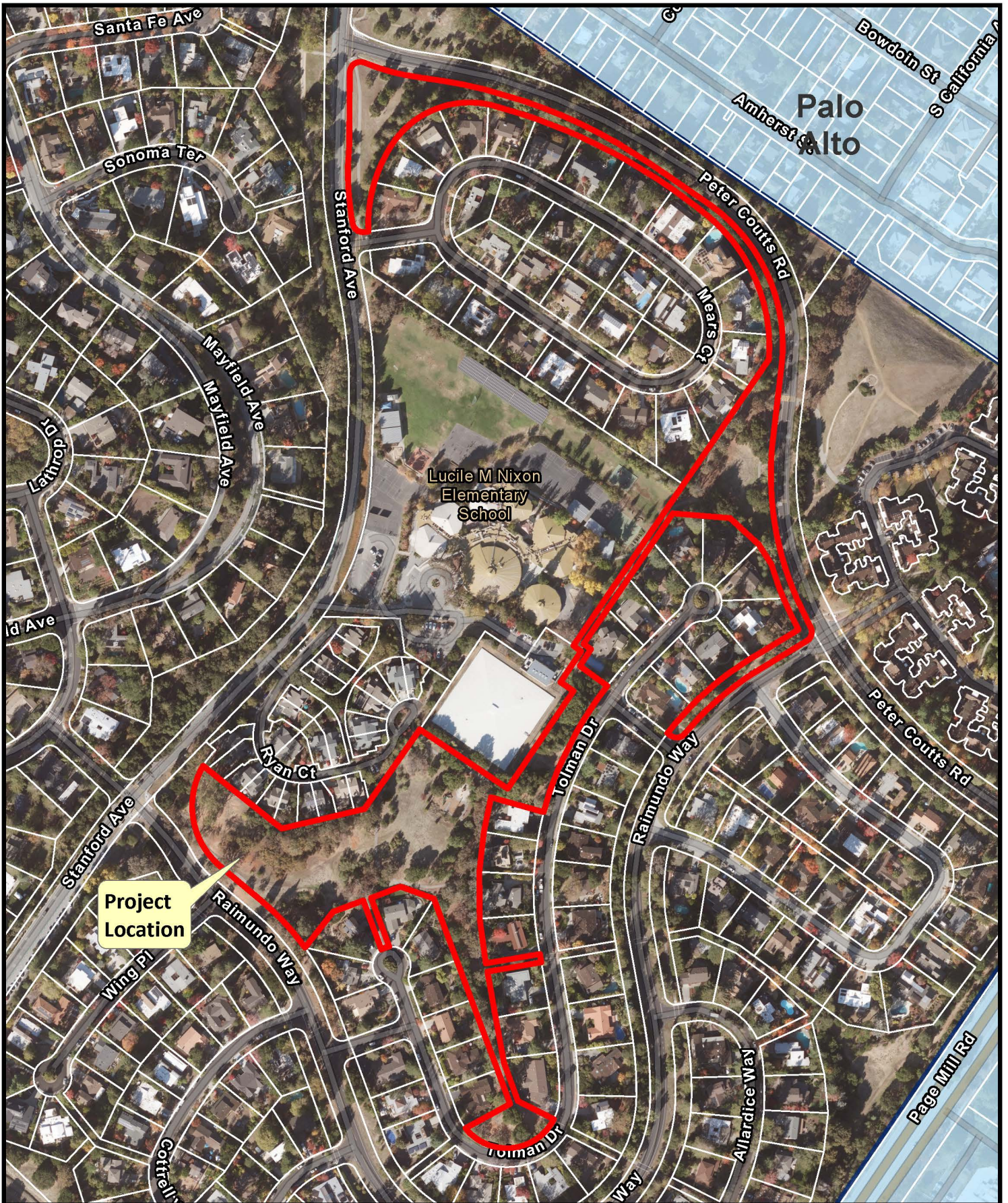
CONDITIONS OF APPROVAL TO BE COMPLETED PRIOR TO OCCUPANCY OR FINAL INSPECTION

Planning

37. Following completion of construction, contact the Planning Department (Buyan Batbaatar at 408-299-6724) **at least two weeks in advance** to set up an appointment to schedule a site visit to verify the development is consistent with conditions of approval and the approved design including exterior materials and colors.

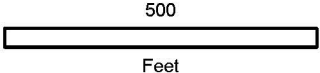
ATTACHMENT C

Location and Vicinity Map



Location and Vicinity Map

Record No. PLN23-195
APN 142-21-084
30 Ryan Ct., Stanford





ATTACHMENT D

Project Description



Stanford

January 27th, 2023

Ms. Charu Ahluwalia
Santa Clara County Planning Office
70 West Hedding, East Wing, 7th floor
San Jose, CA 95110

Re: Proposal for two Monopine Cell Towers in the Faculty Subdivision

Dear Charu:

Stanford University is proposing the installation of two unmanned wireless telecommunications facilities ("monopines") in the Faculty Subdivision. One monopine is located at 611 Mirada Avenue ("RAN 30"), and the second is located at 30 Ryan Court ("RAN 32"). The heights of the monopines are 49'-0" and 49'-11," respectively. A fenced equipment area of 12'-0" by 17'-0" is proposed at the base of each monopine.

The goal of this project is to enable more complete cell phone coverage in the Faculty Subdivision. For many years, there has been limited cell phone coverage in the subdivision area, resulting in public safety concerns. As reliance on cell phones increases and the usage of landlines decreases, Stanford would like to support better cell phone coverage so that residents can reliably reach emergency services.

Pertinent project information:

1. Stanford University administration and campus residential leaseholders have been in conversation to find optimal locations for siting the cell towers. Please refer to **Attachment A** for a record of outreach conducted for these two sites.
2. The proposed facilities have been co-located where feasible. **Attachment B** shows how the project would improve wireless telecommunications coverage in the vicinity and illustrates the lack of existing facilities in the vicinity.
3. No guy wires are proposed on the structures.
4. The signage proposed on the monopines, and equipment areas is limited to warning and informational signs only. There are no additional signs proposed.

5. The project does not propose any tree removal.
6. We understand that the proposed monopine use is subject to ASA and is not subject to a use permit. Also, the project appears to qualify for the Class 3 categorical exemption for “construction and location of limited numbers of new, small facilities or structures.” 14 Cal. Code Regs. § 15303. We request that the County consider processing this application under the Class 3 categorical exemption.

Thank you for your attention to this.

Ramya Subramanian, LEED AP
Planner
Land Use and Environmental Planning

cc: Erich Snow

Attachment A - Record of outreach conducted by Stanford for RAN 30 and RAN 32

Attachment B - Wireless telecommunication facilities in the vicinity

Attachment A – Community Outreach

Dear Charu,

Over the past several years, we have had many outreach meetings as well as site walks to locate the much-needed cell towers within the Stanford Faculty Residential Areas with various stakeholders, such as the Stanford Campus Residential Leaseholders (SCRL) - Executive Board, Full Board and individual residences, via zoom meetings and field visits. We've also met Faculty/Staff Housing, Stanford University Government Relations, President & Provost Office, Lands, Buildings & Real Estate (LBRE) – Land Use and Environmental Planning (LUEP), and University Architect/Campus Planning & Design. Several of these stakeholders have required multiple meetings/site visits as well as meetings with Crown Castle - Stanford's Distributed Antenna System (DAS) vendor, and the carriers (AT&T, Verizon, T-Mobile).

The following is a high-level summary of outreach meetings and site visits that were held for this project.

2010 – Discussion with Tony Sigmond, President of the SCRL and faculty resident, about adding cell coverage to the faculty residential areas due to very poor coverage.

2011-2017 – Many meetings held with Crown Castle and carriers to design the optimal locations.

March 2018 - Once the optimal locations were determined, we started walking the sites with Crown Castle, Katie Shoven (SCRL Planner) and Drew Brown (University Architect & Planning Office). Based on the feedback received from SCRL and UA/CPD, Crown Castle proposed additional locations. These site walks and discussions resulted in the approval of 3 locations. Crown Castle then went back to the carriers and the currently proposed 2 locations were accepted, which were RAN 30 (next to the San Juan Water Tower) and RAN 32 (On Raimundo, approximately 150' from Stanford Ave). After Crown and the carriers had landed on the 2 RAN locations, Crown began the design work. Once the design, including photo sims were developed, I circled back with the SCRL Executive Board and then the SCRL Full Board to have them review the plans.

To solicit useful feedback, we then set up meetings with the residents living in the surrounding 400 ft. radius. After meeting with the folks in the RAN 30 area, all the residents in attendance approved of the location.

For RAN 32, we looked at locating the antenna on the corner of Stanford Avenue and Junipero Serra Blvd. but could not find enough room due to the Hetch Hetchy easement and surrounding trees in the area. We then moved the location to the corner of Stanford Avenue and Raimundo which was closer to the residences. After meeting with residents for the RAN 32 new location, we had one resident who was very against the

location being close to their back yard. We went back to the design board and found a second location across the street, down a little further on Raimundo, then had a follow up meeting. This location was better received but we had 2 new residents who wanted to do a deeper dive. We met with them on-site and moved the location about 10 feet to a location both agreed with and that is where we are currently are showing RAN 32, after receiving their approval.

I would like to highlight that Stanford UIT has received many complaints about very poor cell coverage along the Junipero Serra Blvd. as well as into the faculty residential areas. These 2 antenna locations will greatly improve coverage along this area. They will also improve cell coverage on the JSB side of the “Dish Walk”, a popular walking/hiking site for Stanford and the greater community at large and improve safety by having coverage to enable 911 calls.

The following is a timeline of meetings held with the various stakeholders.

March 2018 – Performed site walk with SCRL Planner, SCRL Exec Director, SU-LBRE-Architect & Planning Office

June 2018 – Met with the SCRL Executive Board

August 2018 - Met with Faculty/Staff Housing Staff

January 2019 – Met with SU Government Relations Staff

June 2019 – Met with the SCRL Executive Board

December 2019 – Met with the SCRL Executive Director

February 2019 – Received approval from Hoover House/President’s Office for RAN 30

February & November 2020 – Met with all the Board members of SCRL

September 2020 – Met with SCRL Residents (residing within 400ft of each site)

- First response was “approved” from faculty for RAN 30.
- First response was negative from Faculty for RAN 32. We moved the location across the Raimundo and further down the street. Met again and had 2 residents still concerned. I met with these 2 residents on-site. They tweaked the location slightly and then approved RAN 32.

March 2021 – Site meet at RAN 32

May 2021 – Met again with SU-LBRE-Architect & Planning office to confirm location.

January 2022 – SCRL Community Town Hall (all residences)

Kindly note that the outreach effort described above is in addition to the many e-mails and phone calls I’ve answered over the last several years to land on optimal locations that will fill the gaps in network coverage.

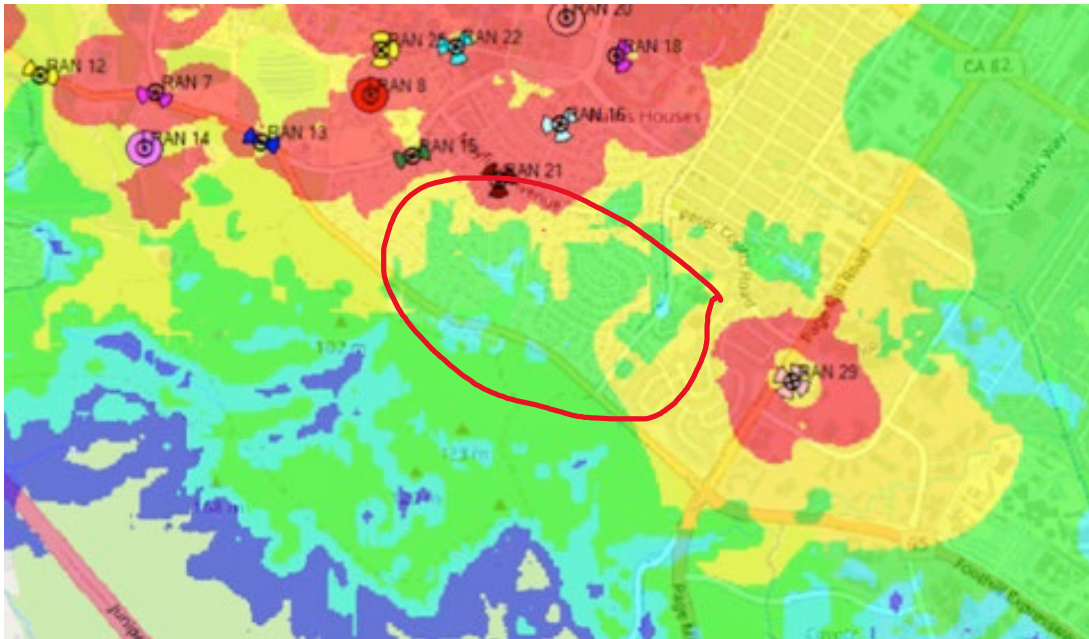
Thank you,

Erich Snow, RCDD

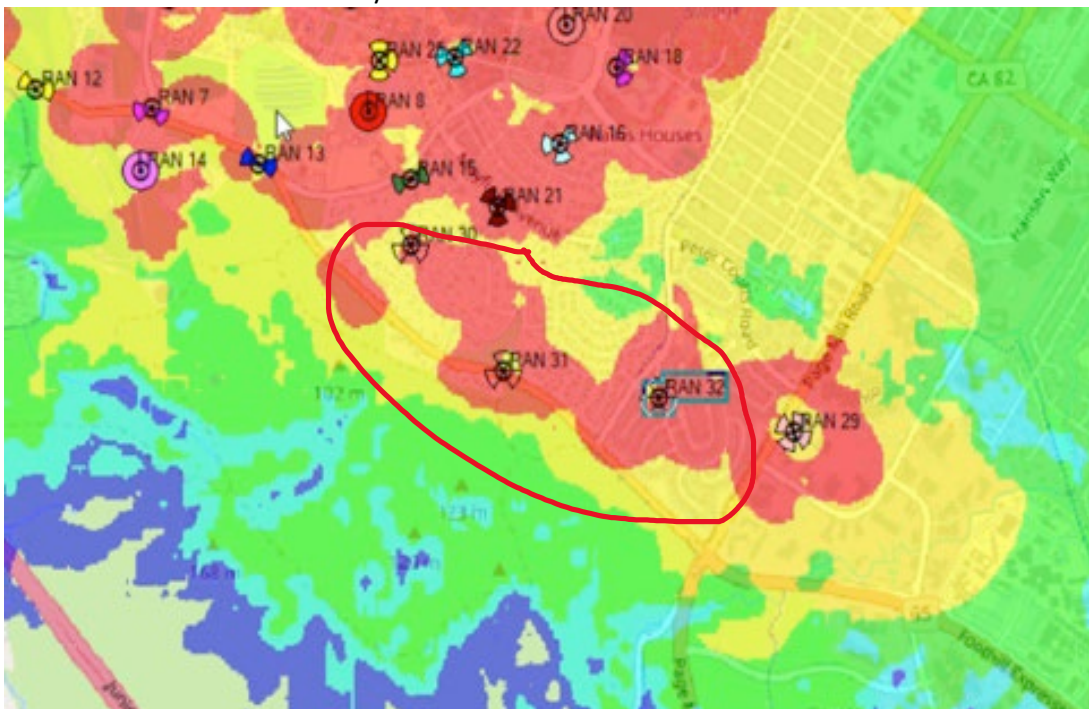
Director, IT Services – Facilities Operations

Attachment B – coverage maps (before and projected after)
NOTE: These are projections and actual coverage will vary slightly.

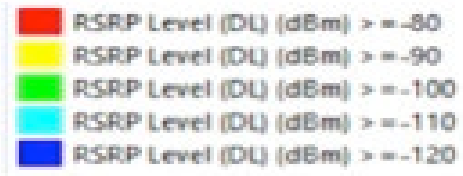
BEFORE installation of RAN 30/32



AFTER installation of RAN 30/32



dB Level Matrix – NOTE: optimal for good coverage is -90dB or below



ATTACHMENT E

Proposed Project Plans

SITE NAME: STANFORD RAN 32 / VENUE
SITE ADDRESS: 30 RYAN CT. STANFORD, CA 94305
COUNTY: SANTA CLARA
JURISDICTION: SANTA CLARA
SITE TYPE: NEW 49'-11" MONOPINE (NEW FACILITY)
PROJECT: LTE MIMO ON 700MHz AND 1900MHz



SITE NAME: STANFORD RAN 32 / VENUE
SITE ADDRESS: 30 RYAN CT. STANFORD, CA 94305
SITE TYPE: NEW 49'-11" MONOPINE (NEW FACILITY)
HUB NAME: ECH BUILDING
ADDRESS: 253 BONAIR SIDING, STANFORD CA 94305
COORDINATES: 37.429290/-122.156116

SITE INFORMATION	
CROWN CASTLE FIBER LLC	
SITE NAME:	STANFORD RAN 32 / VENUE
SITE ADDRESS:	30 RYAN CT. STANFORD, CA 94305
PROPERTY OWNER:	STANFORD UNIVERSITY 616 SERRA ST STANFORD, CA 94305
MAP/PARCEL #:	142-21-084
LATITUDE:	37.412162
LONGITUDE:	-122.158581
GROUND ELEVATION:	±236'
CURRENT ZONING:	R1S-a3
JURISDICTION:	SANTA CLARA
LEASE AREA:	±204 SQFT
ACCESSIBILITY REQUIREMENTS:	THE FACILITY IS UNMANNED AND NOT FOR CONTINUOUS HUMAN HABITATION. DISABLED / CHALLENGED ACCESS IS NOT REQUIRED PER CBC 2022, SECTION 11B-203.4(LIMITED ACCESS SPACE)
POWER COMPANY:	STANFORD UNIVERSITY
WATER COMPANY:	SANTA CLARA VALLEY WATER DISTRICT

DRAWING INDEX	
SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
GN-1	GENERAL NOTES
F-1	FIRE PROTECTION INFORMATION
A-1	EXISTING SITE PLAN
A-1	PROPOSED SITE PLAN
A-2	ENLARGED SITE PLAN
A-2.1	CONSTRUCTION & LOGISTICS PLAN
A-3	ANTENNA PLAN LAYOUT
A-4	EQUIPMENT PLAN LAYOUT
A-5	ELEVATIONS
A-6	ELEVATIONS
A-7	TREE DISPOSITION
D-1	EQUIPMENT DETAILS
D-2	EQUIPMENT DETAILS
D-3	EQUIPMENT DETAILS
S-1	STRUCTURAL NOTES & SPECIAL INSPECTION

PROJECT TEAM APPROVAL	
CROWN (NRE): _____	(DATE)
CROWN (PM): _____	(DATE)
CROWN (RF): _____	(DATE)
STANFORD (IT): _____	(DATE)
GUP CHECKLIST: _____	(DATE)

LOCATION MAP

FROM CROWN CASTLE OFFICE: 1 PARK PL, DUBLIN, CA 94568

- GET ON I-580 W FROM HACIENDA DR
- TAKE I-680 S TO CA-262 S/MISSION BLVD IN FREMONT. TAKE EXIT 12 FROM I-680 S
- TAKE I-880 S, CA-237 W AND US-101 N TO OREGON EXPY IN PALO ALTO. TAKE EXIT 402 FROM US-101 N
- CONTINUE ON OREGON EXPY. TAKE PAGE MILL RD TO RAIMUNDO WAY
- TAKE A LEFT ON RAIMUNDO WAY

DESTINATION WILL BE ON THE RIGHT

ISSUED FOR:				
REV	DATE	DRWN	DESCRIPTION	QA
4	01/16/2024	PS	100% CONSTRUCTION DWGS	BD
5	01/29/2024	MA	100% CONSTRUCTION DWGS	BD
6	04/10/2024	JDJ	100% CONSTRUCTION DWGS	BD
7	06/13/2024	PS	100% CONSTRUCTION DWGS	BD
8	06/19/2024	JDJ	100% CONSTRUCTION DWGS	BD
9	06/21/2024	JDJ	100% CONSTRUCTION DWGS	AT
10	07/25/2024	JDJ	100% CONSTRUCTION DWGS	AT

PROJECT TEAM	
ARCHITECTURAL & ENGINEERING CONTACTS:	LEAF COMMUNICATIONS 1000 CALLE CORDILLERA SAN CLEMENTE, CA 92673 DAN LEAF- (949) 485-8793 DAN.LEAF@LEAFCOMM.COM
ENGINEER OF RECORD CONTACT:	LEAF COMMUNICATIONS 1000 CALLE CORDILLERA SAN CLEMENTE, CA 92673 ESRA H. PERSELLIN, P.E. - (949) 388-0192 ESRA.PERSELLIN@LEAFCOMM.COM
PROJECT MANAGER CONTACT:	CROWN CASTLE 1 PARK PL, DUBLIN, CA 94568 CHRIS BROOKSBANK CHRIS.BROOKSBANK@CROWNCastle.COM

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO PROPOSE A CO-LOCATION WIRELESS INSTALLATION ON A NEW MONOPINE:

MONOPINE SCOPE OF WORK:

- INSTALL (1) 49'-11" MONOPINE WITH FOUNDATION
- INSTALL (3) PANEL ANTENNAS
- INSTALL (1) ANTENNA TRI MOUNT

GROUND SCOPE OF WORK:

- INSTALL (1) 8'-6"x10'-0" CONCRETE PAD
- INSTALL 8'-0" HIGH CHAIN-LINK FENCE W/ BLACK SLATS
- INSTALL (1) H-FRAME
- INSTALL (9) REMOTE RADIO UNITS
- INSTALL (1) H-FRAME
- INSTALL (4) DISTRIBUTION PANEL
- INSTALL (1) FIBER CABINET
- INSTALL (2) CABLE ICE BRIDGES

NOTE: NO GRADING REQUIRED

DESIGN REFERENCE DOCUMENT:
Leaf-RAN 32-48623243_ATT_RF_Design_Rev03
DATED: 07/16/2018



JURISDICTION APPROVAL

SANTA CLARA COUNTY PLANNING DEPARTMENT 70 W HEDDING ST 7TH FLOOR, EAST WING SAN JOSE, CA 95110	_____	(DATE)
STANFORD UNIVERSITY PLANNING DEPARTMENT 31160 PORTER DR PALO ALTO, CA 94304	_____	(DATE)

APPLICABLE CODES/REFERENCE DOCUMENTS

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:

2022 CALIFORNIA BUILDING CODE
 2022 CALIFORNIA ELECTRICAL CODE
 2022 CALIFORNIA MECHANICAL CODE
 2022 CALIFORNIA ENERGY CODE
 2022 CALIFORNIA FIRE CODE
 CITY/COUNTY ORDINANCES
 ANSI/TIA-222-H

NOTES:

- PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER
- 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 DRAINAGE; NO SANITARY SEWER SERVICE, PORTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.
- ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR FULL SIZE. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

SIGNED: 2024/07/25
EXPIRES: 2025/09/30

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.

CALL CALIFORNIA ONE CALL
 (800) 227-2600
 CALL 3 WORKING DAYS BEFORE YOU DIG!

SHEET TITLE:
TITLE SHEET

SHEET NUMBER: T-1 **REVISION:** 4

SITE WORK GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
2. 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 SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR 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.
3. ALL SITE WORK TO COMPLY WITH QAS–STD–10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE TOWER SITE" AND LATEST VERSION OF TIA 1019 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
4. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS.
5. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
6. 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 CONTRACTOR, OWNER AND/OR LOCAL UTILITIES.
7. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
8. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
9. 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.
10. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
11. 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 PROJECT SPECIFICATIONS.
12. SUBCONTRACTOR 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.
13. NOTICE TO PROCEED– NO WORK TO COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF A PURCHASE ORDER.
14. 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 CROWN STANDARD CED–STD–10253 INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH THE ANSI/TIA–322 (LATEST EDITION).

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND IN ACCORDANCE WITH ASTM A36 UNLESS OTHERWISE NOTED.
2. BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE (3/4") CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
3. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" ASTM A307 BOLTS UNLESS NOTED OTHERWISE.
4. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS.

CONCRETE AND REINFORCING STEEL NOTES:

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. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. SLAB FOUNDATION DESIGN ASSUMING ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
 - CONCRETE CAST AGAINST EARTH.....3 IN.
 - CONCRETE EXPOSED TO EARTH OR WEATHER:
 - #6 AND LARGER.....2 IN.
 - #5 AND SMALLER & WWF.....1 1/2 IN.
 - CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
 - SLAB AND WALLS.....3/4 IN.
 - BEAMS AND COLUMNS.....1 1/2 IN.
5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE. IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

MASONRY NOTES:

1. HOLLOW CONCRETE MASONRY UNITS SHALL MEET A.S.T.M. SPECIFICATION C90, GRADE N. TYPE 1. THE SPECIFIED DESIGN COMPRESSIVE STRENGTH OF CONCRETE MASONRY (F'm) SHALL BE 1500 PSI.
2. MORTAR SHALL MEET THE PROPERTY SPECIFICATION OF A.S.T.M. C270 TYP. "S" MORTAR AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI.
3. GROUT SHALL MEET A.S.T.M. SPECIFICATION C475 AND HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2000 PSI.
4. CONCRETE MASONRY SHALL BE LAID IN RUNNING (COMMON) BOND.
5. WALL SHALL RECEIVE TEMPORARY BRACING. TEMPORARY BRACING SHALL NOT BE REMOVED UNTIL GROUT IS FULLY CURED.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 - CONTRACTOR–
 - SUBCONTRACTOR–
 - TOWER OWNER–
 - OEM–
 - GENERAL CONTRACTOR (CONSTRUCTION)
 - CROWN CASTLE FIBER LLC
 - ORIGINAL EQUIPMENT MANUFACTURER
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR 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 CONTRACTOR AND CROWN CASTLE.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. SUBCONTRACTOR 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.
4. DRAWINGS PROVIDED HERE ARE NOT TO SCALE AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWINGS.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR 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.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

ABBREVIATIONS AND SYMBOLS:

ABBREVIATIONS:

- AGL ABOVE GRADE LEVEL
- BTS BASE TRANSCIEVER STATION
- (E) EXISTING
- MIN. MINIMUM
- REF REFERENCE
- RF RADIO FREQUENCY
- T.B.D. TO BE DETERMINED
- T.B.R. TO BE RESOLVED
- TYP TYPICAL
- REQ REQUIRED
- EGR EQUIPMENT GROUND RING
- AWG AMERICAN WIRE GAUGE
- MGB MASTER GROUND BAR
- EG EQUIPMENT GROUND
- BCW BARE COPPER WIRE
- SIAD SMART INTEGRATED ACCESS DEVICE
- GEN GENERATOR
- IGR INTERIOR GROUND RING (HALO)
- RBS RADIO BASE STATION

SYMBOLS:

- SOLID GROUND BUS BAR
- SOLID NEUTRAL BUS BAR
- SUPPLEMENTAL GROUND CONDUCTOR
- 2-POLE THERMAL–MAGNETIC CIRCUIT BREAKER
- SINGLE–POLE THERMAL–MAGNETIC CIRCUIT BREAKER
- CHEMICAL GROUND ROD
- TEST WELL
- DISCONNECT SWITCH
- METER
- EXOTHERMIC WELD (CADWELD) (UNLESS OTHERWISE NOTED)
- MECHANICAL CONNECTION
- GROUNDING WIRE

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. SUBCONTRACTOR 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. HILTI EPOXY ANCHORS ARE REQUIRED BY CROWN CASTLE.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
5. CABLES SHALL NOT BE ROUTED THROUGH LADDER–STYLE CABLE TRAY RUNGS.
6. EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING AND T1 CONDUCTOR AND 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.
7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH PLASTIC TAPE PER COLOR SCHEDULE. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (I.E. PANEL BOARD AND CIRCUIT ID'S).
8. PANEL BOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
10. POWER, CONTROL AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET & DRY) OPERATION LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED UNLESS OTHERWISE SPECIFIED.
11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN–2 GREEN INSULATION CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION WITH OUTER JACKET LISTED OR LABELED FOR THE LOCATION USED 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 AT NO 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) OR RIGID NONMETALLIC CONDUIT (I.E. RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT) OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) 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 NEC.
21. WIREWAYS SHALL BE EPOXY–COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER).
22. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES 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 BUSHIN ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
23. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL; SHALL MEET OR EXCEED UL 50 AND RATED NEMA 1 (OR BETTER) INDOORS OR NEMA 3R (OR BETTER) OUTDOORS.
24. 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 RATED NEMA 1 (OR BETTER) INDOORS OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
25. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
26. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
27. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
28. INSTALL PLASTIC LABEL ON THE METER CENTER TO SHOW "CROWN CASTLE".
29. ALL CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

GREENFIELD 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 SUBCONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE SUBCONTRACTOR 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 GROUNDING AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG 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 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 AWG 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 AWG 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 WIRES WITH 1–#2 AWG TIN–PLATED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED IN THE FACILITY GROUND 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 PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., 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 TINNED SOLID IN 3/4" LIQUID TIGHT CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD–WELD TERMINATION POINT. THE EXPOSED END OF THE LIQUID TIGHT CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).

