COUNTY OF HAWAIʻI PLANNING DEPARTMENT
BACKGROUND REPORT

CROWN CASTLE
USE PERMIT APPLICATION (PL-USE-2024-000029)

CROWN CASTLE is requesting a Use Permit to replace an existing 73-foot, 6-inch-tall wood pole telecommunication tower with a new 73-foot, 6-inch-tall steel monopole and equipment compound within an 872-square foot portion of a larger 23.651-acre parcel. The subject property is located at 73-4310 Huehue Street on the west side of Huehue Street, approximately 0.59 miles north of its intersection with Kaloko Drive, Kaloko, North Kona, Hawaiʻi, TMK: (3) 7-3-048:003(por.).

APPLICANT'S REQUEST

1. **Proposed Use:** The applicant, Crown Castle, is seeking a Use Permit to allow the construction of a new 73-foot, 6-inch-tall steel monopole on an 872-square foot portion of a larger 23.651-acre parcel. The facility will also include 4 panel antennas, 4 remote radio heads, and 2 hybrid cables attached to the pole, with 1 new site support cabinet, 1 battery cabinet, and 1 Alternative Access Vendor cabinet at ground-level. The applicant also proposes to remove one 73-foot, 6-inch-tall wood pole, one baseband unit (BBU) cabinet, two remote radio units (RRU), two remote radio units, and two triplexers. Three (3) proposed equipment cabinets will be installed on three existing concrete pads. The four (4) additional antennas will be added at a top height of 75 feet. Ground disturbance will be limited to the installation of the new steel monopole within the existing 30-foot by 29-foot fenced compound lease area for the wireless communication facility. The tower will be constructed of structural galvanized steel and built to withstand a 174-mph wind load and will have the ability to accommodate other carriers. This new tower will replace the existing 73-foot, 6-inch-tall wood telecommunication pole, which was constructed in 1997 but is now structurally deficient to accommodate equipment upgrades. The applicant is requesting approval to upgrade the existing tower with one that does not substantially change the physical dimensions of such tower or base station. The proposed facility would be unmanned, and maintenance and repair activities will be performed by a technician on a periodic basis.

2. **Reason for the Request:** According to the applicant, their tenant T-Mobile has been operating from this facility and desires to upgrade their equipment. The physical condition of the existing tower is poor and will not support the tenant's requirements for equipment upgrade. Moreover, the existing pole is made of wood and is over twenty-five years old. Age and environmental conditions make the pole incapable of structurally supporting the equipment needed to provide improved wireless services in the surrounding area. The objective of this project is to provide stronger wireless infrastructure to serve the surrounding community. This would mean improved coverage and service quality within Kaloko Mauka and Kalaoa. This would also allow a better signal hand-off to existing facilities located along Highways 11 and 19.
3. **Co-location:** While the existing tower consists of one anchor tenant (T-Mobile), the proposed replacement tower will allow the potential for future co-location by other carriers.
4. **Tower Height Justification:** T-Mobile currently operates a wireless facility at the subject location with antennas at a height of 73 feet and 64 feet on Crown Castle's existing 73-foot, 6-inch-tall wood pole tower. With the replacement of the existing pole with the proposed 73-foot, 6-inch-tall steel monopole, T-Mobile's upgraded antennas will reach an overall height of 75 feet. The height will allow clean handoff of signals to and from nearby existing T-Mobile telecommunication sites.
5. **Supportive Information**: The applicant has submitted the attached in support of the request: **(Planning Department Exhibit 1 – Use Permit Application dated September 12, 2024)**
6. **Landowner:** Vannoy Jones Trust.

BACKGROUND INFORMATION

7. **Telecommunications Act of 1996:** The Telecommunications Act of 1996, Section 704, as amended, recognizes the absence of health hazards from wireless radio wave transmissions and prohibits local authorities from regulating the placement of such towers based on environmental effects, so long as the towers comply with the Federal Communication Commission's (FCC) guidelines. The applicant and subsequent tenant telecommunication service providers will comply with all Federal Communications Commission (FCC) and Federal Aviation Administration (FAA) rules.

8. **Plan Approval:** The facility was initially developed by Western PCS II Corporation, which is now T-Mobile and received Plan Approval from the Planning Department on April 2, 1997. Pursuant to Section 25-4-61(a) of the Hawai‘i County Code, the existing facility is considered a nonconforming use. Building permit A2021-BH00422 was issued and completed on August 29, 2022 for the "as-built" construction of a telecommunication facility.

9. **Historical Background:** Prior to 2007, Hawai‘i County required a Special Permit for the construction and operation of wireless communication antennas and towers in the State Land Use Agricultural District. However, in 2007, the Hawai'i State Legislature adopted Act 171, allowing wireless communication antennas and towers as a permitted use in the State Land Use Agricultural District with no Special Permit required by the County Planning Commission. In response, in 2010, the Hawai'i County Council adopted Ordinance 10-17, which allows a telecommunication antenna or tower in the County Agricultural district if a Use Permit is first granted by the County Planning Commission. Per the County of Hawai‘i's response to a Request for Zoning Verification dated June 13, 2013, **(Planning Department Exhibit 2 – Letter dated June 13, 2023)**, the replacement of the existing telecommunication pole and its support facility would require the issuance of a Use Permit from the Planning Commission.

STATE AND COUNTY PLANS

10. **State Land Use District:** Agricultural.

11. **General Plan LUPAG Map Designation:** Extensive Agriculture.

12. **County Zoning:** Agricultural-20 acres **(**A-20a).

13. **Special Management Area:** The subject parcel is approximately 8 miles from the nearest shoreline and is not situated within the Special Management Area.

14. **Kona Community Development Plan (KCDP):** The KCDP, originally adopted by the Hawai‘i County Council on September 25, 2008, and most recently amended on September 18, 2019, identifies the preferred land use pattern for the Kona districts. The subject property is located outside of the Kona Urban Area and outside of any Rural Town Areas.

DESCRIPTION OF PROPERTY AND SURROUNDING AREA

15. **Description of Property and Permit Area:** The subject, 23.651-acre parcel is situated at the mauka end of the Kaloko Mauka Subdivision at an elevation of approximately 4,500 feet. The property is improved with the existing telecommunication facility within an 872-square foot permit area located on the northeast part of the parcel. The existing facility is enclosed by a 6-foot-tall chain link fence with locked gates to control access to the facility. The existing telecommunication site has been completely disturbed and graded during the original construction. Finally, there is a single-family residence located near the parcel's north boundary line, approximately 424 feet northwest of the permit area and three apparent agricultural structures approximately 563 feet to the south.
16. **Surrounding Zoning/Land Uses:** Properties situated immediately to the north, south, east, and west are zoned Agricultural (A-20a). The subject property is located within the Kaloko Mauka Subdivision. The Pu‘u Wa‘awa‘a Forest Bird Sanctuary is located to the east of the subject property, and the immediate surrounding properties are characterized as forested areas with scattered farm dwellings and some agricultural uses.
17. **Flood Zone:** Zone "X", which is determined to be an area of minimal flood hazard.
18. **Agricultural Lands of Importance to the State of Hawai‘i (ALISH):** Unclassified.
19. **Land Study Bureau's Detailed Land Classification System:** "E" or "Very Poor" soils.
20. **U.S.D.A. Soil Survey:** Puna-Lava flows complex, 10 to 20 percent slopes.
21. **Flora and Fauna Resources:** The parcel is vegetated with grass and a sparse grove of 50-foot-tall trees. The project area is covered with grass and bushes in an undeveloped portion of the parcel. No rare or endangered species of flora and fauna were found at the proposed telecommunication site. While the application does not reference any listed or endangered animal species, the surrounding area includes the Pu‘u Wa‘awa‘a Forest Bird Sanctuary that may be home to species such as the Hawaiian Owl (Pueo), Hawaiian Hawk (‘Io), Hawaiian Honeycreepers (I‘iwi and ‘Apapane), Hawaiian Goose (Nēnē), and the Hawaiian Hoary Bat (‘Ōpe‘ape‘a). The US Wish and Wildlife Service provides best management practices for minimizing project impacts to these species which can be found in their *General Project Design Guidelines (10 Species)*. Additionally, the State Division of Forestry and Wildlife Division and College of Tropical Agriculture and

Human Resources have guidance on how to minimize impacts to these species and reduce the spread of Rapid Ohia Disease.

22. **Archaeological/Historic/Cultural Resources:** Cultural resources review, field inspection, and consultation with native Hawaiian organizations was completed in an Historic Properties Review and Assessment by ASM Affiliates and included in a report dated March 22, 2024. The report indicated that a 0.5-mile radius surrounding the area of potential effects (APE) was examined to identify potential visual impacts to historic properties based on the stipulations in the FCC Programmatic Agreement. The examination found that there are no sites that are eligible for listing on the National Register of Historic Places and/or on the Hawai‘i Register of Historic Places. By letter dated May 17, 2024, the Department of Land and Natural Resources-State Historic Preservation Division (SHPD) and State Historic Preservation Officer's (SHPO) concurred that no historic properties will be affected by the proposed project.

23. **Public Access:** There is no known designated public access to the mountain or shoreline that runs through the property.

PUBLIC UTILITIES AND SERVICES

24. **Roadway Access:** Access to the facility will be off Kaloko Drive to Huehue Street to an existing, private gravel driveway on the subject property. Minimal traffic impact is expected once construction is completed, as service personnel will visit the site only on an as needed basis.

25. **Water:** Water is not required for the proposed use.

26. **Wastewater:** The proposed use will not generate wastewater.

27. **Solid Waste:** According to the State Department of Health (DOH), all solid waste and hazardous materials generated during construction must be properly disposed of at DOH-permitted solid waste management facilities.

28. **Essential Utilities and Services:** The essential utilities of electricity and telephone are available to the site. The nearest police and fire facilities are located in Kailua-Kona and Kealakehe, which is approximately 12 miles southwest of the site.

AGENCY COMMENTS

29. **State Department of Health**: **(Planning Department Exhibit 3 – October 18, 2024 Memo)**

AGENCY - NO COMMENTS/CONCERNS

30. Police Department, Fire Department, Department of Land and Natural Resources-Land Division, and Department of Finance – Real Property Tax Division.

AGENCY - NO RESPONSE

31. Hawai‘i County Civil Defense Agency and Department of Public Works-Engineering Division.

PUBLIC COMMENTS

32. There are no public comments to date on this application.

USE PERMIT APPLICATION

COUNTY OF HAWAI'I
PLANNING COMMISSION

(Type or legibly print the requested information)

APPLICANT(S): Network Connex on behalf of Crown Castle

APPLICANT'S SIGNATURE: Robyn Kahalelehua DATE: 9/12/2024

ADDRESS: 758 Kapahulu Avenue, Suite 100, #940, Honolulu, HI 96816

LIST APPLICANT'S INTEREST (if not owner): Crown Castle

PHONE: (Bus.) 916.640.6324 (Res.) _____ (Email) rkahalelehua@networkconnex.com

REQUEST: Approval of a Use Permit to upgrade an existing telecommunications facility, to include the replacement of an existing 73'-6" wood pole with a new 73'-6" steel monopole, installation of (4) panel antennas, (4) radios, (2) hybrid cables on the pole, with (3) cabinets at ground level. All work will remain within existing 872 sf compound.

TAX MAP KEY(S): (3) 7-3-048:003 ZONING: A-20A

SIZE OF PROPERTY / AREA OF REQUESTED USE: 23.651 Acres / 872 sf

LANDOWNER(S): Vannoy Jones M TR

FEE SIMPLE LANDOWNER(S) WRITTEN AUTHORIZATION
(may be provided by letter with the below statement included):

_____ DATE: _____

_____ DATE: _____

AGENT: Robyn Kahalelehua, Network Connex

AGENT ADDRESS: 758 Kapahulu Avenue, Suite 100, #940, Honolulu, HI 96816

PHONE: (Bus.) 916.640.6324 (Res.) _____ (Email) rkahalelehua@networkconnex.com

Please indicate to whom original correspondence and copies should be sent.

ORIGINAL: Agent COPIES: Agent

Planning Dept.
Exhibit 1

Department of Planning
County of Hawaii

Application for USE PERMIT
for

Proposed Upgrades to Existing Antenna Facility

73-4310 Huehue Street
Kailua Kona, HI 96740

TMK: (3) 7-3-048:003

Prepared by:

Robyn Kahalelehua, Network Connex
Agent for Crown Castle

758 Kapahulu Ave., Suite 100, #940
Honolulu, HI 96816

Phone: 916.640.6324
Email: rkahalelehua@networkconnex.com

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SECTION 1

SUMMARY INFORMATION

APPLICANT:	CCTM1 LLC (“Crown Castle”) 94-1221 Ka Uka Blvd., Unit 108, #151 Waipahu, HI 96797 Contact: Kanoe Eiselin Phone: 808.277.4178 Email: Kanoe.Eiselin@CrownCastle.com
AGENT:	Network Connex 758 Kapahulu Ave., Suite 100, #940 Honolulu, HI 96816 Contact: Robyn Kahalelehua Phone: 916.640.6324 Email: RKahalelehua@NetworkConnex.com
FEE OWNER:	Vannoy Jones M TR 73-4310 Huehue St. Kailua Kona, HI 96740
SITE ADDRESS:	73-430 Huehue St. Kailua Kona, HI 96740
PARCEL NUMBER:	(3) 7-3-048:003
LOT AREA:	23.651 Acres
ZONING:	Parcel A-20A
STATE LAND USE:	Agriculture
SMA:	No
FLOOD ZONE:	X

SECTION 2

INTRODUCTION

CCTM1 LLC ("Crown Castle"), as the applicant, is requesting a Use Permit pursuant to Hawaii Revised Statutes (HRS) section 205 and Hawaii County. Code Chapter 25-4-12 for the upgrade of an existing telecommunication facility. The project will include the replacement of an existing 73'-6" wood pole with a new 73'-6" steel monopole, on an approximately 872 square foot portion of a 23.651-acre lot located in Kaloko Mauka, North Kona District, TMK (3) 7-3-048:003. Crown Castle, the largest telecommunications tower owner and operator in the country, is a multi-tenant provider of wireless infrastructure. The existing wood pole allows for the colocation of one wireless service provider: T-Mobile. The new pole will allow for colocation of multiple wireless service providers. Antennas installed at the top of the new tower will extend the proposed structure to an overall height of 75'-3".

The parcel, TMK (3) 7-3-048:003, is owned by Vannoy Jones M TR. The parcel is located within the State Land Use Agricultural and zoned A-20A by the County of Hawaii. According to section 25-4-12 of the Hawaii County Zoning Code, this proposed use is permitted within the A-20A Zoned Districts with the approval of a Use Permit. In accordance with the above section of the Hawaii County Code, Crown Castle is requesting approval of a Use Permit to upgrade its existing telecommunication facility with a new pole and support equipment affixed to the pole and at ground level.

SECTION 3

PROPERTY LOCATION

The subject property is a 23.651-acre parcel and is located at 73-4310 Huehue St. Kailua Kona, HI 96740-8695, TMK (3) 7-3-048:003. The existing telecommunication facility is located on the northeast part of the parcel and occupies approximately 872 square feet of the parcel. There is a residence located near the parcel's north boundary line. The property is zoned for A-20A and is not fully developed.

The existing facility is enclosed by a 6' chain link fence with locked gates to control access to the facility. The existing site has been completely disturbed and graded during the original construction. See *Exhibit A, Property Location*.

The surrounding areas to the east, west, north and south are also zoned A-20A where several of the properties have been developed as residences.

SECTION 4

PROJECT DESCRIPTION

The applicant, Crown Castle, is seeking approval of a Use Permit pursuant to 25-4-12 of the Hawaii County Zoning Code for the project, which would allow for the replacement of an existing, 73'-6" wooden telecommunication pole, and its equipment with a new 73'-6" steel monopole. New equipment will include (4) panel antennas, (4) remote radio heads, and (2) hybrid cables attached to the pole, with (1) new 6160 site support cabinet, (1) B160 battery cabinet, and (1) AAV cabinet at ground-level. All proposed work will remain within the current compound footprint of approximately 872 square feet.

The objective of this project is to provide stronger wireless infrastructure to serve the surrounding community. This would mean improved coverage and service quality within Kaloko Mauka and Kalaoa. This would also allow a better hand-off to existing facilities located along Highways 11 and 19.

The existing pole is made of wood and is over twenty-five years old. Age and environmental conditions make the pole incapable of structurally supporting the equipment needed to provide improved wireless services in the surrounding area. The new tower will be made of galvanized steel and structurally much stronger. It will also allow for T-Mobile's upgraded antenna equipment where the existing pole does not.

The facility was originally developed by Western PCS II Corporation which is now T-Mobile. Plan Approval was issued in 1997. Pursuant to Section 25-4-61(a) of the HCC, the existing facility is considered a Nonconforming Use of the property. Prior to 2007, Hawaii County allowed the construction and operation of wireless communication antennas and towers on State Land Use Agricultural Districts lands with a Special Permit. In 2007, the Hawai'i State Legislature adopted Act 171, which allowed wireless communication antennas and towers to be permitted uses in the State Land Use Agricultural District with no Special Permit required by the County Planning Commission. In 2010, the Hawai'i County Council adopted Ordinance 10-17, which allows a telecommunication antenna or tower in the County Agricultural District if a Use Permit is first granted by the County Planning Commission. Per County of Hawai'i's response to Request for Zoning Verification dated June 13, 2013, the replacement of the pole and its support facility may require the issuance of a Use Permit from the Planning Commission.

In 2012, the interest of the site was transferred to Crown Castle by T-Mobile as part of a large transaction of telecommunication facilities throughout the country. Currently, T-Mobile is the only colocator at the facility. In order for T-Mobile to provide enhanced services to the community, the proposed upgrade is required to support the equipment upgrades. The wood pole built in the late 1990's was not designed to support the latest technology. It is vital for wireless carriers to continue to expand their infrastructure to meet customer demands as more customers rely on wireless services than land line telephones. This proposed upgrade will further support the Enhanced 911 system, which allows emergency services (fire, police, emergency medical, etc.) to locate a caller by

their telephone number. The proposed project will also increase the chance of the facility continuing to operate during a natural disaster.

There will be no expansion of the existing compound footprint. All of the proposed improvements will remain within the compound. The project area includes existing concrete pads and a mix of rock and dirt.

There are no long-term traffic impacts resulting from this project. Except during construction of the proposed upgrades, the operation of the site will continue to generate virtually no traffic, as it is an unmanned, self-operating telecommunication facility that requires very low maintenance.

The tower will meet Hawaii County's TIA/EIA222 REV H code for wind loading and adhere to all FAA and FCC regulations. Due to the distance from any airport, lighting of the pole is not required.

SECTION 5

ADDITIONAL INFORMATION REQUESTED FOR TELECOMMUNICATION TOWER APPLICATIONS

In accordance with the County of Hawaii Planning Commission, additional criteria and documentation must be addressed in the establishment of a telecommunication tower.

SCHEMATIC PLAN FOR TOWER DEVELOPMENT ON THE BIG ISLAND

Currently Crown Castle owns and operates 48 communication towers throughout the County of Hawaii. Crown Castle acquired most of these facilities through nationwide acquisitions, such as the acquisition of Verizon Wireless' telecommunication facilities in 2001, T-Mobile facilities in 2012, and AT&T facilities in early 2014. In 2005 Global Signal, a competitor of Crown Castle, acquired all of Sprint's facilities. A few years later in January of 2007, Crown Castle purchased Global Signal. Crown Castle has not established new telecommunication facilities in the County of Hawaii. However, the company has modified and replaced a few aging facilities to accommodate tenant upgrades and additional collocations; thereby minimizing the proliferation of new telecommunication towers on the island.

SUBJECT SITE'S ROLE IN OVERALL PLAN

The objective of this site is to provide the infrastructure necessary for increased wireless coverage and improved services throughout Kaloko Mauka and the surrounding communities as well as visitors and residents traveling along Hawaii Belt Road. The upgrade to the existing facility will allow for improved wireless service and increased coverage. This facility will continue to hand off wireless signals to existing facilities servicing Highways 11 and 19.

BUILDING PLANS
All plans and specifications have been produced by state-licensed engineers at Engineered Tower Solutions and Ehresmann Engineering. Structural calculations and certificate of wind resistance for the proposed monopole are attached as *Exhibit B, Structural Analysis*. The site has been designed to meet Federal, State, and County building regulations, and construction and operation of the proposed facility will comply with Federal, State, and County rules and requirements. See *Exhibit C, Site Plans*.

DESIGN PLAN
The new proposed 73'-6" monopole is to be constructed of structural galvanized steel with concrete footings extending 20'-6" deep. The monopole is designed to accommodate panel antennas and ancillary equipment for T-Mobile's equipment and future colocators. The fenced equipment compound will be at the foot of the monopole with an existing locking gate that prevents unauthorized access to the facility. The monopole will not be lighted. There is a 6' tall chain link security fence with an entry gate. The antennas will be inaccessible due to the height of the tower. Hazard and identification signs will be installed as mandated by the FCC.

Due to the isolated location of the tower away from the denser residential areas to the west, topography of the surrounding area, and existing tree line, the tower will not impair mauka or makai view planes.

FEDERAL AVIATION ADMINISTRATION DETERMINATION
Crown Castle will adhere to the Federal Aviation Administration rules governing antenna installation, maintenance, and safety to its facilities. The proposed tower monopole structure does not exceed notice criteria. See *Exhibit D, FAA Notice Criteria Determination*.

FEDERAL COMMUNICATIONS COMMISSION REQUIREMENTS
Registration with the FCC is not required for this monopole. However, all tenants will be responsible for complying with the radio frequency emission standards set by the FCC. See *Exhibit E, Antenna Structure Registration*.

STATEMENT OF NON-INTERFERENCE
The proposed use will not interfere with the County of Hawaii public safety radio system.

COLOCATION
The existing tower consists of one anchor tenant (T-Mobile), but the proposed replacement tower will allow for future colocation by other carriers. Future carrier's tower equipment will be located at different heights on the structure to eliminate signal or equipment interference.

FEASIBILITY OF USING EXISTING TOWERS
Crown Castle owns and operates the existing 73'-6" wood pole with T-Mobile currently collocated as the anchor tenant. The Applicant proposes to remove the existing wood pole and T-Mobile's existing tower equipment, and to install a new 73'-6" steel monopole

with T-Mobile's updated tower equipment to be installed at the top. Because the wood pole and anchor tenant exist in this location, other nearby facilities were not considered for collocation. However, by replacing this wood pole with a steel monopole, Crown Castle eliminates the need to construction an additional telecommunication tower nearby to accommodate future colocators. Crown Castle has a long-term lease with the property owner. Current and future wireless tenants have or will have license agreements for collocation on this facility.

JUSTIFICATION FOR HEIGHT

T-Mobile currently operates a wireless facility at the subject location with antennas at 73'-0" and 64'-0" on Crown Castle's existing 73'-6" wood pole. With the removal of this pole, and installation of Crown Castle's 73'-6" steel monopole, T-Mobile's upgraded antennas will reach an overall height of 75'-0". This will allow T-Mobile to provide enhanced service quality and increase coverage area to the Kaloko Mauka and Kalaoa community. This facility will also improve coverage to parts of the Kailua Kona and the main highway through the area/Hwy 19 Belt Road which is well traveled by residents and tourists. The height will allow clean handoff of signals to and from nearby existing T-Mobile telecommunication sites. The monopole will meet the setback requirements of Section 25-4-12 of the Hawaii County Code because it is located within a large parcel. See *Exhibit F, T-Mobile Coverage Map.*

LANDOWNER / COMMUNITY INVOLVEMENT

The Landlord is supportive of the project and will support the notification to the neighboring residents. As in accordance with procedures for filing a Use Permit request, all adjacent landowners within a 500-foot radius of the site shall be notified and provided with information on all application submittal and public hearing dates, as they are scheduled. A sign will be posted on the site preceding the public hearing date.

SECTION 6

INSTITUTIONAL CONSIDERATION

STATE LAND USE CLASSIFICATION

The State Land Use classification of the subject site is Agriculture. According to HRS Section 205-2 (b), Hawaii Administrative Rules section 15-15-01, and the referenced Hawaii County Code Section 25-4-12, telecommunication facilities are a permitted use within the A-20A District. See *Exhibit G, Hawaii County Land Use Map.*

COUNTY GENERAL PLAN

The County of Hawaii General Plan Land Use Pattern Allocation Guide Map Designates the subject area as an agricultural district. The General Plan describes A-20A district as "lands that are not capable of producing sustained, high agricultural yields without the intensive application of modern farming methods and technologies due to certain physical constraints such as soil composition, slope, machine till ability and climate."

COUNTY ZONING CODE
The site of the proposed monopole, antennas and related structures is zoned Agriculture Twenty Acre (A-20A), by the County. Telecommunication sites are listed as a permitted use under Hawaii County Code, Chapter 25-4-12, with the approval of a Use Permit.

SPECIAL MANAGEMENT AREA
According to SMA Arc GIS Explorer Online Map, the proposed site location is located outside of the SMR and more than 8 miles from the coastline. Therefore, the County of Hawaii SMR rules do not apply. See *Exhibit H, Hawaii County SMA Map*.

HAWAII REVISED STATUTES, CHAPTER 205A, COASTAL ZONE MANAGEMENT ACT
The subject property is located more than 8 miles from the shoreline. The proposed use of the subject property will not negatively impact recreational resources, visual resources to or from the shoreline, including access to and along the shoreline or coastal ecosystems. Therefore, no scenic or open space resources to the shoreline coastal view plane or coastal ecosystem will be negatively impacted by the proposed action. Please see Section 9 of this application for a more complete discussion of Chapter 205A objectives and compliance. The proposed project will not have any impact on access to the Coastal areas.

ACCESS
The subject property is accessible from main city roadways by going south on HI-90/Hawaii Belt Road (Mamalahoa Hwy) then going southeast on Kaloko Drive until it ends, then turning north on Huehue Street. The site is accessed by entering a private gate off Huehue Street.

Access from the public road to the facility will be via a private, graded access road on the Jones' property. The subject property is situated around other agricultural zoned properties that include a mixture of undeveloped land, farms, and residences. No public access to these areas will be impacted by the proposed action. See *Exhibit I, Access to Facility.*

HISTORIC DISTRICT
The subject parcel is not located within any Historic District. No historic or cultural features will be impacted by the proposed action. See *Exhibit J, Historic District Map.*

SECTION 7

INFRASTRUCTURE CONSIDERATION

TRAFFIC/ACCESS
The telecommunication site is accessible from a paved public road, Kaloko Drive to Huehue Street to an existing, private gravel driveway on Jones' property.

The project site is on the north-east side of the partially developed parcel. With the exception of the construction period for the project, minimal traffic is generated by the site as visits occur approximately one to four times per month utilizing a van–type vehicle. There is an adequate area adjacent to the site for the vehicle to park during these visits. This is an unmanned facility that is self-monitored. The compound shall be locked and inaccessible to non-authorized personnel.

WATER AVAILABILITY
Water is not required for the telecommunication facility.

SEWAGE DISPOSAL
There is no requirement for sewage disposal by the telecommunication facility.

UTILITIES
Electrical and phone services are available from Hawaiian Electric and Hawaiian Telcom via existing overhead transmission lines along Huehue Street.

FIRE/POLICE SERVICES
Both services are currently available in the area. A fire station is located 12.9 miles away and Police services are located 12.5 miles away in Kailua-Kona. See *Exhibit K, Police and Fire Station Map.*

SOLID WASTE MANAGEMENT
Construction waste will be transported to the County's land fill by the contractor. No household type waste is generated by the proposed use. Any green waste will be disposed of on-site.

SECTION 8

ENVIRONMENTAL CONSIDERATIONS

SURROUNDING LAND USES
The 23.651 acre, partially developed parcel TMK (3) 7-3-048:003 in Kaloko-Mauka subdivision is zoned for Agricultural use where residential and telecommunication facilities are approved uses provided a Use Permit is obtained for the latter. The nearest residence is approximately 440 feet away from the project site. The properties to the east, west, north, and south of this parcel are agricultural and residential in use.

FLORA/FAUNA
The parcel is vegetated with grass and a sparse grove of 50' trees. The project area is covered with grass and bushes in an undeveloped portion of the parcel. No rare or endangered species of flora and fauna were found at the proposed telecommunication site. A letter seeking confirmation will be sent to the United States Department of Fish and Wildlife as part of the FCC NEPA process.

NATURAL BEAUTY OR ENVIRONMENTAL RESOURCES
The County General Plan, Natural Beauty element does not list the subject property nor the immediate area as being an example of Natural Beauty. See *Exhibit L, North Kona Natural Beauty Sites.*

ARCHAEOLOGICAL RESOURCES
Based upon the May 30, 2024 consultation with the State Historic Preservation Office ("SHPO") in accordance with the Programmatic Agreement, and taking into consideration the views of interested persons, the facility DOES NOT AND WILL NOT affect districts, sites, buildings, structures or objects significant in American history, architecture, archeology, engineering or culture, that are listed, or eligible for listing, in the National Register of Historic Places. See *Exhibit M, State Historic Preservation Office Report.*

CULTURAL AND HISTORIC RESOURCES
No valued cultural, historical or natural resources exist on the subject property and no gathering is taking place. To the extent which traditional and customary native Hawaiian rights are exercised, the proposed action will not affect traditional Hawaiian rights, therefore no action is necessary to protect those rights.

DRAINAGE
According to the U.S. Corps of Engineer Flood Insurance Rate Map (FIRM), the subject site is designated “X”, an area outside of the 500-year flood plain.

SECTION 9

RATIONALE FOR THE ISSUANCE OF A USE PERMIT

The granting of the proposed use shall be consistent with the general purpose of the zoned district, the intent and purpose of the Zoning Code and the County General Plan:

The purpose of the County A (agricultural) district is to provide for agricultural and very low density agriculturally based residential use, encompassing rural areas of good to marginal agricultural and grazing land, forest land, game habitats, and areas where urbanization is not found to be appropriate.

In recognizing that lands within the agricultural districts might not be best suited for agricultural activities and yet classified as such, and in recognition that certain types of uses might not be strictly agricultural in nature, yet reasonable in such districts, the County has provided for the Use Permit process to allow certain unusual and reasonable uses within the Agricultural District.

The subject property is situated within the County’s Agricultural-20-acre zoned district. The proposed upgrades would be situated on an approximately 872 square foot portion of the 23.651-acre parcel of land. The proposed use will take minimal lands

out of the agricultural inventory for this area and will not significantly affect the agricultural resources of the area. The proposed use will be confined to the existing 872 square foot portion of the subject property. No additional surrounding lands are to be developed.

Furthermore, the subject parcel has limited agricultural potential. The General Plan LUPAG map classifies the property as Extensive Agricultural Lands rather than Important Agricultural Lands. The property is further classified “E” or “Very Poor” by the Land Study Bureau. No other agricultural uses are presently taking place, and no other agricultural pursuits will be impacted by the proposed action. The property is also not designated as Agricultural Lands of Importance by the ALISH map. Therefore, the approval of the subject request would be consistent with and not contrary to the objectives of the County Zoning Code.

The Project is not contrary to the objectives sought to be accomplished by HRS Chapters 205, 205A, and the rules of the Land Use Commission.

A. HRS CHAPTER 205

The granting of this request would align with the objectives of Chapter 205, Hawaii Revised Statues, as amended. The State Land Use Regulations are intended to preserve, protect, and encourage the development of lands in the State for those uses to which they are best suited in the interest of the public health and welfare of the people of the State of Hawaii. In the case of the Agricultural District, the intent is to preserve or keep lands of high agricultural potential in agricultural use. The proposed property is presently partially developed agricultural land with a residential structure. In recognizing that lands within agricultural districts might not be best suited for agricultural activities and yet classified as such, and in recognition that certain types of uses might not be strictly agricultural in nature, yet reasonable in such districts, the legislature has provided for the Use Permit process to allow certain unusual and reasonable uses within the Agricultural District.

The subject property is situated within the county zoned “minimum building site of 20 acres” Agricultural district. The proposed telecommunication site would be situated on an approximately 872 square foot portion of the 23.651-acre parcel of land. The proposed use will take minimal lands out of the agricultural inventory for this area and will not significantly affect the agricultural resource of the area. The proposed use will be confined to the approximately 872 square foot portion of the subject property.

The proposed telecommunication facility will provide wireless service to the Kaloko Mauka and Kalaoa community in addition to providing additional road coverage along Highways 11 and 19. The applicant shall be compliant with the County policy and will allow other wireless communication service providers to colocate. Increased growth in the wireless industry is being witnessed because of the convenient and cost-effective telecommunication services for both the consumers

and provider with minimal environmental impacts resulting from the wireless network. Wireless service is also part of the civil defense network for the County of Hawaii, permitting otherwise unavailable communications during emergencies when line disruptions could occur, or in areas not served by traditional telephone service. Hawaii has implemented the Enhanced 911 service, which increased public safety by requiring wireless telephone carriers to provide 911 and E911 capability. This service provides an accurate location for 911 calls made from a wireless phone.

The approval of the subject request would be consistent with and not contrary to the objectives of the State Land Use Laws defined in Chapter 205.

B. HRS CHAPTER 205A (COASTAL ZONE MANAGEMENT ACT)

HRS Chapter 205A is the Coastal Zone Management Act (CZMA) for the State of Hawaii. All lands in the State, including the mountain tops, are in the coastal zone management area under HRS Section 205A-1. The objectives of the CZMA is "to preserve, protect, and where possible, to restore the natural resources of the coastal zone of Hawaii" by "maintaining, restoring, and enhancing the overall quality of the coastal zone environment, including, but not limited to, its amenities and aesthetic values, and to provide adequate public access to publicly owned or used beaches, recreation areas and national reserves" by controlling development within an area along the shoreline, the Special Management Area (SMA).

In addition, the project is not contrary to the objectives of the CZMA as set out in HRS Section 205A-2.

RECREATIONAL RESOURCES: Provide coastal recreational opportunities accessible to the public.

This objective does not apply to land outside of the SMA nor to the applicant's requirements for the Use Permit. Therefore, the project is not contrary to this objective.

HISTORIC RESOURCES: Protect, preserve, and where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

Historic resources are discussed earlier in this application in Section 8. The State Historical Preservation Department. See *Exhibit J, Historic District Map.*

SCENIC AND OPEN SPACE RESOURCES: Protect, preserve, and where desirable, restore or improve the quality of coastal scenic and opens space resources.

Typically, no proposed utility facility or telecommunication pole completely avoids visual impacts without excessive expenses that prevent cost-effective delivery of the service. In this case, the property is located

approximately 8 miles from the nearest shoreline and the proposed action will not significantly impact any coastal view planes.

COASTAL ECOSYSTEMS: Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

This objective does not apply to land outside of the SMA nor to applicant's requirements for this Use Permit. Therefore, the project is not contrary to this project.

ECONOMIC USES: Provide public or private facilities and improvements important to the State's economy in suitable locations.

The economic impacts of the proposed project are consistent with the goals and objectives of the General Plan as identified later in this application. Telecommunication services are a desired utility to support the economic sustenance of the community.

COASTAL HAZARDS: Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.

This objective does not apply to land outside of the SMA nor to the applicant's requirements for this Use Permit. The subject property is classified as Zone "X" on the FIRM. Therefore, this project is not contrary to this objective.

MANAGING DEVELOPMENT: Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

This objective does not apply to land outside of the SMA nor to the applicant's requirements for this Use Permit. Therefore, the project is not contrary to this objective.

PUBLIC PARTICIPATION: Stimulate public awareness, education, and participation in coastal management.

This objective does not apply to land outside of the SMA nor to the applicant's requirements for this Use Permit. Therefore, the project is not contrary to this objective.

BEACH PROTECTION: Protect beaches for public use and recreation.

This objective does not apply to land outside of the SMA nor to the applicant's requirements for this Use Permit. Therefore, the project is not contrary to this objective.

MARINE RESOURCES: Implement the State's ocean resources management plan.

This objective does not apply to land outside of the SMA nor to the applicant's requirements for this Use Permit. Therefore, the project is not contrary to this objective.

C. LAND USE COMMISSION RULES:

HAR section 15-15-01 states that the Land Use Commission's Rules "Shall be liberally construed to preserve and encourage the development and preservation of lands in the State for those uses to which they are best suited in the interest of public health and welfare of the people of the State of Hawaii." Based on the discussion above that addresses the objectives of HRS 205 and HRS 205A, the applicant believes the proposed project is not contrary to the objectives sought to be accomplished by the Land Use Commission Rules.

Increased growth in the cellular industry is expected because of the convenience, cost effectiveness for the provider and consumer, and minimal environmental impacts resulting from the wireless network. Wireless service providers also provide service to the open ocean areas of the island where many commercial fishermen use mobile devices as their primary emergency communication system.

Wireless service is also part of the civil defense network for the County of Hawaii, permitting otherwise unavailable communications during emergencies when line disruptions could occur, or in areas not served by traditional telephone service.

Hawaii has implemented the Enhanced 911 service, which increased public safety by requiring wireless telephone carriers to provide 911 and E911 capability. This service provides an accurate location for 911 calls made from a wireless phone.

The proposed use will not be contrary to the goals, policies and standards of the General Plan and other applicable document:

The General Plan LUPAG map classifies the property as an Open Area. The proposed use would be consistent with this LUPAG designation.

A. ECONOMIC GOALS: Provide residents with opportunities to improve their quality of life.

- The County of Hawaii shall strive for diversity and stability in its economic system.
- The County shall provide an economic environment which allows new, expanded or improved economic opportunities that are compatible with the County's natural and social environment.

ECONOMIC POLICIES

- The County of Hawaii shall strive for diversification of its economy by strengthening existing industries and attracting new endeavors.

- The County of Hawaii shall encourage the research, development and implementation of advanced technologies and processes in existing and potential economic endeavors.

ECONOMIC STANDARDS

- The island of Hawaii should be development into a unique scientific and cultural model. The island should become a model of living where economic gains are in balance with social and physical amenities.
- Development should be reviewed based on the total impact on the residents of the County, not only in terms of immediate short-run economic benefits.
- New industries which provide favorable benefit-cost relationships to the people of the County should be encouraged. Benefit-cost relationships as used here include more than fiscal considerations. The proposed use will be consistent with Economic Element of the General Plan:

B. LAND USE: Through the careful analysis and examination of past and present situation, the following goals, policies, and standards are set forth to physically plan the lands in the County in the best interest of the island's residents.

LAND USE GOALS: Designate and allocate land uses in appropriate proportions and mix and in keeping with the social, cultural, and physical environments of the County. The proposed will be consistent with the Land Use Element of the General Plan.

C. PUBLIC UTILITIES GOALS: Ensure that adequate, efficient, and dependable public utility services will be available to users. Maximize efficiency and economy in the provision of public utility services.

PUBLIC UTILITIES POLICIES: Public utility facilities shall be designed so as to complement adjacent land uses and shall be operated so as to minimize pollution or disturbance. Provide utilities and service facilities which minimize total cost to the public and effectively service the needs of the community. Utility services shall be designed to minimize conflict with the natural environment and natural resources. The proposed use will be consistent with the Public Utilities Element of the General Plans.

The granting of the proposed use shall not be materially detrimental to the public welfare nor cause substantial adverse impact to the community's character or to surrounding properties.

Crown Castle proposes the replacement of a telecommunication monopole to improve coverage and communication in the area without substantial alteration or change to the character of the land and its present uses.

The Zoning Code and County Plan do not describe the impacts that must be considered in determining whether a proposed use adversely affects the

community's character and surrounding properties. The applicant will discuss several of the potential impacts.

The subject parcel is flag shaped and 23.651 acres in size. The property is zoned Agricultural (A-20A). There is a residence in addition to the existing telecommunication facility on the parcel. The proposed use of the subject property will not adversely affect the surrounding properties or their present uses.

The operation of the cellular radio antennas has filter equipment and operates in FCC licensed radio frequency bands, between 700-2500 megahertz. The propagation pattern of the antennas is directed towards the horizon for maximum effectiveness and not downward, thus the radio frequency energy near the base of the tower is minimal.

Reviews of available scientific literature by Environmental Protection Agency (EPA), the National Institute of Occupational Safety and Health (NIOSH), the American National Standards Institute (ANSI) and the National Council on Radiation Protection and Measurements (NCRP) have been conducted. None of these agencies have identified harmful health effects associated with low power densities and the microwave frequency of the cellular radio transmissions.

Furthermore, Section 704 of the Telecommunications Act of 1996 (47 U.S.C. 332 (c), as amended) recognizes the absence of health hazards from cellular radio transmissions and accordingly prohibits local authorities from regulating the placement of cellular structures based on environmental effects as long as those towers comply with the Federal Communication Commission's guidelines. The subject structure is so designed.

The proposed monopole and its antennas will not interfere with the police radio band because they are on different frequency bands and all of the receiving devices have filter equipment. The police radio band is at the lower 450-megahertz wave band while the wireless technologies utilize the 700–2500-megahertz wave bands. While the microwave frequencies of police radio and some wireless service provider systems could be in the same range, the FCC will not assign the same specific frequencies to either the police department or the wireless service provider. Therefore, users of the proposed telecommunication tower should not interfere with the police department's radio or microwave frequencies.

The operation of the telecommunication tower does not generate noise or dust. There will be minimal noise and dust generation during the construction of the required improvements, but this will be mitigated by proper construction techniques, dust control, and limiting construction to daylight hours. All construction will be permitted and comply with all applicable governmental regulations.

Typically, no proposed utility facility or telecommunication site completely avoids visual impacts without excessive expenses that prevent cost-effective delivery of the service. In this case, the proposed telecommunication facility will be located more than 8 miles from the nearest shoreline and will not significantly impact any coastal view planes.

The granting of the proposed use shall not reasonably burden public agencies to provide roads and streets, sewers, water, drainage, school improvements, and police and fire protection and other related infrastructure.

The project site is currently serviced with electrical and telephone via overhead lines from Huehue Street which fronts the subject parcel. The project does not need a supply of water. The traffic to be generated by the proposed telecommunication tower is minimal with approximately four trips generated to the site per month.

There are no floodways or drainage ways on the subject property, and it is designated by the FIRM map as Zone “X”. No wastewater improvements are required. All construction will meet the regulations and standards established by government agencies.

No public expenditures for road, street, sewer, water, drainage or school improvement or increased police or fire protection are required. The project will not burden any public agency.

The proposed use is an unusual and reasonable use of the land, which would not be contrary to the objectives sought to be accomplished by the Land Use Law, Rules and Regulations.

Based on the above considerations, the applicant believes the proposed telecommunication monopole, antennas and related structures is an unusual and reasonable use of this land, which would not be contrary to the objectives sough to be accomplished by the State Land Use Law and Regulations.

SECTION 10

CONCLUSION

The relatively recent introduction of the wireless communication industry may qualify the proposed project as an unusual use of property. However, the proposed project is considered to be a reasonable use of land, as it will provide necessary telecommunication service without significant adverse impact. The proposed telecommunication facility will not greatly affect the purpose for which the land is designated. There will be minimal alteration to the landscape.

Crown Castle seeks to provide optimum service to its customers while working within the guidelines set by the County. The replacement of the existing structure will provide an opportunity for improved services and increased coverage without burdening public agencies or changing the character of the community.

Therefore, Crown Castle respectfully requests your approval of a Use Permit.

[Remainder of page intentionally left blank.]