NEC INSULATOR COLOR CODE		
DESCRIPTION	PHASE/CODE LETTER	WIRE COLOR
240/120 1Ø	LEG 1	BLACK
	LEG 2	RED
AC NEUTRAL	N	WHITE
GROUND (EGC)	G	GREEN
VDC POS	+	*RED–POLARITY MARK AT TERMINATION
VDC NEG	–	*BLACK–POLARITY MARK AT TERMINATION
240V OR 208V, 3Ø	PHASE A	BLACK
	PHASE B	RED(ORG. IF HI LEG)
	PHASE C	BLUE
480V, 3Ø	PHASE A	BROWN
	PHASE B	ORANGE
	PHASE C	YELLOW

* SEE NEC 210.5(C)(1) AND (2)



SITE NAME:
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VENUE
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30 RYAN CT.
STANFORD, CA 94305
SITE TYPE:
NEW 49'-11" MONOPINE
(NEW FACILITY)
HUB NAME:
ECH BUILDING
ADDRESS:
253 BONAIR SIDING, STANFORD
CA 94305
COORDINATES:
37.429290/-122.156116

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	QA
4	01/16/2024	PS	100% CONSTRUCTION DWGS	BD
5	01/29/2024	MA	100% CONSTRUCTION DWGS	BD
6	04/10/2024	JDJ	100% CONSTRUCTION DWGS	BD
7	06/13/2024	PS	100% CONSTRUCTION DWGS	BD
8	06/19/2024	JDJ	100% CONSTRUCTION DWGS	BD
9	06/21/2024	JDJ	100% CONSTRUCTION DWGS	AT
10	07/25/2024	JDJ	100% CONSTRUCTION DWGS	AT



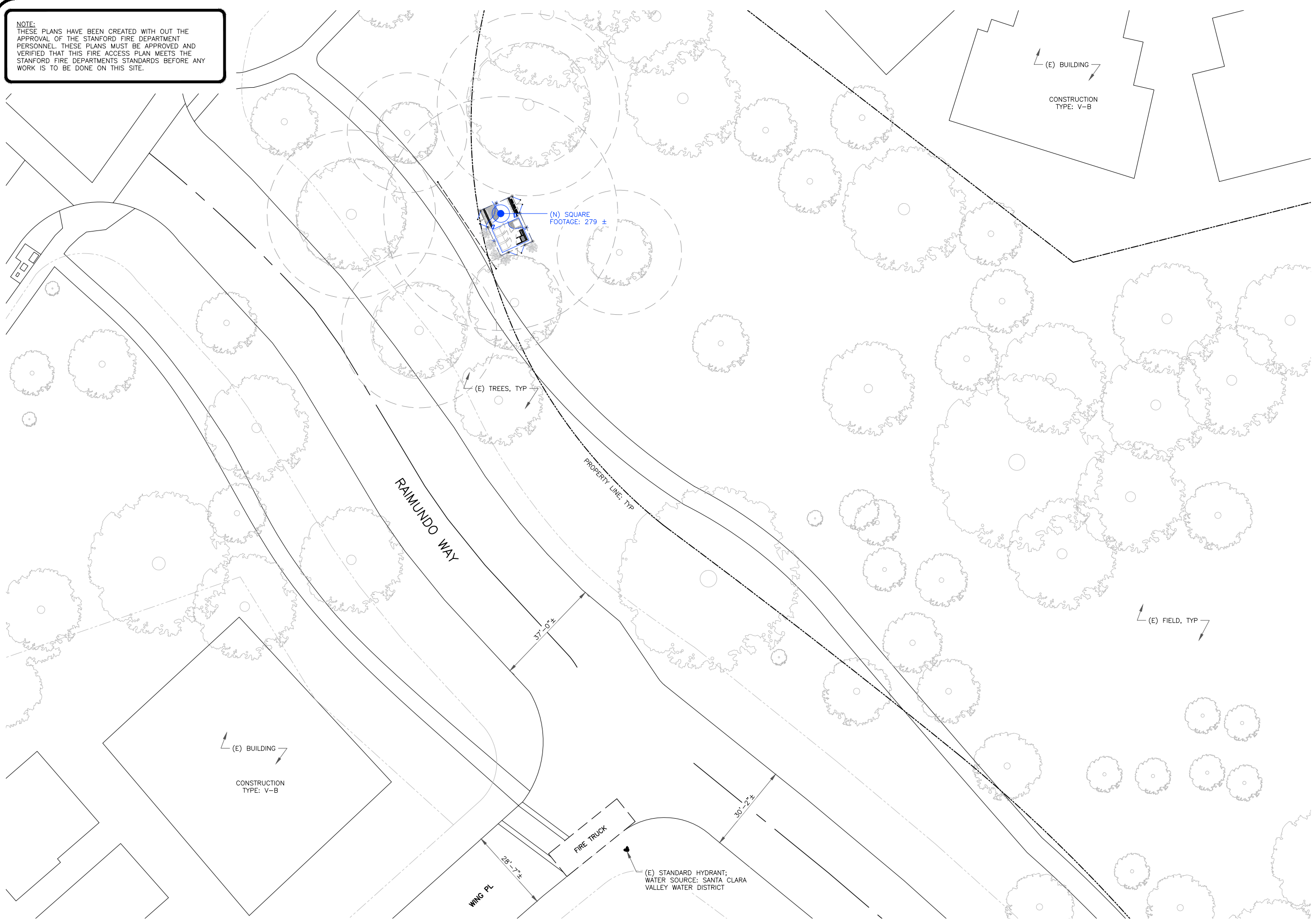
SIGNED: 2024/07/25
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SHEET TITLE:
GENERAL NOTES

SHEET NUMBER: GN-1 **REVISION:** 4

NOTE:
 THESE PLANS HAVE BEEN CREATED WITH OUT THE APPROVAL OF THE STANFORD FIRE DEPARTMENT PERSONNEL. THESE PLANS MUST BE APPROVED AND VERIFIED THAT THIS FIRE ACCESS PLAN MEETS THE STANFORD FIRE DEPARTMENTS STANDARDS BEFORE ANY WORK IS TO BE DONE ON THIS SITE.



1 FIRE PROTECTION INFORMATION
 SCALE: 1/16"=1'-0" (FULL SIZE)
 1/32"=1'-0" (11x17)

CROWN CASTLE
 1 PARK PLACE PLACE
 DUBLIN, CA 94568

LEAF COMMUNICATIONS
 1000 CALLE CORDILLERA
 SAN CLEMENTE, CA 92673
 WWW.LEAFCOMM.COM
 TEL: (949) 388-0192

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SHEET TITLE:
 FIRE PROTECTION INFORMATION

SHEET NUMBER: F-1 **REVISION:** 4

NOTE:
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 2. NO EXISTING PARKING STALLS ARE BEING ADDED OR REMOVED AS PART OF THE NEW INSTALLATION
 3. NO GRADING WORK IS INCLUDED IN THIS SCOPE OF WORK ON THIS PAGE.
 4. PROPERTY LINES SHOWN ARE PRELIMINARY AND DONE WITHOUT THE BENEFIT OF A SITE SURVEY
 5. A SOILS TEST HAS NOT BEEN PERFORMED. THE ANALYSIS IS BASED ON PRESUMPTIVE SOILS PARAMETERS



1 EXISTING SITE PLAN
 SCALE: 1" = 200'-0" (FULL SIZE)
 1" = 400'-0" (11x17)



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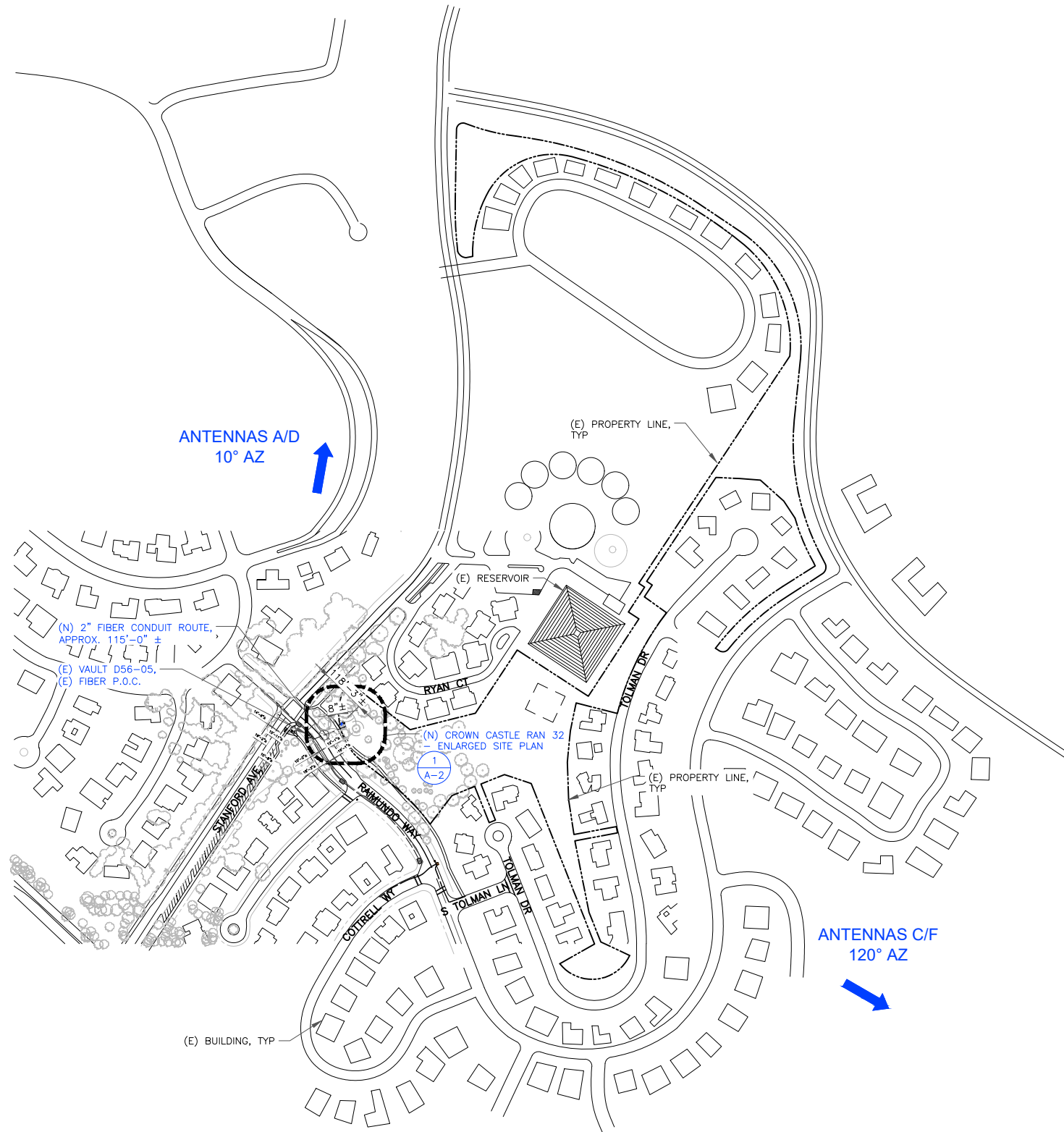
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SHEET TITLE:
 EXISTING SITE PLAN

SHEET NUMBER: A-1 **REVISION:** 4

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ANTENNAS B
 250° AZ

ANTENNAS A/D
 10° AZ

ANTENNAS C/F
 120° AZ

1 PROPOSED SITE PLAN
 SCALE: 1" = 200'-0" (FULL SIZE)
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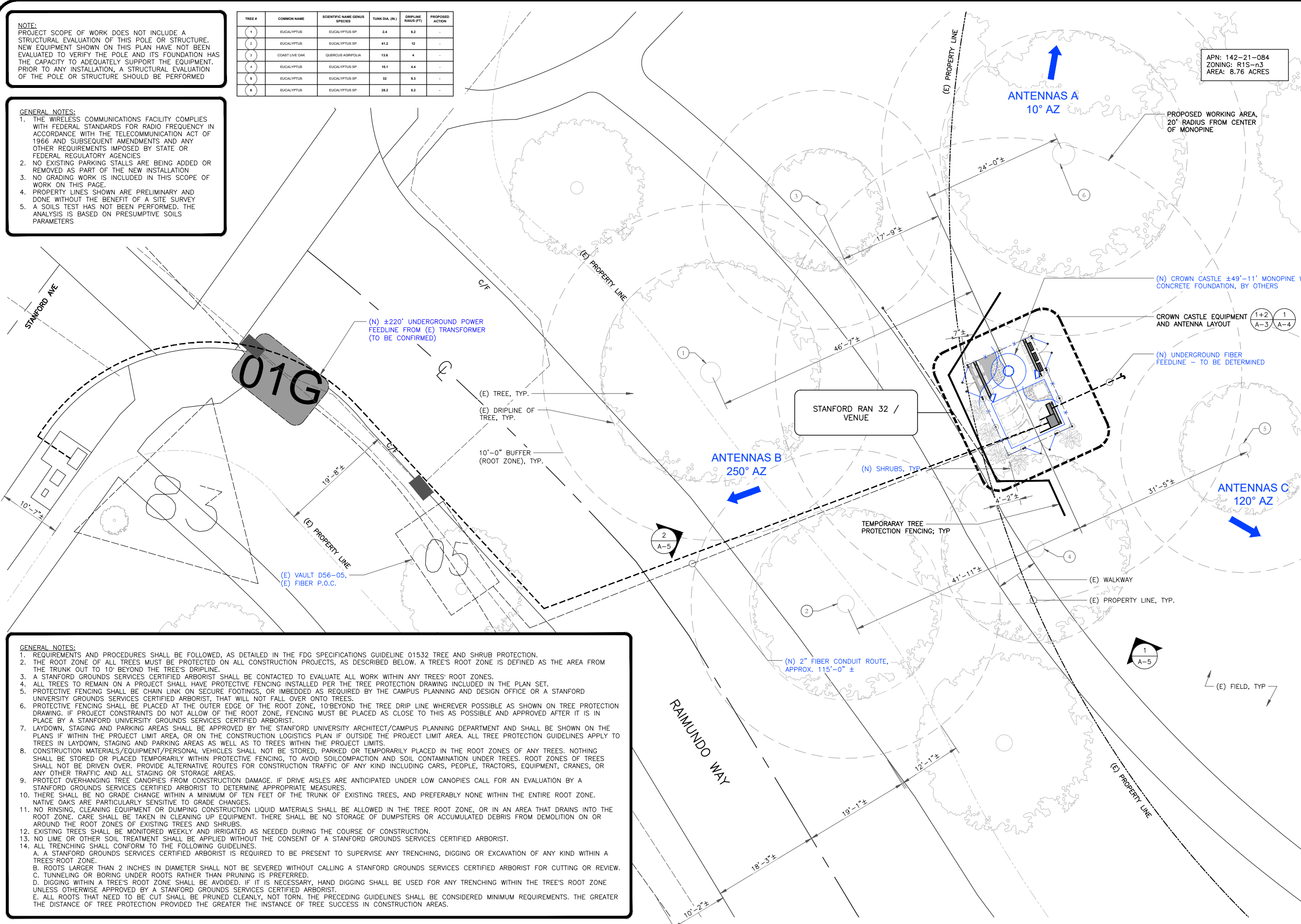
SHEET TITLE:
 PROPOSED
 SITE PLAN

SHEET NUMBER: A-1.1 **REVISION:** 4

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TREE #	COMMON NAME	SCIENTIFIC NAME GENUS SPECIES	TUNK DIA. (IN.)	DRIPLINE RADIUS (FT)	PROPOSED ACTION
1	EUCALYPTUS	EUCALYPTUS SP.	2.4	6.2	-
2	EUCALYPTUS	EUCALYPTUS SP.	41.2	12	-
3	COAST LIVE OAK	QUERCUS AGRIFOLIA	13.6	4	-
4	EUCALYPTUS	EUCALYPTUS SP.	15.1	4.4	-
5	EUCALYPTUS	EUCALYPTUS SP.	32	9.3	-
6	EUCALYPTUS	EUCALYPTUS SP.	28.2	8.2	-



APN: 142-21-084
ZONING: R15-n3
AREA: 8.76 ACRES

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LEAF COMMUNICATIONS

REGISTERED PROFESSIONAL ENGINEER
JOSEPH FITZSIMMONS
81603
CIVIL
STATE OF CALIFORNIA

SIGNED: 2024/07/25
EXPIRES: 2025/09/30

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ENLARGED SITE PLAN

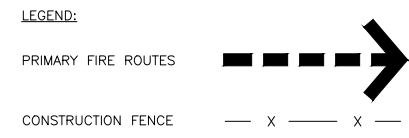
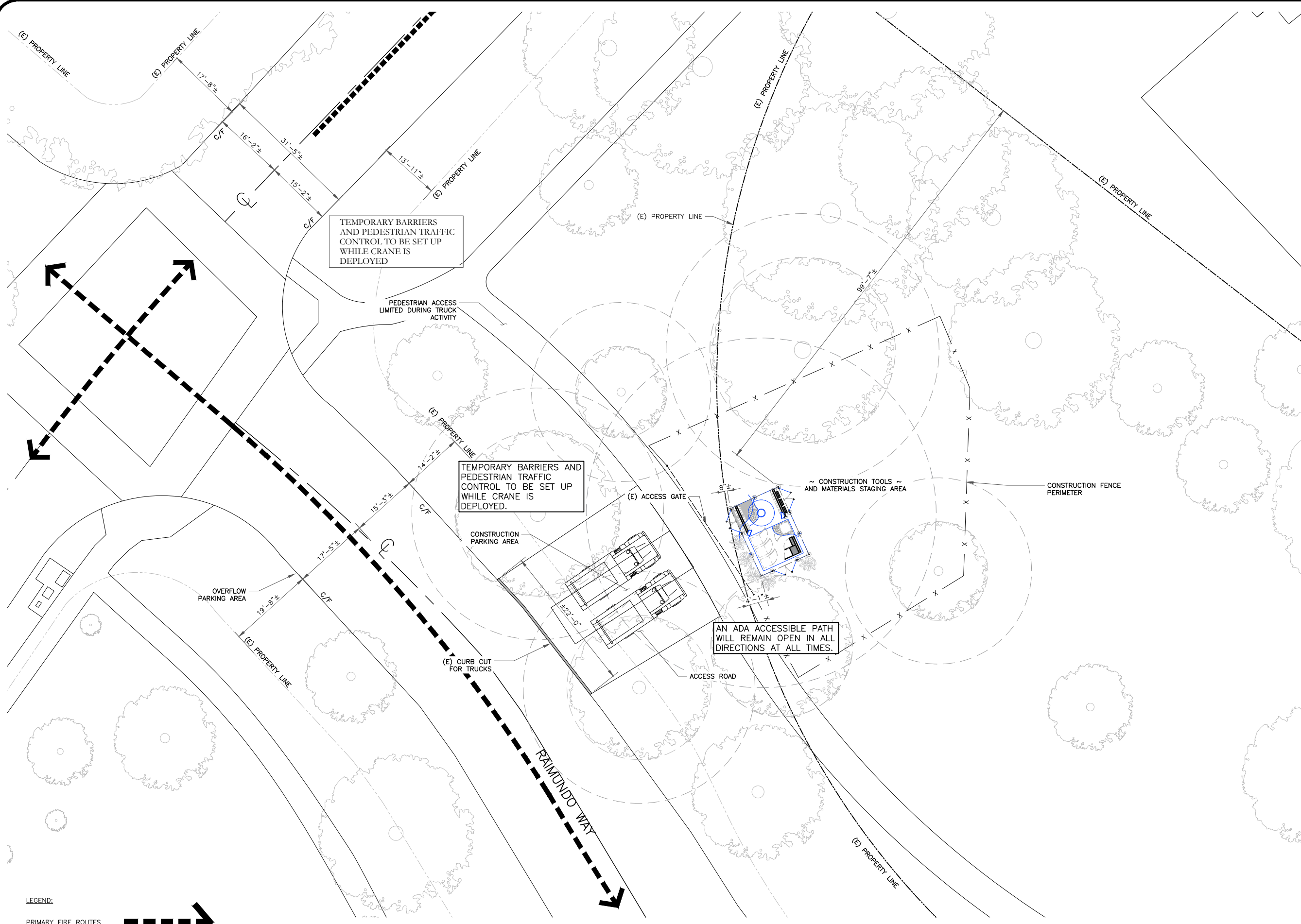
SHEET NUMBER:
A-2

REVISION:
4

GENERAL NOTES:
1. REQUIREMENTS AND PROCEDURES SHALL BE FOLLOWED, AS DETAILED IN THE FDG SPECIFICATIONS GUIDELINE 01532 TREE AND SHRUB PROTECTION.
2. THE ROOT ZONE OF ALL TREES MUST BE PROTECTED ON ALL CONSTRUCTION PROJECTS, AS DESCRIBED BELOW. A TREE'S ROOT ZONE IS DEFINED AS THE AREA FROM THE TRUNK OUT TO 10' BEYOND THE TREE'S DRIPLINE.
3. A STANFORD GROUNDS SERVICES CERTIFIED ARBORIST SHALL BE CONTACTED TO EVALUATE ALL WORK WITHIN ANY TREES' ROOT ZONES.
4. ALL TREES TO REMAIN ON A PROJECT SHALL HAVE PROTECTIVE FENCING INSTALLED PER THE TREE PROTECTION DRAWING INCLUDED IN THE PLAN SET.
5. PROTECTIVE FENCING SHALL BE CHAIN LINK ON SECURE FOOTINGS, OR IMBEDDED AS REQUIRED BY THE CAMPUS PLANNING AND DESIGN OFFICE OR A STANFORD UNIVERSITY GROUNDS SERVICES CERTIFIED ARBORIST, THAT WILL NOT FALL OVER ONTO TREES.
6. PROTECTIVE FENCING SHALL BE PLACED AT THE OUTER EDGE OF THE ROOT ZONE, 10' BEYOND THE TREE DRIP LINE WHEREVER POSSIBLE AS SHOWN ON TREE PROTECTION DRAWING. IF PROJECT CONSTRAINTS DO NOT ALLOW OF THE ROOT ZONE, FENCING MUST BE PLACED AS CLOSE TO THIS AS POSSIBLE AND APPROVED AFTER IT IS IN PLACE BY A STANFORD UNIVERSITY GROUNDS SERVICES CERTIFIED ARBORIST.
7. LAYDOWN, STAGING AND PARKING AREAS SHALL BE APPROVED BY THE STANFORD UNIVERSITY ARCHITECT/CAMPUS PLANNING DEPARTMENT AND SHALL BE SHOWN ON THE PLANS IF WITHIN THE PROJECT LIMIT AREA, OR ON THE CONSTRUCTION LOGISTICS PLAN IF OUTSIDE THE PROJECT LIMIT AREA. ALL TREE PROTECTION GUIDELINES APPLY TO TREES IN LAYDOWN, STAGING AND PARKING AREAS AS WELL AS TO TREES WITHIN THE PROJECT LIMITS.
8. CONSTRUCTION MATERIALS/EQUIPMENT/PERSONAL VEHICLES SHALL NOT BE STORED, PARKED OR TEMPORARILY PLACED IN THE ROOT ZONES OF ANY TREES. NOTHING SHALL BE STORED OR PLACED TEMPORARILY WITHIN PROTECTIVE FENCING, TO AVOID SOIL COMPACTION AND SOIL CONTAMINATION UNDER TREES. ROOT ZONES OF TREES SHALL NOT BE DRIVEN OVER. PROVIDE ALTERNATIVE ROUTES FOR CONSTRUCTION TRAFFIC OF ANY KIND INCLUDING CARS, PEOPLE, TRACTORS, EQUIPMENT, CRANES, OR ANY OTHER TRAFFIC AND ALL STAGING OR STORAGE AREAS.
9. PROTECT OVERHANGING TREE CANOPIES FROM CONSTRUCTION DAMAGE. IF DRIVE AISLES ARE ANTICIPATED UNDER LOW CANOPIES CALL FOR AN EVALUATION BY A STANFORD GROUNDS SERVICES CERTIFIED ARBORIST TO DETERMINE APPROPRIATE MEASURES.
10. THERE SHALL BE NO GRADE CHANGE WITHIN A MINIMUM OF TEN FEET OF THE TRUNK OF EXISTING TREES, AND PREFERABLY NONE WITHIN THE ENTIRE ROOT ZONE. NATIVE OAKS ARE PARTICULARLY SENSITIVE TO GRADE CHANGES.
11. NO RINSING, CLEANING EQUIPMENT OR DUMPING CONSTRUCTION LIQUID MATERIALS SHALL BE ALLOWED IN THE TREE ROOTING ZONE, OR IN AN AREA THAT DRAINS INTO THE ROOT ZONE. CARE SHALL BE TAKEN IN CLEANING UP EQUIPMENT. THERE SHALL BE NO STORAGE OF DUMPSTERS OR ACCUMULATED DEBRIS FROM DEMOLITION ON OR AROUND THE ROOT ZONES OF EXISTING TREES AND SHRUBS.
12. EXISTING TREES SHALL BE MONITORED WEEKLY AND IRRIGATED AS NEEDED DURING THE COURSE OF CONSTRUCTION.
13. NO LIME OR OTHER SOIL TREATMENT SHALL BE APPLIED WITHOUT THE CONSENT OF A STANFORD GROUNDS SERVICES CERTIFIED ARBORIST.
14. ALL TRENCHING SHALL CONFORM TO THE FOLLOWING GUIDELINES.
A. A STANFORD GROUNDS SERVICES CERTIFIED ARBORIST IS REQUIRED TO BE PRESENT TO SUPERVISE ANY TRENCHING, DIGGING OR EXCAVATION OF ANY KIND WITHIN A TREE'S ROOT ZONE.
B. ROOTS LARGER THAN 2 INCHES IN DIAMETER SHALL NOT BE SEVERED WITHOUT CALLING A STANFORD GROUNDS SERVICES CERTIFIED ARBORIST FOR CUTTING OR REVIEW.
C. TUNNELING OR BORING UNDER ROOTS RATHER THAN PRUNING IS PREFERRED.
D. DIGGING WITHIN A TREE'S ROOT ZONE SHALL BE AVOIDED. IF IT IS NECESSARY, HAND DIGGING SHALL BE USED FOR ANY TRENCHING WITHIN THE TREE'S ROOT ZONE UNLESS OTHERWISE APPROVED BY A STANFORD GROUNDS SERVICES CERTIFIED ARBORIST.
E. ALL ROOTS THAT NEED TO BE CUT SHALL BE PRUNED CLEANLY, NOT TORN. THE PRECEDING GUIDELINES SHALL BE CONSIDERED MINIMUM REQUIREMENTS. THE GREATER THE DISTANCE OF TREE PROTECTION PROVIDED THE GREATER THE INSTANCE OF TREE SUCCESS IN CONSTRUCTION AREAS.