EXHIBIT A

PROPERTY LOCATION

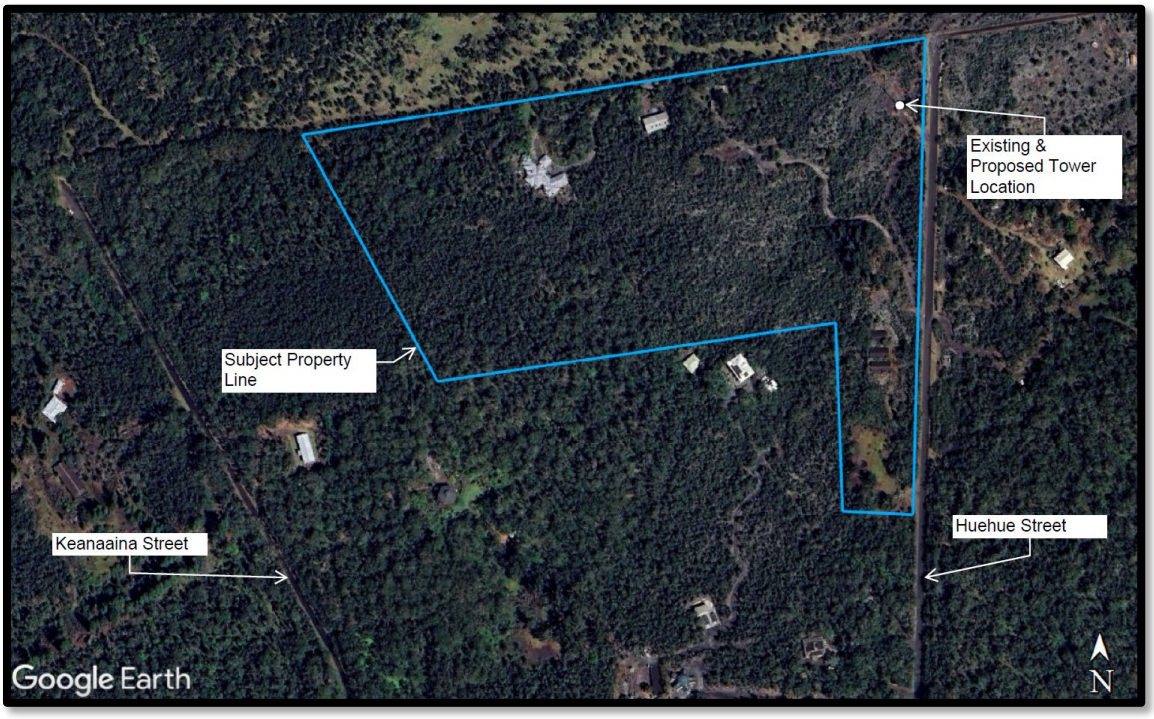




EXHIBIT B

STRUCTURAL ANALYSIS

Date: **February 27, 2023**

Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
(724) 416-2000

Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile*** **Co-Locate**	
	Site Number:	HI04193B
	Site Name:	Kaloko Mauka
Crown Castle Designation:	**BU Number:**	824947
	Site Name:	Kaloko Mauka
	JDE Job Number:	677332
	Work Order Number:	2206948
	Order Number:	578390 Rev. 2
Engineering Firm Designation:	**Crown Castle Project Number:**	2206948
Site Data:	**Hue Hue St TMK (3)7-3-048:004, Kailua-Kona, Hawaii County, HI**	
	Latitude *19° 43' 2.45"*, Longitude *-155° 55' 22.84"*	
	73.5 Foot - Monopole Tower	

Crown Castle is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC9.8: Proposed Equipment Configuration for New Tower **Sufficient Capacity**

This analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 174 mph. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Dolly Hsu

02/27/23

Respectfully submitted by:

TRUC LAC
LICENSED PROFESSIONAL ENGINEER
PE-15617-S
HAWAII U.S.A.

Truc Lac, P.E., S.E.
Senior Project Engineer

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

04/30/2024

Signature Expiration Date of the License

tnxTower Report - version 8.1.1.0

EXHIBIT C

SITE PLAN

[Remainder of page intentionally left blank.]

T-Mobile

T-MOBILE SITE NUMBER: HI04193B
T-MOBILE SITE NAME: KALOKO MAUKA
SITE TYPE: MONOPOLE
TOWER HEIGHT: 73'-6"
T-MOBILE PROJECT NAME: ANCHOR/DRIP

BUSINESS UNIT #: 824947
SITE ADDRESS: 73-4310 HUEHUE STREET, KAILUA-KONA, HI 96740
COUNTY: HAWAII
JURISDICTION: COUNTY OF HAWAII

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	KALOKO MAUKA
SITE ADDRESS:	73-4310 HUEHUE STREET KAILUA-KONA, HI 96740
COUNTY:	HAWAII
MAP/PARCEL #:	730480030000
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	19.71737052
LONGITUDE:	-155.92304680
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	4957.35 FT
CURRENT ZONING:	A-20A
JURISDICTION:	COUNTY OF HAWAII
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	JONES,VANNOY M TR 73-4310 HUEHUE ST KAILUA KONA, HI 96740 8695
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 3375 KOAPAKA STREET, G300 HONOLULU, HI 96819
ELECTRIC PROVIDER:	HAWAIIAN ELECTRIC 808-329-3584
TELCO PROVIDER:	HAWAIIAN TELCOM 808-643-7788

PROJECT TEAM

A&E FIRM:	ENGINEERED TOWER SOLUTIONS, PLLC 3227 WELLINGTON COURT RALEIGH, NC 27615 CROWNAESERVICES@ETS-PLLC.COM
CROWN CASTLE USA INC. DISTRICT CONTACTS:	150 HAMAKUA DRIVE, #703 KAILUA, HI 96734
	KANOE EISELIN - PROJECT MANAGER (808) 277-4178 KANOE.EISELIN@CROWNCASTLE.COM
	ERIC SCHATZ - MARKET MANAGER (808) 723-0005 ERIC.SCHATZ@CROWNCASTLE.COM
	TROY BANTOLINA - CONSTRUCTION MANAGER (808) 479-4097 TROY.BANTOLINA@CROWNCASTLE.COM
	OLEG GAPONOV - A&E SPECIALIST (206) 336-7416 OLEG.GAPONOV@CROWNCASTLE.COM
	ADRIAN CATALAN - REAL ESTATE SPECIALIST (808) 358-5556 ADRIAN.CATALAN@CROWNCASTLE.COM

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
GN-1	GENERAL NOTES
A-1	OVERALL SITE PLAN
A-2	EXISTING SITE PLAN
A-3	FINAL SITE PLAN
A-4	TOWER ELEVATIONS
A-5	ANTENNA PLANS
A-6	EQUIPMENT DETAILS
A-7	EQUIPMENT DETAILS
A-8	PLUMBING DIAGRAM
E-1	PANEL SCHEDULE AND ELECTRICAL CONNECTION DIAGRAM
E-2	SITE ELECTRICAL PLAN
E-3	SITE GROUNDING PLAN
E-4	ANTENNA GROUNDING DIAGRAM
E-5	GROUNDING DETAILS
ATTACHED TOWER DESIGN DRAWINGS (BY EHRESMANN ENGINEERING)	
E01	73'-6" MONOPOLE
E02	73'-6" MONOPOLE MAP TYPE FOUNDATION DESIGN
E02A	73'-6" MONOPOLE PIER TYPE FOUNDATION DESIGN
N01H	STD TOWER & TOWER FOUNDATION NOTES
S1	73'-6" MONOPOLE SPECIAL INSPECTION STATEMENT

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.

ZONING INFO

TMK:	730480030000
ZONING DISTRICT:	A-20A
YARD SETBACKS:	FRONT = 30'-0" SIDE = 20'-0" REAR = 30'-0"
HEIGHT LIMIT	45'-0"
FLOOD ZONE	ZONE X
SEISMIC ZONE:	ZONE 4
TOWER WINDLOAD:	SEE REFERENCE DOCUMENTS

LOCATION MAP



NO SCALE

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE (4) ANTENNAS
- REMOVE (2) TMAs
- REMOVE (8) COAX CABLES (7/8")
- INSTALL (4) ANTENNAS
- INSTALL (4) RRHs
- INSTALL (2) HYBRID CABLES (1-5/8")
- INSTALL MOUNT MODIFICATIONS PER MOUNT ANALYSIS - CONDITIONAL PASSING REPORT ISSUED BY TRYLON DATED 02/07/2023

GROUND SCOPE OF WORK:
- REMOVE (1) WOOD POLE
- REMOVE (1) BBU CABINET
- REMOVE (2) RRUS11 B2 RRUs
- REMOVE (2) RADIO 4449 B71+B85
- REMOVE (2) TRIPLEXERS
- INSTALL (1) 6160 SITE SUPPORT CABINET
- INSTALL (1) B160 BATTERY CABINET
- INSTALL (1) AAV CABINET
- INSTALL (1) NEW STEEL MONOPOLE (BY EHRESMANN ENGINEERING)

NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

CALL HAWAII ONE CALL
(800) 423-7287
CALL 3 WORKING DAYS BEFORE YOU DIG!

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:

CODE TYPE	CODE
BUILDING	2018 IBC W/ AMENDMENTS
ELECTRICAL	2017 NEC W/ AMENDMENTS
ENERGY	2018 IECC W/ AMENDMENTS
FIRE PROTECTION	2006 NFPA-1

REFERENCE DOCUMENTS:

TOWER DESIGN:	EHRESMANN ENGINEERING
SEAL DATE:	12/02/2022
STRUCTURAL ANALYSIS:	CROWN CASTLE
SEAL DATE:	02/27/2023
MOUNT ANALYSIS:	TRYLON
DATED:	02/07/2023
RFDS REVISION:	9
DATED:	02/22/2023
ORDER ID:	578390
REVISION:	0

T-Mobile
3375 KOAPAKA STREET, G300
HONOLULU, HI 96819

CROWN CASTLE
150 HAMAKUA DRIVE, #703
KAILUA, HI 96734

ENGINEERED TOWER SOLUTIONS
3227 WELLINGTON COURT
RALEIGH, NC 27615

T-MOBILE SITE NUMBER:
HI04193B

BU #: **824947**
KALOKO MAUKA

73-4310 HUEHUE STREET
KAILUA-KONA, HI 96740

PROJECT NAME:
ANCHOR/DRIP
TMK: 730480030000
REPLACEMENT 73'-6"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	01/28/2022	AS	CONSTRUCTION	BS
1	12/21/2022	AS	REV. CONSTRUCTION	BS
2	02/21/2023	DF	REV. CONSTRUCTION	DG
3	05/08/2023	CP	REV. CONSTRUCTION	DG
4	05/11/2023	AS	REV. CONSTRUCTION	DG

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION

Christopher G. Fry
LICENSED PROFESSIONAL ENGINEER
No. 12578-S
HAWAII, U.S.A.

SIGNATURE

04/30/2024 — LICENSE EXPIRATION DATE
05/11/2023 — SEAL DATE

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.

SHEET NUMBER: T-1
REVISION: 4

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED– NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800–788–7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" – CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT: THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. 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 ANSI/TIA–322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS–STD–10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED–STD–10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
   CARRIER: T–MOBILE
   TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE–THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER–TO–CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
   #4 BARS AND SMALLER.....40 ksi
   #5 BARS AND LARGER.....60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.....3"
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 BARS AND LARGER.....2"
   #5 BARS AND SMALLER.....1–1/2"
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
   SLAB AND WALLS.....3/4"
   BEAMS AND COLUMNS.....1–1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

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 CONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON–METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON–METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD–WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
   4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
   4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI–CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL–CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER–ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "T–MOBILE".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE		
SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (–)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

APWA UNIFORM COLOR CODE:

WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, P



SITE PLAN DISCLAIMER:

PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM JURISDICTIONAL GIS. LEAF COMMUNICATIONS HAS NOT COMPLETED A SITE SURVEY AND THEREFORE MAKES NO CLAIMS AS TO THE ACCURACY OF INFORMATION DEPICTED ON THIS SHEET.

NOTES:

1. A SECURED LOCKED GATE RESTRICTS THE ACCESS TO EQUIPMENT, WHICH NO PUBLIC ACCESS IS ALLOWED, EXCEPT FOR AUTHORIZED PERSONNEL ONLY.
2. FIRE SAFETY DURING ALTERATION OR DEMOLITION SHALL COMPLY W/ NFPA 1, 2012 EDITION.

T-Mobile
3375 KOAPAKA STREET, G300
HONOLULU, HI 96819

CROWN CASTLE
150 HAMAKUA DRIVE, #703
KAILUA, HI 96734

ENGINEERED TOWER SOLUTIONS
3227 WELLINGTON COURT
RALEIGH, NC 27615

T-MOBILE SITE NUMBER:
HI04193B

BU #: **824947**
KALOKO MAUKA

73-4310 HUEHUE STREET
KAILUA-KONA, HI 96740

PROJECT NAME:
ANCHOR/DRIP
TMK: 730480030000
REPLACEMENT 73'-6"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	01/28/2022	AS	CONSTRUCTION	BS
1	12/21/2022	AS	REV. CONSTRUCTION	BS
2	02/21/2023	DF	REV. CONSTRUCTION	DG
3	05/08/2023	CP	REV. CONSTRUCTION	DG

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION

Christopher G. Fry
LICENSED PROFESSIONAL ENGINEER
No. 12578-S
HAWAII, U.S.A.

SIGNATURE

04/30/2024 — LICENSE EXPIRATION DATE
05/08/2023 — SEAL DATE

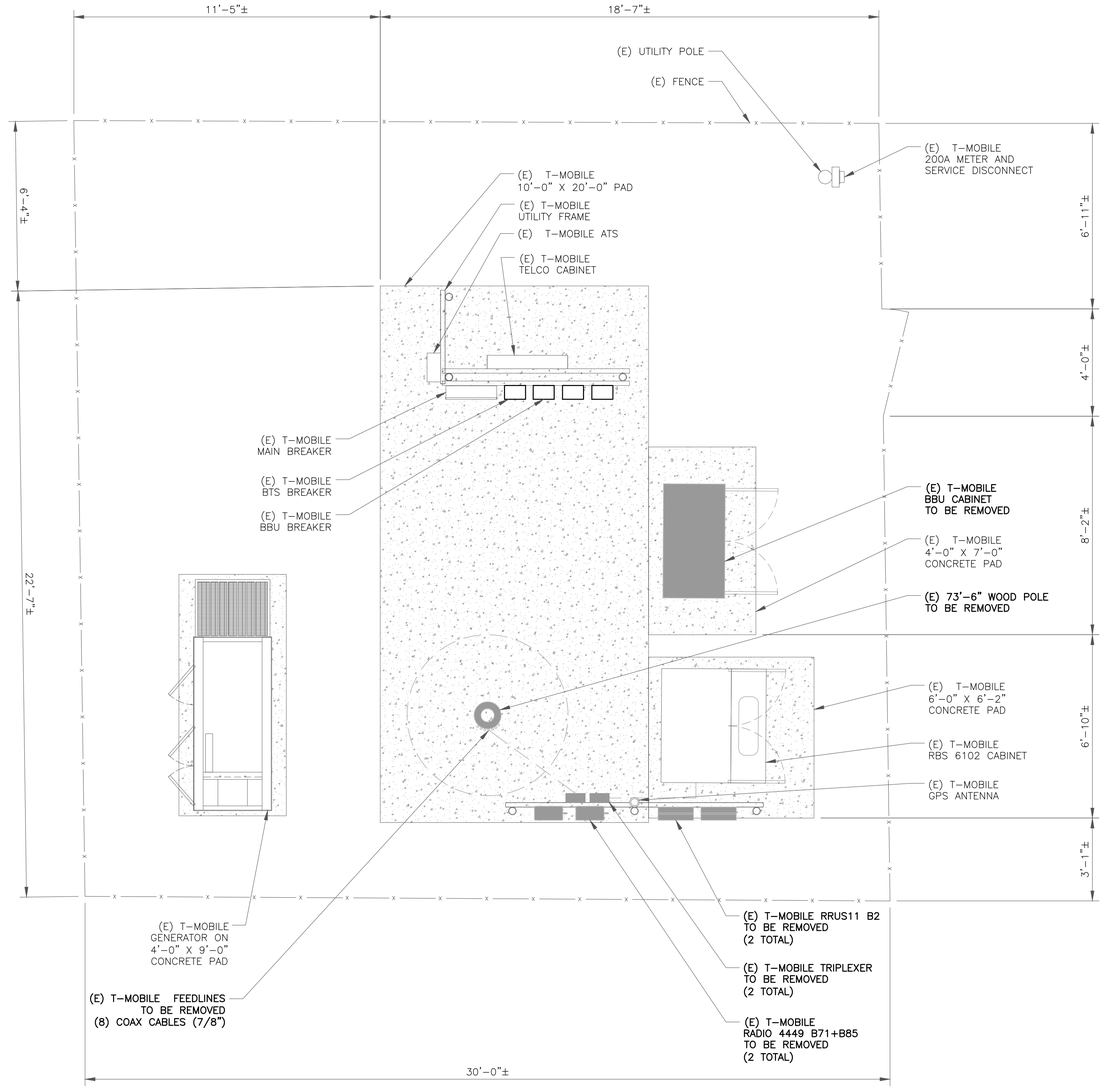
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SHEET NUMBER: A-1

REVISION: 3

NOTE:

TOWER MOUNTED EQUIPMENT NOT SHOWN FOR CLARITY.



1 EXISTING SITE PLAN

SCALE: 2' 1' 0 2' 3/8"=1'-0" (FULL SIZE) 3/16"=1'-0" (11x17)

N

T-Mobile
3375 KOAPAKA STREET, G300
HONOLULU, HI 96819

CROWN CASTLE
150 HAMAKUA DRIVE, #703
KAILUA, HI 96734

ENGINEERED TOWER SOLUTIONS
3227 WELLINGTON COURT
RALEIGH, NC 27615

T-MOBILE SITE NUMBER:
HI04193B

BU #: **824947**
KALOKO MAUKA

73-4310 HUEHUE STREET
KAILUA-KONA, HI 96740

PROJECT NAME:
ANCHOR/DRIP
TMK: 730480030000
REPLACEMENT 73'-6"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	01/28/2022	AS	CONSTRUCTION	BS
1	12/21/2022	AS	REV. CONSTRUCTION	BS
2	02/21/2023	DF	REV. CONSTRUCTION	DG
3	05/08/2023	CP	REV. CONSTRUCTION	DG

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Christopher G. Pil
LICENSED PROFESSIONAL ENGINEER
No. 12578-S
HAWAII, U.S.A.

SIGNATURE

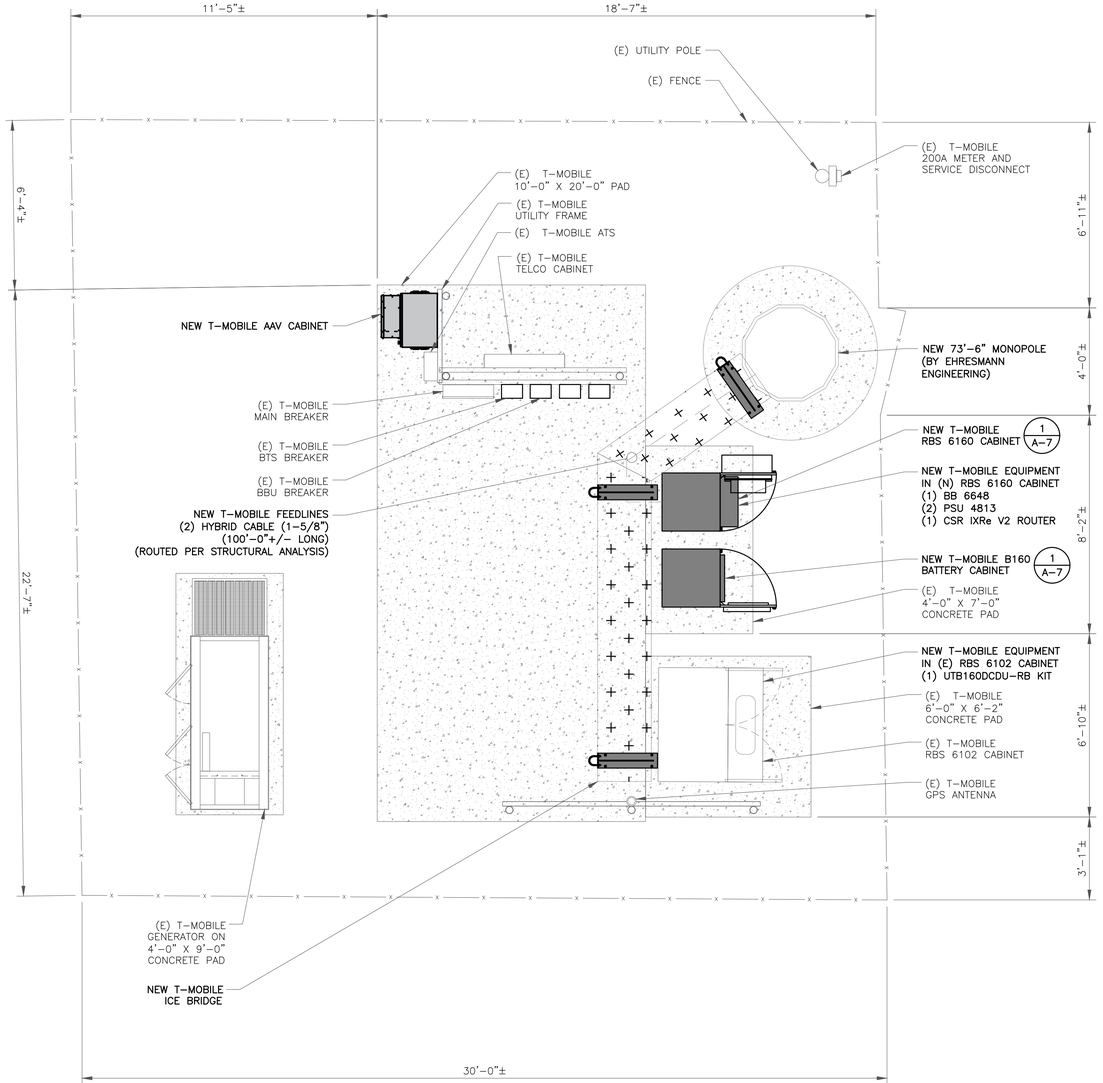
04/30/2024 — LICENSE EXPIRATION DATE

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SHEET NUMBER: A-2

REVISION: 3



1 FINAL SITE PLAN
SCALE: 2' 1' 0 2' 3/8"=1'-0" (FULL SIZE) 3/16"=1'-0" (11x17)

N

NOTE:

TOWER MOUNTED EQUIPMENT NOT SHOWN FOR CLARITY.

NOTE:

(E) RBS 6102 CABINET TO BE CONNECTED TO NEW B160 BACKUP BATTERY USING THE UTB160DCDU-RB KIT INSTALLED IN THE NEW B160

T-Mobile
3375 KOAPAKA STREET, G300
HONOLULU, HI 96819

CROWN CASTLE
150 HAMAKUA DRIVE, #703
KAILUA, HI 96734

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HI04193B

BU #: **824947**
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73-4310 HUEHUE STREET
KAILUA-KONA, HI 96740

PROJECT NAME:
ANCHOR/DRIP
TMK: 730480030000
REPLACEMENT 73'-6"
MONOPOLE

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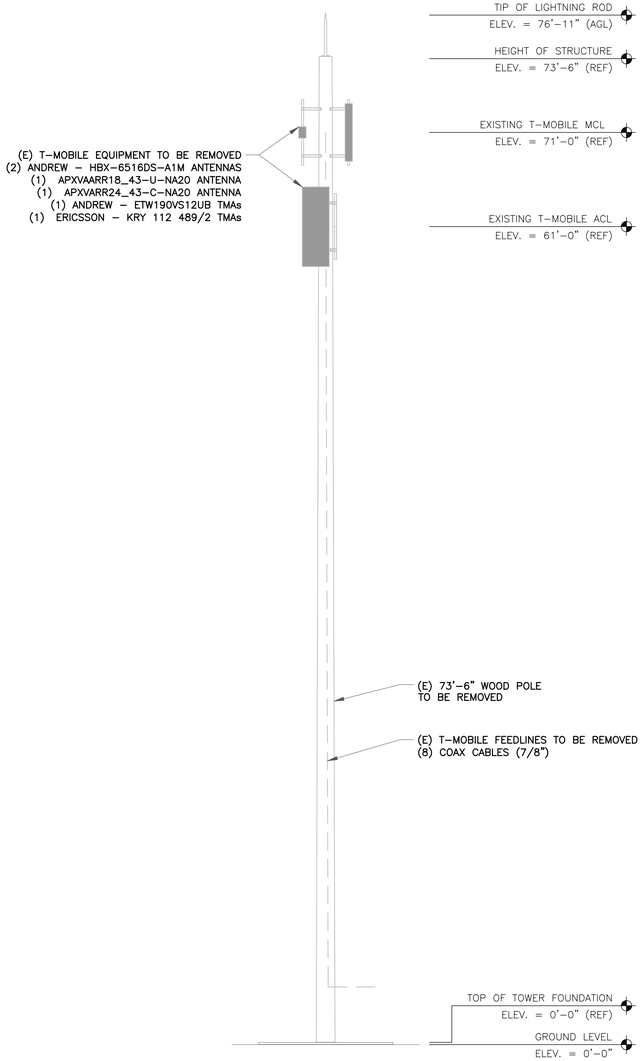
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SHEET NUMBER: A-3

REVISION: 4



1 EXISTING EAST ELEVATION

SCALE: 4' 2' 0 4' 3/16"=1'-0" (FULL SIZE) 3/32"=1'-0" (11x17)

T-MOBILE EQUIPMENT	
ANTENNA CL:	71'-0" / 73'-0"
MOUNT CL:	71'-0"

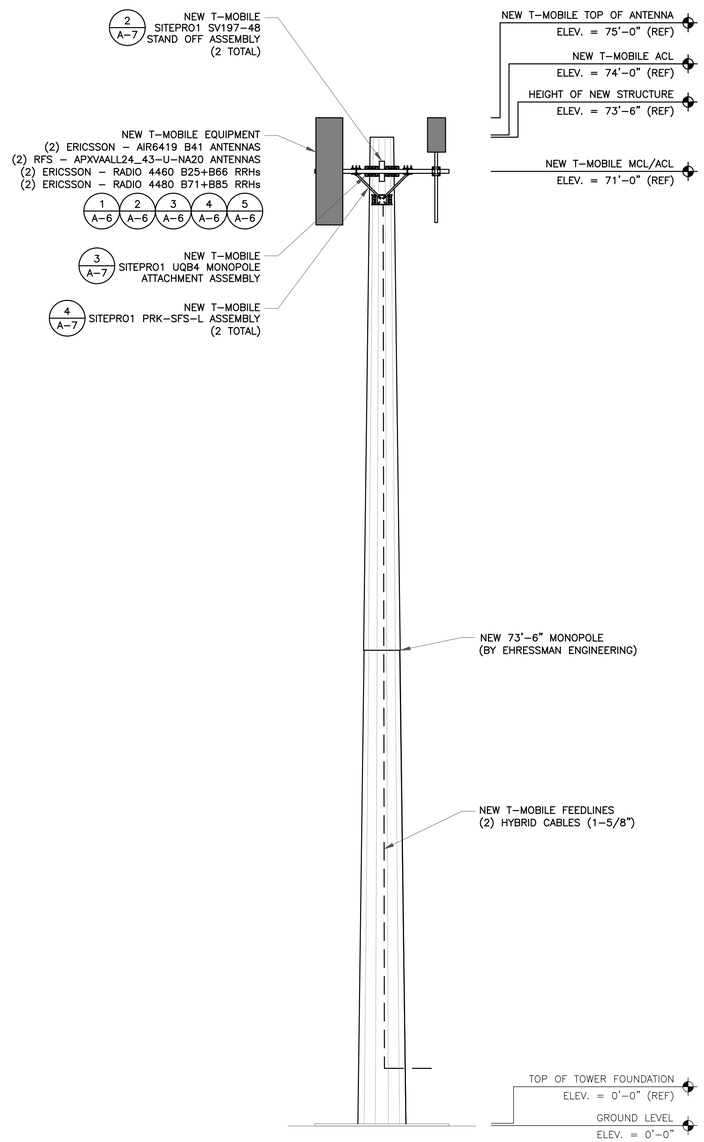
HEIGHT LIMIT:	45'-0"
SET BACKS	
FRONT:	30'-0"
SIDE:	20'-0"
REAR:	30'-0"

INSTALLER NOTES:

1. ALL NEW EQUIPMENT TO BE PAINTED TO MATCH EXISTING STRUCTURE AND/OR SURROUNDING ENVIRONMENT.
2. MONOPOLE ACCESS IS SECURED/LOCKED AND LIMITED TO AUTHORIZED PERSONNEL ONLY.

NOTE:

INSTALL MOUNT PER MOUNT ANALYSIS - CONDITIONAL PASSING REPORT ISSUED BY TRYLON DATED 02/07/2023



2 FINAL EAST ELEVATION

SCALE: 4' 2' 0 4' 3/16"=1'-0" (FULL SIZE) 3/32"=1'-0" (11x17)

T-Mobile
3375 KOAPAKA STREET, G300
HONOLULU, HI 96819

CROWN CASTLE
150 HAMAKUA DRIVE, #703
KAILUA, HI 96734

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3227 WELLINGTON COURT
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HI04193B

BU #: **824947**
KALOKO MAUKA

73-4310 HUEHUE STREET
KAILUA-KONA, HI 96740

PROJECT NAME:
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TMK: 730480030000
REPLACEMENT 73'-6"
MONOPOLE

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4	05/11/2023	AS	REV. CONSTRUCTION	DG

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Christopher G. Pay
LICENSED PROFESSIONAL ENGINEER
No. 12578-S
HAWAII, U.S.A.

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SHEET NUMBER: A-4

REVISION: 4

EXISTING ANTENNA SCHEDULE

SECTOR	POS.	TECHNOLOGY	RAD CENTER	AZIMUTH	ANTENNA MANUFACTURER	ANTENNA MODEL	MECH. TILT	ELECT. TILT	TOWER MOUNTED EQUIPMENT
ALPHA	A1	U1900 / G1900	71'-0"	190°	ANDREW	HBX-6516DS-A1M	3°	3°	–
ALPHA	A2	L600/L700	61'-0"	190°	RFS/CELWAVE	APXVAARR18_43-U-NA20	10°	3°	(1) ETW190VS12UB
BETA	B2	U1900 / G1900	71'-0"	270°	ANDREW	HBX-6516DS-A1M	4°	4°	–
BETA	B2	L600/L700	61'-0"	270°	RFS/CELWAVE	APXVAARR18_43-U-NA20	4°	4°	(1) KRY 112 489/2

CABLE SCHEDULE

STATUS	CABLE TYPE	SIZE	LENGTH	QUANTITY
EXISTING	COAX	7/8"	121'-0"	8
FINAL CABLE QUANTITY				8

1 EXISTING ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE

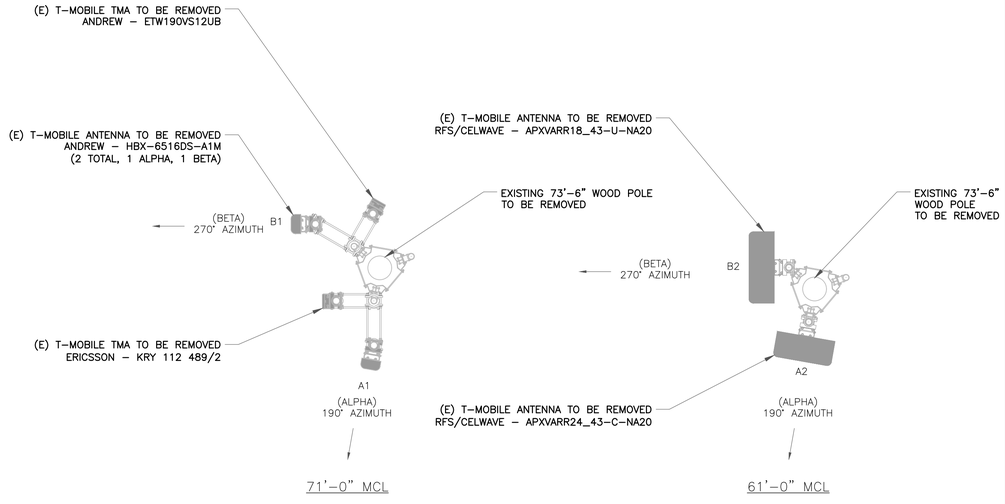
FINAL ANTENNA SCHEDULE

SECTOR	POS.	TECHNOLOGY	RAD CENTER	AZIMUTH	ANTENNA MANUFACTURER	ANTENNA MODEL	MECH. TILT	ELECT. TILT	TOWER MOUNTED EQUIPMENT
ALPHA	A1	L2500	74'-0"	190°	ERICSSON	AIR6419 B41	6°	4°	–
ALPHA	A2	L700/L600/LAWS3/ L2100/L1900/U1900/ G1900	71'-0"	190°	RFS/CELWAVE	APXVAALL24_43-U-NA20	6°	6°/4°	(1) ERICSSON – RADIO 4480 B71+B85 (1) ERICSSON – RADIO 4460 B25+B66
BETA	B1	L2500	74'-0"	270°	ERICSSON	AIR6419 B41	6°	4°	–
BETA	B2	L700/L600/LAWS3/ L2100/L1900/U1900/ G1900	71'-0"	270°	RFS/CELWAVE	APXVAALL24_43-U-NA20	6°	6°/4°	(1) ERICSSON – RADIO 4480 B71+B85 (1) ERICSSON – RADIO 4460 B25+B66

CABLE SCHEDULE

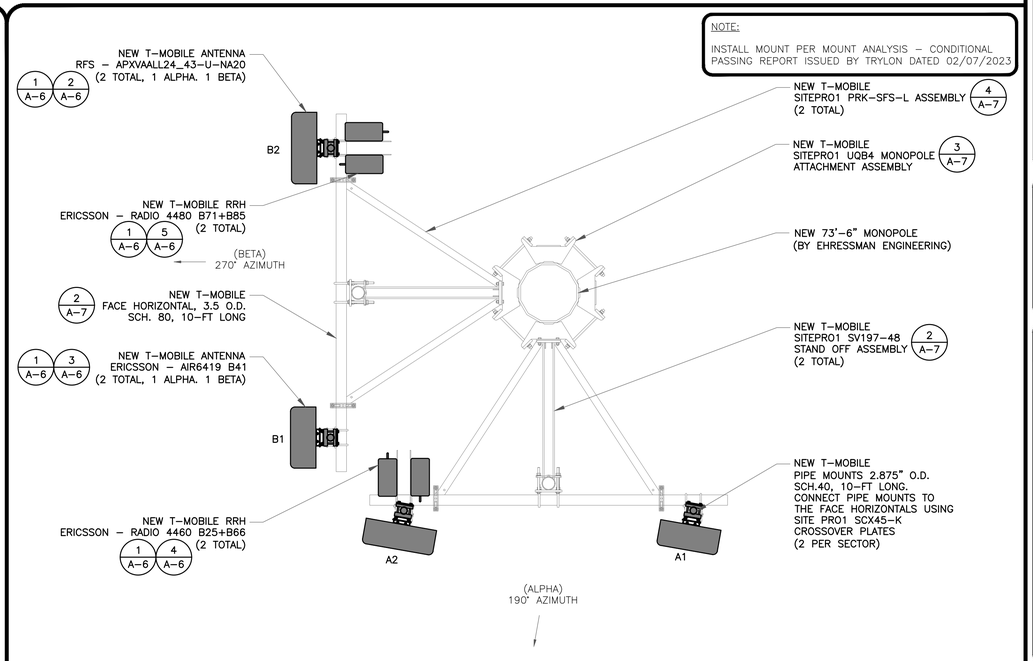
STATUS	CABLE TYPE	SIZE	LENGTH	QUANTITY
NEW	HYBRID	1-5/8"	100'-0"	2
FINAL CABLE QUANTITY				2

2 FINAL ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE



3 EXISTING ANTENNA PLAN
SCALE: 2' 1' 0 2' 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

NOTE:
INSTALL MOUNT PER MOUNT ANALYSIS – CONDITIONAL PASSING REPORT ISSUED BY TRYLON DATED 02/07/2023



4 FINAL ANTENNA PLAN
SCALE: 2' 1' 0 2' 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

T-Mobile
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HONOLULU, HI 96819

CROWN CASTLE
150 HAMAKUA DRIVE, #703
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ENGINEERED TOWER SOLUTIONS
3227 WELLINGTON COURT
RALEIGH, NC 27615

T-MOBILE SITE NUMBER:
HI04193B

BU #: **824947**
KALOKO MAUKA

73-4310 HUEHUE STREET
KAILUA-KONA, HI 96740

PROJECT NAME:
ANCHOR/DRIP
TMK: 730480030000
REPLACEMENT 73'-6"
MONOPOLE

ISSUED FOR:

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Christopher G. Fry
LICENSED PROFESSIONAL ENGINEER
No. 12578-S
HAWAII, U.S.A.

SIGNATURE

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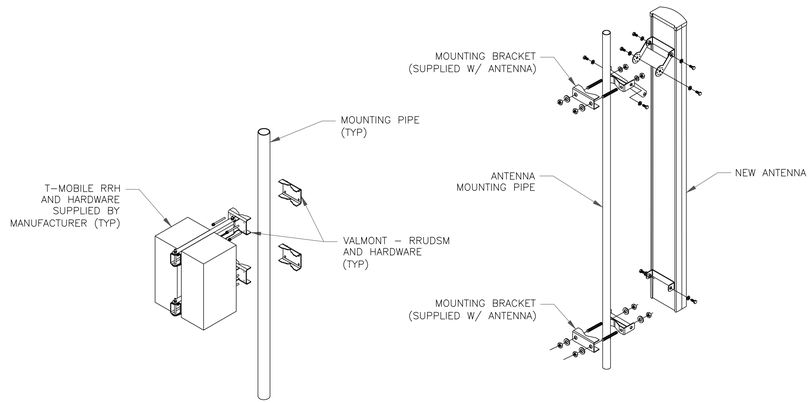
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SHEET NUMBER: A-5

REVISION: 4

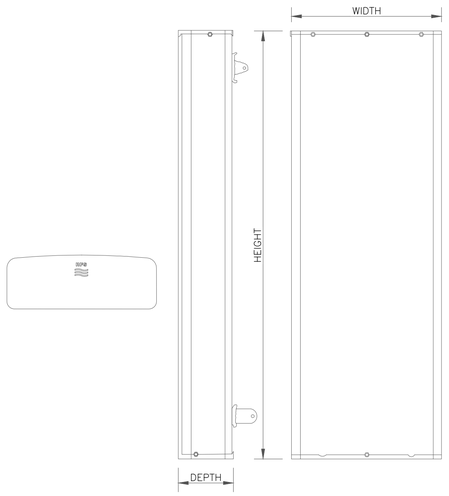
INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



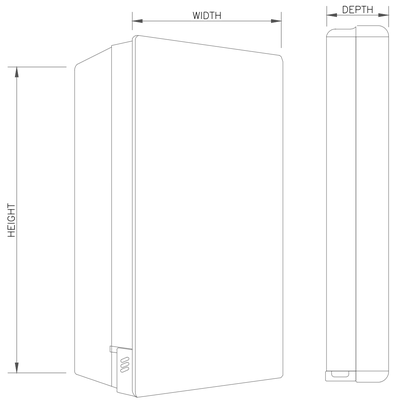
1 ANTENNA WITH RRHs MOUNTING DETAIL
SCALE: NOT TO SCALE

HEIGHT	WIDTH	DEPTH	WEIGHT
95.90"	24.00"	8.50"	168.60 LBS



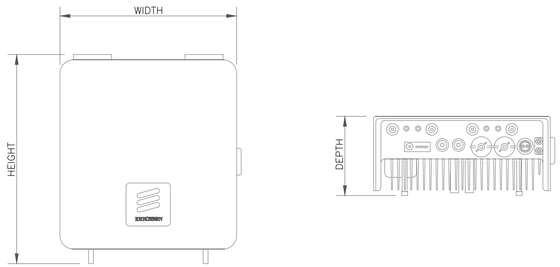
2 RFS - APXVAALL24-43-U-NA20
SCALE: NOT TO SCALE

HEIGHT	WIDTH	DEPTH	WEIGHT
30.80"	16.10"	10.80"	88.00 LBS



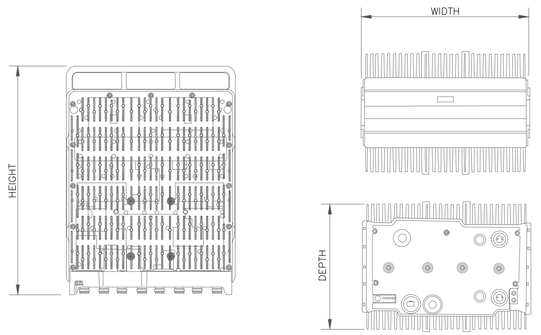
3 ERICSSON - AIR6419 B41
SCALE: NOT TO SCALE

HEIGHT	WIDTH	DEPTH	WEIGHT
17.00"	15.10"	11.90"	109.00 LBS



4 RADIO 4460 B2/B25
SCALE: NOT TO SCALE

HEIGHT	WIDTH	DEPTH	WEIGHT
17.91	13.20"	10.63"	73.21 LBS



5 ERICSSON - RADIO 4480
SCALE: NOT TO SCALE

T-Mobile
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REPLACEMENT 73'-6"
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HAWAII, U.S.A.

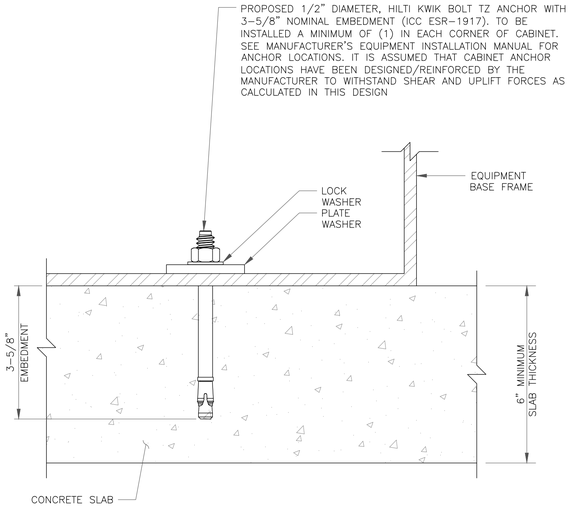
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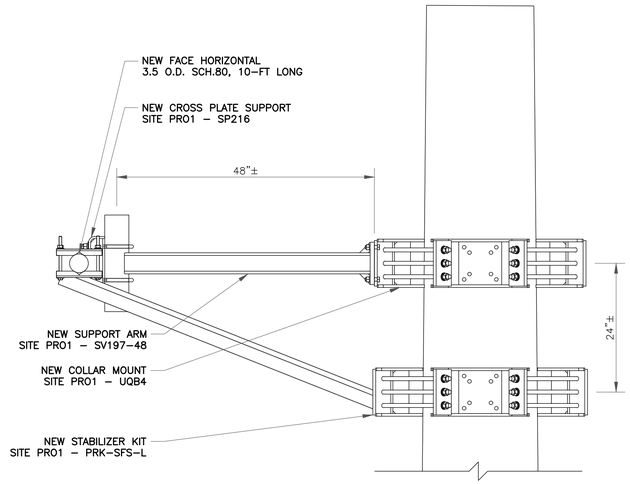
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SHEET NUMBER: A-6