1 ENLARGED SITE PLAN
SCALE: 1/8"=1'-0" (FULL SIZE)
1/16"=1'-0" (11x17)





1 CONSTRUCTION & LOGISTICS PLAN
 SCALE: 1/8"=1'-0" (FULL SIZE)
 1/16"=1'-0" (11x17)



CROWN CASTLE
 1 PARK PLACE PLACE
 DUBLIN, CA 94568

LEAF COMMUNICATIONS
 1000 CALLE CORDILLERA
 SAN CLEMENTE, CA 92673
 WWW.LEAFCOMM.COM
 TEL: (949) 388-0192

SITE NAME:
 STANFORD RAN 32 /
 VENUE
SITE ADDRESS:
 30 RYAN CT.
 STANFORD, CA 94305
SITE TYPE:
 NEW 49'-11" MONOPINE
 (NEW FACILITY)
HUB NAME:
 ECH BUILDING
ADDRESS:
 253 BONAIR SIDING, STANFORD
 CA 94305
COORDINATES:
 37.429290/-122.156116

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	QA
4	01/16/2024	PS	100% CONSTRUCTION DWGS	BD
5	01/29/2024	MA	100% CONSTRUCTION DWGS	BD
6	04/10/2024	JDJ	100% CONSTRUCTION DWGS	BD
7	06/13/2024	PS	100% CONSTRUCTION DWGS	BD
8	06/19/2024	JDJ	100% CONSTRUCTION DWGS	BD
9	06/21/2024	JDJ	100% CONSTRUCTION DWGS	AT
10	07/25/2024	JDJ	100% CONSTRUCTION DWGS	AT

LEAF COMMUNICATIONS

SIGNED: 2024/07/25
EXPIRES: 2025/09/30

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SHEET TITLE:
 CONSTRUCTION &
 LOGISTICS PLAN

SHEET NUMBER: A-2.1 **REVISION:** 4

PROPOSED ANTENNA SCHEDULE

SECTOR	ANTENNA			ANTENNA SPEC'S WEIGHT (LBS) DIMENSIONS (LxWxD)	AZIMUTH	RAD CENTER	RADIO (AT GROUND LEVEL)	CABLE TYPE AND LENGTH
	MANUFACTURER	MODEL	TECHNOLOGY					
ALPHA	A1	JMA	MX16FIT465-00	LTE 700 LTE 1900 NR 3700 (5G C-BAND)	54.0 LBS 59"x20.0"x8.0"	10°	47'-0" (1) ERICSSON RADIO 4415 (B2) 40W (1) ERICSSON RADIO 4449 (B5/B12) 40W (1) ERICSSON RADIO 4467 (N77) 40W	COAX: LDF4-50A (15M) FIBER: CXTD-WM23WF-15M (15M)
	A2	-	-	-	-	-	--	
GAMMA	C1	JMA	MX16FIT465-00	LTE 700 LTE 1900 NR 3700 (5G C-BAND)	54.0 LBS 59"x20.0"x8.0"	120°	47'-0" (1) ERICSSON RADIO 4415 (B2) 40W (1) ERICSSON RADIO 4449 (B5/B12) 40W (1) ERICSSON RADIO 4467 (N77) 40W	COAX: LDF4-50A (15M) FIBER: CXTD-WM23WF-15M (15M)
	C2	-	-	-	-	-	--	
BETA	B1	JMA	MX16FIT465-00	LTE 700 LTE 1900 NR 3700 (5G C-BAND)	54.0 LBS 59"x20.0"x8.0"	250°	47'-0" (1) ERICSSON RADIO 4415 (B2) 40W (1) ERICSSON RADIO 4449 (B5/B12) 40W (1) ERICSSON RADIO 4467 (N77) 40W	COAX: LDF4-50A (15M) FIBER: CXTD-WM23WF-15M (15M)
	B2	-	-	-	-	-	--	

NOTE:
ANTENNAS AND PINE NEEDLES NOT SHOWN FOR CLARITY

NOTE:
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NEW ANTENNAS TO BE PAINTED TO MATCH THE GREEN COLOR PALETTE OF THE TREE.

ANTENNA A
10° AZ

ANTENNA A
10° AZ

1,4
D-1 (N) CROWN CASTLE PANEL ANTENNA MOUNTED ON (N) 3"Ø GALV. PIPE; 1 PER SECTOR, 3 TOTAL, (1) JMA MX16FIT465-00

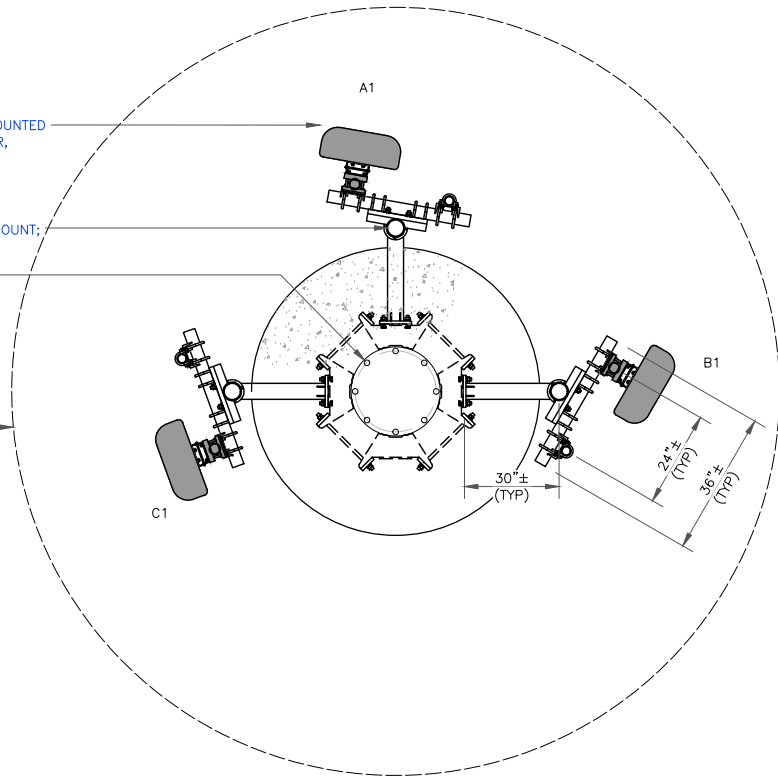
(N) (3) CROWN CASTLE ANTENNA TRI MOUNT; TYP. - SEE STRUCTURAL DRAWINGS

(N) CROWN CASTLE ±49'-11" MONOPINE WITH CONCRETE FOUNDATION, BY OTHERS

6'-0" BRANCH CIRCLE

OUTLINE OF PINE NEEDLES; (N) PINE NEEDLES NOT SHOWN FOR CLARITY

ANTENNAS B
250° AZ

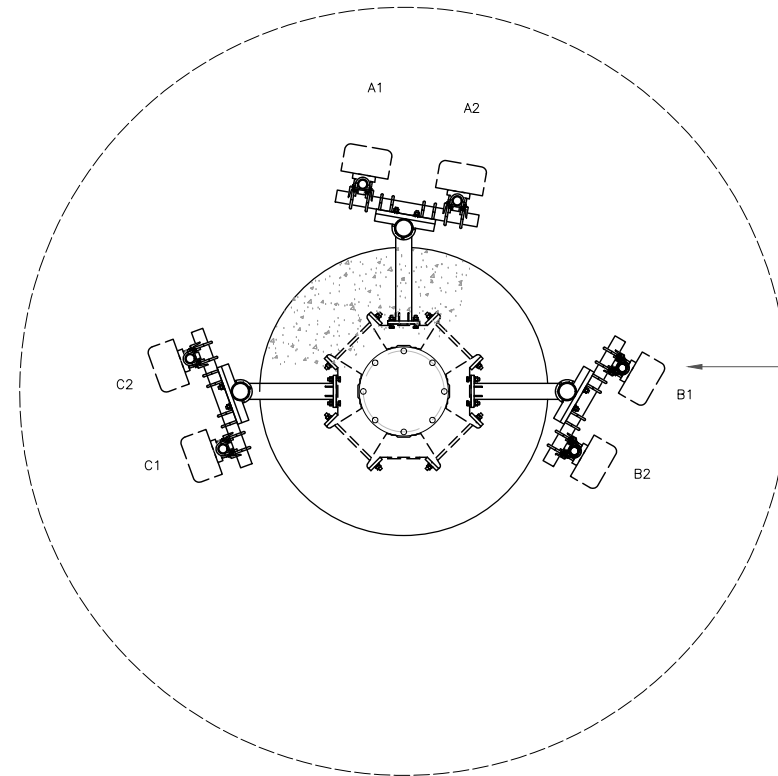


1 PROPOSED - UPPER ANTENNA LAYOUT @ 47'-0"
SCALE: 1/2"=1'-0" (FULL SIZE)
1/4"=1'-0" (11x17)



ANTENNAS B
250° AZ

ANTENNAS C
120° AZ



2 FUTURE - LOWER ANTENNA LAYOUT @ 41'-0"
SCALE: 1/2"=1'-0" (FULL SIZE)
1/4"=1'-0" (11x17)



CROWN CASTLE
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LEAF COMMUNICATIONS
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SAN CLEMENTE, CA 92673
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TEL: (949) 388-0192

SITE NAME:
STANFORD RAN 32 /
VENUE
SITE ADDRESS:
30 RYAN CT.
STANFORD, CA 94305
SITE TYPE:
NEW 49'-11" MONOPINE
(NEW FACILITY)
HUB NAME:
ECH BUILDING
ADDRESS:
253 BONAIR SIDING, STANFORD
CA 94305
COORDINATES:
37.429290/-122.156116

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	QA
4	01/16/2024	PS	100% CONSTRUCTION DWGS	BD
5	01/29/2024	MA	100% CONSTRUCTION DWGS	BD
6	04/10/2024	JDJ	100% CONSTRUCTION DWGS	BD
7	06/13/2024	PS	100% CONSTRUCTION DWGS	BD
8	06/19/2024	JDJ	100% CONSTRUCTION DWGS	BD
9	06/21/2024	JDJ	100% CONSTRUCTION DWGS	AT
10	07/25/2024	JDJ	100% CONSTRUCTION DWGS	AT

LEAF COMMUNICATIONS

SIGNED: 2024/07/25
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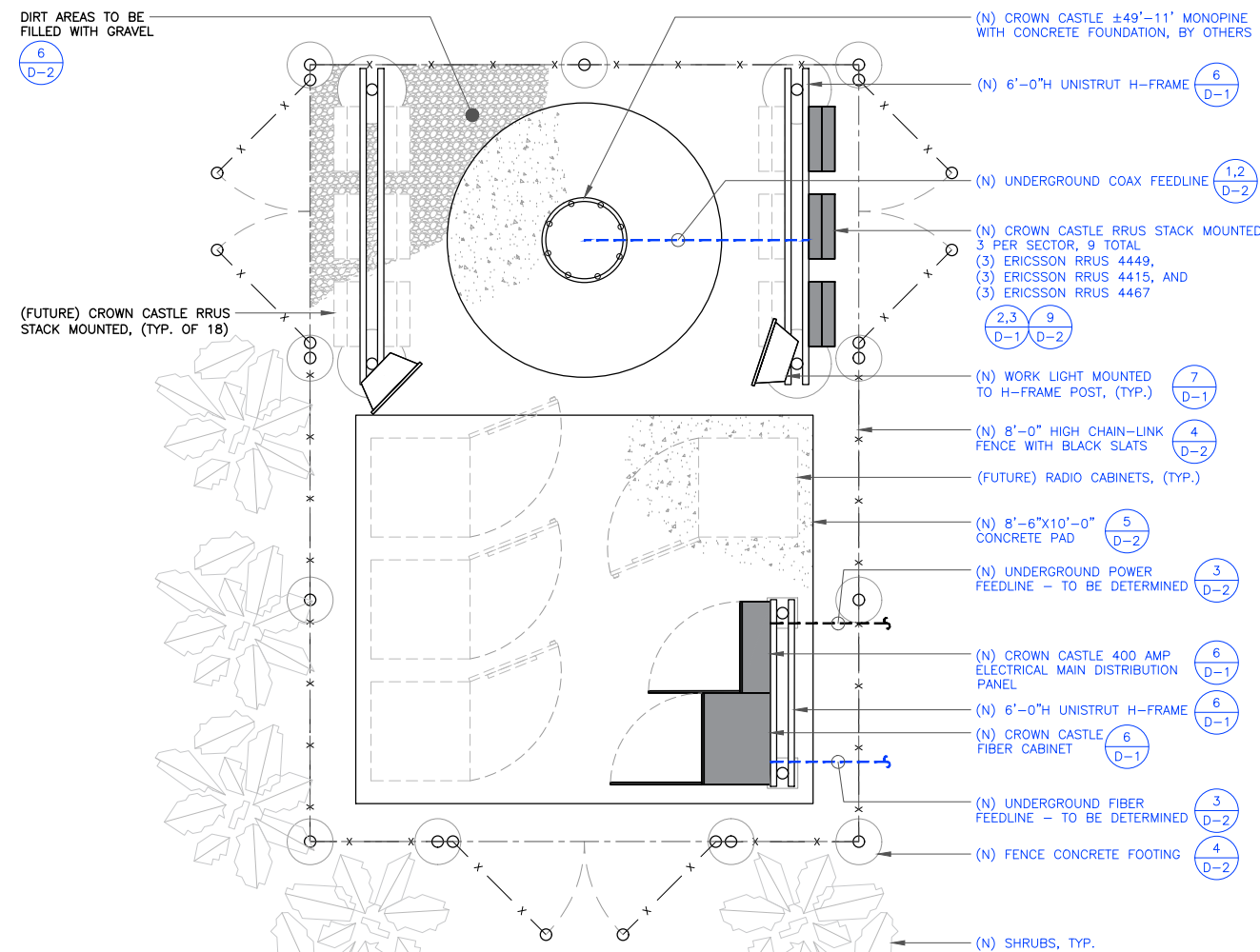
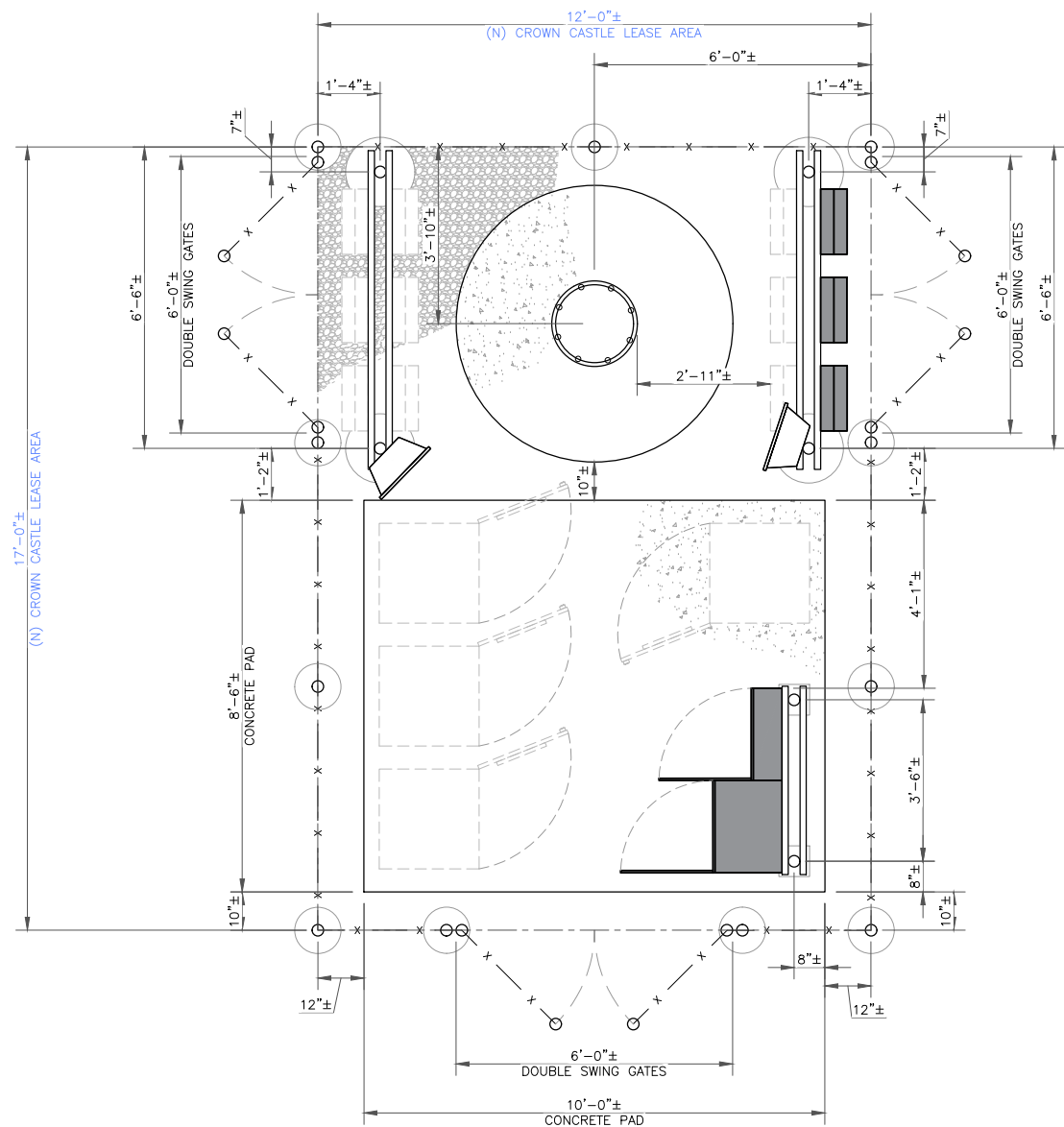
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SHEET TITLE:
ANTENNA PLAN LAYOUT

SHEET NUMBER: **A-3** REVISION: **4**

NOTE:
ANTENNAS AND PINE NEEDLES NOT SHOWN FOR CLARITY

NOTE:
PROJECT SCOPE OF WORK DOES NOT INCLUDE A STRUCTURAL EVALUATION OF THIS POLE OR STRUCTURE. NEW EQUIPMENT SHOWN ON THIS PLAN HAVE NOT BEEN EVALUATED TO VERIFY THE POLE AND ITS FOUNDATION HAS THE CAPACITY TO ADEQUATELY SUPPORT THE EQUIPMENT. PRIOR TO ANY INSTALLATION, A STRUCTURAL EVALUATION OF THE POLE OR STRUCTURE SHOULD BE PERFORMED
NEW ANTENNAS TO BE PAINTED TO MATCH THE GREEN COLOR PALETTE OF THE TREE.



1 EQUIPMENT LAYOUT
SCALE: 1/2"=1'-0" (FULL SIZE)
1/4"=1'-0" (11x17)



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COORDINATES:
37.429290/-122.156116

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	QA
4	01/16/2024	PS	100% CONSTRUCTION DWGS	BD
5	01/29/2024	MA	100% CONSTRUCTION DWGS	BD
6	04/10/2024	JDJ	100% CONSTRUCTION DWGS	BD
7	06/13/2024	PS	100% CONSTRUCTION DWGS	BD
8	06/19/2024	JDJ	100% CONSTRUCTION DWGS	BD
9	06/21/2024	JDJ	100% CONSTRUCTION DWGS	AT
10	07/25/2024	JDJ	100% CONSTRUCTION DWGS	AT



SIGNED: 2024/07/25
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SHEET TITLE:
EQUIPMENT LAYOUT

SHEET NUMBER: A-4
REVISION: 4

NOTE:

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- NEW ANTENNAS TO BE PAINTED TO MATCH THE GREEN COLOR PALETTE OF THE TREE.

NOTE:

- NO GRADING PROPOSED
- NO NEW LANDSCAPING PROPOSED

NOTICE

POLE WORKERS

There is an antenna operation high on this pole. Please follow guidance on signs near the antenna or call the number below.

Site ID # **CC 888-632-0931** Rev. A

CAUTION

Keep Back 5 FT From this Antenna. FCC RF Public Exposure Limits May Be Exceeded Within This Distance. Call 888-632-0931 for Instructions. Qualified Workers: FCC Occupational Limits May Be Exceeded Within This Distance.

Site ID #

NOTE:

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- NEW ANTENNAS TO BE PAINTED TO MATCH THE GREEN COLOR PALETTE OF THE TREE.

NOTE:

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- NO NEW LANDSCAPING PROPOSED

CROWN CASTLE

1 PARK PLACE PLACE
DUBLIN, CA 94568

LEAF COMMUNICATIONS

1000 CALLE CORDILLERA
SAN CLEMENTE, CA 92673
WWW.LEAFCOMM.COM
TEL: (949) 388-0192

SITE NAME:
STANFORD RAN 32 / VENUE

SITE ADDRESS:
30 RYAN CT.
STANFORD, CA 94305

SITE TYPE:
NEW 49'-11" MONOPINE (NEW FACILITY)

HUB NAME:
ECH BUILDING

ADDRESS:
253 BONAIR SIDING, STANFORD CA 94305

COORDINATES:
37.429290/-122.156116

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	QA
4	01/16/2024	PS	100% CONSTRUCTION DWGS	BD
5	01/29/2024	MA	100% CONSTRUCTION DWGS	BD
6	04/10/2024	JDJ	100% CONSTRUCTION DWGS	BD
7	06/13/2024	PS	100% CONSTRUCTION DWGS	BD
8	06/19/2024	JDJ	100% CONSTRUCTION DWGS	BD
9	06/21/2024	JDJ	100% CONSTRUCTION DWGS	AT
10	07/25/2024	JDJ	100% CONSTRUCTION DWGS	AT

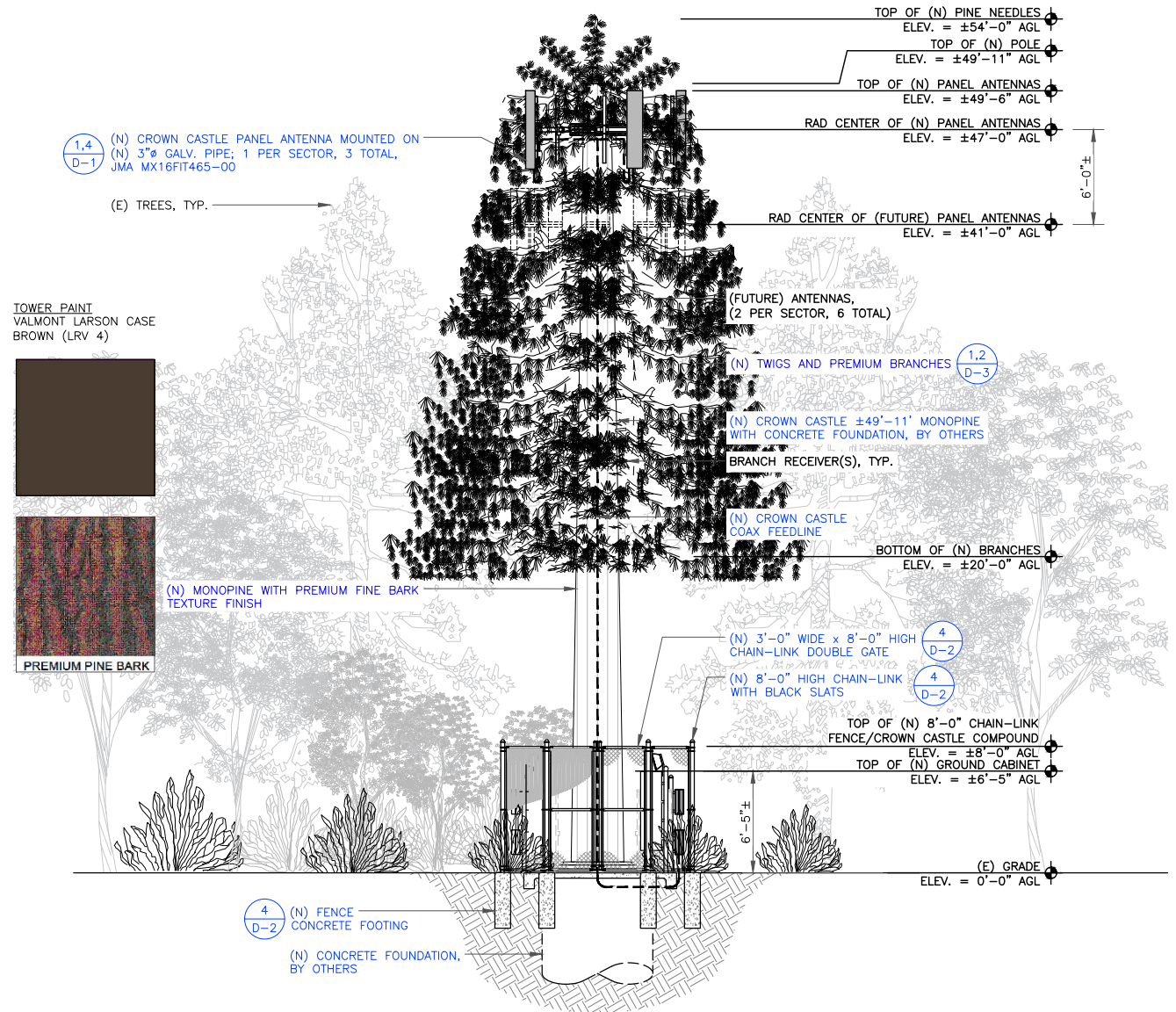
LEAF COMMUNICATIONS

SIGNED: 2024/07/25
EXPIRES: 2025/09/30

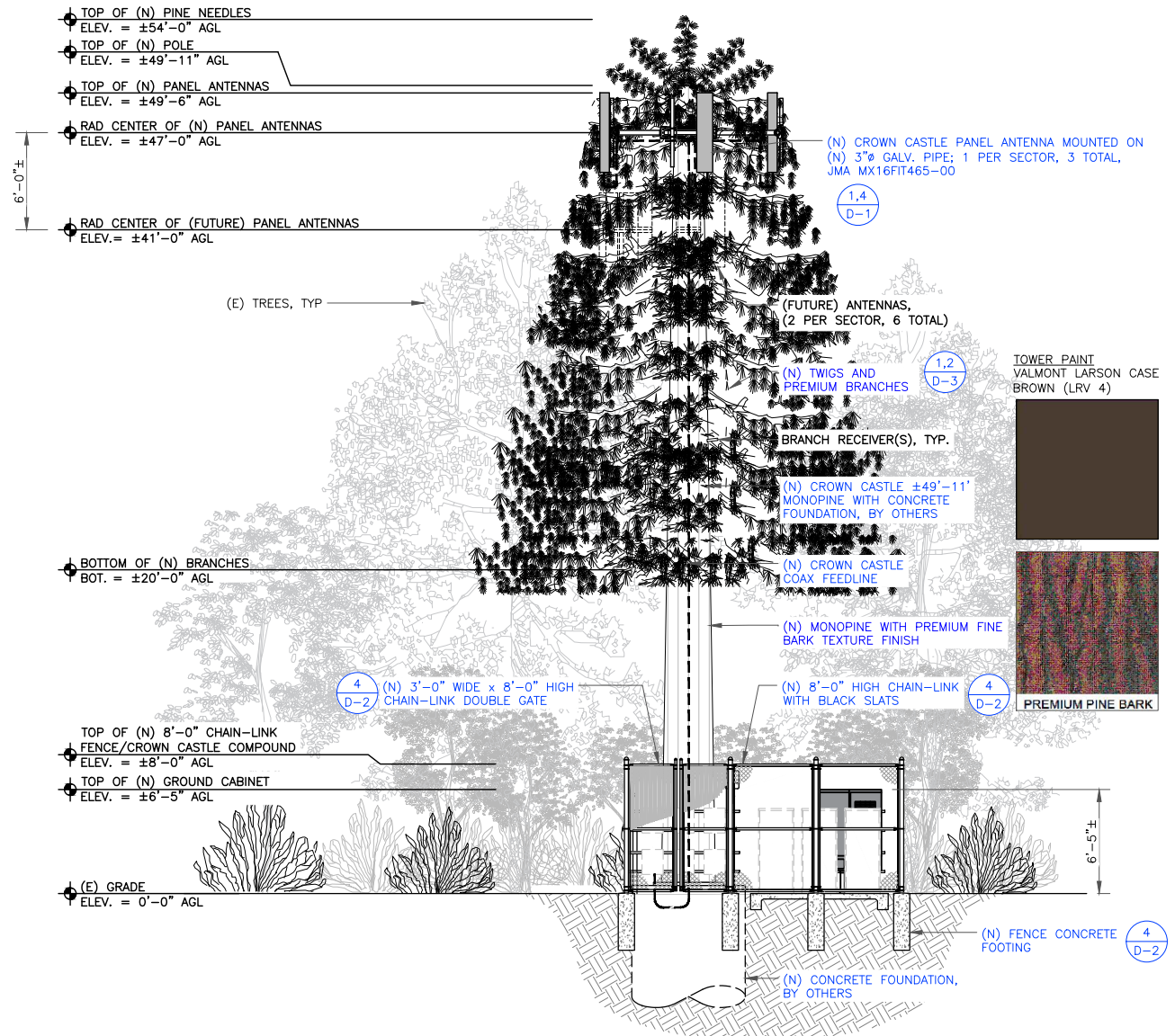
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SHEET TITLE:
ELEVATIONS

SHEET NUMBER: A-5 **REVISION:** 4



1 PROPOSED SOUTHEAST ELEVATION
SCALE: 3/16"=1'-0" (FULL SIZE)
3/32"=1'-0" (11x17)



2 PROPOSED SOUTHWEST ELEVATION
SCALE: 3/16"=1'-0" (FULL SIZE)
3/32"=1'-0" (11x17)

NOTE:
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 • NEW ANTENNAS TO BE PAINTED TO MATCH THE GREEN COLOR PALETTE OF THE TREE.

NOTE:
 • NO GRADING PROPOSED
 • NO NEW LANDSCAPING PROPOSED

NOTICE
POLE WORKERS
 There is an antenna operation high on this pole. Please follow guidance on signs near the antenna or call the number below.
 Site ID # **CC 888-632-0931** Rev. A

CAUTION
 Keep Back 5 FT From this Antenna. FCC RF Public Exposure Limits May Be Exceeded Within This Distance. Call 888-632-0931 for Instructions. Qualified Workers: FCC Occupational Limits May Be Exceeded Within This Distance.
 Site ID #

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 • NEW ANTENNAS TO BE PAINTED TO MATCH THE GREEN COLOR PALETTE OF THE TREE.

NOTE:
 • NO GRADING PROPOSED
 • NO NEW LANDSCAPING PROPOSED

CROWN CASTLE
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ISSUED FOR:

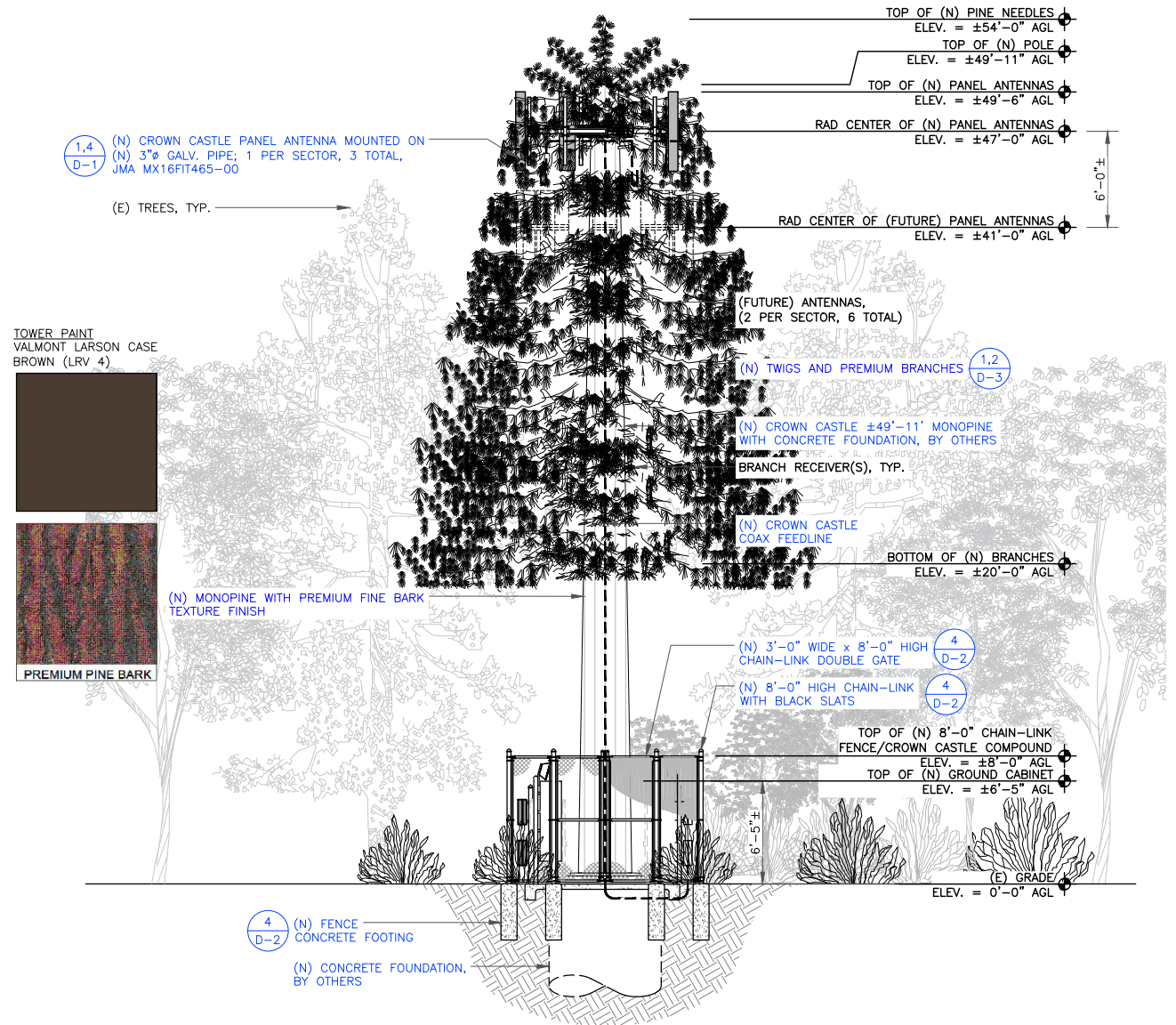
REV	DATE	DRWN	DESCRIPTION	QA
4	01/16/2024	PS	100% CONSTRUCTION DWGS	BD
5	01/29/2024	MA	100% CONSTRUCTION DWGS	BD
6	04/10/2024	JDJ	100% CONSTRUCTION DWGS	BD
7	06/13/2024	PS	100% CONSTRUCTION DWGS	BD
8	06/19/2024	JDJ	100% CONSTRUCTION DWGS	BD
9	06/21/2024	JDJ	100% CONSTRUCTION DWGS	AT
10	07/25/2024	JDJ	100% CONSTRUCTION DWGS	AT

LEAF COMMUNICATIONS

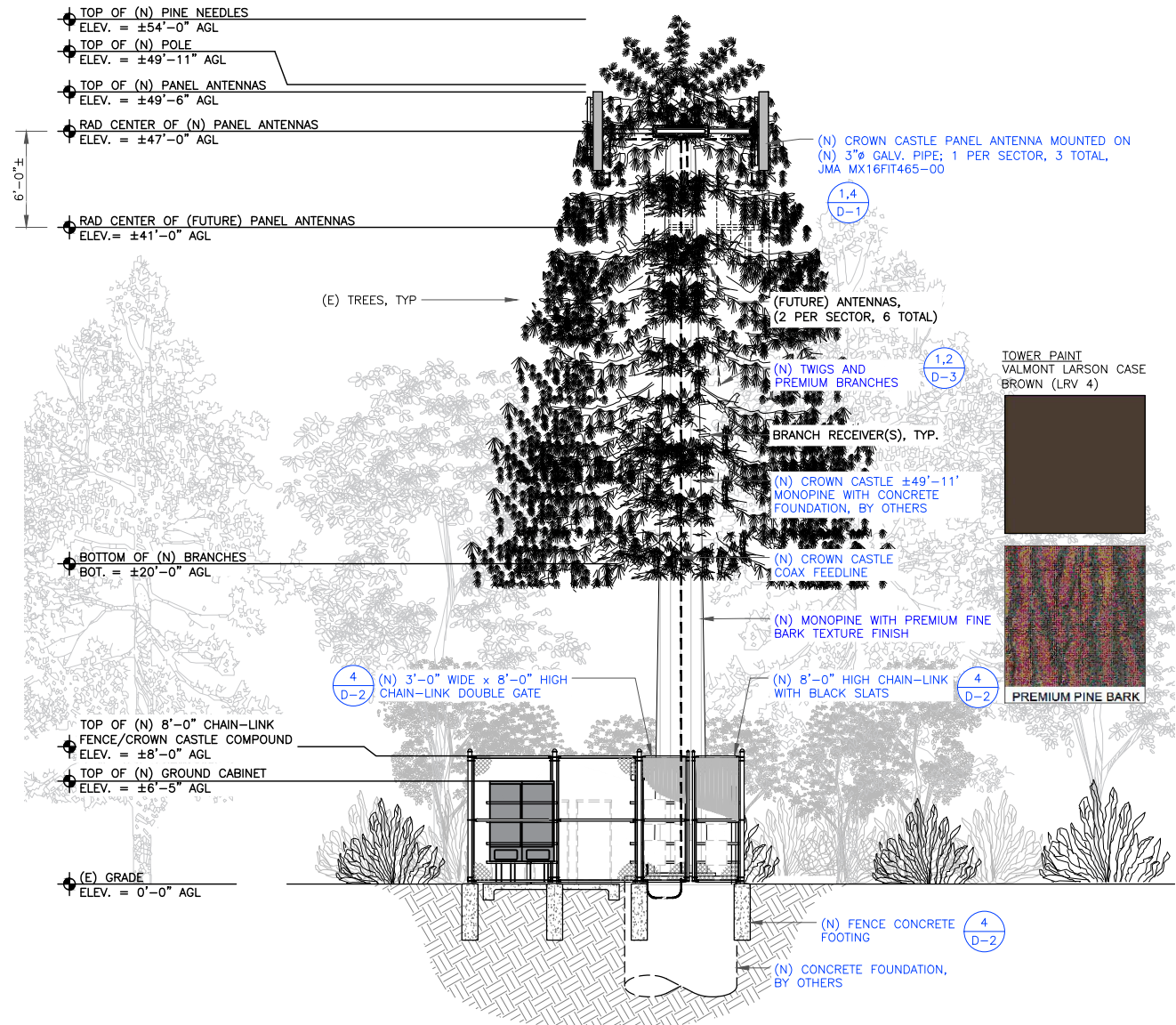
SIGNED: 2024/07/25
 EXPIRES: 2025/09/30

SHEET TITLE:
 ELEVATIONS

SHEET NUMBER: **A-6** REVISION: **4**



1 PROPOSED NORTHWEST ELEVATION
 SCALE: 3/16"=1'-0" (FULL SIZE)
 3/32"=1'-0" (11x17)

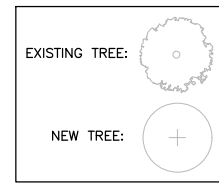


2 PROPOSED NORTHEAST ELEVATION
 SCALE: 3/16"=1'-0" (FULL SIZE)
 3/32"=1'-0" (11x17)

NOTE:
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GENERAL NOTES:
1. THE WIRELESS COMMUNICATIONS FACILITY COMPLIES WITH FEDERAL STANDARDS FOR RADIO FREQUENCY IN ACCORDANCE WITH THE TELECOMMUNICATION ACT OF 1966 AND SUBSEQUENT AMENDMENTS AND ANY OTHER REQUIREMENTS IMPOSED BY STATE OR FEDERAL REGULATORY AGENCIES.
2. NO EXISTING PARKING STALLS ARE BEING ADDED OR REMOVED AS PART OF THE NEW INSTALLATION.
3. NO GRADING WORK IS INCLUDED IN THIS SCOPE OF WORK ON THIS PAGE.
4. PROPERTY LINES SHOWN ARE PRELIMINARY AND DONE WITHOUT THE BENEFIT OF A SITE SURVEY.
5. A SOILS TEST HAS NOT BEEN PERFORMED. THE ANALYSIS IS BASED ON PRESUMPTIVE SOILS PARAMETERS.

APN: 142-21-084
ZONING: R15-n3
AREA: 8.76 ACRES



CROWN CASTLE
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COORDINATES:
37.429290/-122.156116

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	QA
0	05/30/2022	CT	90% CONSTRUCTION DWGS	CG
1	07/18/2022	MA	90% CONSTRUCTION DWGS	ML
2	06/14/2023	ES	90% CONSTRUCTION DWGS	BD
3	10/17/2023	JG	100% CONSTRUCTION DWGS	BD
4	01/16/2024	PS	100% CONSTRUCTION DWGS	BD
5	01/29/2024	MA	100% CONSTRUCTION DWGS	BD
6	04/10/2024	JDJ	100% CONSTRUCTION DWGS	BD

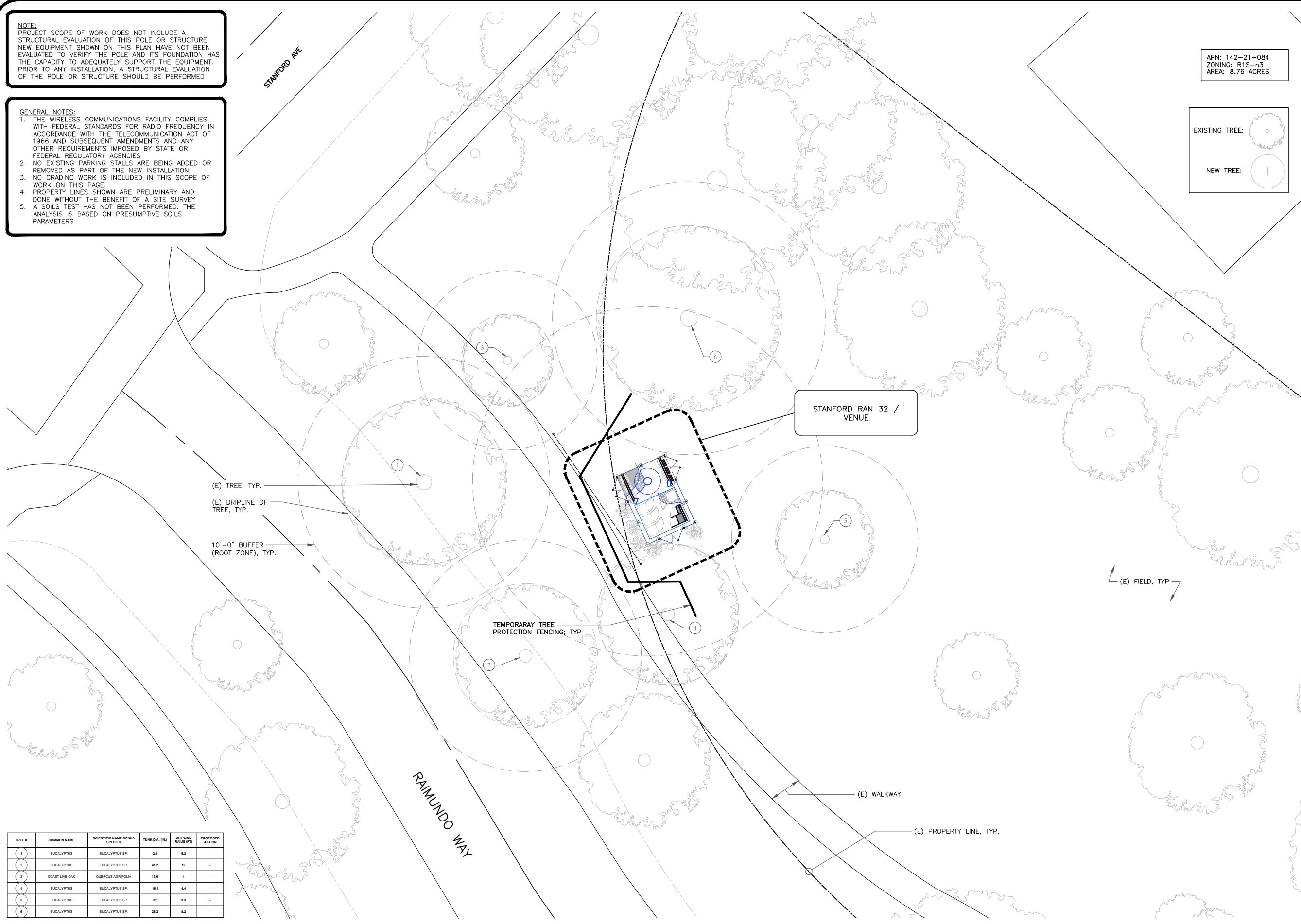
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SIGNED: 2024/07/25
EXPIRES: 2025/09/30

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SHEET TITLE:
TREE DISPOSITION

SHEET NUMBER: A-7 **REVISION:** 4

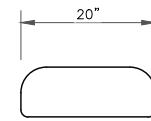


TREE #	COMMON NAME	SCIENTIFIC NAME GENUS SPECIES	TUNK DIA. (IN)	DRIFLINE RANGE (FT)	PROPOSED ACTION
1	EUCALYPTUS	EUCALYPTUS SP.	2.4	6.2	-
2	EUCALYPTUS	EUCALYPTUS SP.	41.2	12	-
3	COAST LIVE OAK	QUERCUS AGRIFOLIA	13.6	4	-
4	EUCALYPTUS	EUCALYPTUS SP.	15.1	4.4	-
5	EUCALYPTUS	EUCALYPTUS SP.	32	9.3	-
6	EUCALYPTUS	EUCALYPTUS SP.	28.2	8.2	-

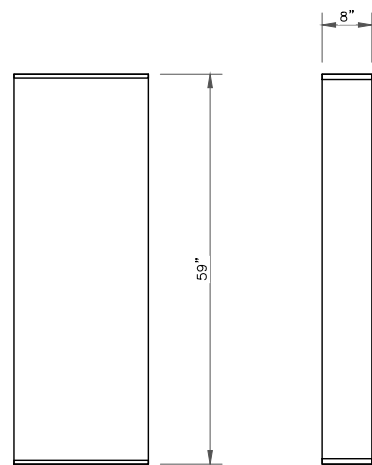
1 TREE DISPOSITION
SCALE: 3/32"=1'-0" (FULL SIZE)
3/64"=1'-0" (11x17)



MANUFACTURER: JMA
 MODEL: MX16FIT465-00
 DIMENSIONS (HxWxD): 59"x20"x8"
 WEIGHT: 54 LBS
 QUANTITY: 3



TOP

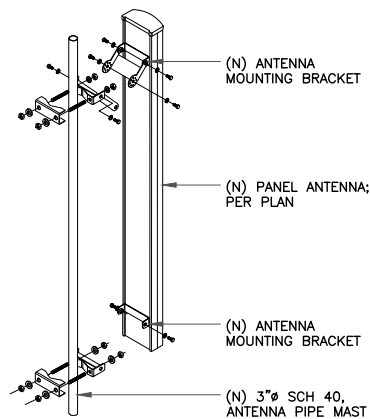


FRONT

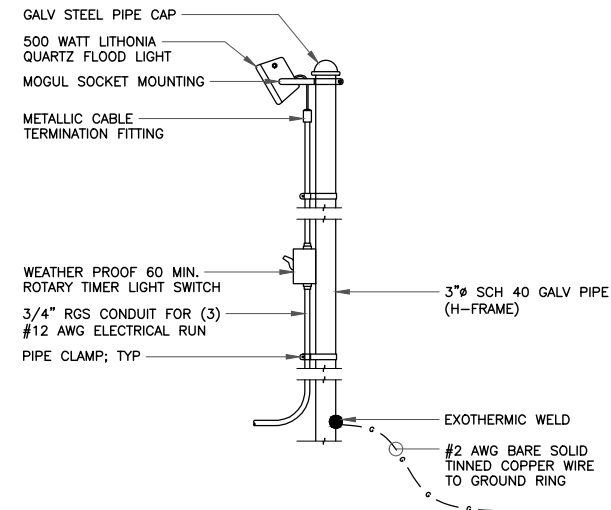
SIDE

1 ANTENNA DETAIL
 SCALE: N.T.S

NOTE:
 ALL PIPES BRACKETS AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE



4 ANTENNA MOUNTING DETAIL
 SCALE: N.T.S



7 WORK LIGHT DETAIL
 SCALE: N.T.S

Radio 4467 44B77D 44B77G C

AT&T Input
 • Priority : High
 • Volumes : Medium (>5k)

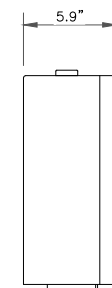
- Frequency: 3700-3980MHz (B77D); 3450-3550MHz (B77G)
- Dual band
- 4TX/4RX per band
- Output Power 4x40W per band
- 200MHz IBW (B77D); 100MHz IBW (B77G)
- 2 x 10.1/25Gbps CPRI
- 22 liter, 24kg (tbd)
- -48 VDC 3-wire
- AISG RET support via RS-485 or RF connectors
- Optional fan for increased site flexibility
- 2 external alarm
- Convexional cooling
- IP 65, -40 to +55°C



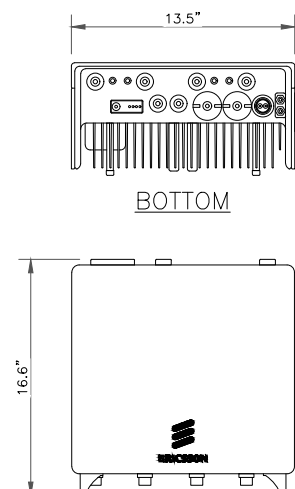
• Requires same TDD pattern in 3.45G and C-band

2 ERICSSON RRUS 4467
 SCALE: N.T.S

MANUFACTURER: ERICSSON
 MODEL: 4415 B2
 DIMENSIONS (HxWxD): 16.6"x13.5"x5.9"
 WEIGHT: 44.0 LBS
 QUANTITY: 3



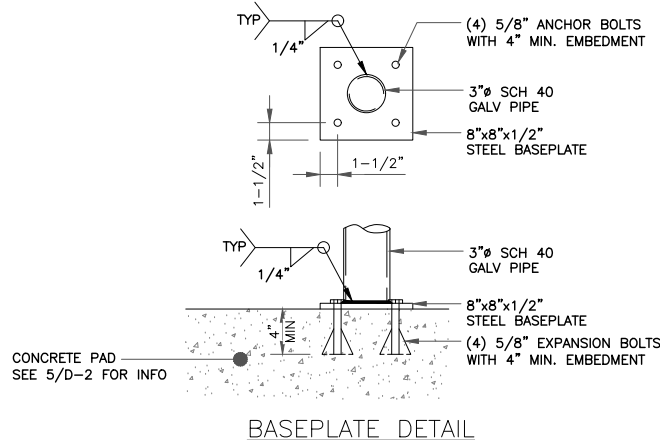
SIDE



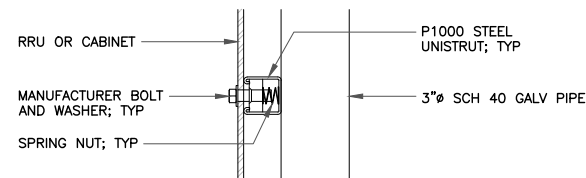
BOTTOM

FRONT

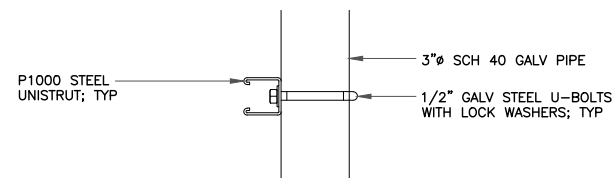
3 ERICSSON RRUS 4415
 SCALE: N.T.S



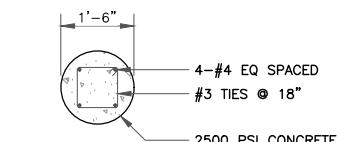
BASEPLATE DETAIL



UNISTRUT TO EQUIPMENT

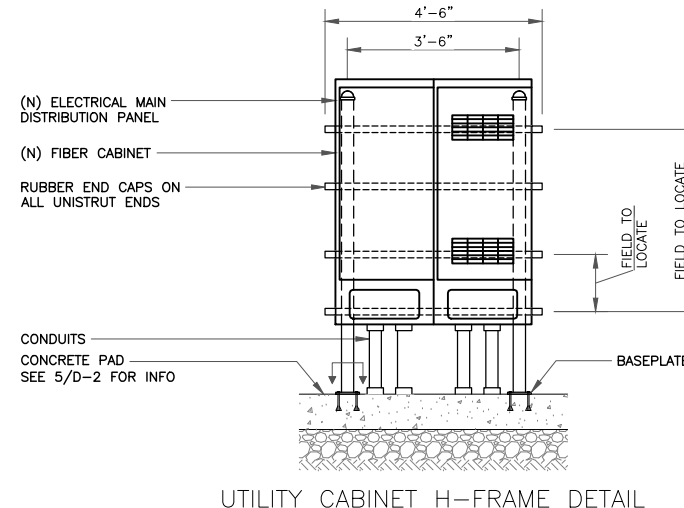


UNISTRUT TO PIPE

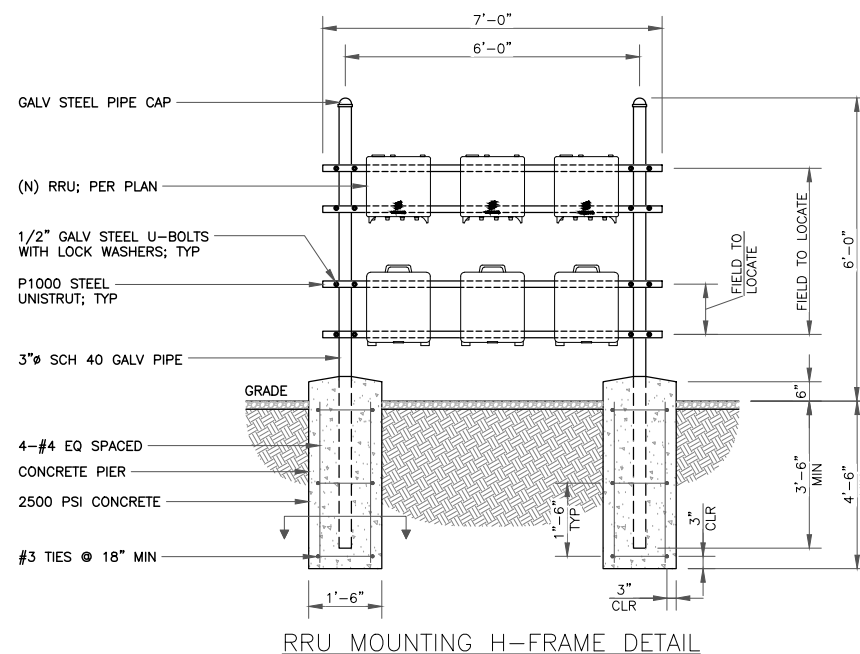


PIER SECTION

6 H-FRAME DETAIL
 SCALE: N.T.S



UTILITY CABINET H-FRAME DETAIL



RRU MOUNTING H-FRAME DETAIL

CROWN CASTLE
 1 PARK PLACE PLACE
 DUBLIN, CA 94568

LEAF COMMUNICATIONS
 1000 CALLE CORDILLERA
 SAN CLEMENTE, CA 92673
 WWW.LEAFCOMM.COM
 TEL: (949) 388-0192

SITE NAME:
 STANFORD RAN 32 /
 VENUE
 SITE ADDRESS:
 30 RYAN CT.
 STANFORD, CA 94305
 SITE TYPE:
 NEW 49'-11" MONOPINE
 (NEW FACILITY)
 HUB NAME:
 ECH BUILDING
 ADDRESS:
 253 BONAIR SIDING, STANFORD
 CA 94305
 COORDINATES:
 37.429290/-122.156116