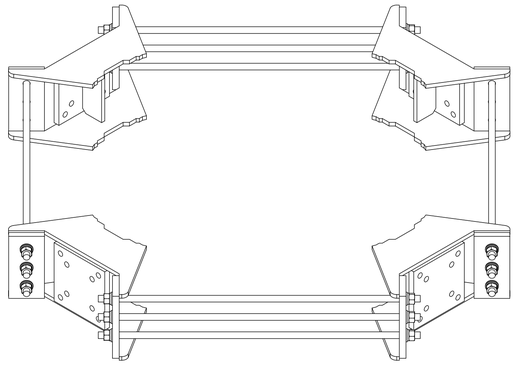
REVISION: 3



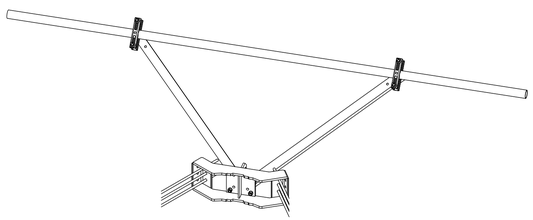
1 CABINET MOUNTING DETAIL
SCALE: NOT TO SCALE



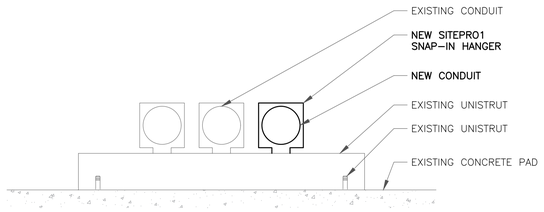
2 MOUNTING DETAIL
SCALE: NOT TO SCALE



3 SITEPRO1 - UQB4
SCALE: NOT TO SCALE

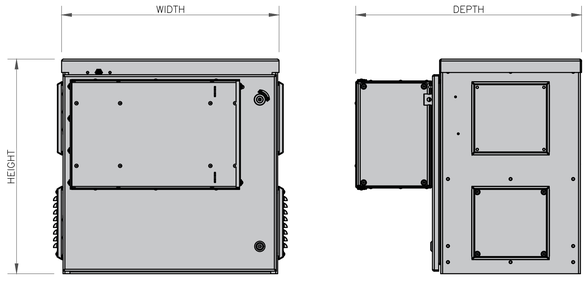


4 SITEPRO1 - PRK-SFS-L
SCALE: NOT TO SCALE



5 CONDUIT ROUTING DETAIL
SCALE: NOT TO SCALE

HEIGHT	WIDTH	DEPTH	WEIGHT
24.00"	24.00"	25.24"	64.00 LBS



6 EMERSON - AAV CABINET
SCALE: NOT TO SCALE

T-Mobile
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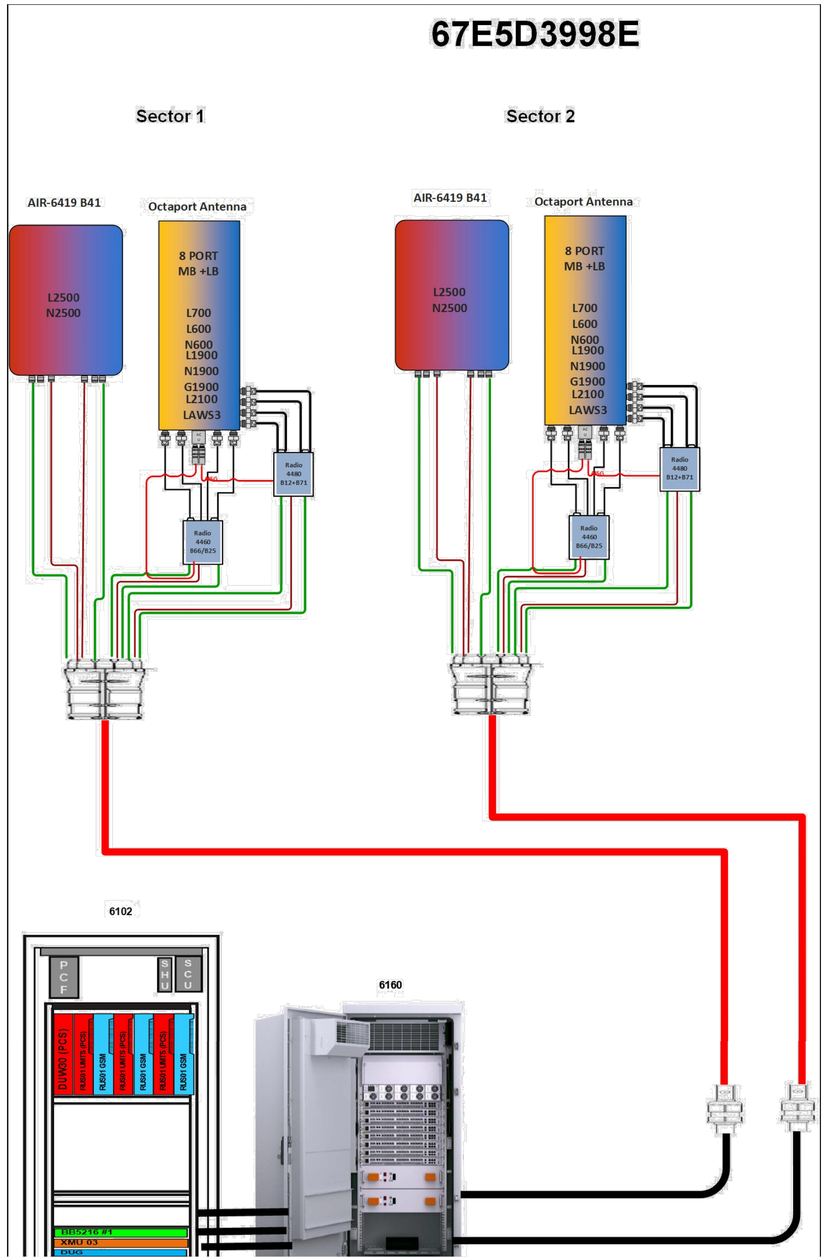
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SHEET NUMBER: A-7

REVISION: 3



1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
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SHEET NUMBER: A-8

REVISION: 3

PPC PANEL - EXISTING - 200A DUAL MAIN INTERLOCKING CIRCUIT BREAKERS, 120/240V 1PH 3W NEMA 3R ENCLOSURE AIC - 65,000A

LOAD SERVED	VA (WATTS)		BREAKER		CKT #		CKT #	BREAKER		VA (WATTS)		LOAD SERVED
	A	B	P	TRIP				P	TRIP	A	B	
SURGE PROTECTION	0		2	60A	1	A	2	1	20A	180		GFCI RECEPTACLE
		0			3	B	4	1	20A		100	LIGHT
EXISTING 6102 CABINET	6,200		2	60A	5	A	6	1	20A	250		GEN BATT CHRGR
		6,200			7	B	8	1	20		200	GEN CONTR
EXISTING BBU CABINET	**1,000**		**2**	***50A**	9	A	10	1	20	200		GEN CONTR
		1,000			11	B	12	--	--		--	SPACE
SPACE	--		--	--	13	A	14	--	--	--		SPACE
SPACE		--	--	--	15	B	16	--	--		--	SPACE
SPACE	--		--	--	17	A	18	--	--	--		SPACE
SPACE		--	--	--	19	B	20	--	--		--	SPACE
SPACE	--		--	--	21	A	22	--	--	--		SPACE
SPACE		--	--	--	23	B	24	--	--		--	SPACE
	7,200	7,200	***INDICATES BREAKER TO BE REMOVED**							430	100	

TOTAL LOAD (VA):	7,630	7,300
TOTAL LOAD (A):	64	61

1 EXISTING PANEL SCHEDULE
SCALE: NOT TO SCALE

PPC PANEL - FINAL (MODIFIED) - 200A DUAL MAIN INTERLOCKING CIRCUIT BREAKERS, 120/240V 1PH 3W NEMA 3R ENCLOSURE AIC - 65,000AIR

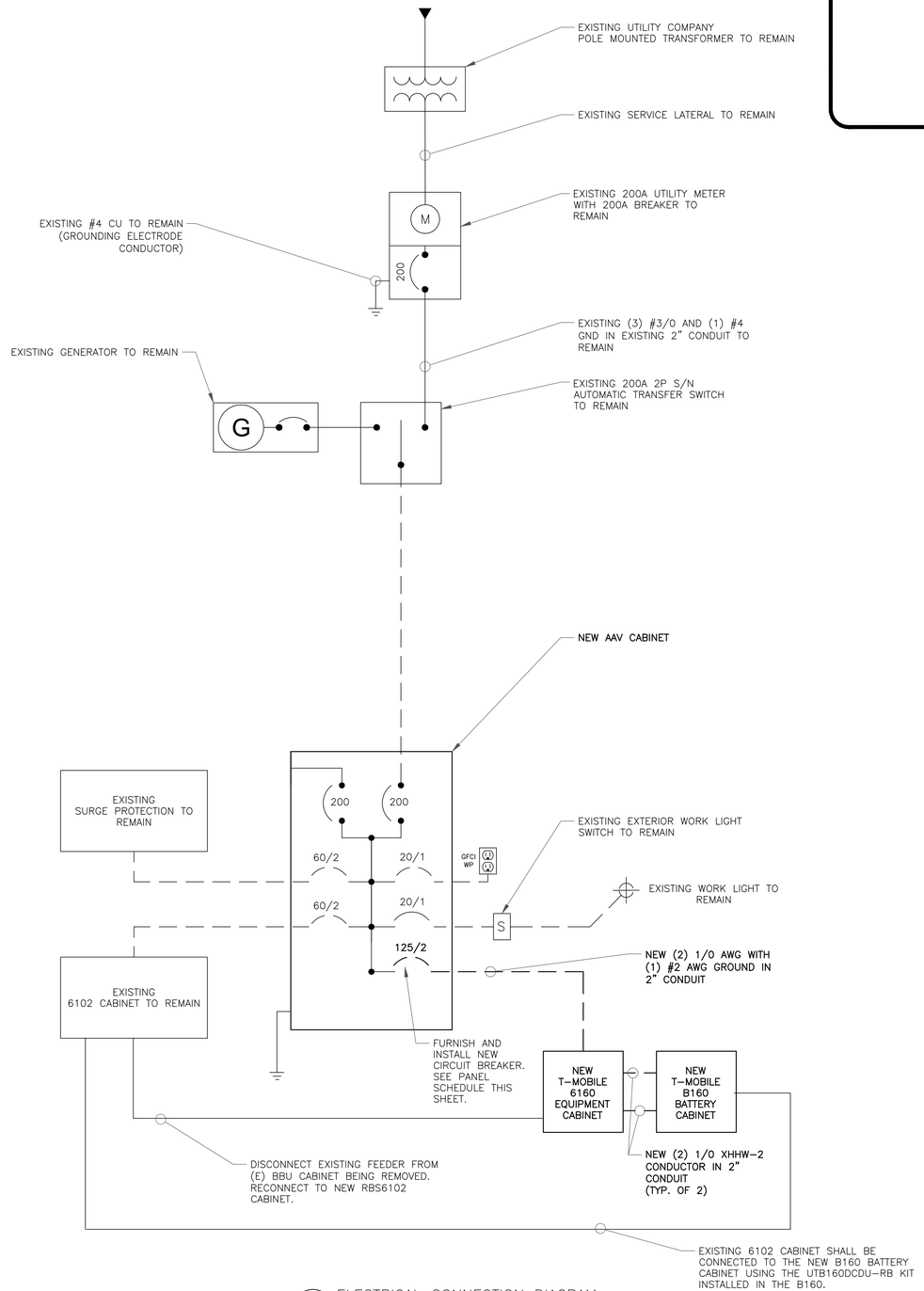
LOAD SERVED	VA (WATTS)		BREAKER		CKT #		CKT #	BREAKER		VA (WATTS)		LOAD SERVED
	A	B	P	TRIP				P	TRIP	A	B	
SURGE PROTECTION	0		2	60A	1	A	2	1	20A	180		GFCI RECEPTACLE
		0			3	B	4	1	20A		100	LIGHT
EXISTING 6102 CABINET	6,200		2	60A	5	A	6	1	20A	250		GEN BATT CHRGR
		6,200			7	B	8	1	20A		200	GEN CONTR
SPACE	--		--	--	9	A	10	--	--	200		GEN CONTR
SPACE		--	--	--	11	B	12	**2**	***125A**	--	**8,250**	**NEW 6160 CABINET**
SPACE	--		--	--	13	A	14			**8,250**	--	
SPACE		--	--	--	15	B	16	--	--		--	SPACE
SPACE	--		--	--	17	A	18	--	--	--		SPACE
SPACE		--	--	--	19	B	20	--	--		--	SPACE
SPACE	--		--	--	21	A	22	--	--	--		SPACE
SPACE		--	--	--	23	B	24	--	--		--	SPACE
	6,200	6,200	***INDICATES BREAKER TO BE INSTALLED**							8,880	8,550	

TOTAL LOAD (VA):	15,080	14,750
TOTAL LOAD (A):	126	123

2 FINAL PANEL SCHEDULE
SCALE: NOT TO SCALE

GENERAL NOTES:

1. ALL NEW CONDUCTORS SHALL BE COPPER. TYPE THHW, THWN, THWN-2, XHHW OR XHHW-2 UNLESS NOTED OTHERWISE.
2. CONTRACTOR SHALL FIELD-VERIFY ALL EXISTING ITEMS SHOWN ON THE DRAWINGS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3. ALL GROUNDING AND BONDING SHALL BE INSTALLED IN ACCORDANCE WITH NEC ART. 250 AND T-MOBILE GROUNDING REQUIREMENTS.



3 ELECTRICAL CONNECTION DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
3375 KOAPAKA STREET, G300
HONOLULU, HI 96819

CROWN CASTLE
150 HAMAKUA DRIVE, #703
KAILUA, HI 96734

ENGINEERED TOWER SOLUTIONS
3227 WELLINGTON COURT
RALEIGH, NC 27615

T-MOBILE SITE NUMBER:
HI04193B

BU #: **824947**
KALOKO MAUKA

73-4310 HUEHUE STREET
KAILUA-KONA, HI 96740

PROJECT NAME:
ANCHOR/DRIP
TMK: 730480030000
REPLACEMENT 73'-6" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	01/28/2022	AS	CONSTRUCTION	BS
1	12/21/2022	AS	REV. CONSTRUCTION	BS
2	02/21/2023	DF	REV. CONSTRUCTION	DG
3	05/08/2023	CP	REV. CONSTRUCTION	DG
4	05/12/2023	CP	REV. CONSTRUCTION	DG

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RICHARD J. MOSS
LICENSED PROFESSIONAL ENGINEER
No. 13356 - E
HAWAII U.S.A.
5.12.23
LIC. EXP. 4.30.24

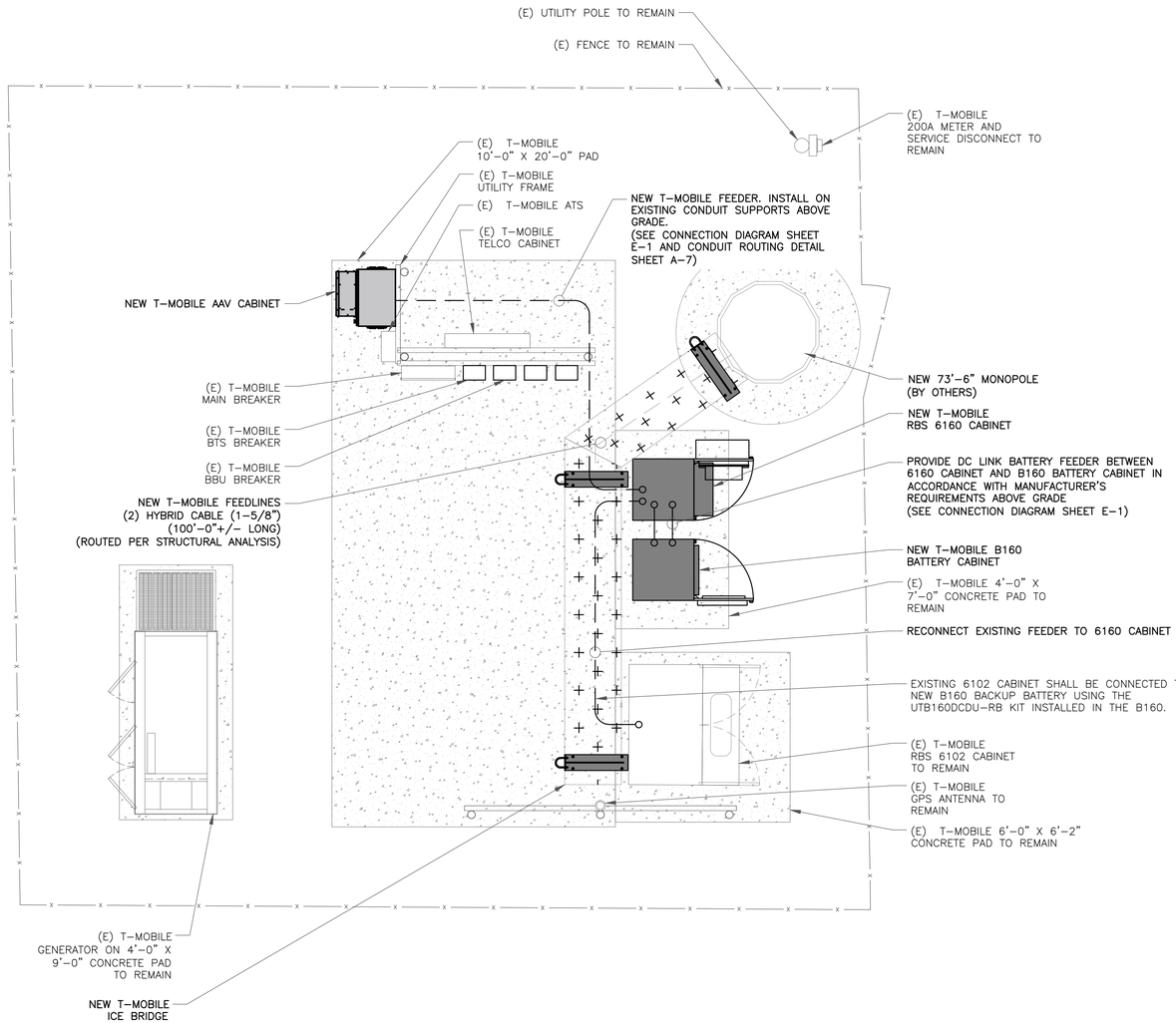
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SHEET NUMBER: E-1

REVISION: 4

NOTE:

TOWER MOUNTED EQUIPMENT NOT SHOWN FOR CLARITY.



1 SITE ELECTRICAL PLAN

SCALE: 2' 1' 0 2' 3/8"=1'–0" (FULL SIZE) 3/16"=1'–0" (11x17)

T··Mobile·

3375 KOAPAKA STREET, G300
HONOLULU, HI 96819

CROWN CASTLE

150 HAMAKUA DRIVE, #703
KAILUA, HI 96734

ENGINEERED TOWER SOLUTIONS

3227 WELLINGTON COURT
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4	05/12/2023	CP	REV. CONSTRUCTION	DG

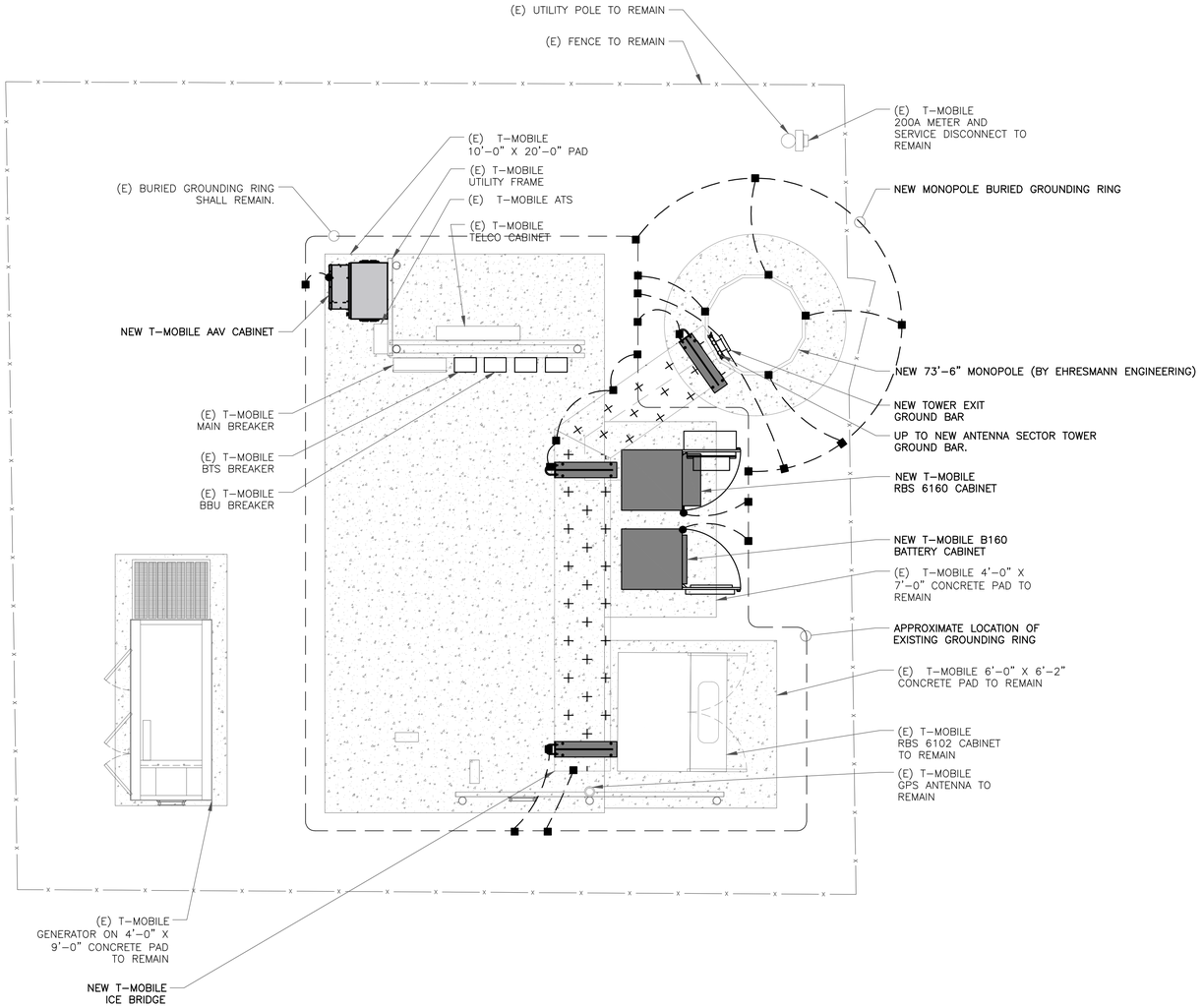
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SHEET NUMBER: E-2

REVISION: 4



1 SITE GROUNDING PLAN
SCALE: 2' 1' 0 2' 3/8"=1'–0" (FULL SIZE) 3/16"=1'–0" (11x17)

NOTE:

TOWER MOUNTED EQUIPMENT NOT SHOWN FOR CLARITY.