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	QA
4	01/16/2024	PS	100% CONSTRUCTION DWGS	BD
5	01/29/2024	MA	100% CONSTRUCTION DWGS	BD
6	04/10/2024	JDJ	100% CONSTRUCTION DWGS	BD
7	06/13/2024	PS	100% CONSTRUCTION DWGS	BD
8	06/19/2024	JDJ	100% CONSTRUCTION DWGS	BD
9	06/21/2024	JDJ	100% CONSTRUCTION DWGS	AT
10	07/25/2024	JDJ	100% CONSTRUCTION DWGS	AT

LEAF COMMUNICATIONS

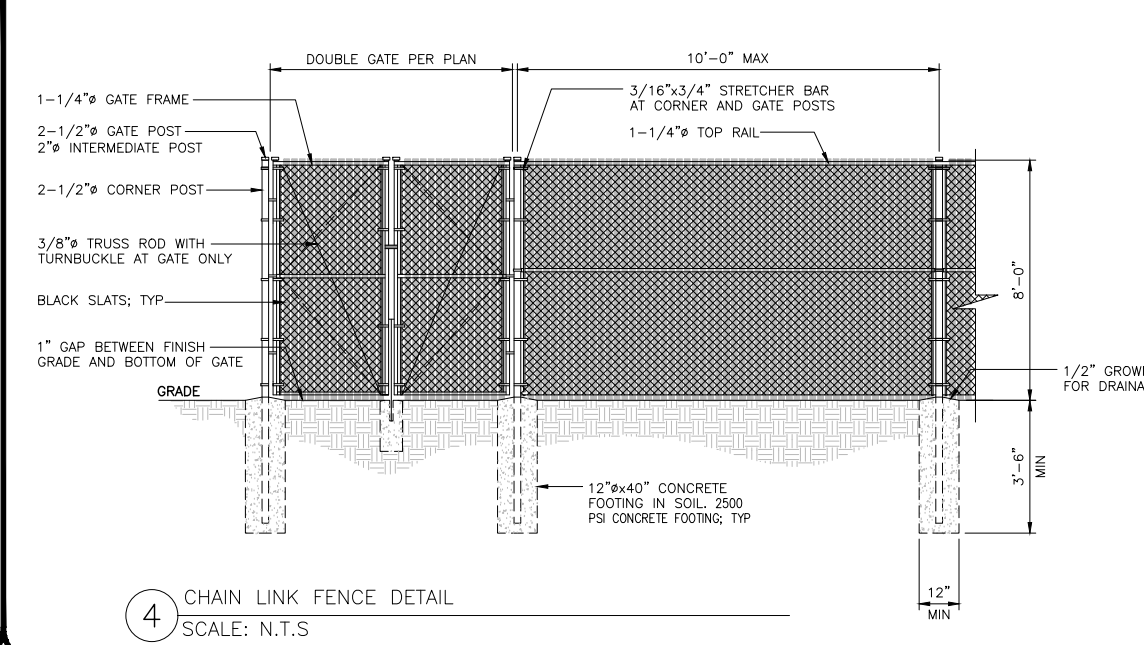
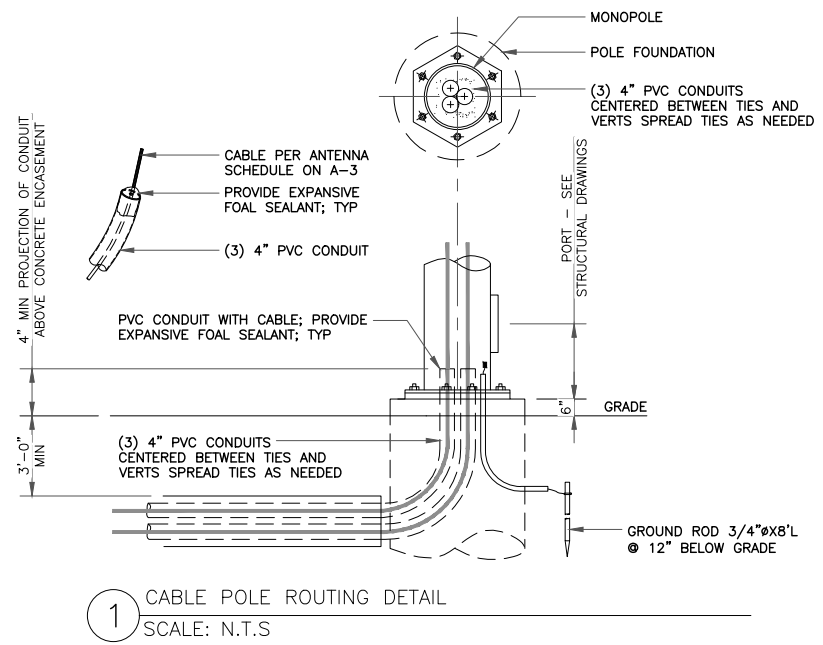


SIGNED: 2024/07/25
 EXPIRES: 2025/09/30

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SHEET TITLE:
 DETAILS

SHEET NUMBER: **D-1** REVISION: **4**



5000 SERIES SELF LOCKING FENCE BLADE SLATS

FENCESCREEN SPECIFICATIONS

PROPERTIES	RESULTS
Material	HDPE
Color	Black
Maximum Temp.	200° F
Minimum Temp.	-30° F
Slat Width	2"
Slat Height	4 x, 6 x, 8 x, 10 and 12 feet
Slats Per Roll	63 Slats
Roll Weight	62 lbs
Storage Coverage Per Roll	30 linear feet

MATERIAL CONSTRUCTION
Self Locking Privacy Blade Slats are made from extruded High Density Polyethylene (HDPE), color pigments, and UV inhibitors.

DURABILITY
HDPE fence products are resistant to severe weather conditions, salt water, sand, road dirt, most acids, alkalis, abrasives, petroleum derivatives, and common environmental pollutants.

MAINTENANCE
Pressure cleaning of surface contaminants is quickly accomplished with plain water.

WIND LOAD DISCLAIMER
Fencescreens will not be responsible for fence damage resulting from wind load conditions due to insufficient structural support.

FEATURES
- UV stabilized to protect against the harmful rays of the sun.

SLAT PROFILE
Available Colors: Black, Green, Tan, White, Red, Brown

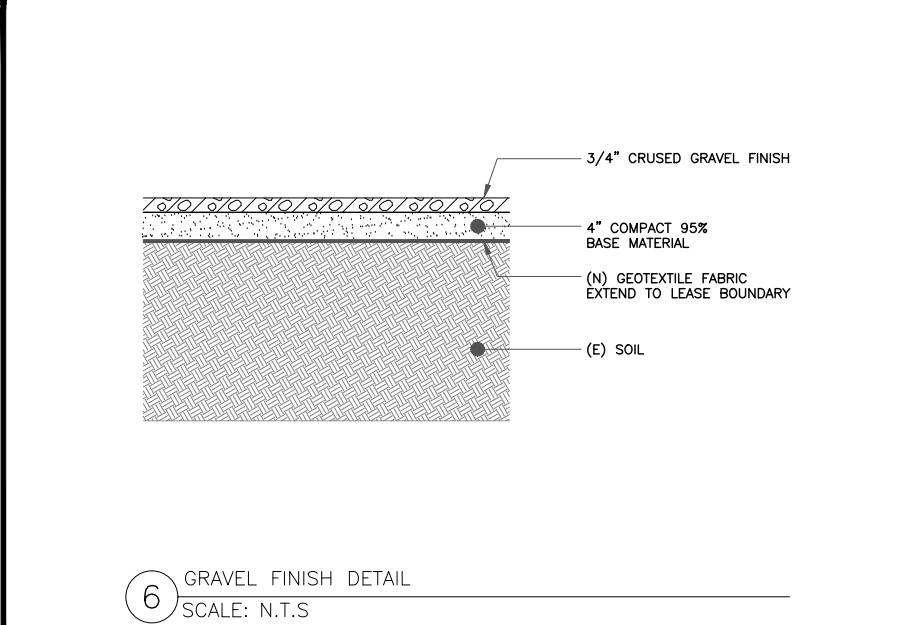
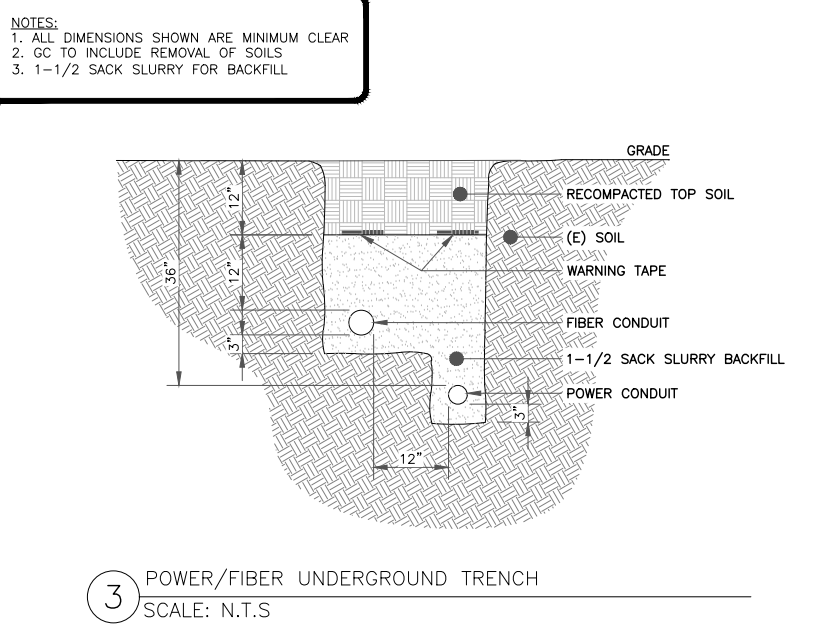
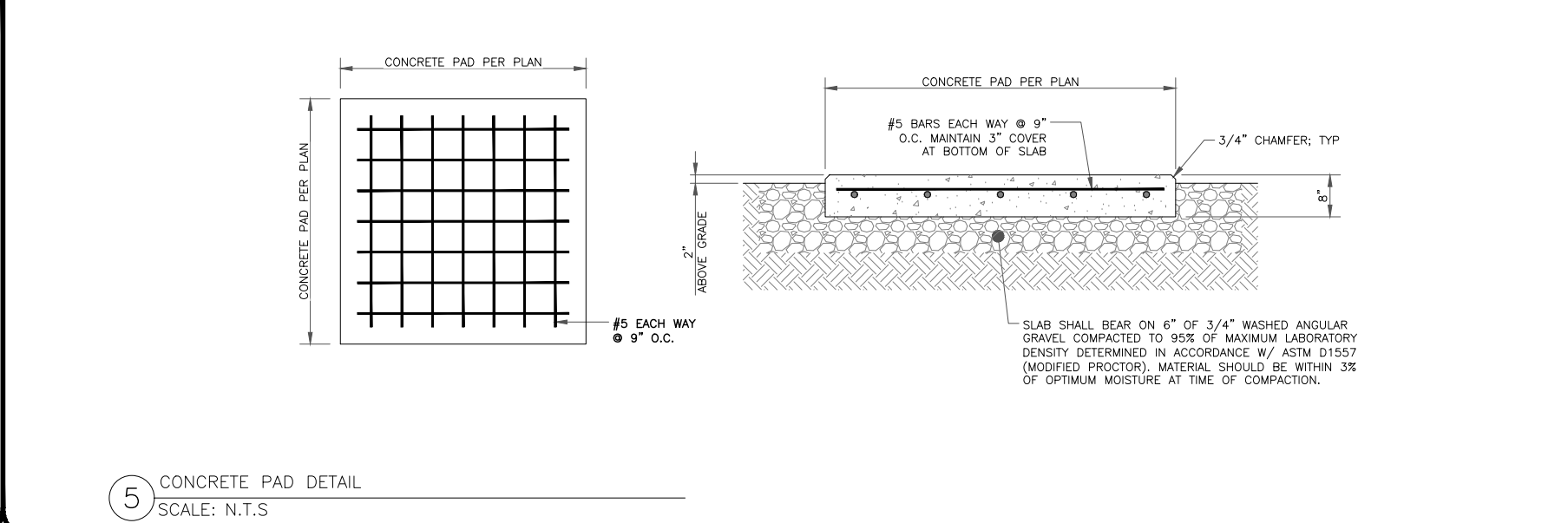
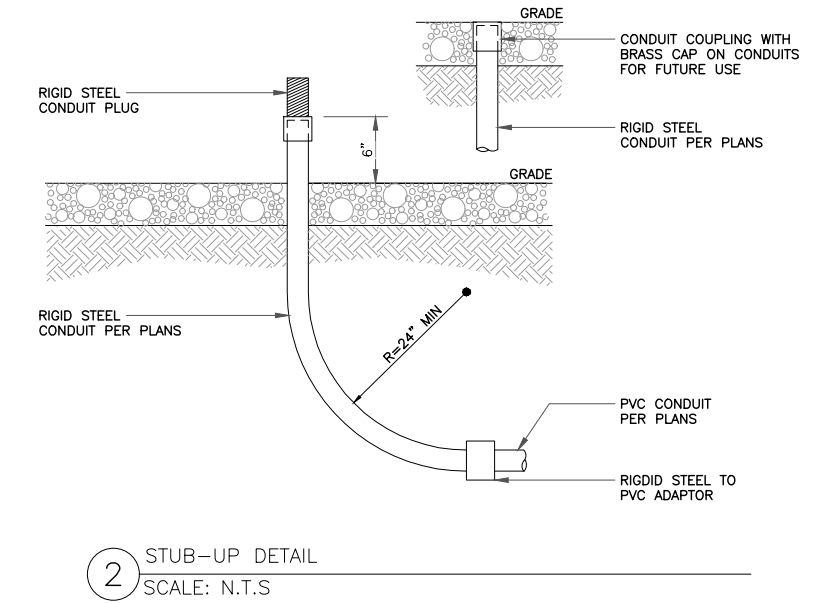
Attachment Enlargement

STEP 1 Insert slats vertically from top to bottom, keeping the locking holes visible.

STEP 2 Thread the flexible locking channel horizontally through the locked holes in the slats.

STEP 3 Thread slats into adjacent to ensure they always stay open for fast and easy reworking.

Detail Name: 5000 Series Self Locking Privacy Blade Slats
Drawing Number: 5000-SELF LOCKING BLADE SLATS
PHONE: 1.888.313.6333 | **www.FenceScreen.com**



RADIO 4449 - B13 + B5
4TX 4RX PER BAND

- 4 antenna ports, 4TX/4RX for 2 bands with common RF ports
- Up to 320W RF Power shared between 2 bands
- Examples:
 - 4x40W on each band or
 - 2x60W each band on two high-power RF ports
- Carrier Capacity:**
 - Up to 24 carrier and up to 10+25 MHz OBW for LTE
 - 2x 10Gbps CPRI
- Size and Weight:**

Radio 4449 - B13/B5	Height	Width	Depth	Weight
no protruding items	15 in (380 mm)	13.2 in (335 mm)	9.3 in (235 mm)	70 lbs (31.7 Kg)
w protruding items	18 in (455 mm)	13.2 in (335 mm)	9.4 in (240 mm)	

- 48 VDC
- 2x20A fuse (2 power connectors, 2 or 3 wire)
- AISG TMA & RET support (2 Bias-T, 1 ALD port)
- Type 4.3-10 RF connectors
- 2 external alarms
- IP 65, -40 to +55°C

Commercial in confidence | Anders CITTO | 2018-01-16 | Page 19

RADIO 4449
Portrait Mount Only

9 ERICSSON RRUS 4449
SCALE: N.T.S

CROWN CASTLE
1 PARK PLACE PLACE
DUBLIN, CA 94568

LEAF COMMUNICATIONS
1000 CALLE CORDILLERA
SAN CLEMENTE, CA 92673
WWW.LEAFCOMM.COM
TEL: (949) 388-0192

SITE NAME:
STANFORD RAN 32 / VENUE
SITE ADDRESS:
30 RYAN CT.
STANFORD, CA 94305
SITE TYPE:
NEW 49'-11" MONOPOLE (NEW FACILITY)
HUB NAME:
ECH BUILDING
ADDRESS:
253 BONAIR SIDING, STANFORD CA 94305
COORDINATES:
37.429290/-122.156116

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	QA
4	01/16/2024	PS	100% CONSTRUCTION DWGS	BD
5	01/29/2024	MA	100% CONSTRUCTION DWGS	BD
6	04/10/2024	JDJ	100% CONSTRUCTION DWGS	BD
7	06/13/2024	PS	100% CONSTRUCTION DWGS	BD
8	06/19/2024	JDJ	100% CONSTRUCTION DWGS	BD
9	06/21/2024	JDJ	100% CONSTRUCTION DWGS	AT
10	07/25/2024	JDJ	100% CONSTRUCTION DWGS	AT

LEAF COMMUNICATIONS

REGISTERED PROFESSIONAL ENGINEER
JOSEPH FITZSIMMONS
81603
CIVIL
STATE OF CALIFORNIA

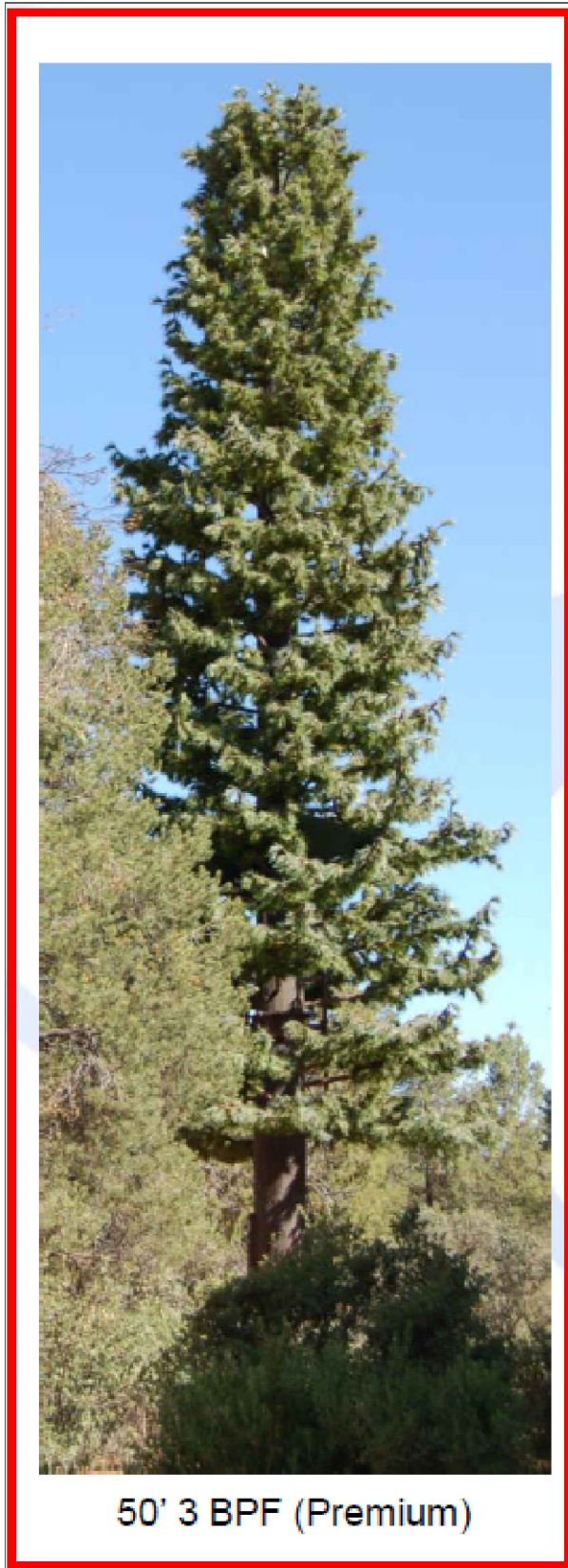
SIGNED: 2024/07/25
EXPIRES: 2025/09/30

SHEET TITLE:
DETAILS

SHEET NUMBER:
D-2
REVISION:
4



1 TWIGS
SCALE: N.T.S



50' 3 BPF (Premium)

2 PREMIUM BRANCHES
SCALE: N.T.S

LARSON MONO-PINE BRANCHES PREMIUM

4' Premium 4' Premium - Profile 6' Premium 6' Premium - Profile

8' Premium 8' Premium - Profile 10' Premium 10' Premium - Profile

6 INNOVATORS OF CONCEALMENT SOLUTIONS

CROWN CASTLE
1 PARK PLACE PLACE
DUBLIN, CA 94568

LEAF COMMUNICATIONS
1000 CALLE CORDILLERA
SAN CLEMENTE, CA 92673
WWW.LEAFCOMM.COM
TEL: (949) 388-0192

SITE NAME:
STANFORD RAN 32 /
VENUE
SITE ADDRESS:
30 RYAN CT.
STANFORD, CA 94305
SITE TYPE:
NEW 49'-11" MONOPINE
(NEW FACILITY)
HUB NAME:
ECH BUILDING
ADDRESS:
253 BONAIR SIDING, STANFORD
CA 94305
COORDINATES:
37.429290/-122.156116

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	QA
4	01/16/2024	PS	100% CONSTRUCTION DWGS	BD
5	01/29/2024	MA	100% CONSTRUCTION DWGS	BD
6	04/10/2024	JDJ	100% CONSTRUCTION DWGS	BD
7	06/13/2024	PS	100% CONSTRUCTION DWGS	BD
8	06/19/2024	JDJ	100% CONSTRUCTION DWGS	BD
9	06/21/2024	JDJ	100% CONSTRUCTION DWGS	AT
10	07/25/2024	JDJ	100% CONSTRUCTION DWGS	AT

LEAF COMMUNICATIONS

SIGNED: 2024/07/25
EXPIRES: 2025/09/30

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SHEET TITLE:
DETAILS

SHEET NUMBER: D-3 **REVISION:** 4

ATTACHMENT F

Color Material Board

30 Ryan CT., Stanford, CA 94305

Project Address

142-21-084

APN

Project File Number

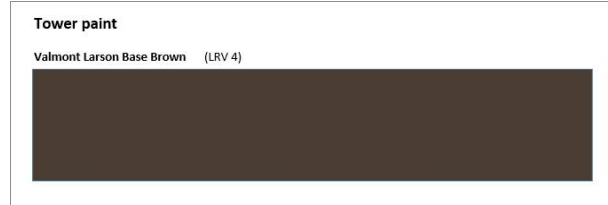
Color/Materials Board*

Cell Tower Trunk and Branches

Valmont Larson Base Brown (LRV 4)

Manufacture & Material

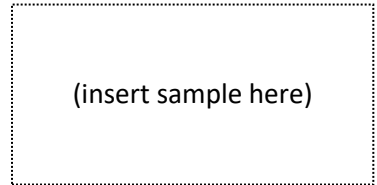
Product Name, Number



Door & Window Frames, Railings

Manufacture / Number

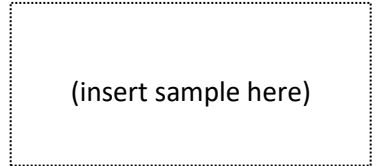
Color Name, LRV



Trim

Manufacture / Number

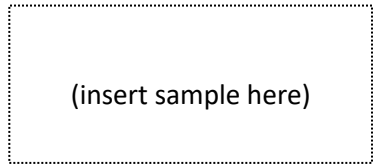
Color Name, LRV



Exterior Walls

Manufacture / Number

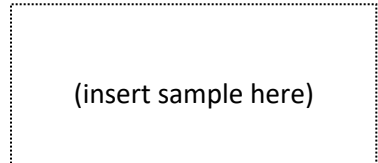
Color Name, LRV



Architectural Accents (Ex. Stone Veneer)

Manufacture / Number

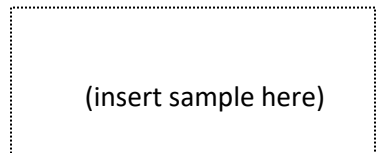
Color Name, LRV



Retaining Walls

Manufacture / Number

Color Name, LRV



*This information shall also be provided on the elevation drawings in the plans.

ATTACHMENT G

Photo Simulations

STANFORD RAN 32 / VENUE

30 RYAN CT - STANFORD, CA 94305

VICINITY



1 Park Place
Dublin, CA 94568



1000 Calle Cordillera
San Clemente, CA 92673
www.leafcomm.com

Sheet No.

-

STANFORD RAN 32 / VENUE

30 RYAN CT - STANFORD, CA 94305

EXISTING

LOOKING SOUTHWEST



STANFORD RAN 32 / VENUE

30 RYAN CT - STANFORD, CA 94305

PROPOSED

LOOKING SOUTHWEST



STANFORD RAN 32 / VENUE

30 RYAN CT - STANFORD, CA 94305

EXISTING

LOOKING EAST

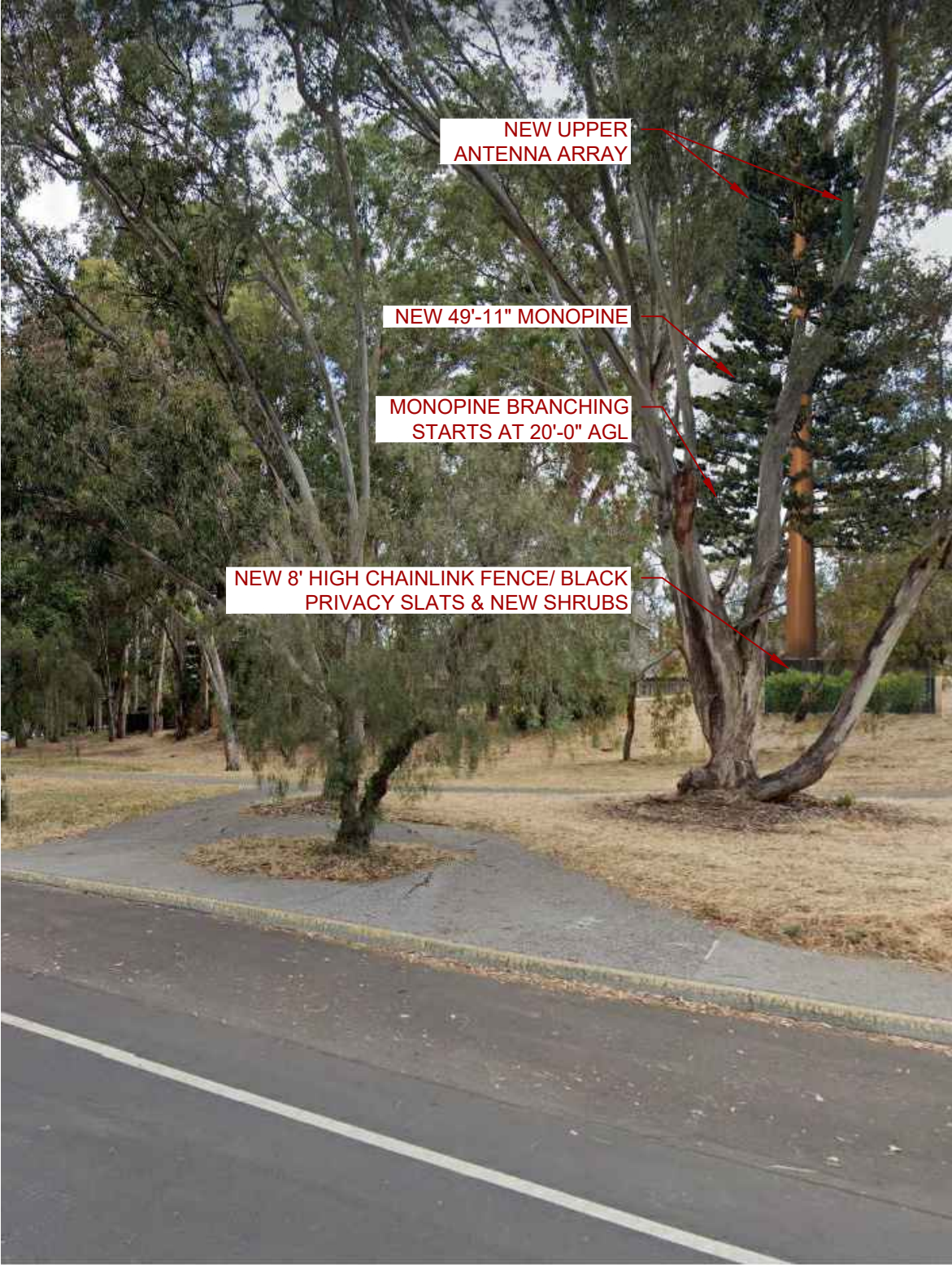


STANFORD RAN 32 / VENUE

30 RYAN CT - STANFORD, CA 94305

PROPOSED

LOOKING EAST



STANFORD RAN 32 / VENUE

30 RYAN CT - STANFORD, CA 94305

EXISTING

LOOKING NORTHWEST



STANFORD RAN 32 / VENUE

30 RYAN CT - STANFORD, CA 94305

PROPOSED

LOOKING NORTHWEST



NEW UPPER ANTENNA
ARRAY (BEYOND TREE)

NEW 49'-11" MONOPINE

MONOPINE BRANCHING
STARTS AT 20'-0" AGL

NEW 8' HIGH CHAINLINK FENCE/
BLACK PRIVACY SLATS & NEW
SHRUBS

STANFORD RAN 32 / VENUE

30 RYAN CT - STANFORD, CA 94305

EXISTING

LOOKING EAST



STANFORD RAN 32 / VENUE

30 RYAN CT - STANFORD, CA 94305

PROPOSED

LOOKING EAST



ATTACHMENT H

Radio Frequency Safety Predictive Report

Radio Frequency Safety Predictive Report

Prepared For: Crown Castle

Site Name: STANFORD RAN 32/ VENUE
Site ID: N/A
Address: 30 Ryan Court
Stanford, CA 98109
County: Santa Clara
Latitude: 37.412162
Longitude: -122.158581
Report Type: Theoretical

Additional Site Information

Customer Name: Gabriel Goman
Customer Email: Gabriel.Goman@crowncastle.com
Customer Phone: 717-650-4255
Site Structure Type: Monopine

Report Information

Report Writer: Kevin Nardi
Report Date: July 24, 2024
Waterford Contact: Hector Manmano
Contact Email: hmanmano@waterfordconsultants.com
WC Project Number: S-ORD105311
Reviewed By: Danny Audi

Compliance Statement

Based on the information provided by the client, this site Will Be Compliant with FCC Rules and Regulations with regard to Human Exposure to Radio Frequency Radiation upon implementation of the recommendations set forth in this report.



Table of Contents

1 General Summary	2
1.1 Area(s) of Study	3
2 Site Details	4
2.1 Antenna Locations	5
3 Antenna Inventory	6
4 Predicted Emission Levels	7
5 Recommendations for Compliance	15
6 Appendix A: Technical Framework	20
7 Appendix B: Qualifications of Waterford Consultants, LLC	23
8 Appendix C: RoofMaster	24
9 Appendix D: Statement of Limiting Conditions	25
10 Appendix E: Glossary of Terms	26

1 General Summary

Crown Castle has contracted Waterford Consultants, LLC to conduct a **radiofrequency (RF) electromagnetic safety and FCC compliance assessment** of the STANFORDRAN32/ VENUE site located at 30 Ryan Court, Stanford, CA 98109. The compliance framework is derived from the FCC Rules and Regulations for preventing human exposure in excess of the MPE (Maximum Permissible Exposure) limits.

An overview of the applicable FCC Rules and analysis guidelines is presented in Appendix A. The subsequent sections contain information regarding the radio telecommunications equipment installed at this site and the surrounding environment regarding RF Hazard compliance.

As summarized in Section 5 of this report, potentially hazardous conditions were identified, and mitigating action is recommended to achieve or maintain compliance.

All known RF sources have been included in this analysis. Predictive modeling using worst-case operating parameters for antennas regardless of accessibility is the basis for mitigation recommendations. Similarly, theoretical assessment of antennas mounted in close proximity is used to characterize and mitigate cumulative exposure conditions.

Documents Utilized in this Analysis:

STANFORDRAN32_90_CD_06.14.23MONOPINE.pdf

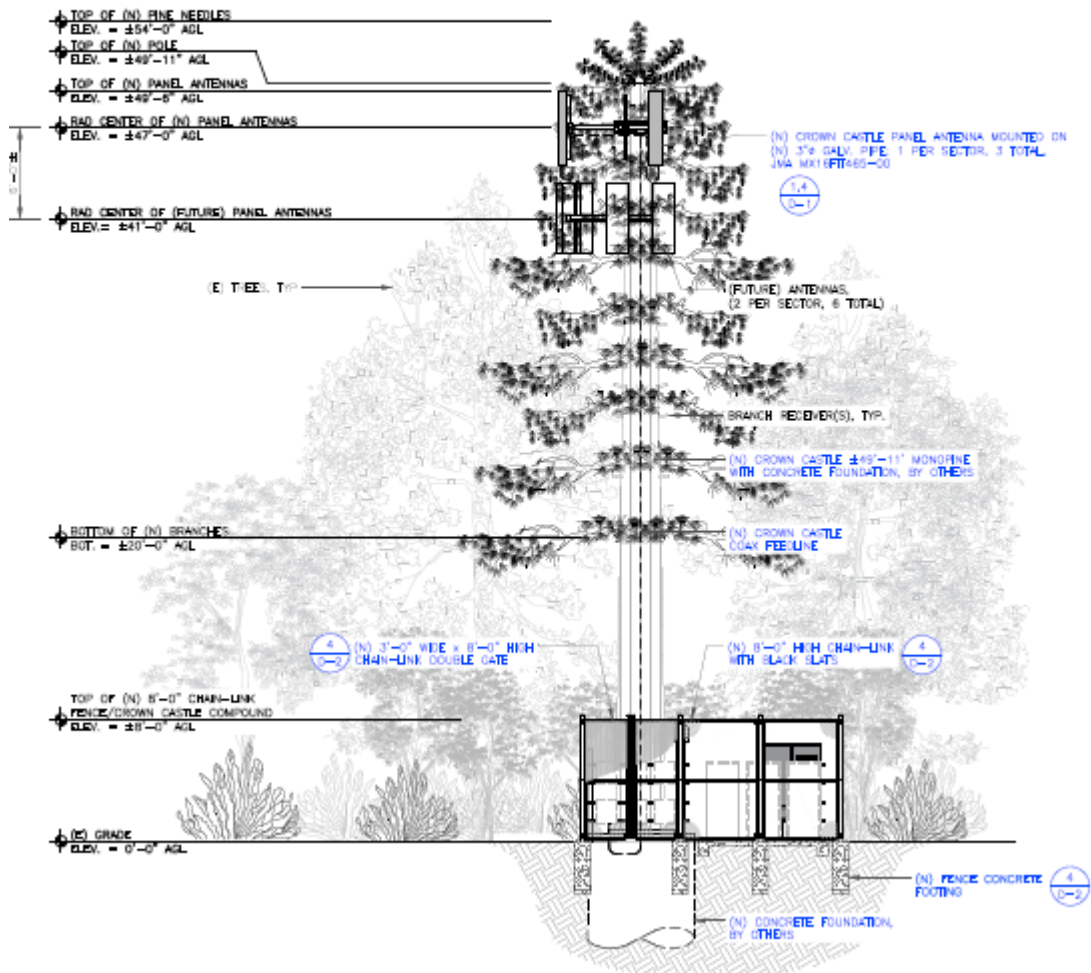
1.1 Area(s) of Study



Surrounding Environment

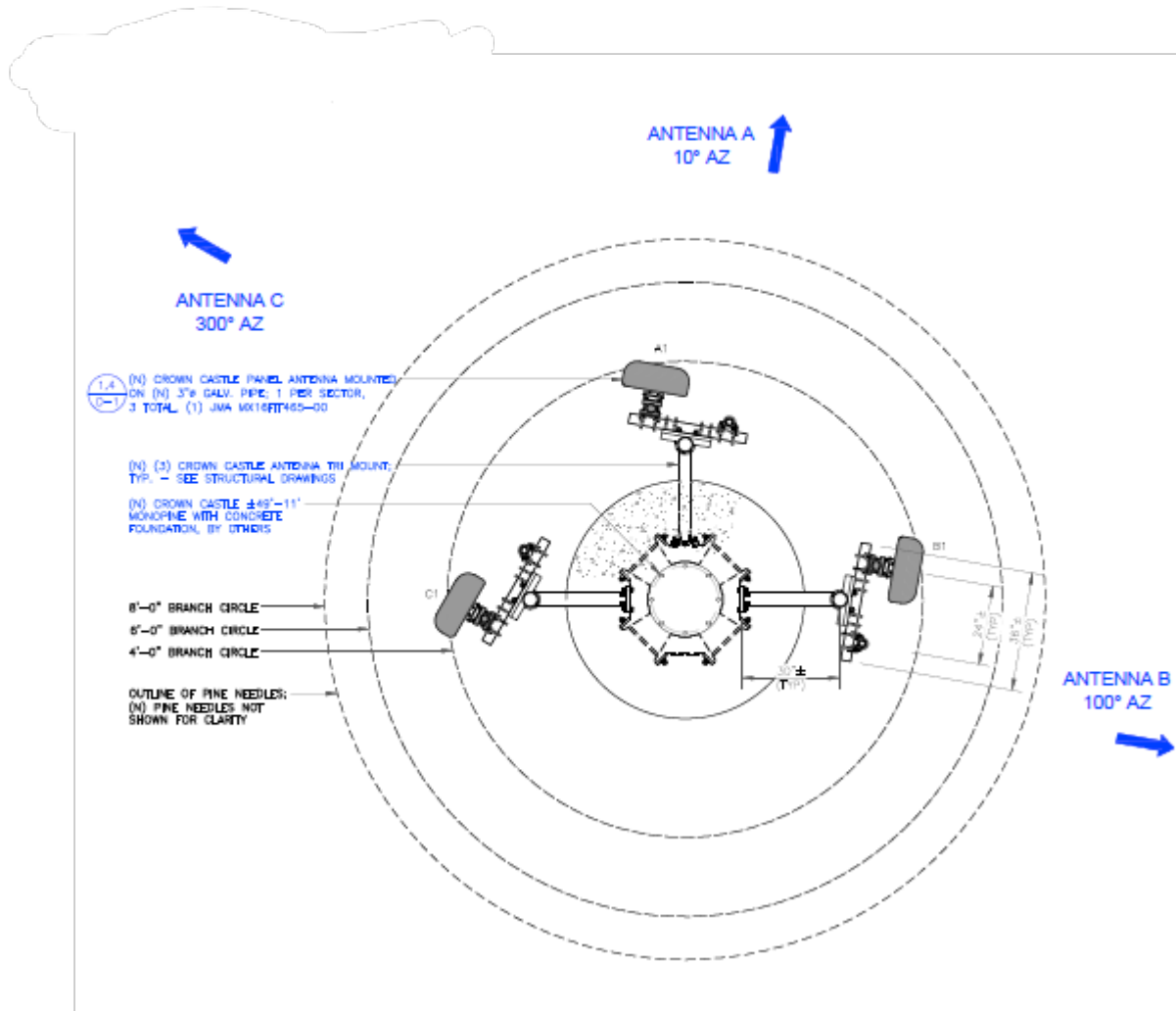
SITE DETAILS

2 Site Details



Southeast Installation Design

2.1 Antenna Locations



Upper Antenna Level Installation Design

ANTENNA INVENTORY

3 Antenna Inventory

The operations listed in the following tables have been compiled based on information provided by client.

Ant #	Operator	Antenna Make	Antenna Model	Type	Frequency (MHz)	Az (Deg)	Downtilt (Deg)	Horizontal Beam Width (Deg)	Antenna Length (ft)	Antenna Gain (dBd)	TPO (Watts)	Paths	Loss (dB)	Total ERP (Watts)	Total EIRP (Watts)	Antenna Centerline Ground Level (ft)
1	AT&T Mobility	JMA	MX16FIT465-xx 02DT	Panel	700	10	0	52	4.9	10.85	40	4	0	1946	3192	47
1	AT&T Mobility	JMA	MX16FIT465-xx 02DT	Panel	1900	10	0	60	4.9	15.05	40	4	0	5118	8397	47
1	AT&T Mobility	JMA	MX16FIT465-02 02DT	Panel	3600	10	0	53	4.9	11.55	40	4	0	2286	3751	47
2	AT&T Mobility	JMA	MX16FIT465-xx 02DT	Panel	700	100	0	52	4.9	10.85	40	4	0	1946	3192	47
2	AT&T Mobility	JMA	MX16FIT465-xx 02DT	Panel	1900	100	0	60	4.9	15.05	40	4	0	5118	8397	47
2	AT&T Mobility	JMA	MX16FIT465-02 02DT	Panel	3600	100	0	53	4.9	11.55	40	4	0	2286	3751	47
3	AT&T Mobility	JMA	MX16FIT465-xx 02DT	Panel	700	300	0	52	4.9	10.85	40	4	0	1946	3192	47
3	AT&T Mobility	JMA	MX16FIT465-xx 02DT	Panel	1900	300	0	60	4.9	15.05	40	4	0	5118	8397	47
3	AT&T Mobility	JMA	MX16FIT465-02 02DT	Panel	3600	300	0	53	4.9	11.55	40	4	0	2286	3751	47

NOTE 1: Waterford Consultants has assumed transmission parameters for co-located RF emitters based on similar installations found at other radio communications sites. Generic antenna models have been used where existing antenna part numbers or radiation patterns are not available. The frequencies presented in this table may have been assumed in order to represent the approximate band of operation and to support a maximum-case calculation of power density.

NOTE 2: Some antennas identified by the SON designation may employ beamsteering technology where RF energy allocated to each customer device is dynamically directed toward their location. In the analysis presented herein, predicted exposure levels are based on all beams at full utilization (i.e. full power) simultaneously focused in any direction. As this condition is unlikely to occur, the actual power density levels at ground and at adjacent structures will be less than the levels reported below.

NOTE 3: No other transmitting antennas are known to be operating in the vicinity of this site.

4 Predicted Emission Levels

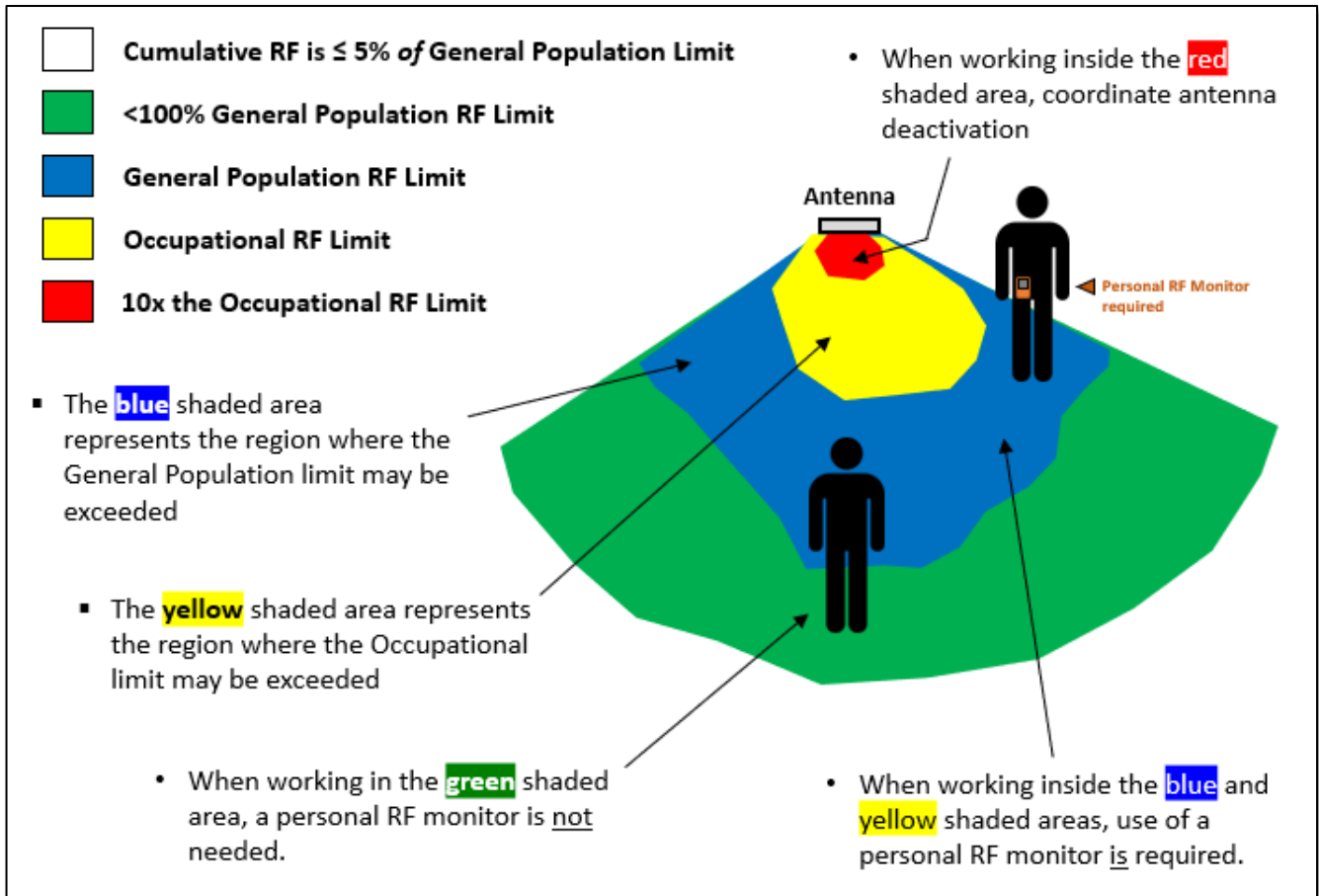
The following plots show the spatial average predicted power density level at any given location as a percentage of the FCC General Population limits. These plots depict the cumulative exposure based on all RF sources listed in the corresponding antenna table.

Exposure to non-ionizing radiation at a given spatial average power density level, during the appropriate time interval, determines hazard. MPE predictions are not dependent on the exposure duration as only the intensity of the exposure is calculated. In this manner, areas of concern are identified and delineated from areas where exposures will not exceed the FCC limits. Recommendations for mitigating these zones are recommended in this report. Rules for access to impacted area are based on policy set by property management.

Predictive MPE plots may be provided for plan view (*top-down*) or section view (*profile*) studies. Profile studies account for antennas that are placed individually with separation that assumes cumulative emissions from other antennas are negligible. Section detail plots depict spatially averaged power MPE conditions at the middle of the six-foot exposure area. Plan view studies may include cumulative analysis where the contributions of nearby antennas may impact exposure conditions and compliance recommendations. The reference plane for each plot is indicated in the caption and legend. For example, "Avg 10 to 16 Feet" appearing in the legend indicates that the top-view plot depicts spatially averaged predicted power densities between 10 and 16 feet which a person could occupy. Plots are produced for each accessible level or walking surface; areas that are not accessible are not shown. Antenna level plots are also created to depict maximum-case exposure conditions at potential elevated work areas. Unless otherwise noted, Ground Level or Main Level represents the default access elevation and is the baseline for antenna centerline reference.

PREDICTED EMISSION LEVELS

What do the shaded colors mean in the RF plots provided in this report?



SUMMARY

10X the Occupational RF exposure limit. When working inside this area, trained personnel with personal protective equipment (PPE) is required; may also require coordinating a scheduled deactivation/outage with operator.

Occupational RF exposure limit. When working inside this area, trained personnel with personal protective equipment (PPE) is required; untrained person(s) must be accompanied by trained personnel.

General Population RF exposure limit. When working inside this area, trained personnel with personal protective equipment (PPE) is required; untrained person(s) must be accompanied by trained personnel.

$<100\%$ of the General Population RF exposure limit (or $<20\%$ of the Occupational RF exposure limit). When working in this area, personal protective equipment (PPE) is not required. No special action or behavior is required to maintain a safe work environment. This area is safe for continuous exposure.

Area is outside of General Population and Occupational RF exposure limits (less than 5% of the General Population limits). When working in this area, personal protective equipment (PPE) is not required. No special action or behavior is required to maintain a safe work environment. This area is also safe for continuous exposure.

PREDICTED EMISSION LEVELS



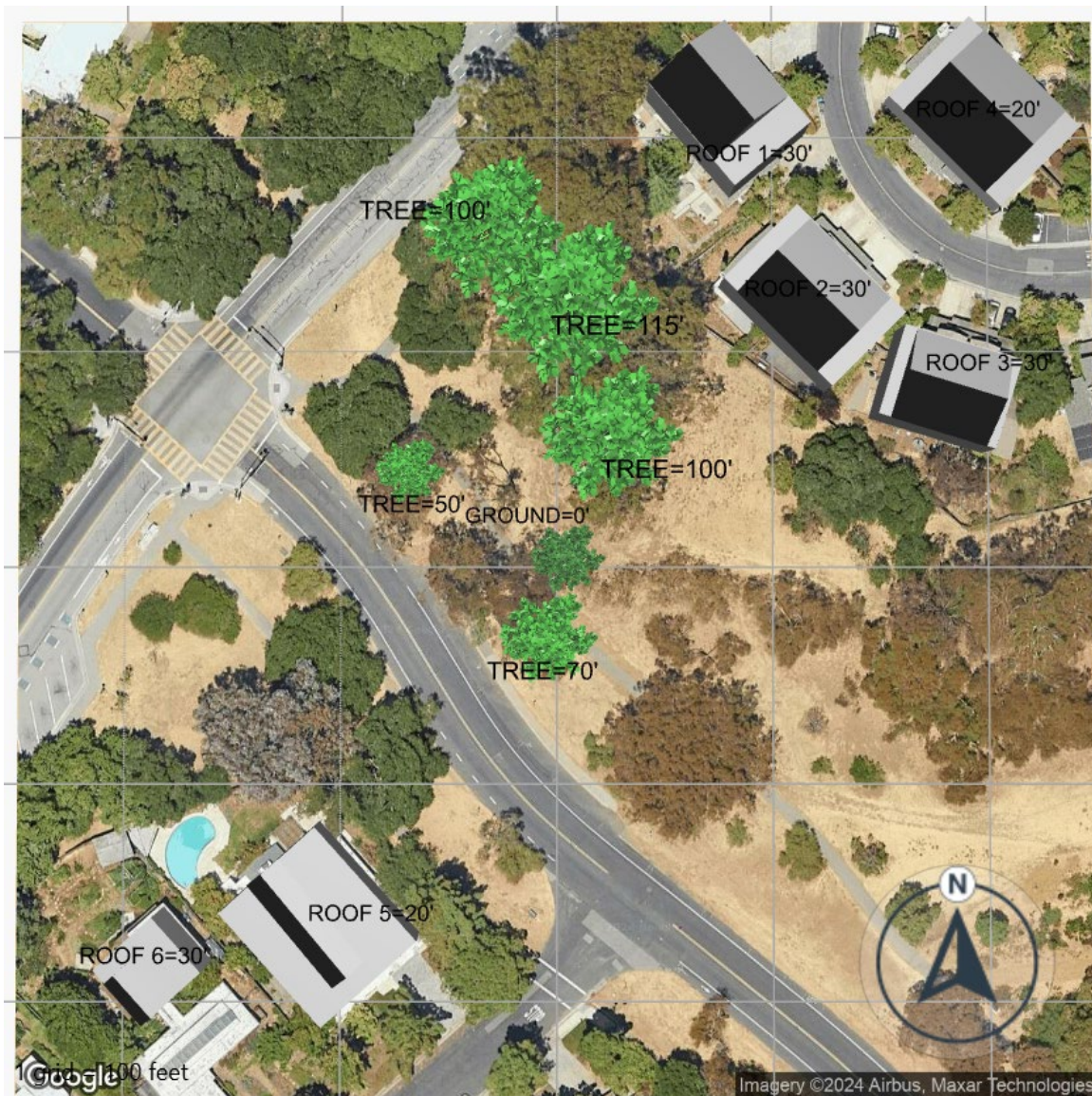
Legend

Study Zone	Elev. (ft)	Type	Exposure Profile	Max MPE	Att	Carriers
TREE=70'	0.1	3D Area	FF - Adjacent Vertical...	239.24%	0.00	AT&T
TREE=50'	0.1	3D Area	FF - Adjacent Vertical...	1.19%	0.00	AT&T
TREE=100'	0.1	3D Area	FF - Adjacent Vertical...	76.17%	0.00	AT&T
TREE=115'	100.0	3D Area	FF - Adjacent Vertical...	0.03%	0.00	AT&T
TREE=100'	0.1	3D Area	FF - Adjacent Vertical...	0.81%	0.00	AT&T
100%-500%		500%-5000%		5000%-99999%		
Study Zone	Elev. (ft)	Type	Exposure Profile	Max MPE	Att	Carriers
ROOF 1=30'	30.0	Floor	FF w/RC - Adjacent Walkable...	2.60%	0.00	AT&T
ROOF 4=20'	20.1	Floor	FF w/RC - Adjacent Walkable...	4.35%	0.00	AT&T
ROOF 2=30'	30.1	Surface	FF w/RC - Adjacent Walkable...	15.25%	0.00	AT&T
ROOF 3=30'	1.9	3D Area	FF w/RC - Adjacent Walkable...	16.27%	0.00	AT&T
ROOF 5=20'	20.1	Surface	FF w/RC - Adjacent Walkable...	7.65%	0.00	AT&T
ROOF 6=30'	30.1	Surface	FF w/RC - Adjacent Walkable...	7.12%	0.00	AT&T
5%-100%		100%-500%		500%-5000%		5000%-99999%
Exposure Profile Name	Model	Exposure Area	Standard	Resolution	RCF	
FF w/RC - Adjacent Walkable Surface...	OET-65 Far Field	Spatial Average (6 ft)	FCC General Population	2.5 ft3	1.6	
FF - Adjacent Vertical Structures - 3D...	OET-65 Far Field	Spatial Average (6 ft)	FCC General Population	2.5 ft3	1.0	
● AT&T						