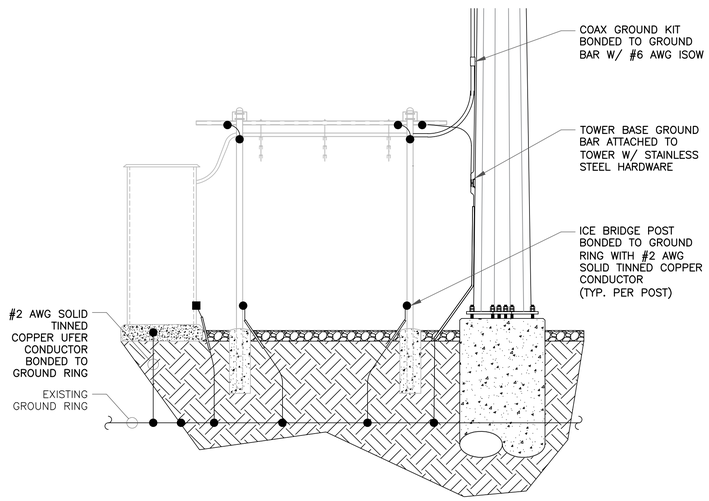
GROUNDING PLAN LEGEND:

--- GROUND WIRE
■ EXOTHERMIC WELD
● MECHANICAL CONNECTION
COPPER GROUND ROD
GROUND ROD W/ TEST WELL

CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS (ATT–TP–76416 7.6.7).

EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE (ATT–TP–76416 7.6.7.2).

DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICES CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR PER TP76300 SECTION H 6 AND TP76416 FIGURE 7–11 REQUIREMENTS.



6 ICE BRIDGE/COAX/GROUNDING BAR ELEVATION
SCALE: NOT TO SCALE

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HONOLULU, HI 96819

CROWN CASTLE
150 HAMAKUA DRIVE, #703
KAILUA, HI 96734

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BU #: **824947**
KALOKO MAUKA

73-4310 HUEHUE STREET
KAILUA-KONA, HI 96740

PROJECT NAME:
ANCHOR/DRIP
TMK: 730480030000
REPLACEMENT 73'-6"
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ISSUED FOR:

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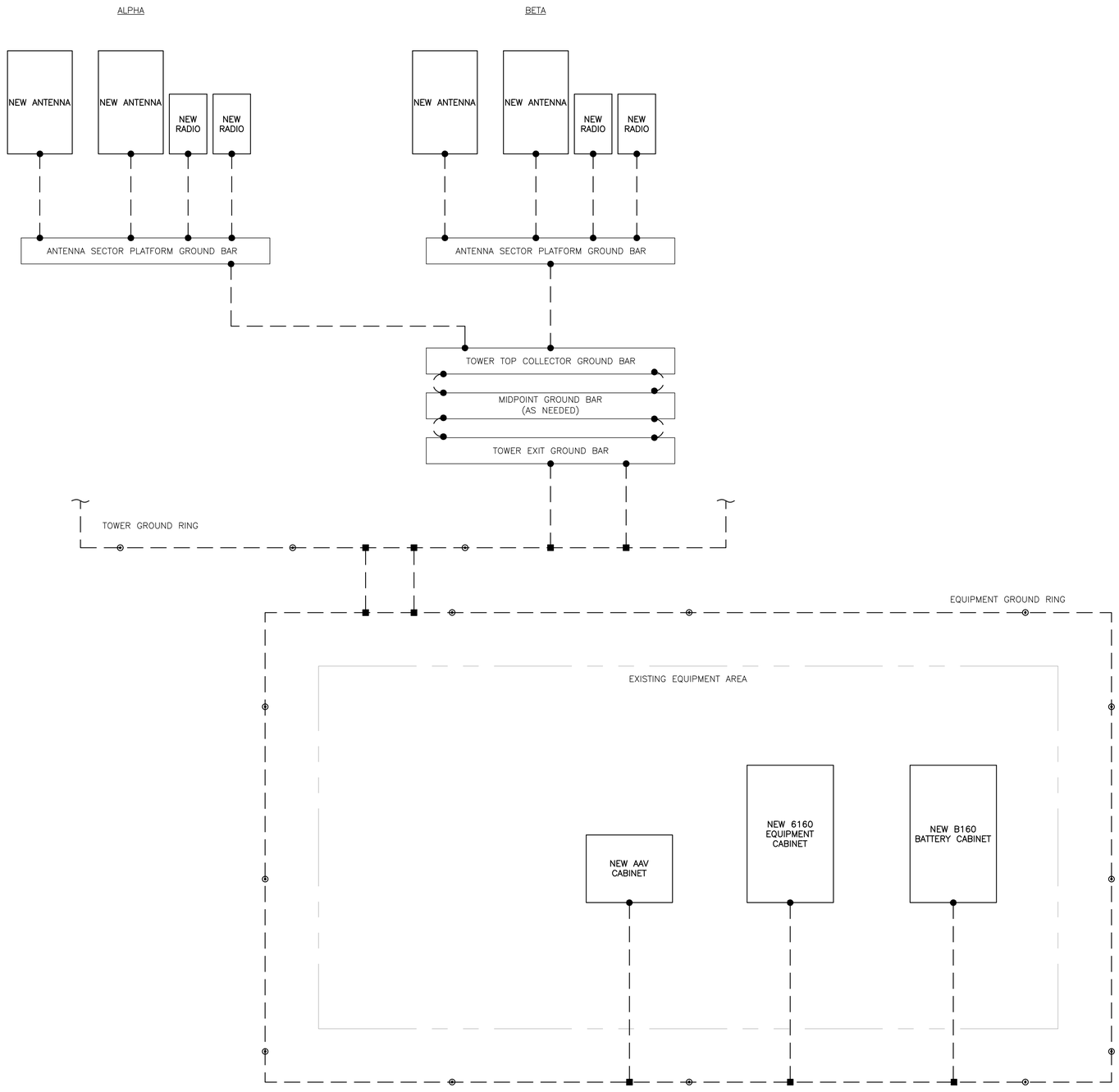
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SHEET NUMBER: E-3

REVISION: 4



1 GROUNDING SCHEMATIC
SCALE: NOT TO SCALE

GROUNDING PLAN LEGEND:

--- GROUND WIRE
■ EXOTHERMIC WELD
● MECHANICAL CONNECTION
COPPER GROUND ROD
GROUND ROD W/ TEST WELL

CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS (ATT-TP-76416 7.6.7).

EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE (ATT-TP-76416 7.6.7.2).

DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICES CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR PER TP76300 SECTION H 6 AND TP76416 FIGURE 7-11 REQUIREMENTS.

T-Mobile
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HONOLULU, HI 96819

CROWN CASTLE
150 HAMAKUA DRIVE, #703
KAILUA, HI 96734

ENGINEERED TOWER SOLUTIONS
3227 WELLINGTON COURT
RALEIGH, NC 27615

T-MOBILE SITE NUMBER:
HI04193B

BU #: **824947**
KALOKO MAUKA

73-4310 HUEHUE STREET
KAILUA-KONA, HI 96740

PROJECT NAME:
ANCHOR/DRIP
TMK: 730480030000
REPLACEMENT 73'-6"
MONOPOLE

ISSUED FOR:

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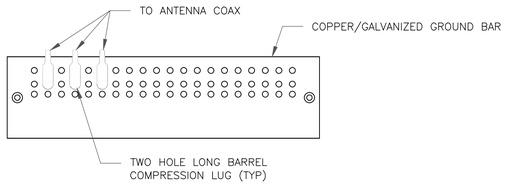
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No. 13356 - E
HAWAII U.S.A.
5.12.23
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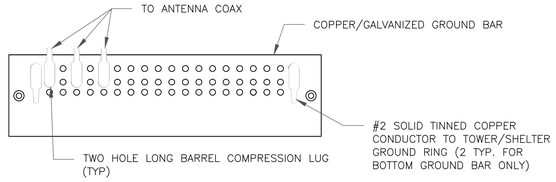
REVISION: 4



NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL.

1 ANTENNA GROUND BAR DETAIL
SCALE: NOT TO SCALE

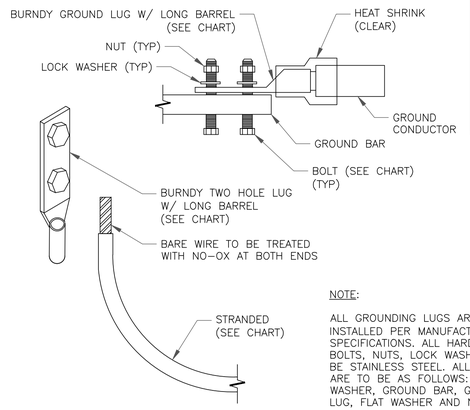


NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE

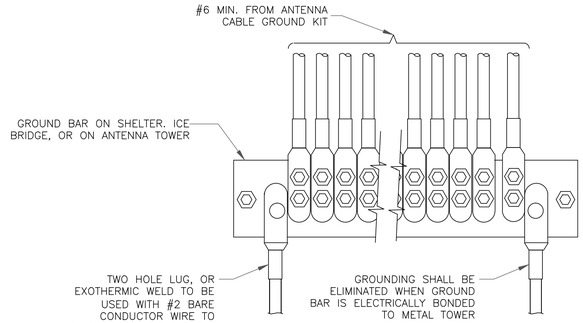
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" – 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" – 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" – 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" – 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" – 16 NC SS 2 BOLT



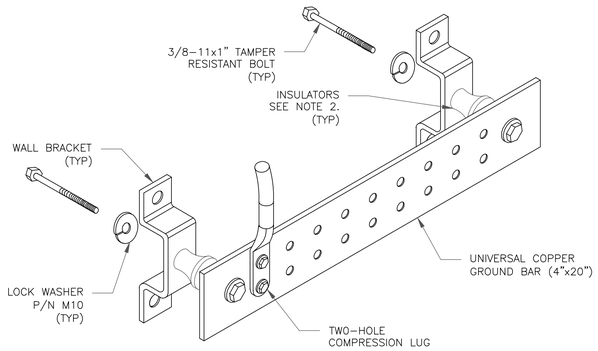
NOTE:

ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

3 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



4 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE

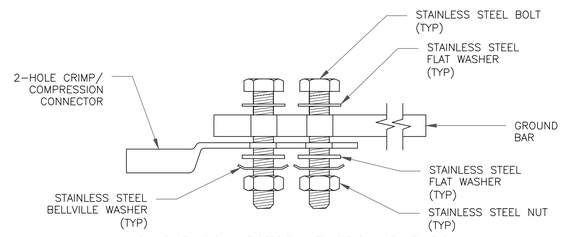


NOTES:

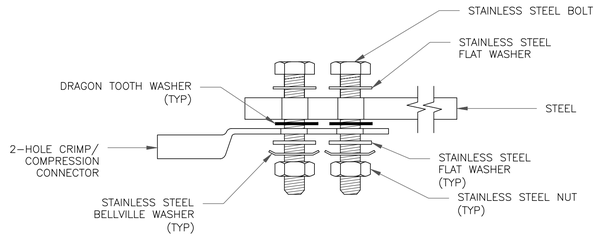
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.

2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

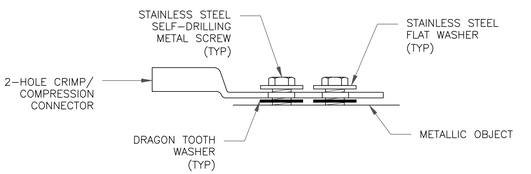
5 GROUND BAR DETAIL
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

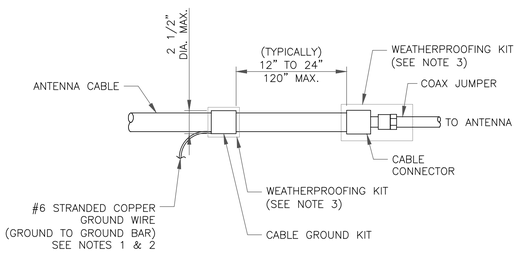


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

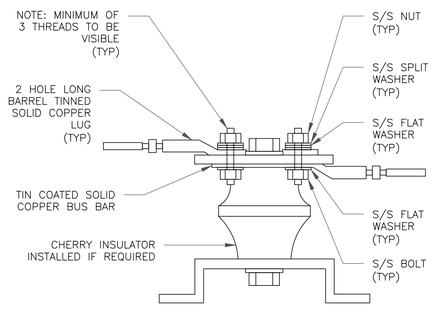
9 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



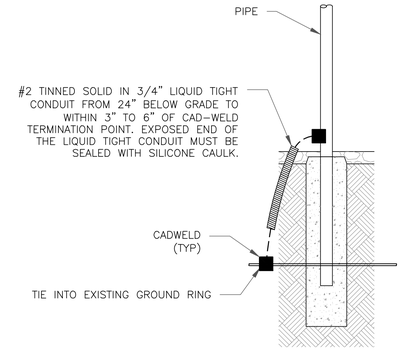
NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

6 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

T-Mobile
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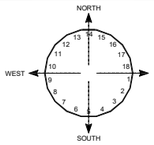
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SHEET NUMBER: E-5

REVISION: 4



MONOPOLE DESIGN CRITERIA:

DESIGN PER TIA-222-H
174 MPH WIND & NO ICE (3-SEC GUST)
60 MPH WIND & NO ICE (SERVICE)
RISK CATEGORY II
EXPOSURE CATEGORY C
TOPOGRAPHIC CATEGORY 1

SEISMIC DESIGN CRITERIA:

SEISMIC DESIGN CATEGORY E
SITE CLASS C
Ss= 2.31
S1= 1.023
T_L = 12

SITE INFORMATION:

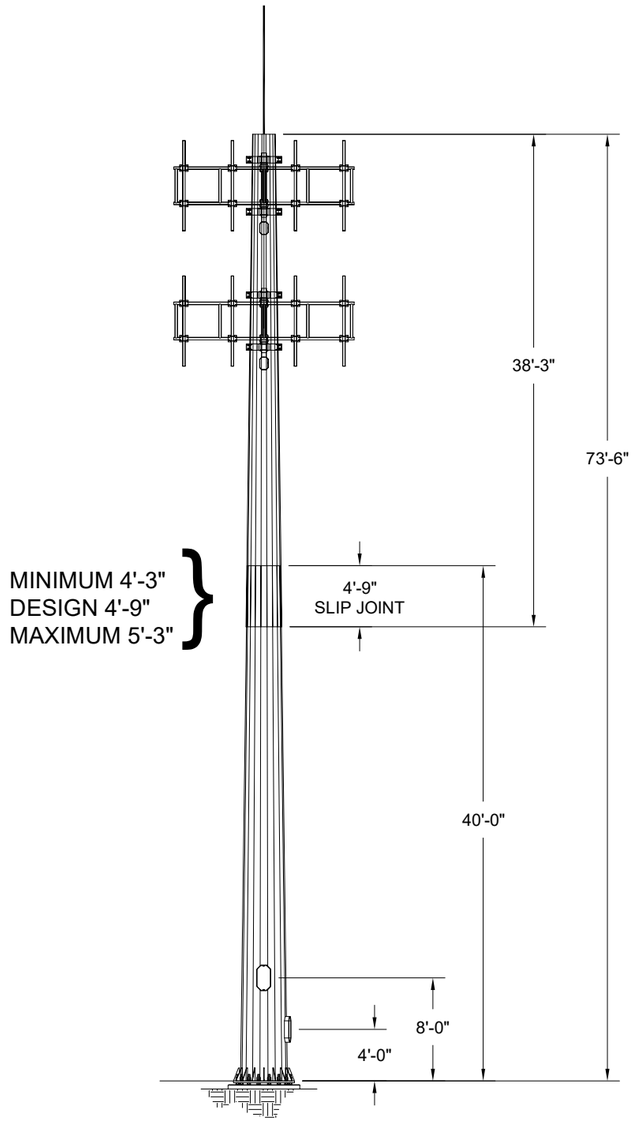
COORDINATES: LATITUDE: 19° 43' 02.64" N
LONGITUDE: 155° 55' 22.88" W
ADDRESS: HUE HUE ST. TMK (3)7-3-048:004
KAILUA-KONA, HI 96740
COUNTY: HAWAII COUNTY, HAWAII

MAXIMUM BASE MOMENT & FORCES		
MOMENT (FT-KIPS)	SHEAR (KIPS)	AXIAL (KIPS)
2347	40	21

NOTES:

1. ORIENT V-NOTCH ON TOP OF TEMPLATE AND REFERENCE TAB ON BASE PLATE @ 0°.
2. STAMP "EE 112850" ON TOP OF BASE PLATE (NEAR NORTH TAB) WITH 1/2" STEEL STAMPS.

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DESIGN LOADING:

ELEV.	ITEM	FEEDLINES
73.5	Lightning Rod 2"x10'	
69.5	250 SQ FT x Ka (Ka=1.0)	(12) 1 5/8" (INSIDE POLE)
59	125 SQ FT x Ka (Ka=1.0)	(12) 1 5/8" (INSIDE POLE)

POLE DATA					
POLE 65 KSI 18 SIDED					
ELEV.	**WALL THICKNESS**	TAPER	**TUBE LENGTH**	TOP DIA.	BASE DIA.
35'-3"- 73'-6"	1/4"	.306"/FT.	38-3"	21"	32 3/4"
0' - 40'-0"	5/16"	.306"/FT.	40'-0"	30 3/4"	43"

ANCHOR BOLT DATA:

(16x) 1 3/4"Ø F1554 GRADE 105 KSI
X 6'-0" LG ON A 50"Ø BOLT CIRCLE
TEMPLATE O.D. = Ø55" A36

BASE PLATE DATA:

57"Ø, 1 3/4" THICK, ROUND
ASTM A572 50 KSI

(16x) 3/8" THICK X 12" TALL GUSSETS
ASTM A572 65 KSI

VECTOR ENGINEERS
651 W. GALENA PARK BLVD. STE. 101
DRAPER, UTAH 84020
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WELLS L. HOLMES
LICENSED PROFESSIONAL ENGINEER
No. 16863-S
HAWAII U.S.A.

12/02/2022

EXPIRES: 4-30-2024

VSE Project Number: U1408-543-221

THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
CONSTRUCTION OF THIS PROJECT
WILL BE UNDER MY OBSERVATION
WHEN REQUIRED BY H.A.R. 16-115-9.

REV	DESCRIPTION	DATE
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0	DRAWING CREATED	11-14-22

	NAME
DRAWN BY:	TER
CHECKED BY:	
ENG APPR.	
MFG APPR.	
Q.C.	

SITE: 824947 - KALOKO MAUKA, HI

JOB# 112850

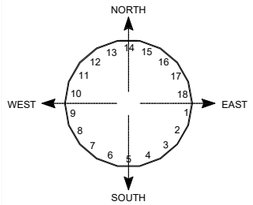
Ehresmann Engineering
4400 West 31st Street
Yankton, SD 57078
605-665-7532
605-665-9780

TITLE: 73'-6" MONOPOLE

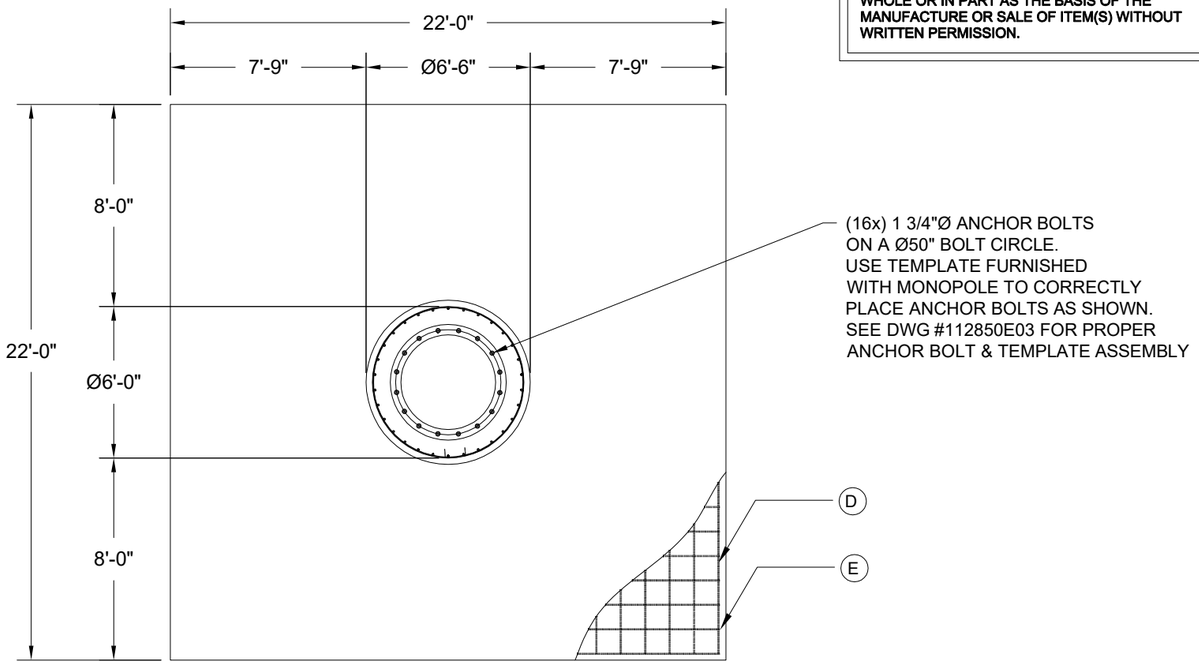
DWG. NO. 112850E01

SHEET NO. E01

Rev. 0



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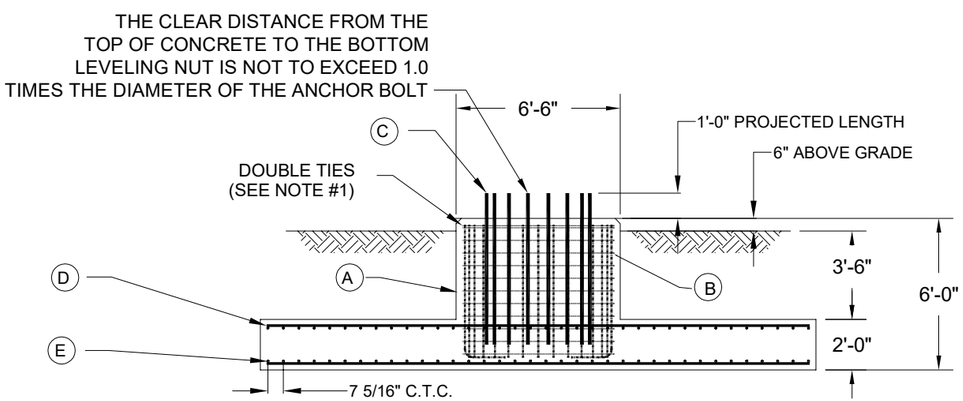
TOP VIEW

MATERIAL LIST				
ITEM	QTY	GRADE	DESCRIPTION	
A	30	60	#8 BARS	19" HOOK, 5'-3"
B	12	60	#4 BARS (6" SPACING C.T.C.)	4" HOOKS 8 3/8" LAP (STAGGERED) 6'-0"
* C	16	105	1 3/4"Ø X 6'-0"	6'-0"
D	72	60	#9 BARS (36) EACH WAY-TOP	21'-6"
E	72	60	#9 BARS (36) EACH WAY-BOTTOM	21'-6"

* SUPPLIED BY EE, ALL OTHER MATERIAL TO BE SUPPLIED BY THE CONTRACTOR.