Grid Size: 100.00 feet

Floor = Elevation +6' | Surface = Elevation +/- 3'

PREDICTED EMISSION LEVELS



Legend

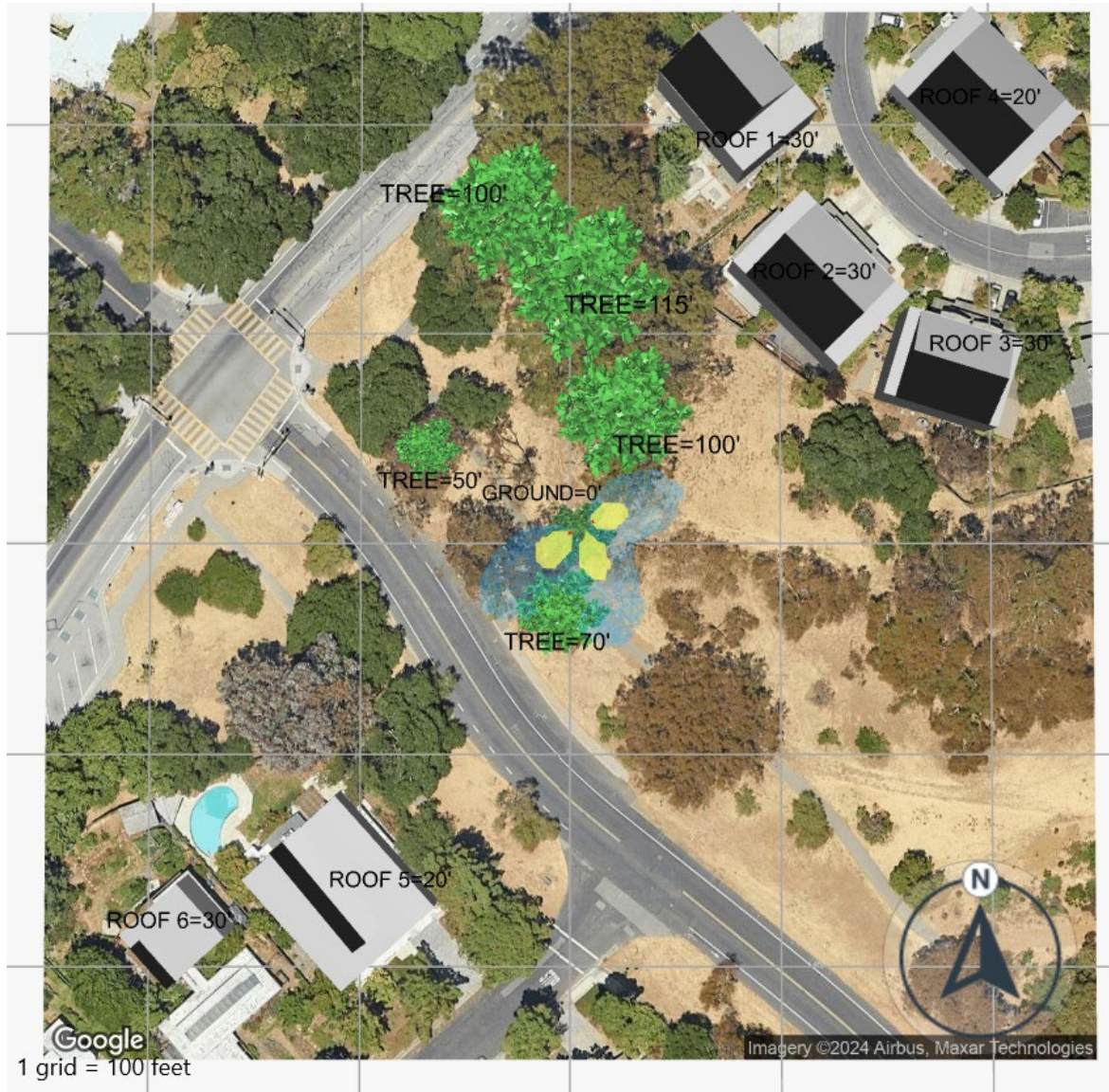
Study Zone	Elev. (ft)	Type	Exposure Profile	Max MPE	Att	Carriers
GROUND=0'	0.1	Floor	Ground	3.01%	0.00	AT&T
5%-100%		100%-500%		500%-5000%		5000%-99999%
Exposure Profile Name	Model	Exposure Area	Standard	Resolution	RCF	
Ground	OET-65 Far Field	Spatial Average (6 ft)	FCC General Population	5.0 ft3	1.6	

● AT&T

Grid Size: 100.00 feet

Floor = Elevation +6' | Surface = Elevation +/- 3'

PREDICTED EMISSION LEVELS



Legend

Study Zone	Elev. (ft)	Type	Exposure Profile	Max MPE	Att	Carriers
ANTENNA LEVEL=47'	30.0 - 50.0	3D Area	Sula9 - Site Only - 3D GP	6320.38%	0.00	AT&T
100%-500%		500%-5000%		5000%+		
Exposure Profile Name	Model	Exposure Area	Standard	Resolution	RCF	
Sula9 - Site Only - 3D GP	Sula 9	Spatial Average (6 ft)	FCC General Population	2.5 ft3	1.0	

● AT&T

Grid Size: 10.00 feet

Floor = Elevation +6' | Mid-Level = Elevation +/- 3'

PREDICTED EMISSION LEVELS



Legend

Study Zone	Elev. (ft)	Type	Exposure Profile	Max MPE	Att	Carriers
ANTENNA LEVEL=47'	30.0 - 50.0	3D Area	Sula9 - Site Only - 3D GP	6320.38%	0.00	AT&T
100%-500%		500%-5000%		5000%+		
Exposure Profile Name	Model	Exposure Area	Standard	Resolution	RCF	
Sula9 - Site Only - 3D GP	Sula 9	Spatial Average (6 ft)	FCC General Population	2.5 ft3	1.0	

● AT&T

Grid Size: 10.00 feet

Floor = Elevation +6' | Mid-Level = Elevation +/- 3'

PREDICTED EMISSION LEVELS



Legend

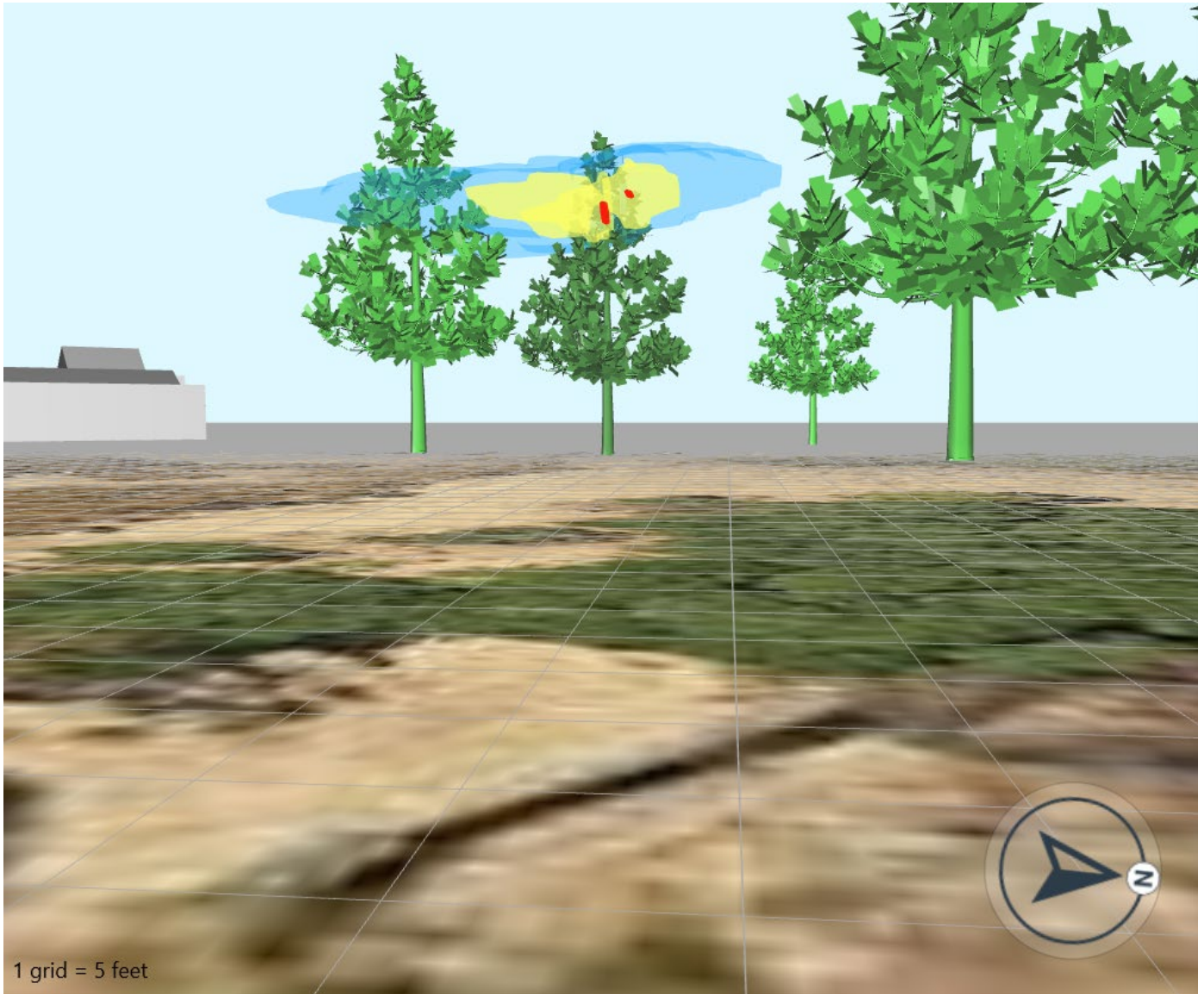
Study Zone	Elev. (ft)	Type	Exposure Profile	Max MPE	Att	Carriers
ANTENNA LEVEL=47'	30.0 - 50.0	3D Area	Sula9 - Site Only - 3D GP	6320.38%	0.00	AT&T
100%-500%		500%-5000%		5000%+		
Exposure Profile Name	Model	Exposure Area	Standard	Resolution	RCF	
Sula9 - Site Only - 3D GP	Sula 9	Spatial Average (6 ft)	FCC General Population	2.5 ft3	1.0	

● AT&T

Grid Size: 10.00 feet

Floor = Elevation +6' | Mid-Level = Elevation +/- 3'

PREDICTED EMISSION LEVELS



Legend

Study Zone	Elev. (ft)	Type	Exposure Profile	Max MPE	Att	Carriers
ANTENNA LEVEL=47'	30.0 - 50.0	3D Area	Sula9 - Site Only - 3D GP	6320.38%	0.00	AT&T
100%-500%		500%-5000%		5000%+		
Exposure Profile Name	Model	Exposure Area	Standard	Resolution	RCF	
Sula9 - Site Only - 3D GP	Sula 9	Spatial Average (6 ft)	FCC General Population	2.5 ft3	1.0	

● AT&T

Grid Size: 10.00 feet

Floor = Elevation +6' | Mid-Level = Elevation +/- 3'

5 Recommendations for Compliance

Predictive modeling indicates that cumulative RF power densities at ground level and/or walkable surfaces as a result of the operations documented herein are below the FCC General Population limits. However, elevated work areas near the antennas may exceed the FCC General Population limits.

Work plans near any transmitting antennas should be evaluated with respect to any actions needed to maintain a safe work environment. These actions may include scheduled outages or power reductions. It is recommended that all workers needing to access areas the front of the transmitting antennas listed below be properly trained and certified in the area of RF exposure and safety, as well as have the means to monitor and control their exposure.

Signs should be sized according to OSHA standards to be clearly legible from the separation distance noted and multiple signs may be required to provide notification of potential exposure conditions from all possible approaches to the antenna. Workers must be provided information about the locations of these areas of concern and the meaning of RF alerting signage.

Site Access Location

- Restrict tower access to authorized climbers trained in RF Safety
- Caution sign required at base of tower.

Adjacent 70ft Tree South of Site

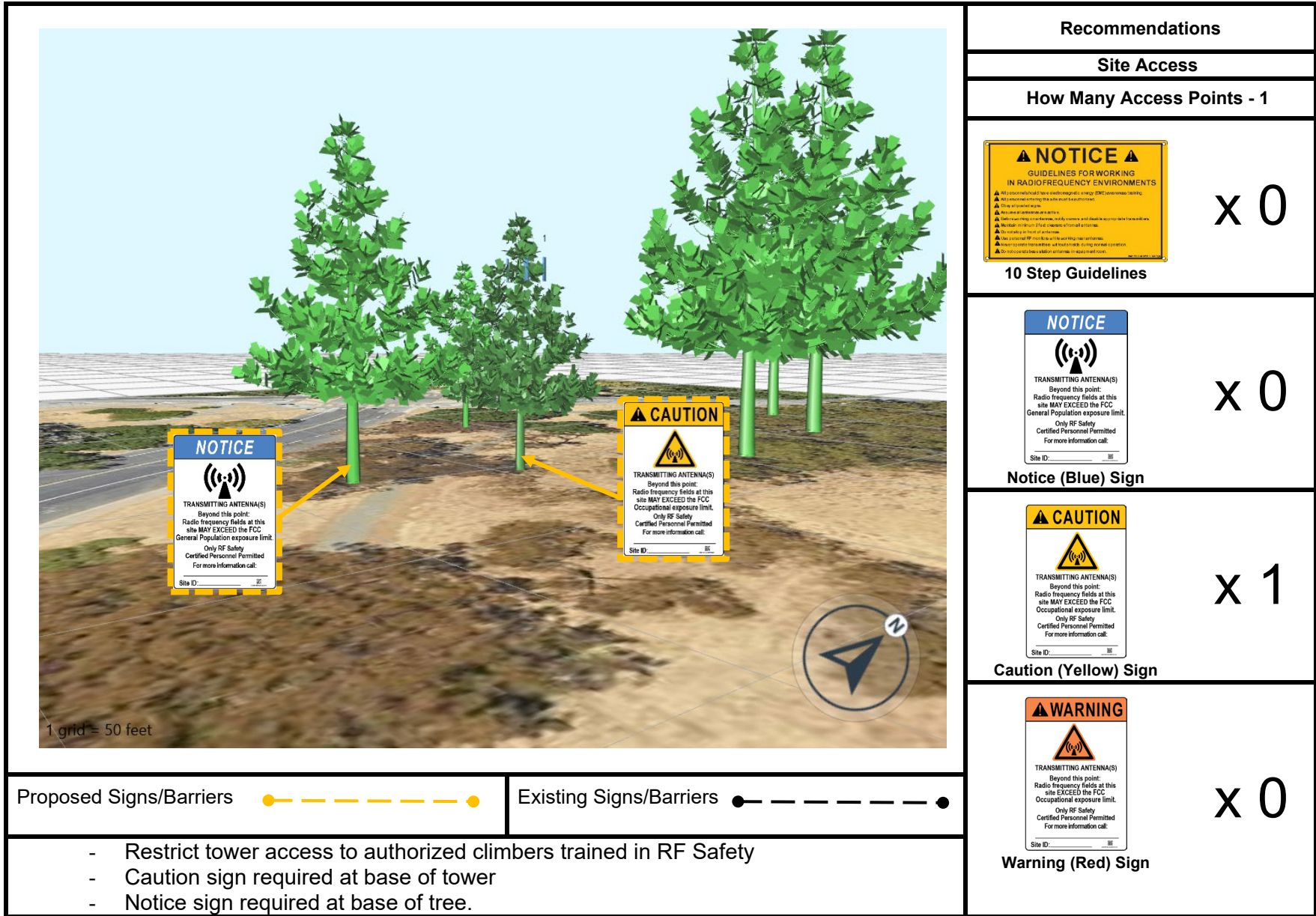
- Notice sign required at base of tree, if permitted. If not allowed, an RF safety plan should be submitted with the appropriate jurisdiction.
- Any workers/tree trimmers accessing the tree near the antenna level should coordinate antenna shut down procedures with AT&T prior to work being performed on the adjacent 70ft tree.

(Schedule Maintenance Outage)

- All routine shutdowns require 5-day prior notification by emailing RFS_NOC@att.com first then calling 800-638-2822 Option 9, and then option 3.
- Identify your request is for Maintenance Outage and Technician will need to physically shutdown the site.

RECOMMENDATIONS FOR COMPLIANCE

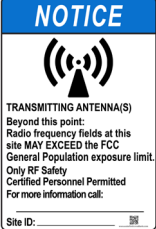
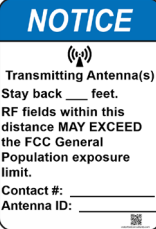

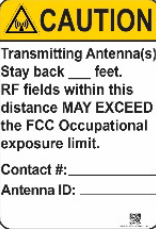
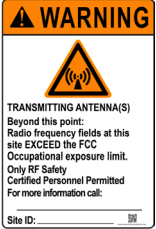
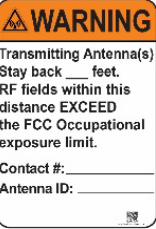
Compliance Requirement Diagram (Site Access)



RECOMMENDATIONS FOR COMPLIANCE

Mitigation for Compliance

For any area where cumulative RF power density exceeds 100% of the FCC General Population MPE limits, access controls with appropriate RF alerting signage must be established and maintained to restrict access to authorized personnel. Signage must be posted to be visible upon approach from any direction to provide notification of potential conditions within these areas.

Category 2 <i>Exceeds General Population Limit; Below Occupational Limit</i>		Category 3 <i>Exceeds Occupational Limit; Below 10x Occupational Limit</i>		Category 4 <i>Exceeds 10x Occupational Limit</i>	
 <p>NOTICE</p> <p>TRANSMITTING ANTENNA(S)</p> <p>Beyond this point: Radio frequency fields at this site MAY EXCEED the FCC General Population exposure limit. Only RF Safety Certified Personnel Permitted For more information call: Site ID: _____</p>	 <p>NOTICE</p> <p>Transmitting Antenna(s) Stay back ___ feet. RF fields within this distance MAY EXCEED the FCC General Population exposure limit. Contact #: _____ Antenna ID: _____</p>	 <p>CAUTION</p> <p>TRANSMITTING ANTENNA(S)</p> <p>Beyond this point: Radio frequency fields at this site MAY EXCEED the FCC Occupational exposure limit. Only RF Safety Certified Personnel Permitted For more information call: Site ID: _____</p>	 <p>CAUTION</p> <p>Transmitting Antenna(s) Stay back ___ feet. RF fields within this distance MAY EXCEED the FCC Occupational exposure limit. Contact #: _____ Antenna ID: _____</p>	 <p>WARNING</p> <p>TRANSMITTING ANTENNA(S)</p> <p>Beyond this point: Radio frequency fields at this site EXCEED the FCC Occupational exposure limit. Only RF Safety Certified Personnel Permitted For more information call: Site ID: _____</p>	 <p>WARNING</p> <p>Transmitting Antenna(s) Stay back ___ feet. RF fields within this distance EXCEED the FCC Occupational exposure limit. Contact #: _____ Antenna ID: _____</p>

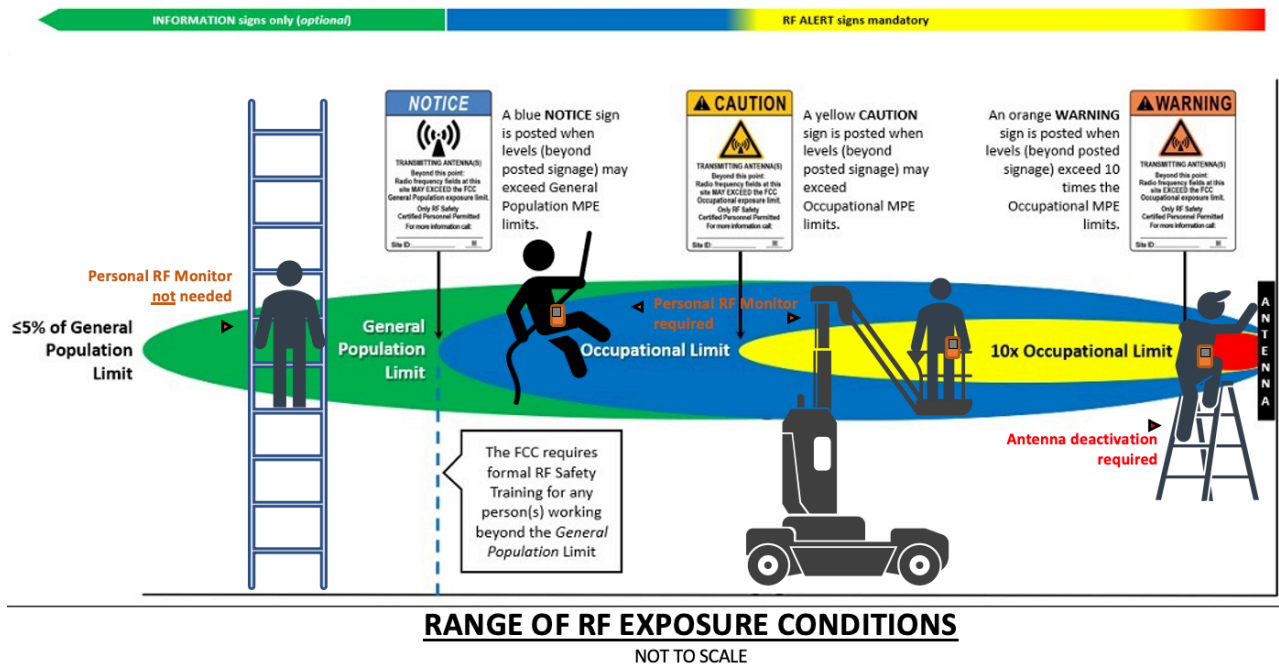
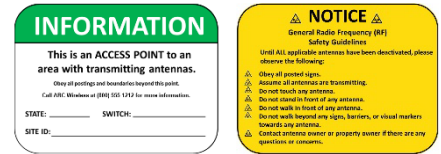
Per FCC requirements for compliance, the following content is required on RF alerting signage:

- RF energy advisory symbol and signal word appropriate for the potential exposure category
- A description of the RF source (e.g., transmitting antennas)
- Behavior necessary to avoid over-exposure (e.g., do not climb tower unless you know that antennas are not energized; stay behind barrier or off of markings)
- Up-to-date contact information (e.g., monitored phone number or email address connected to someone with authority and capability to provide prompt response).
- Any sign attached directly to an antenna must include the separation distance at a font size commensurate with the safe separation distance.

RECOMMENDATIONS FOR COMPLIANCE

Additional Requirements

- Signage should conform to IEEE C95.2-2018 and the ANSI/NEMA Z535 series of standards.
- RF alerting signs must be legible from a distance of 5 feet from the boundary of the area where the FCC General Population limits are exceeded in accordance with OSHA rules (29 CFR § 1910.145(f)(4)(ii)).
- INFORMATION signs displaying contact information AND GUIDELINES signs are considered *optional* and may be utilized at antenna installations where the FCC limits may not be exceeded.
- Positive access control is required to restrict access to areas where the FCC General Population limits may be exceeded.** Controls such as physical barriers to entry imposed by locked doors, hatches and ladders or other access control mechanisms may be supplemented by alarms that alert the individual and notify site management of a breach in access control.
- Appropriate RF Safety & Awareness Training is required for any person that may encounter controlled areas in order to understand the meaning of RF alerting signage, as well as the behaviors necessary to ensure safety.** In order to perform work within restricted area where the General Population limits may be exceeded, workers should be trained in RF safety and equipped with personal protective equipment (e.g. RF personal monitor). Lockout/tagout or scheduled outages may be employed to maintain a safe work environment within these areas. Further, untrained workers should not have access to controlled locations without supervision by trained occupational personnel.



Standard Minimum Font Sizes & Safe Viewing Distances

(Source: ANSI Z535.2-2001 (Table B1))

Minimum Safe Viewing Distance		Minimum Letter Height for FAVORABLE Reading Conditions			Minimum Recommended Sign Size *
(ft)	(m)	(point size)	(in)	(cm)	(in)
≤4	≤1.2	16	0.16	.4	5 x 7
6	1.8	24	0.24	0.6	7 x 10
8	2.4	32	0.32	0.8	8 x 12
10	3.0	40	0.40	1.0	11 x 18
15	4.6	60	0.60	1.5	15 x 24
20	6.1	80	0.80	2.0	19 x 30
30	9.1	120	1.20	3.0	TBD**
40	12.2	160	1.60	4.1	TBD**
60	18.3	240	2.40	6.1	TBD**
80	24.4	320	3.20	8.1	TBD**
100	30.5	400	4.00	10.2	TBD**
125	38.1	500	5.00	12.7	TBD**
150	45.7	600	6.00	15.2	TBD**

* Sign sizes reflect the minimum size(s) needed to meet FCC/OSHA requirements based on (i) the sign content and artwork shown in this section, and (ii) the minimum safe viewing distance, as specified by ANSI and calculated by our RoofMaster™ software.

All minimum safe viewing distances are depicted in the RF modeling diagrams provided in this report.

** Minimum recommended sign sizes are provided herein only for signs that require a minimum safe viewing distance of 0 – 20 feet. Signs requiring a minimum safe viewing distance >20 feet shall be graphically calculated and confirmed by Waterford on a case-by-case basis.

6 Appendix A: Technical Framework

The FCC requires licensees to ensure that new and existing wireless operations do not expose people to hazardous levels of RF electromagnetic energy. Service providers consider compliance with these rules when designing new sites or modifying existing operations that could change the RF environment. The FCC exposure rules have been codified in response to the National Environmental Policy Act of 1969 which requires government agencies to evaluate the impact of their actions on the "quality of the human environment." Documentation of adherence to these rules is typically included in the environmental compliance applications submitted to local authorities responsible for reviewing and approving new or modified telecommunications installations and is maintained by the FCC licensee.

The FCC rules are based on exposure limits established by scientific and engineering organizations that review human health research in this field. At RF frequencies, the electromagnetic waves utilized by cellular sites represent non-ionizing radiation which can be absorbed by the human body. The FCC limits include a 50-fold safety factor above exposure levels where adverse thermal effects may result. By contrast, the energy available in ionizing radiation (e.g. X-rays) is higher and has the ability to permanently damage tissue cells at the molecular level. Unlike ionizing radiation, exposure to non-ionizing radiation does not have cumulative effects and the FCC limits are based on the body's thermoregulation capabilities.

The FCC requires licensees to ensure that persons are not exposed to radiofrequency electromagnetic energy power densities in excess of the Maximum Permissible Exposure ("MPE") limits as set forth in 47 C.F.R. §§ 1.1307(b) and 1.1310. The limits are derived from maximum Specific Absorption Rate (SAR) values of the human body for two tiers of permissible exposure differentiated by the situation in which the exposure takes place and/or the status of the individuals who are subject to exposure.

General Population / uncontrolled exposure limits apply to those situations in which persons may not be aware of the presence of electromagnetic energy, where exposure is not employment-related, or where persons cannot exercise control over their exposure.

Occupational / controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment, have been made fully aware of the potential for exposure, and can exercise control over their exposure.

Based on these criteria, the FCC limits for the General Population are associated with continuous exposure conditions and exposure levels below these limits are not hazardous. The FCC General Population limit is 5 times more restrictive than the Occupational limits.

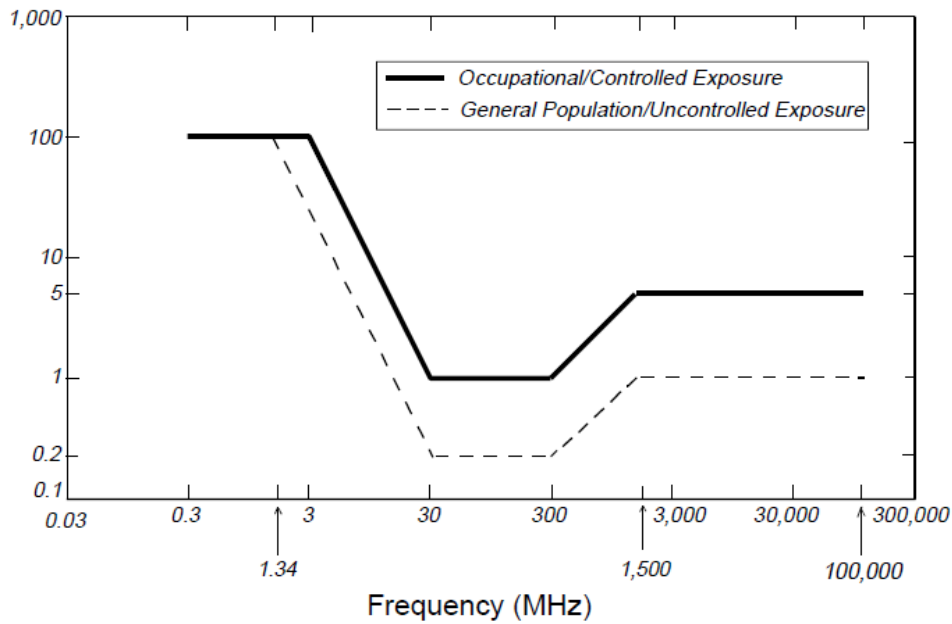
As a practical method of evaluating compliance in deployment scenarios, the FCC has set forth MPE limits shown in Table 1 below which are derived from the *whole-body SAR limits*. Specified in terms of electric field strength, magnetic field strength and equivalent plane-wave power density, compliance may be evaluated through computational or measurement methods provided in the FCC Office of Engineering & Technology Bulletin 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields" (OET-65). Factors that determine exposure conditions include frequency, operating power, distance, and directivity of the antenna.

Table 1: FCC Exposure Limits (47 C.F.R. § 1.1310)

Frequency (MHz)	Limits for General Population/Uncontrolled Exposure		Limits for Occupational/Controlled Exposure	
	Power Density (mW/cm ²)	Averaging Time (minutes)	Power Density (mW/cm ²)	Averaging Time (minutes)
30-300	0.2	30	1	6
300-1500	f/1500	30	f/300	6
1500-100,000	1.0	30	5.0	6

f=Frequency (MHz)

Figure 1. FCC Limits for Maximum Permissible Exposure (MPE)
Plane-wave Equivalent Power Density



From OET-65

Compliance assessment involves consideration of the cumulative contributions of all wireless operations. The power density resulting from an RF source may be expressed as a percentage of the frequency-specific limits. In scenarios involving multiple RF emitters, the percentage of the FCC limits from each source are *summed* to determine if 100% of the exposure limit has been exceeded at a given location. At these areas of concern, access controls with appropriate RF alerting signage must be established and maintained to restrict access to authorized personnel.

An evaluation of existing environmental conditions may be performed through predictive modeling as set forth in OET-65 or collecting power density measurements. The impact of new or modified wireless operations must be assessed in this cumulative scenario and any area of concern that is accessible to members of the General Population must be mitigated. In situations where the predicted MPE exceeds the General Population threshold in an accessible area as a result of emissions from multiple transmitters, FCC licensees that contribute greater than 5% of the aggregate MPE share responsibility for mitigation.

APPENDIX A: TECHNICAL FRAMEWORK

Based on the computational guidelines set forth in FCC OET Bulletin 65, Waterford Consultants, LLC has developed software to predict the overall Maximum Permissible Exposure possible at any location given the spatial orientation and operating parameters of multiple RF sources. The power density in the *far-field* of an RF source is specified by OET-65 Equation 5 as follows:

$$S = \frac{EIRP}{4 \cdot \pi \cdot R^2} \text{ (mW/cm}^2\text{)}$$

where EIRP is the Effective Radiated Power relative to an isotropic antenna and R is the distance between the antenna and point of study. Additionally, consideration is given to the manufacturers' horizontal and vertical antenna patterns as well as radiation reflection. At any location, the predicted power density in the *far-field* is the spatial average of points within a 0 to 6-foot vertical profile that a person would occupy. *Near-field* power density is based on OET-65 Equation 20 stated as

$$S = \left(\frac{180}{\theta_{BW}} \right) \cdot \frac{100 \cdot P_{in}}{\pi \cdot R \cdot h} \text{ (mW/cm}^2\text{)}$$

where P_{in} is the power input to the antenna, θ_{BW} is the horizontal pattern beam-width and h is the aperture length.

Exposure conditions in the *near-field* of a microwave dish antenna may vary but the maximum power density is provided by OET-65 Equation 13 as follows:

$$S_{nf} = \frac{16 \eta P}{\pi D^2} \text{ (mW/cm}^2\text{)}$$

where η is aperture efficiency (0.75) and D is the antenna diameter.

Some antennas employ beamforming technology where RF energy allocated to each customer device is dynamically directed toward their location. In this analysis, predicted exposure levels are based on all beams at full utilization (i.e. full power) simultaneously focused in any direction. As this condition is unlikely to occur, the actual power density levels at ground and at adjacent structures are expected to be less than the levels reported. These theoretical results represent worst-case predictions as all RF emitters are assumed to be operating at 100% duty cycle.

7 Appendix B: Qualifications of Waterford Consultants, LLC

With more than 100 team-years of experience, Waterford Consultants, LLC [Waterford] provides technical consulting services to clients in the Radio Communications and antenna locating industry. Waterford retains professional engineers who are placed in responsible charge of the processes for analysis.

Waterford is familiar with 47 C.F.R. § § 1.1307(b)(3) and 1.1310 along with the general Rules, Regulations, and policies of the FCC. Waterford work processes incorporate all specifications of FCC Office of Engineering and Technology, Bulletin 65 (“OET65”), from the website: www.fcc.gov/oet/rfsafety and follow criteria detailed in 47 CFR § 1.1310 “Radiofrequency radiation exposure Limits”.

Within the technical and regulatory framework detailed above, Waterford developed tools according to recognized and generally accepted good engineering practices. Permissible exposure limits are band specific, and the Waterford computerized modeling tools correctly calculate permissible exposure based on the band(s) specified in the input data. Only clients and client representatives are authorized to provide input data through the Waterford web portal. In securing that authorization, clients and client representatives attest to the accuracy of all input data.

Waterford Consultants, LLC attests to the accuracy of the engineering calculations computed by those modeling tools. Furthermore, Waterford attests that the results of those engineering calculations are correctly summarized in this report.

To download an electronic copy of our **Summary of Capabilities** brochure, please clicking the image below



8 Appendix C: RoofMaster

RoofMaster™ is the software package that Waterford Consultants, LLC created to model RF environments associated with multiple emitters where the potential exists for human exposure. Based on the computational guidelines set forth in OET Bulletin 65 from the Federal Communications Commission (FCC), RoofMaster™ considers the operating parameters of specified RF sources to predict the overall Maximum Permissible Exposure possible at a given location. These theoretical results represent worst-case predictions as emitters are assumed to be operating at 100% duty cycle.

From the FCC document:

“The revised OET Bulletin 65 has been prepared to provide assistance in determining whether proposed or existing transmitting facilities, operations or devices comply with limits for human exposure to radiofrequency (RF) fields adopted by the Federal Communications Commission (FCC). The bulletin offers guidelines and suggestions for evaluating compliance.”

http://transition.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet65/oet65.pdf

9 Appendix D: Statement of Limiting Conditions

Waterford Consultants, LLC field personnel have visited the site and collected data with regard to the MPE environment. Waterford Consultants will not be responsible for matters of a legal nature that affect the site or property. The property has been analyzed under the premise that it is under responsible ownership and management and our client has the legal right to conduct business at this facility.

Due to the complexity of some wireless sites, Waterford Consultants has created this report utilizing best industry practices and due diligence. Waterford Consultants cannot be held accountable or responsible for anomalies or discrepancies due to actual site conditions (i.e., mislabeling of antennas or equipment, inaccessible cable runs, inaccessible antennas or equipment, etc.) or information or data supplied by Wireless Carrier, the site manager, or their affiliates, subcontractors or assigns.

Waterford Consultants has provided the results of a computer-generated model in this MPE Site Compliance Report to show approximate dimensions of the site, and the model results is included to assist the reader of the compliance report to visualize the site area, and to provide supporting documentation for Waterford Consultants' recommendations.

Waterford Consultants will not be responsible for any existing conditions or for any engineering or testing that might be required to discover whether adverse safety conditions exist. Because Waterford Consultants is not expert in the field of mechanical engineering or building maintenance, this MPE Site Compliance Report must not be considered a structural or physical engineering report.

Waterford Consultants obtained information used in this MPE Site Compliance Report from sources that Waterford Consultants considers reliable and believes them to be true and correct. Waterford Consultants does not assume any responsibility for the accuracy of such items that were furnished by other parties.

10 Appendix E: Glossary of Terms

Definitions of the following technical words, terms, and/or phrases reflected in the report provided by Waterford are included as follows:

Compliance assessment	Sometimes referred to as a GAP assessment, it is intended to identify gaps between an existing control environment and what is required for compliance with Federal (FCC) regulations
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.
Cumulative exposure	Cumulative exposure is the total dose resulting from repeated exposures of radiation to an occupationally exposed worker to the same portion of the body, or to the whole body, over a period of time.
Effective Radiated Power (EIRP or ERP)	An IEEE standardized definition of directional radio frequency (RF) power, such as that emitted by a radio transmitter..... It is equal to the input power to the antenna multiplied by the gain of the antenna.
Electromagnetic emissions (EME)	Aka <i>electromagnetic radiation</i> , EME is energy that is propagated through free space or through a material medium in the form of electromagnetic waves, such as radio waves, visible light, and gamma rays.
Far field	The far field is the region in which the field acts as "normal" electromagnetic radiation. In this region, it is dominated by electric or magnetic fields with electric dipole characteristics.
FCC	Federal Communications Commission; an independent agency of the United States government that regulates communications by radio, television, wire, satellite, and cable across the United States. The FCC maintains jurisdiction over the areas of broadband access, fair competition, radio frequency use, media responsibility, public safety, and homeland security
General Population limit	Applicable 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

IEEE	Institute of Electrical and Electronics Engineers; a professional association for electronic engineering and electrical engineering (and associated disciplines). It was formed in 1963 from the amalgamation of the American Institute of Electrical Engineers and the Institute of Radio Engineers
Ionizing radiation	A type of energy released by atoms that travels in the form of electromagnetic waves (gamma or X-rays) or particles (neutrons, beta or alpha); can penetrate the human body and the radiation energy can be absorbed in tissue. This has the potential to cause harmful effects to people, especially at high levels of exposure
Maximum permissible exposure (MPE)	The FCC's regulations have specific MPE requirements for radiated electric fields, magnetic fields, and power density. MPEs are derived from the Specific Absorption Rate (SAR) at which tissue absorbs RF energy, usually expressed in watts per kilogram (W/kg).
Mitigation for compliance	Actions or activities required for compliance with FCC/OSHA regulations and to ensure a safe working environment. A harmonized and integrated compliance program – one that includes appropriate risk-management activities and controls – will eliminate redundant efforts, enable execution, ensure safety, and facilitate adherence to compliance requirements by the business and governing federal agencies.
Narda	A leading international supplier of measuring equipment in the EMF / EME Safety, RF Test & Measurement and EMC sectors
Near field	A part of the radiated field that is below distances shorter than the Fraunhofer distance, which is given from the source of the diffracting edge or antenna of longitude or diameter; near field, as the name suggests, is very close to the antenna while far field is further away.
Non-ionizing radiation	Non-ionizing radiation includes the spectrum of ultraviolet (UV), visible light, infrared (IR), microwave (MW), radio frequency (RF), and extremely low frequency (ELF); does not penetrate deep into the tissues but increases the risk of damage to the skin and eyes. Dependent on the energy and exposure time, non-ionising radiation can cause localised heating, or photochemical reactions can occur with possible permanent harm. Exposure should therefore be minimised.

Occupational limit	Apply to situations in which persons are exposed as a consequence of their employment, have been made fully aware of the potential for exposure, and can exercise control over their exposure.
OET-65	Bulletin published by the FCC’s Office of Engineering & Technology in 1997; establishes guidelines for human exposure to radiofrequency electromagnetic field and achieving FCC compliance
Personal RF monitor	Part of the personal protective equipment (PPE) worn by a person working in areas exposed to radio frequency radiation. A personal RF safety monitor is typically worn either on the torso region of the body or handheld and is required by the occupational safety and health acts of many telecommunication companies
Positive access control	Refers to the practice of restricting entrance to a property, a building, or a room to authorized persons; can be achieved by a human (a guard, bouncer, or receptionist), through mechanical means such as locks and keys, or through technological means such as access control systems
Power density	The amount of power (time rate of energy transfer) per unit volume; power density may also refer to a volume. It is then also called volume power density, which is expressed as W/m ³
Radio frequency (RF)	The oscillation rate of an alternating electric current or voltage or of a magnetic, electric, or electromagnetic field or mechanical system in the frequency range from around 20 kHz to around 300 GHz
Specific Absorption Rate (SAR)	A measure of the rate at which energy is absorbed per unit mass by a human body when exposed to a radio frequency (RF) electromagnetic field. ... It is defined as the power absorbed per mass of tissue and has units of watts per kilogram (W/kg)
Spatial average	The average power density observed when the Narda meter and probe is swept over an entire person (0 – 6 feet) for purposes of comparing with FCC exposure limits
Spatial peak	The maximum power density observed when the Narda meter and probe are swept over an entire person (0 – 6 feet) for purposes of comparing with FCC exposure limits; considered “ <i>worst case</i> ” – the average will not exceed this value
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

ATTACHMENT I

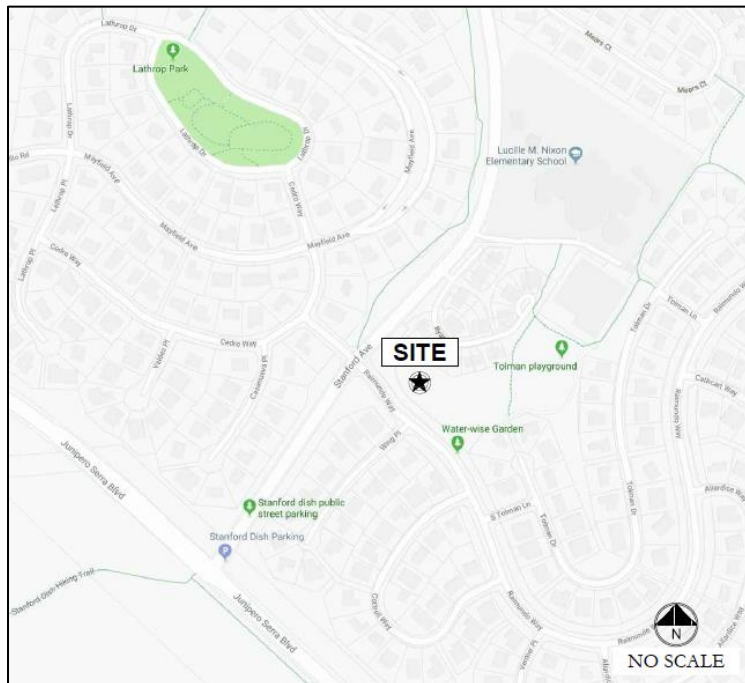
Noise Study

Noise Study Compliance Report

Site ID:	Stanford RAN 32
Site Name:	Stanford RAN 32
Market/Region:	County of Santa Clara
Zoning District:	R1S
Date of Report:	June 8, 2023
Latitude:	37.412162
Longitude:	-122.158581
Site Type:	Monopine

Statement of Compliance

The proposed equipment complies with County of Santa Clara noise limits.



Prepared by Pramira Inc.
With technical support by GenTech LLC



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EXECUTIVE SUMMARY

Pramira has prepared this noise study compliance report for Crown Castle regarding Site Stanford RAN 32. The site address is 805 Raimundo Way, Stanford, CA 94305. This project is for the installation and operation of a new wireless communications facility. The purpose of this report is to determine whether the proposed equipment is compliant with County of Santa Clara noise limits on sound emitted from the operation of the installed equipment.

These results are based on construction drawings dated September 18, 2022 as provided to Pramira. Any changes to the equipment configuration or other material aspects of the site design may change the noise emission levels and therefore may change the compliance outcomes in this report.

STATEMENT OF COMPLIANCE AND NOISE ANALYSIS

After calculations and assuming complete accuracy and repeatability with respect to the manufactures' specifications, the sum of the equipment to be will not exceed RS1 zone noise limit 45 dBA (10pm-7am) set forth by the County of Santa Clara.¹

Receiving Land Use Category	Time Period	Noise Level (dBA)
One- and Two-Family Residential	10:00 p.m. – 7:00 a.m.	45
	7:00 a.m. – 10:00 p.m.	55
Multiple-Family Dwelling	10:00 p.m. – 7:00 a.m.	50
Residential Public Space	7:00 a.m. – 10:00 p.m.	55
Commercial	10:00 p.m. – 7:00 a.m.	60
	7:00 a.m. – 10:00 p.m.	65
Light Industrial	Any Time	70
Heavy Industrial	Any Time	75

¹ COUNTY OF SANTA CLARA MUNICIPAL CODE, ARTICLE 1, SECTION. B11-152.

ITEMIZED NOISE CALCULATIONS

Ericsson Radio 4449
Quantity = 6
Specified Noise = 36 dBA @ 3.3'
Distance to Property Line = 12'
SPL at Property Line = 32.56 dBA
Minimum Compliance Distance = 2.85'

Total Noise
SPL at Property Line = 32.56 dBA
SPL Limit = 45 dBA
Limit Delta = -12.44 dBA
Additional Mitigation: Not Needed

CONCLUSION

The Total Noise calculated at the adjacent property line from the proposed equipment is 32.56 dBA which falls within compliance of the 45 dBA limit for that applicable zone as well as all other noise zones in the County of Santa Clara and should not be an acoustical nuisance to the public based on municipal noise standards.

ACOUSTIC ANALYSIS METHODOLOGY

Decibels (dB)

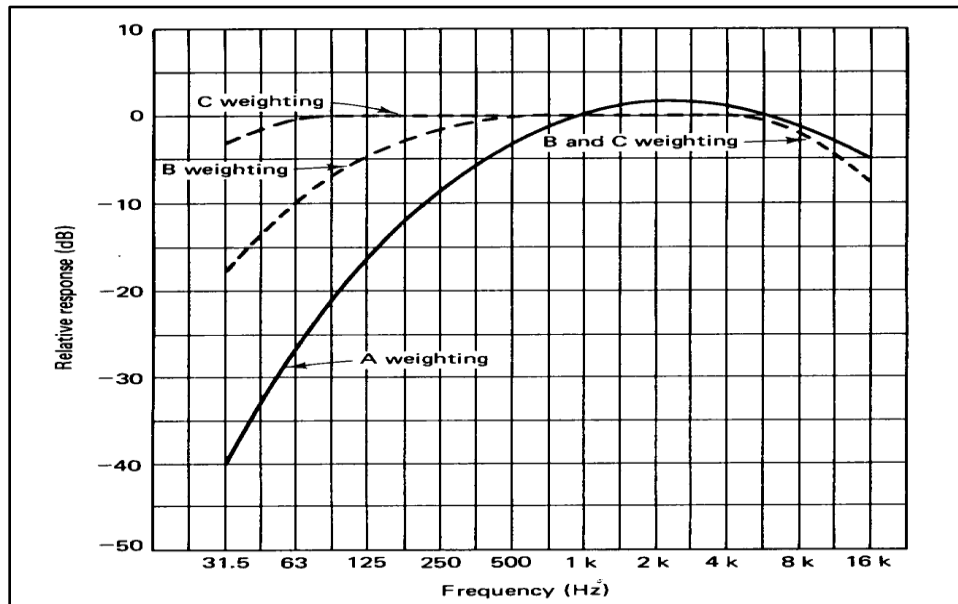
A decibel expresses a logarithmic ratio between a given value and a reference value. In the case of dB sound pressure level (SPL), the reference value is 20 micro Pascals, the threshold of human hearing. Although noise levels can vary depending on environmental conditions, representative levels are show below.

dBA	Pascals	Source	Sensation
140	200	Jet Aircraft at 100'	Physical Pain
120	20	Thunder	Deafening
100	2	Discotheque	Very Loud
80	0.2	Cocktail Party	Loud
60	0.02	Noisy Home	Moderate
40	0.002	Quite Home	Faint
20	0.0002	Rustle of Leaves	Whisper
0	0.00002	Threshold of hearing	Whisper

dBA

Most municipalities specify Sound Pressure Level (SPL) in units dBA. With respect to this methodology, dBA is defined as a Sound Pressure Level measurement expressed in decibels relative to 20 micro Pascal with an “A weighted” filter applied. An A weighted filter is designed to emulate a person’s sensitivity to sound pressure at a given frequency, therefore yielding better correlation between measurement and human perception.

Sound Level Meter Weightings



Sound Divergence

Single source SPL will decay in a free-field according to the inverse square law that states for every doubling of the distance from the sound source, a 6dB loss will incur. When the sound pressure level L1, at distance R1 from a point source is known, the sound-pressure level L2 at another distance R2 is calculated by the following equation:

$$L2 = L1 - 20\log(R2/R1)^2$$

Example: If a noise source is 80 dBA at 1-meter distance, the level will be 74dB at 2 meters and 68dB at 4 meters distance from the source.

Summing Multiple Sound Sources

After the SPL of each individual source is calculated based on the listening position, the total SPL of multiple incoherent sound sources in a free-field is calculated by the following equation and is referred to herein as **Total Noise**:

$$SPL_{total} = 10 \cdot \log_{10} \left(10^{\frac{L_1}{10}} + 10^{\frac{L_2}{10}} + \dots + 10^{\frac{L_n}{10}} \right)^3$$

Reference Table

Difference in dB between 2 sound sources	0	1	2	3	4	5	6	7	8	9	10
Added dB to the louder source	3.01	2.54	2.12	1.76	1.46	1.19	0.97	0.79	0.64	0.51	0.41

Example: 80 dBA + 85 dBA = 86.19 dBA

Transmission Loss

Transmission Loss (TL) is the loss as sound passes through a barrier. In particular, TL can be defined as the difference between SPL on the source side of the barrier and the receiver side of the barrier and is express in the equation below:

$$TL = SPL \text{ Source Side} - SPL \text{ Receiver Side}^4$$

Sound Transmission Class (STC)

Sound Transmission Class is a rating of sound isolation provided by ASTM E413 based on laboratory measurements performed in accordance with ASRM E90 that measures the extent that airborne sounds are attenuated as they pass from one side of a medium to another. For example, a masonry wall with an STC 40 will attenuate 40dB SPL on one side or the wall compared to the other side. STC ratings are important when selecting materials when implementing noise mitigation to bring projects into compliance.

² See Everest & Pohlmann: MASTER HANDBOOK OF ACOUSTICS 5th edition.

³ See Tontechnik Rechner: Sengpielaudio.

⁴ See Everest & Pohlmann: MASTER HANDBOOK OF ACOUSTICS 5th edition.

Absorption Coefficient

Physical materials and barriers have absorption coefficients which describes the extent to which sound is attenuated when passing through the material. It is important to note the absorption coefficients (α) are based on a linear scale and TL values are based on a logarithmic scale. To unify both scales we define τ as the transmission coefficient, the amount of sound that passes through a material where $\tau = 1 - \alpha$. We relate τ to TL in the following equation:

$$TL = 10 \log (1/\tau)^5$$

Measurement Period

There are various methods for acquiring sound measurements over a period of time. For the purposes of this methodology a linear time average or Leq is used in accordance with most municipalities. Leq is the equivalent continuous sound level in decibels, equivalent to the total sound energy measured over a stated period of time. LAeq is a linear time averaged measurement with an A weighted filter applied to the spectrum of the measurement.

CNEL

The Lden (Day Evening Night Sound Level) or CNEL (Community Noise Equivalent Level) is the average sound level over a 24 hour period, with a penalty of 5 dBA added for the evening hours or 7:00pm - 10:00pm, and a penalty of 10 dBA added for the nighttime hours of 10:00pm - 07:00am. CNEL is based on changes in a person's sensitivity to environmental noise over a 24 hour period and represents a more anthropomorphized model for measuring noise with respect to how it affects people and communities. Since CNEL is based upon a real-world measurement certain situations only allow for calculating a theoretical CNEL figure. This process is based on a dBA figure (SPL calculated at the property line) applied to a simulated 24 hour measurement period to produce a CNEL figure. The figure is represented in "dBLden"

$$Lden = 10 \cdot \log_{10} \left(\frac{1}{24} \left(12 \cdot 10 \frac{Lday}{10} + 4 \cdot 10 \frac{Levening + 5}{10} + 8 \cdot 10 \frac{Lnight + 10}{10} \right) \right)$$

⁵ See Everest & Pohlmann: MASTER HANDBOOK OF ACOUSTICS 5th edition.

PREPARER CERTIFICATION

The scope of work of this report is limited to a noise study of the proposed wireless communications equipment to ensure the operation of the equipment will not produce environmental noise in excess of prescribed ambient noise level thresholds. The engineering and design of all related structures as well as the impact of the antennas on the structural integrity of the design are specifically excluded from the scope of work.

I have prepared and reviewed this noise study and believe it to be both true and accurate to the best of my knowledge.

Certified By: *Conor Watson*

Title: Conor Watson, Acoustic Technician, Noise Study Certification Team