NOTES:

1. LATERAL REINFORCEMENT, CONSISTING OF TWO (2) HORIZONTAL TIES SHALL BE DISTRIBUTED WITHIN 5" OF TOP OF CONCRETE PER ACI 318. THE ENDS OF ALL CIRCULAR TIES SHALL TERMINATE WITH STANDARD HOOKS THAT ENGAGE A LONGITUDINAL COLUMN BAR.
2. FOUNDATION DESIGN BASED ON SOILS REPORT BY TEP, INC. DATED OCTOBER 6TH, 2022, PROJECT NO. 134255.717941. CONTRACTOR TO REVIEW SOILS REPORT FOR POSSIBLE SPECIAL INSTRUCTIONS BY GEOTECHNICAL ENGINEER.
3. MINIMUM COMPACTED UNIT WEIGHT OF ALL BACKFILL TO BE 100 PCF.
4. 40.77 CUBIC YARDS CONCRETE REQUIRED THIS FOUNDATION.
5. MONOPOLE BASE REACTIONS;
   MOMENT = 2,347 FT-KIPS
   SHEAR = 40 KIPS
   AXIAL = 21 KIPS



ELEVATION VIEW

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WELLS L. HOLMES
LICENSED PROFESSIONAL ENGINEER
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HAWAII U.S.A.

12/02/2022

EXPIRES: 4-30-2024

VSE Project Number: U1408-543-221

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION WHEN REQUIRED BY H.A.R. 16-115-9.

CONCRETE MIX REQUIREMENTS:

CEMENT: TYPE I/II PORTLAND CEMENT
28 DAY COMPRESSIVE STRENGTH = 4500 PSI
MAXIMUM WATER/CEMENT RATIO = 0.45
SLUMP = 4"-6"
ENTRAINED AIR CONTENT = 5%-7%

REV	DESCRIPTION	DATE
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DRAWN BY:	TER
CHECKED BY:	
ENG APPR.	
MFG APPR.	
Q.C.	

SITE: 824947 - KALOKO MAUKA, HI

JOB# 112850

Ehresmann Engineering
4400 West 31st Street
Yankton, SD 57078
605-665-7532
605-665-9780

TITLE: 73'-6"" MONOPOLE MAP TYPE FOUNDATION DESIGN

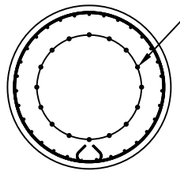
DWG. NO. 112850E02

SHEET NO. E02

Rev. 0

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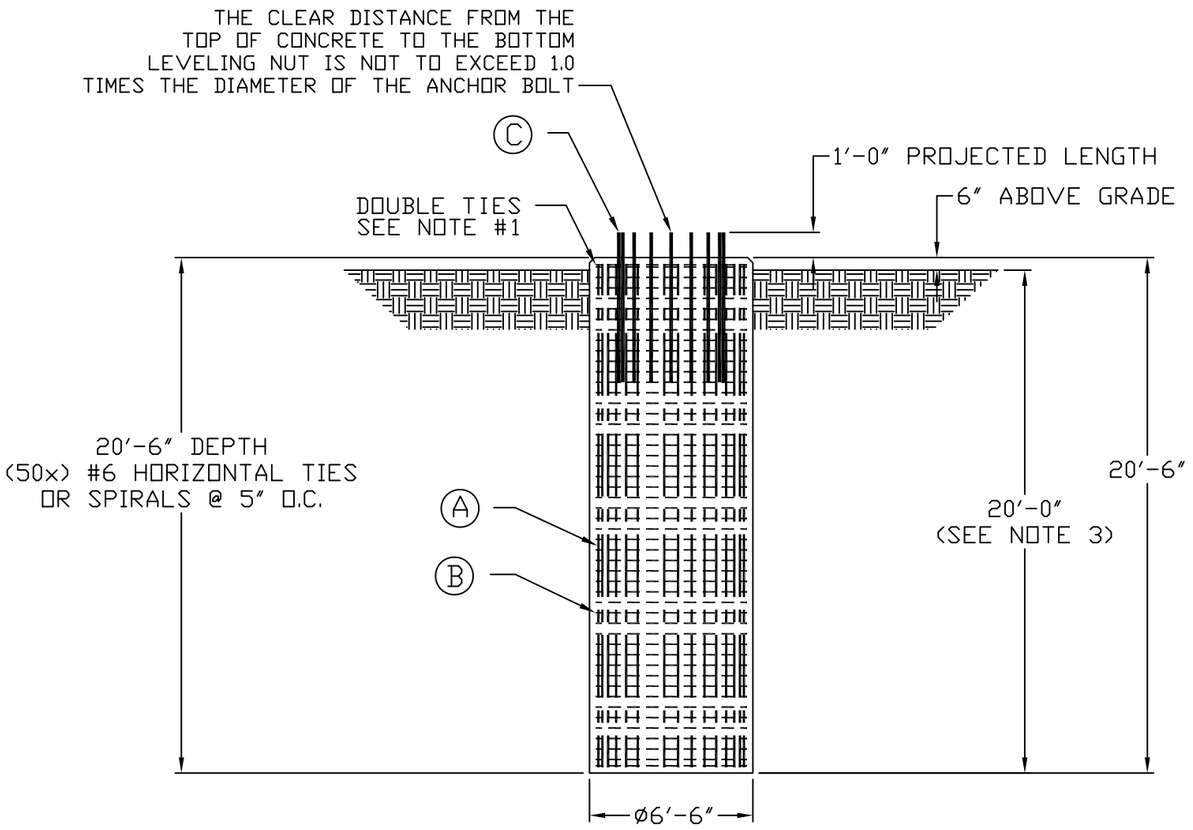


(16X) 1 3/4"ø ANCHOR BOLTS ON A ø50" BOLT CIRCLE. USE TEMPLATE FURNISHED WITH MONOPOLE TO CORRECTLY PLACE ANCHOR BOLTS AS SHOWN. SEE DWG #112850E03 FOR PROPER ANCHOR BOLT & TEMPLATE ASSEMBLY.

PLAN VIEW

	MATERIAL LIST				
	ITEM	QTY	GRADE	DESCRIPTION	
	A	31	60	#8 BARS	20'-0"
	B	50	60	#6 BARS	4 1/2" HOOKS (135°) 8" LAP (STAGGERED) 6'-0"
*	C	16	105	1 3/4"ø X 6'-0"	6'-0"

* SUPPLIED BY EE, ALL OTHER MATERIAL TO BE SUPPLIED BY THE CONTRACTOR.



ELEVATION VIEW

NOTES:

1. LATERAL REINFORCEMENT, CONSISTING OF TWO (2) HORIZONTAL TIES SHALL BE DISTRIBUTED WITHIN 5" OF TOP OF CONCRETE PER ACI 318. THE ENDS OF ALL CIRCULAR TIES SHALL TERMINATE WITH STANDARD HOOKS THAT ENGAGE A LONGITUDINAL COLUMN BAR.
2. FOUNDATION DESIGN BASED ON SOILS REPORT BY TEP, INC. DATED OCTOBER 6TH, 2022; PROJECT NO. 134255.717941. CONTRACTOR TO REVIEW SOILS REPORT FOR POSSIBLE SPECIAL INSTRUCTIONS BY GEOTECHNICAL ENGINEER.
3. PLEASE NOTE THAT FOUNDATION DEPTH AS DESIGNED IS DEEPER THAN WHAT WAS INVESTIGATED DURING THE SOIL BORING. IF ADDITIONAL INVESTIGATION IS NOT COMPLETED PRIOR TO INSTALLATION, THE GEOTECHNICAL ENGINEER OR QUALIFIED REPRESENTATIVE IS TO BE ON-SITE DURING DRILLING TO VERIFY SOIL CONDITIONS BELOW THE BORING DEPTH. IF CHANGES IN SOIL ARE FOUND WHICH REQUIRE MODIFICATIONS TO DESIGN PARAMETERS, EE SHALL BE NOTIFIED IMMEDIATELY FOR REVIEW OF THIS FOUNDATION DESIGN.
4. 25.19 CUBIC YARDS CONCRETE REQUIRED THIS FOUNDATION.
5. MONOPOLE BASE REACTIONS;
   MOMENT = 2,347 FT-KIPS
   SHEAR = 40 KIPS
   AXIAL = 21 KIPS

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LICENSED PROFESSIONAL ENGINEER
No. 16863-S
HAWAII U.S.A.

12/02/2022

EXPIRES: 4-30-2024

VSE Project Number: U1408-543-221

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CONCRETE MIX REQUIREMENTS:

CEMENT: TYPE I/II PORTLAND CEMENT
28 DAY COMPRESSIVE STRENGTH = 4500 PSI
MAXIMUM WATER/CEMENT RATIO = 0.45
SLUMP = 6"-8"
ENTRAINED AIR CONTENT = 5%-7%

REV	DESCRIPTION	DATE
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0	DRAWING CREATED	11/30/29

	NAME
DRAWN BY:	EJH
CHECKED BY:	
ENG APPR.	
MFG APPR.	
Q.C.	

Site: 824947-KALOKO MAUKA, HI

Job# 112850

Ehresmann Engineering
4400 West 31st Street
Yankton, SD 57078
605-665-7532
605-665-9780

TITLE: 73'-6" MONOPOLE PIER TYPE FOUNDATION DESIGN

DWG. NO. 112850E02A

Sheet NO. E02A | Rev. 1A

GENERAL:
Ehresmann Engineering (EE) designs and manufactures steel towers/poles and tower components to the most stringent industry standards, and uses the highest quality materials. However, certain hazards are inherent in tower work. For this reason, it is imperative that erection of towers and installation of tower components be accomplished in a safe and workmanlike manner, and only by experienced and professional contractors. Unless the customer specifies otherwise in writing, or unless otherwise noted in our design documents or on our installation drawings, design of and/or fabrication of items by Ehresmann Engineering shall meet the conditions outlined in these notes.

1. All tower designs and/or work shall be in accordance with TIA-222-H, “Structural Standard for Antenna Supporting Structures, Antennas and Small Wind Turbine Support Structures” or as otherwise specified in writing by the customer.
2. Purchasers shall verify the installation is in conformance with all local, state, and federal requirements. This also includes requirements for obstruction marking and lighting.
3. If towers, tower components, mounts, foundations or modification materials are not installed in accordance with Ehresmann Engineering installation drawings and specifications, then all designs are considered invalid, and EE disclaims any responsibility for said design and/or certification.
4. The purchaser shall be responsible to inspect condition of underground anchors prior to work on towers, and to furnish any and all soils reports, where required.
5. All items must be inventoried at the time of delivery to the job site/storage facility. Any shortages reported after this delivery will be the responsibility of the Contractor/Owner.
6. Any problems that occur with scheduling, transportation, delivery, foundation installation, erection or any items furnished by EE must be reported immediately to allow EE time to take corrective measures. EE will make every effort to repair/replace necessary items in an expedited manner and/or will pursue corrective measures in the most economical way possible at our discretion. However, under no circumstances will EE pay for or be responsible for any down time or expenses incurred due to down time.
7. EE will make every effort to deliver materials at the requested time. However, we cannot and will not be responsible for delays caused by breakdowns, weather and/or other factors out of our control once the materials have left our facility. We strongly suggest that cranes, tower crews, etc... not be scheduled until delivery is verified to be on time. EE will not be responsible for any costs incurred due to these possible delays.
8. Any and all permits, licenses, or payment of taxes required for construction are the sole responsibility of the purchaser.
9. Manufacturer Assistance: Contractors / Erectors may contact Ehresmann Engineering at (605) 665-7532 for questions on design, materials, or installation regarding items furnished by Ehresmann Engineering.
10. Ehresmann Engineering is available, upon request, to supervise installation and/or completion of modifications, or to provide on-site inspection after project completion.
11. Although rare, excessive deflection can occasionally occur in canister poles and concealment/shrouded structures at low wind speeds. Since the phenomenon is influenced by many factors and variables, it is generally unpredictable. Therefore, it is the tower/pole owner's responsibility to periodically observe the structure for excessive deflection and any resulting damage or affects on the structure or its connections. In the event of excessive deflection or movement of the structure, Ehresmann Engineering is to be notified immediately. Modifications to the structure may be required at the owner's expense.

**Please also reference site specific design documents and drawings for additional notes.

Anchor Rod Tightening:
Prior to placing anchor rods in the concrete, it is recommended that an anchor rod rotation capacity test be run with at least one anchor rod. This test may be run in a Skidmore-Wilhelm device or in a mockup of the base plate using a small piece of plate with one hole of equivalent grade, thickness, and finish. The test consists of steps 2 through 12 as outlined below and adapted as necessary for the mock set-up. It is recommended that the nut be rotated at least to the required rotation as given in step 12. After the test, the nuts should be removed and all threads (rod and nut) inspected for damage. Once the anchor rod is removed from the test plate, the nuts shall again be turned onto the rod well past the location of the leveling nut and backed off by one worker using an ordinary wrench with no cheater bar. The threads are considered damaged if more than minimal effort is required to turn the nut. Please note that nuts should be turned onto ALL anchor rods and backed of with minimal effort as outlined above to verify threads of ALL anchor rods and nuts prior to placement in concrete.

Recommended Steps for Anchor Rod Tightening:
1. Verify proper position of anchor rods.
2. Verify that all nuts can be turned onto the rods well past the elevation of the bottom of the leveling nut and backed off by one worker using an ordinary wrench without a cheater bar.
3. If threads of anchor rods were lubricated more than 24 hours before placing the leveling nut or have been wet since they were lubricated, the exposed threads of the anchor rods should be relubricated (Beeswax and toilet-ring wax have been shown to provide good lubrication).
4. Place leveling nuts on anchor rods and level.
5. Place leveling nut washers.
6. Set pole or tower legs.
7. Plumb pole or legs and/or level base plates.
8. Place top nut washers.
9. Threads and bearing surfaces of the top nuts should be lubricated, placed and tightened to the snug-tight condition in a star pattern.
10. Tighten leveling nuts to the snug-tight condition in a star pattern.
11. Mark the reference position of the top nut in the snug-tight condition with a suitable marking on one flat with a corresponding reference mark on the base plate at each bolt.
12. Top nuts shall be rotated, with the leveling nut secured, an additional 1/3 turn for anchor rods 1.5 in. or less in diameter and an additional 1/6 turn for anchor rod diameters greater than 1.5" per TIA-222-H section 4.9.9.
13. Locking nuts are to be installed over all top nuts when tightening is completed.

Erection / Installation:
When installing items provided by Ehresmann Engineering, the contractor (person performing the erection or modification) shall comply with the following:

1. All structural work shall be performed in relatively calmweather, with wind velocities not exceeding 15 MPH at any height of the tower. Additionally it is recommended that work be completed in accordance with ANSI/TIA-322 and ANSI/ASSE A10.48. 2. All structural work shall be performed by a competent and reputable contractor with experience in similar tower work.
3. Our drawings indicate the major operations to be performed, but do not show every field condition that may be encountered. Prior to beginning work, the contractor should survey the job thoroughly to eliminate future field problems.
4. It is the contractor’s sole responsibility to determine the erection procedure and sequence to insure the stability and safety of the tower and adequacy of temporary or incomplete connections during construction.
5. All nuts for bearing type connections shall be tightened to a "snug tight" condition as defined by AISC. All nuts for direct tension/fully pre-tensioned or slip critical connections (except anchor rod nuts) shall be tightened per the ‘turn-of-the-nut’ method in accordance with AISC.
6. It shall be the contractor's responsibility to ensure that all practices and procedures used during assembly, installation and erection work required on the tower or foundations do not endanger the safety of any personnel nor the structural integrity of the tower.
7. The contractor shall use only safe and workmanlike procedures when modifying a tower.
8. The contractor shall not correct any errors in manufacturing or design without special permission and written instructions from Ehresmann Engineering. This means straightening, relocation or reaming of bolt holes, drifting or any other application of force to make the members fit. (This restriction does not apply to diagonal members designed for initial tension or specific ‘draw’.) The contractor shall immediately notify Ehresmann Engineering through the appropriate channels to effect correction.
9. The contractor shall immediately notify Ehresmann Engineering of any material which is damaged during erection or installation. The contractor shall not correct or substitute any member damaged during installation without written consent and instructions from Ehresmann Engineering.
10. The contractor shall refrain from exerting excessive forces on the tower or on modification material during installation. Tower member design does not include stresses due to erection since erection equipment and conditions are unknown. Our design assumes that the services of competent and qualified personnel will be utilized to develop proper procedures and rigging plans. Our design also assumes that competent and qualified personnel will be hired to perform the work.
11. All field-punched holes shall be touched up with cold galvanizing. Under no circumstances shall the torching of holes be allowed.
12. All factory installed bracing placed within monopole tube sections is to remain in place until erection is complete. Do not remove bracing without prior consultation with EE.

Concrete & Foundation Installation:
1. All rebar shall have 3" minimum cover, unless specified otherwise, and shall conform to ASTM A615. Rebar grade to be as specified on site drawings.
2. Tie and secure all rebar and anchor bolts/shafts before placing concrete.
3. Hook length as specified for vertical bars is from back side of bend. Minimum straight length of hook after bend shall be 12x bar diameter.
4. Bending of rebar to be in accordance with ACI-318 latest edition.
5. Sides of excavation may need to be braced or sloped back as required for stability and in accordance with all applicable safety regulations.
6. Base of excavation shall be clean and free of all debris.
7. All excavation, backfill and soil compaction to be completed in accordance with Geotechnical Engineer's recommendations. However, compacted density of all backfill must meet minimum unit weight as specified on site drawings.
8. Attention shall be given to final site drainage and compaction of the fill placed around the foundation to minimize surface water infiltration around the foundation.
9. Concrete strength and mix values to be listed on site specific foundation drawings. Alternate values may be acceptable and could be dependent on placement methods. However, use of alternate values must be approved by EOR prior to installation. EE will not be responsible for any delays due to request for approval of alternate values. It is the Contractor's responsibility to allow adequate time for approval.
10. Use of water reducers may be required for some placement methods to achieve necessary slump and/or flow without exceeding maximum water/cement ratios. It is Contractor's responsibility to utilize proper mix to ensure proper placement of concrete for the method of placement chosen.
11. Exposed edges of all foundations to be chamfered 1" x 45°.
12. Use steel top and bottom anchor bolt templates provided by EE for proper anchor bolt spacing and placement.
13. All concrete work shall be in accordance with ACI 318 (Latest Edition). ACI specifications for "Cold Weather" or "Hot Weather" concreting shall be followed as applicable.

Structural Steel & Hardware:
1. All fabricated steel shall have a minimum yield strength of 36 ksi. Use of higher strength steel for some members/items will be noted in design documents or drawings as applicable.
2. All fabricated steel shall be hot dip galvanized per ASTM A123.
3. All structural fasteners shall be ASTM F3125 Gr. A325 unless specified otherwise.
4. U-Bolts to be ASTM A36, A572 Gr. 50, or A193 Gr. B7 depending on size and application. Reference site specific drawings for additional details.
5. Step Bolts to be ASTM A449
6. All hardware shall be hot dip galvanized per ASTM A153 or ASTM F2329.
7. Welded connections shall conform to the latest revision of the American Welding Society, A.W.S. D1.1.
8. All structural components shall be verified for proper assembly by the field crew prior to installation.

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HAWAII U.S.A.

12/02/2022

EXPIRES: 4-30-2024

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REV	DESCRIPTION	DATE
7		
6		
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3	COMPANY NAME	6/27/22
2	TUBE BRACING NOTE	10/29/19
1	U-BOLT/STEP-BOLT GR.	10/16/19
0	DRAWING CREATED	03-13-17

	NAME
DRAWN BY:	EJH
CHECKED BY:	
ENG APPR.	
MFG APPR.	
Q.C.	

SITE: 824947 - KALOKO MAUKA, HI

JOB# 112850

Ehresmann Engineering
4400 West 31st Street
Yankton, SD 57078
605-665-7532
605-665-9780

TITLE: STD TOWER & TOWER FOUNDATION NOTES

DWG. NO. 112850N01H

SHEET NO. N01H

Rev. 3

SPECIAL INSPECTION STATEMENT IN ACCORDANCE WITH IBC SECTION 1704.3

SPECIAL INSPECTIONS REQUIRED:		
REINFORCED CONCRETE:	CONTINUOUS	PERIODIC
PIER OR PIER/PAD FOUNDATION		X
DEEP PIER DRILLING (IF APPLICABLE)	X	
REINFORCING STEEL		X
CONCRETE PLACEMENT	X	
SAMPLING & TESTING		X
ANCHORS/BOLTS CAST IN CONCRETE		X
SOILS		X
STRUCTURAL STEEL:		
HIGH-STRENGTH BOLTS		X
STRUCTURAL OBSERVATION:		
YES		X

VERIFICATION AND TESTING SHALL BE COMPLETED AS FOLLOWS:

REINFORCED CONCRETE CONSTRUCTION (MONOPOLE FOUNDATION):

- VERIFY PROPER DIMENSIONS AND DEPTH OF FOUNDATION (INCLUDING DEPTH OF DRILLED HOLE PRIOR TO CONCRETE PLACEMENT IF APPLICABLE)
- INSPECTION OF REINFORCING STEEL TO INCLUDE VERIFICATION OF PROPER MATERIAL GRADE, QTY, SIZE AND PLACEMENT
- VERIFY PROJECTION LENGTH OF ANCHOR BOLTS ABOVE TOP OF CONCRETE PRIOR TO CONCRETE SETTING
- VERIFY USE OF APPROVED CONCRETE MIX DESIGN
- VERIFY PROPER CONCRETE SLUMP AND AIR CONTENT BY TESTING AT THE TIME FRESH CONCRETE IS SAMPLED FOR STRENGTH TESTS
- VERIFY PROPER PLACEMENT OF CONCRETE IN ACCORDANCE WITH APPROVED TECHNIQUES.
- VERIFY CONCRETE COMPRESSIVE STRENGTH BY MEANS OF STANDARD TEST CYLINDERS TO BE BROKE AT 7 DAYS AND 28 DAYS MINIMUM.

STRUCTURAL STEEL CONSTRUCTION (MONOPOLE STRUCTURE):

INSPECTION OF HIGH-STRENGTH BOLTED CONNECTIONS:

- VERIFY IDENTIFICATION MARKINGS/GRADE, QTY AND SIZE OF BOLTS, NUTS & WASHERS
- VISUALLY INSPECT SNUG-TIGHT BOLTED JOINTS TO VERIFY ALL PLIES IN CONTACT AND LOCK-WASHERS COMPRESSED
- VERIFY PROPER TIGHTENING OF PRETENSIONED CONNECTIONS USING TURN-OF-NUT METHOD WITH MATCHMARKING

STRUCTURAL OBSERVATION:

- VERIFY PROPER INSTALLATION/ERECTION OF MONOPOLE PER DESIGN SPECIFICATIONS UPON COMPLETION OF INSTALLATION. VERIFICATION TO INCLUDE THE FOLLOWING:
  - MINIMUM SLIP JOINT OVERLAPS
  - STRUCTURE PLUMB IN ACCORDANCE WITH TIA-222
  - MAXIMUM CLEAR DISTANCE BETWEEN TOP OF FOUNDATION AND LEVELING NUT

VERIFICATION OF ALL ITEMS AS OUTLINED ABOVE SHALL BE BASED ON DESIGN SPECIFICATIONS AND INSTALLATION DETAILS AS COMPLETED BY EHRESMANN ENGINEERING.

SPECIAL INSPECTOR SHALL IDENTIFY AND DOCUMENT RESULTS OF ALL INSPECTIONS AND MATERIAL TESTING AS OUTLINED. INSPECTION REPORTS SHALL BE SUBMITTED AS SOON AS POSSIBLE UPON COMPLETION OF INSPECTION BUT NO MORE THAN 5 WORKING DAYS UNLESS OTHERWISE AGREED BY PROJECT OWNER.

DEVIATION OR NON-COMPLIANCE SHALL BE CORRECTED BY CONTRACTOR. ANY DEVIATIONS NOT CORRECTED ARE TO BE CLEARLY IDENTIFIED IN FINAL REPORTS AND EHRESMANN ENGINEERING SHOULD BE NOTIFIED IMMEDIATELY FOR CONSULTATION.

THE PROJECT OWNER OR AN AGENT OF THE OWNER IS RESPONSIBLE FOR SCHEDULING AND FUNDING ALL SPECIAL INSPECTION SERVICES.

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	NAME
DRAWN BY:	EJH
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ENG APPR.	
MFG APPR.	
Q.C.	

Site: 824947 – KALOKO MAUKA, HI

Job# 112850

Ehresmann Engineering
4400 West 31st Street
Yankton, SD 57078
605-665-7532
605-665-9780

TITLE: 73'-6" MONOPOLE SPECIAL INSPECTION STATEMENT

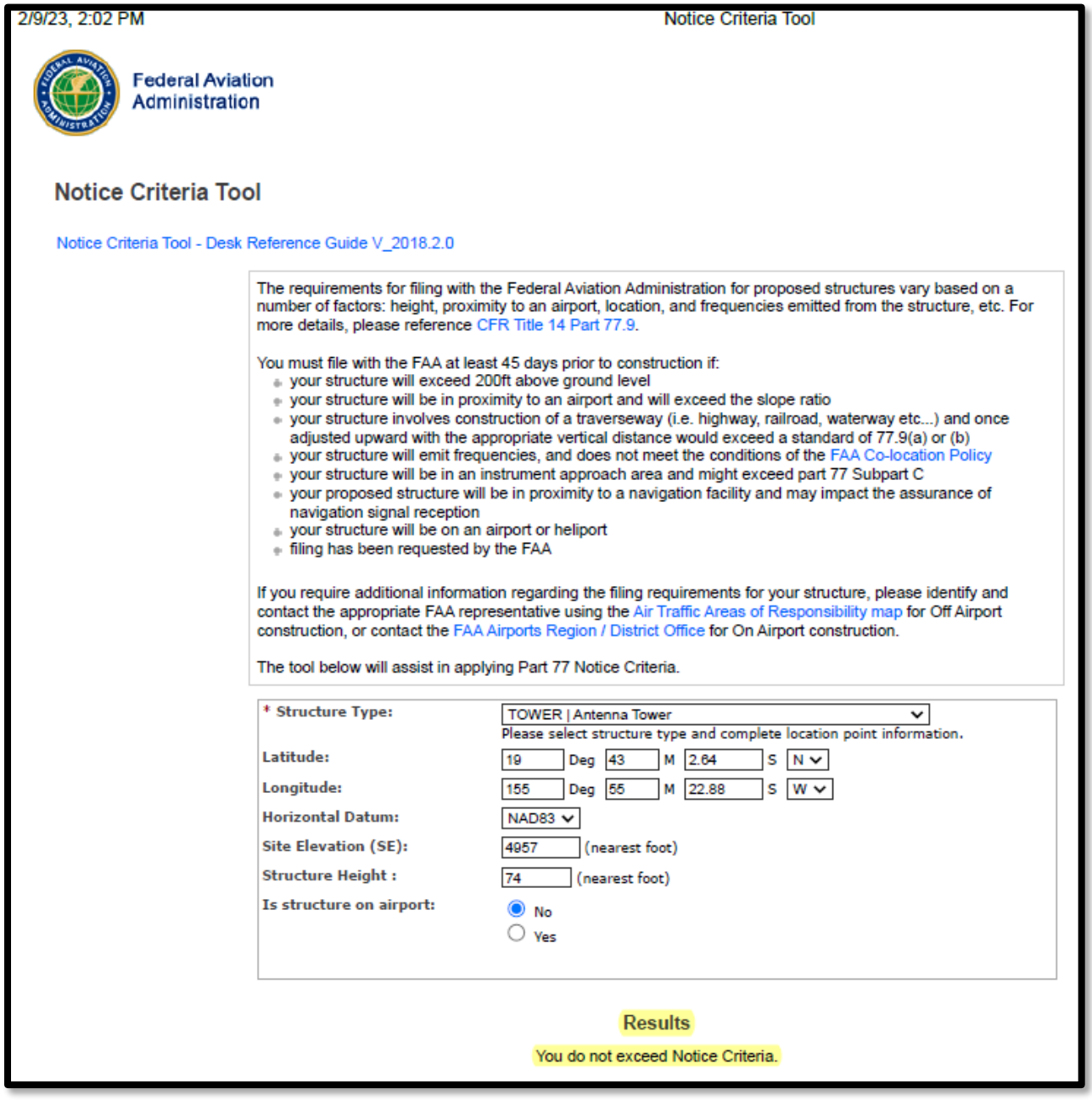
DWG. NO. 112850SI

Sheet NO. SI

Rev. 1A

EXHIBIT D

FAA NOTICE CRITERIA DETERMINATION



2/9/23, 2:02 PM Notice Criteria Tool

Federal Aviation Administration

Notice Criteria Tool

Notice Criteria Tool - Desk Reference Guide V_2018.2.0

The requirements for filing with the Federal Aviation Administration for proposed structures vary based on a number of factors: height, proximity to an airport, location, and frequencies emitted from the structure, etc. For more details, please reference CFR Title 14 Part 77.9.

You must file with the FAA at least 45 days prior to construction if:

- your structure will exceed 200ft above ground level
- your structure will be in proximity to an airport and will exceed the slope ratio
- your structure involves construction of a traverseway (i.e. highway, railroad, waterway etc...) and once adjusted upward with the appropriate vertical distance would exceed a standard of 77.9(a) or (b)
- your structure will emit frequencies, and does not meet the conditions of the FAA Co-location Policy
- your structure will be in an instrument approach area and might exceed part 77 Subpart C
- your proposed structure will be in proximity to a navigation facility and may impact the assurance of navigation signal reception
- your structure will be on an airport or heliport
- filing has been requested by the FAA

If you require additional information regarding the filing requirements for your structure, please identify and contact the appropriate FAA representative using the Air Traffic Areas of Responsibility map for Off Airport construction, or contact the FAA Airports Region / District Office for On Airport construction.

The tool below will assist in applying Part 77 Notice Criteria.

* Structure Type:	TOWER | Antenna Tower Please select structure type and complete location point information.
Latitude:	19 Deg 43 M 2.64 S N
Longitude:	155 Deg 55 M 22.88 S W
Horizontal Datum:	NAD83
Site Elevation (SE):	4957 (nearest foot)
Structure Height :	74 (nearest foot)
Is structure on airport:	(•) No ( ) Yes

Results

You do not exceed Notice Criteria.

EXHIBIT E

ANTENNA STRUCTURE REGISTRATION



2/9/23, 2:05 PM TOWAIR Search Results

Federal Communications Commission

FCC Home | Search | Updates | E-Filing | Initiatives | For Consumers | Find People

Antenna Structure Registration

FCC > WTB > ASR > Online Systems > TOWAIR

FCC Site Map

TOWAIR Determination Results

HELP

New Search Printable Page

***** NOTICE *****

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results

Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.

Your Specifications

NAD83 Coordinates	
Latitude	19-43-02.6 north
Longitude	155-55-22.8 west
Measurements (Meters)	
Overall Structure Height (AGL)	22.9
Support Structure Height (AGL)	22.4
Site Elevation (AMSL)	1510.9
Structure Type	
MTOWER - Monopole	

Tower Construction Notifications
Notify Tribes and Historic Preservation Officers of your plans to build a tower.

ASR Help	ASR License Glossary - FAQ - Online Help - Documentation - Technical Support
ASR Online Systems	TOWAIR- CORES - ASR Online Filing - Application Search - Registration Search
About ASR	Privacy Statement - About ASR - ASR Home

EXHIBIT F

T-MOBILE COVERAGE MAPS

Existing Coverage – Zoomed Out

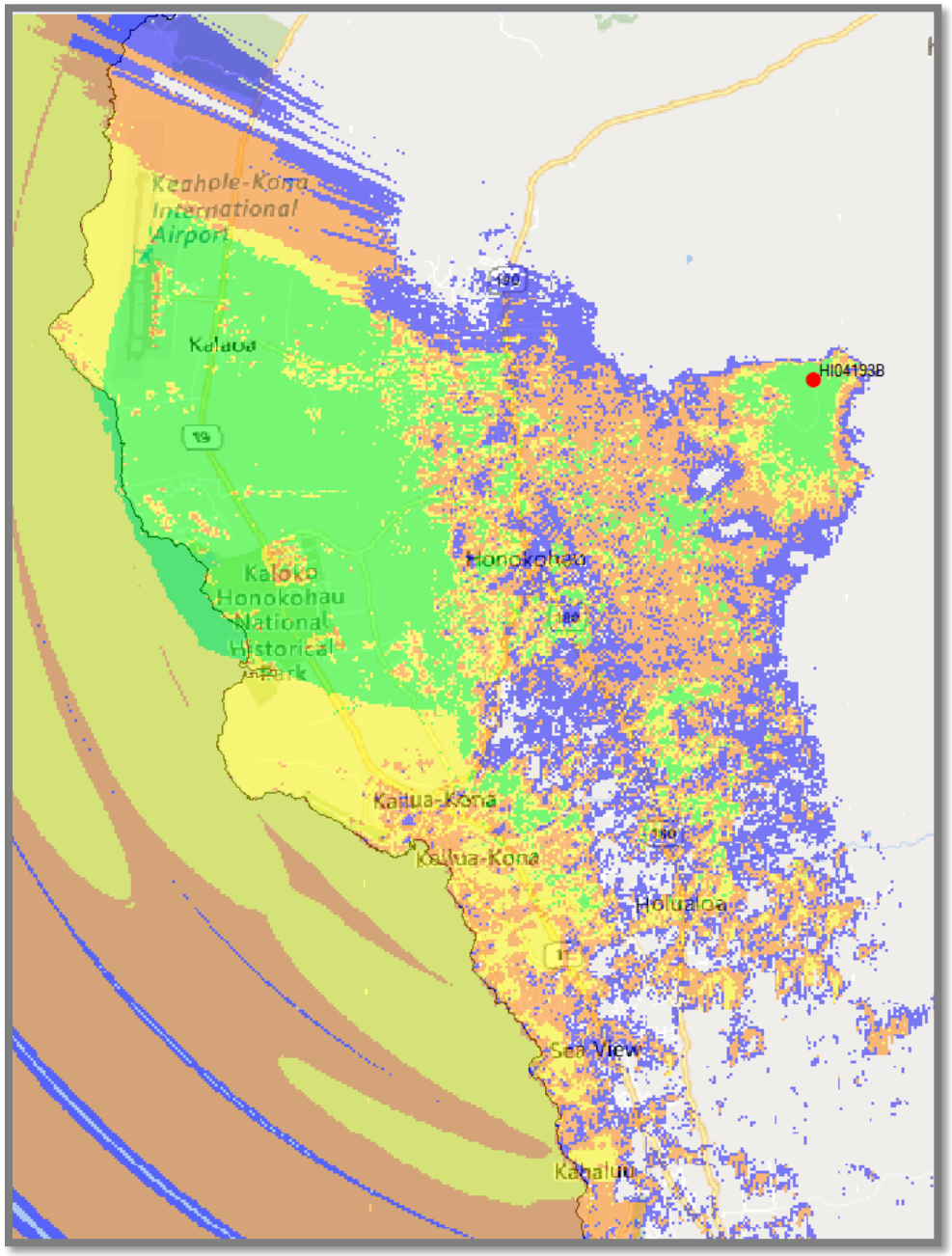


EXHIBIT F

T-MOBILE COVERAGE MAPS

Proposed Coverage – Zoomed Out

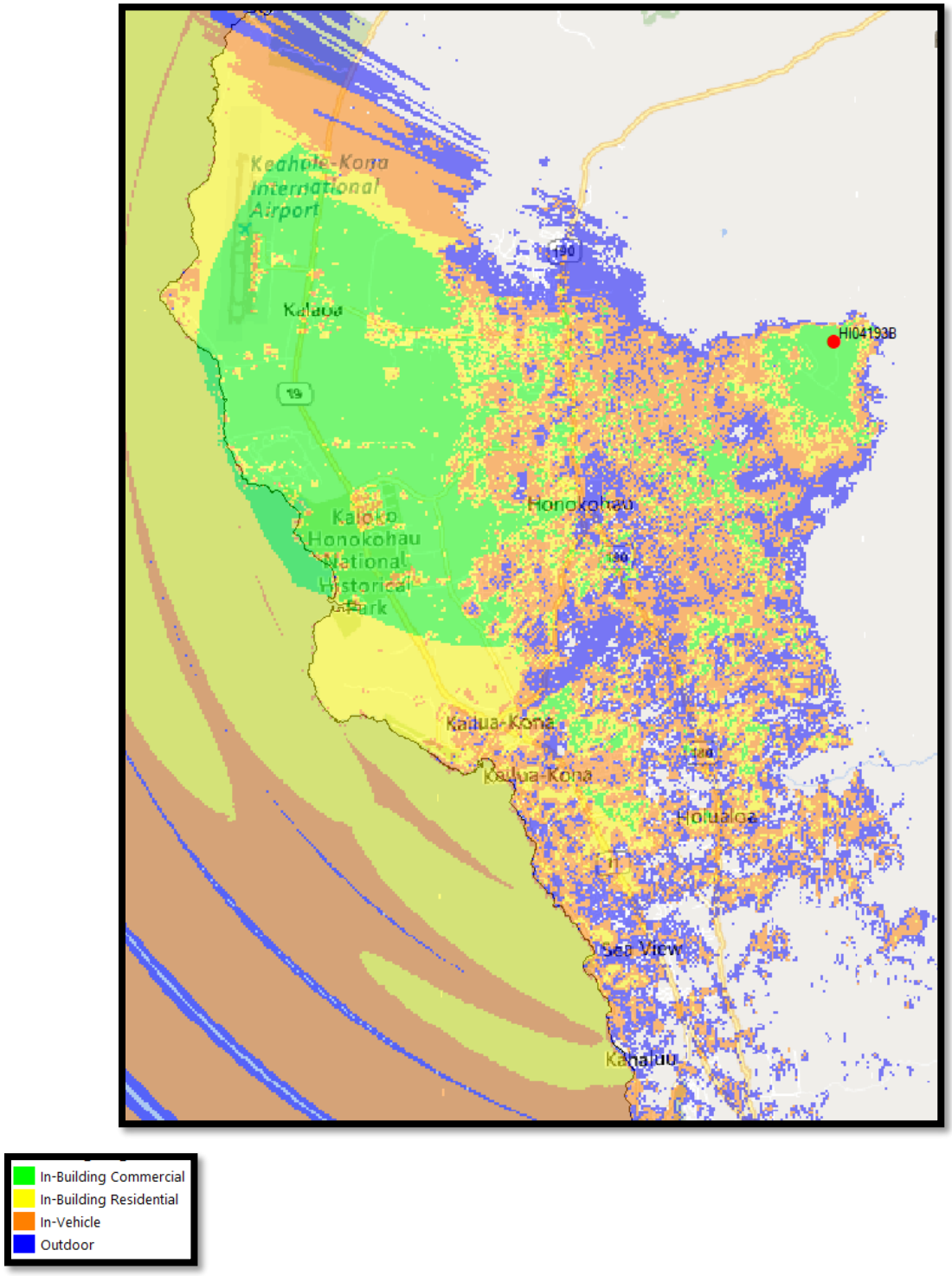
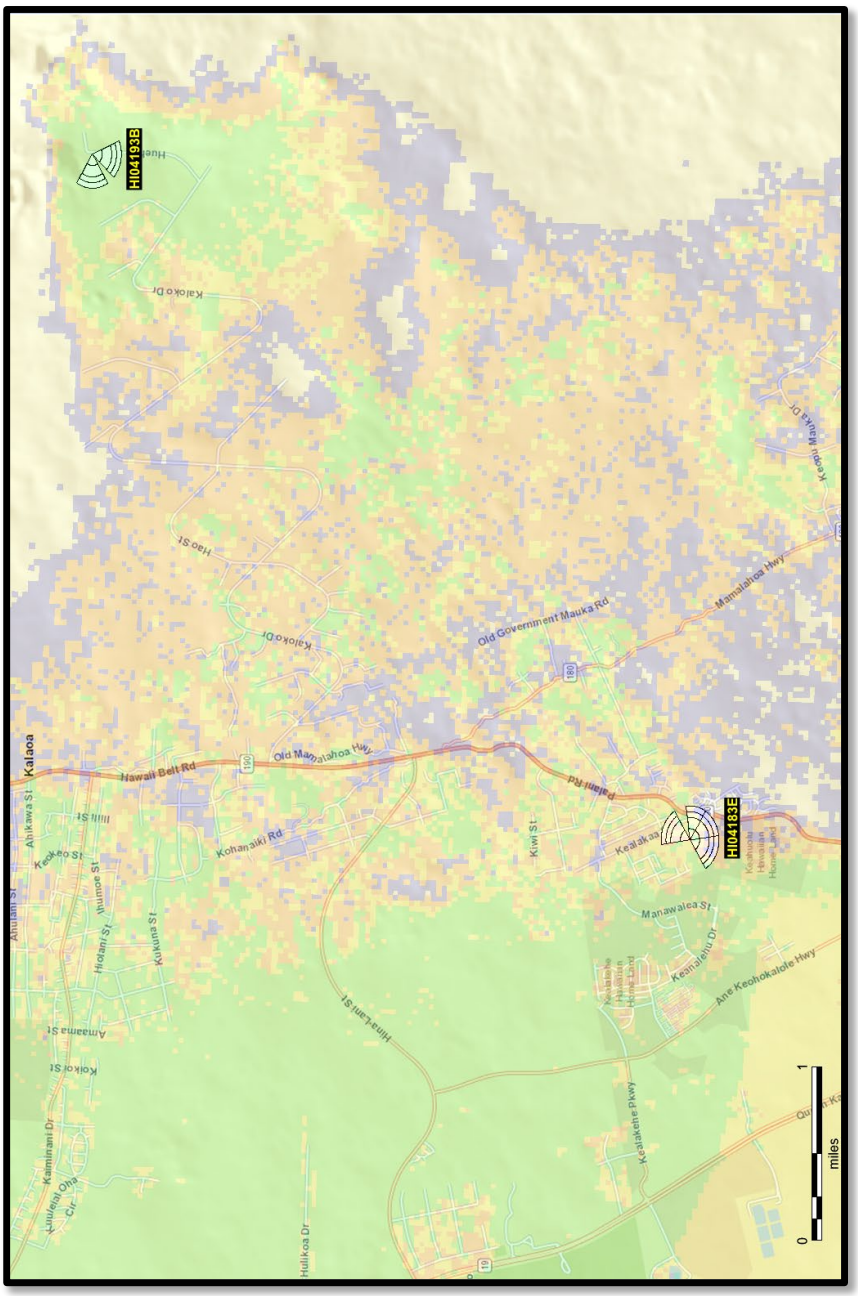


EXHIBIT F

T-MOBILE COVERAGE MAPS

Existing Coverage – Zoomed In



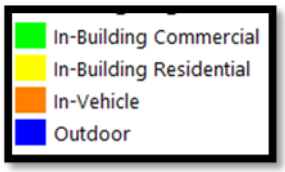


EXHIBIT F

T-MOBILE COVERAGE MAPS

Proposed Coverage – Zoomed In

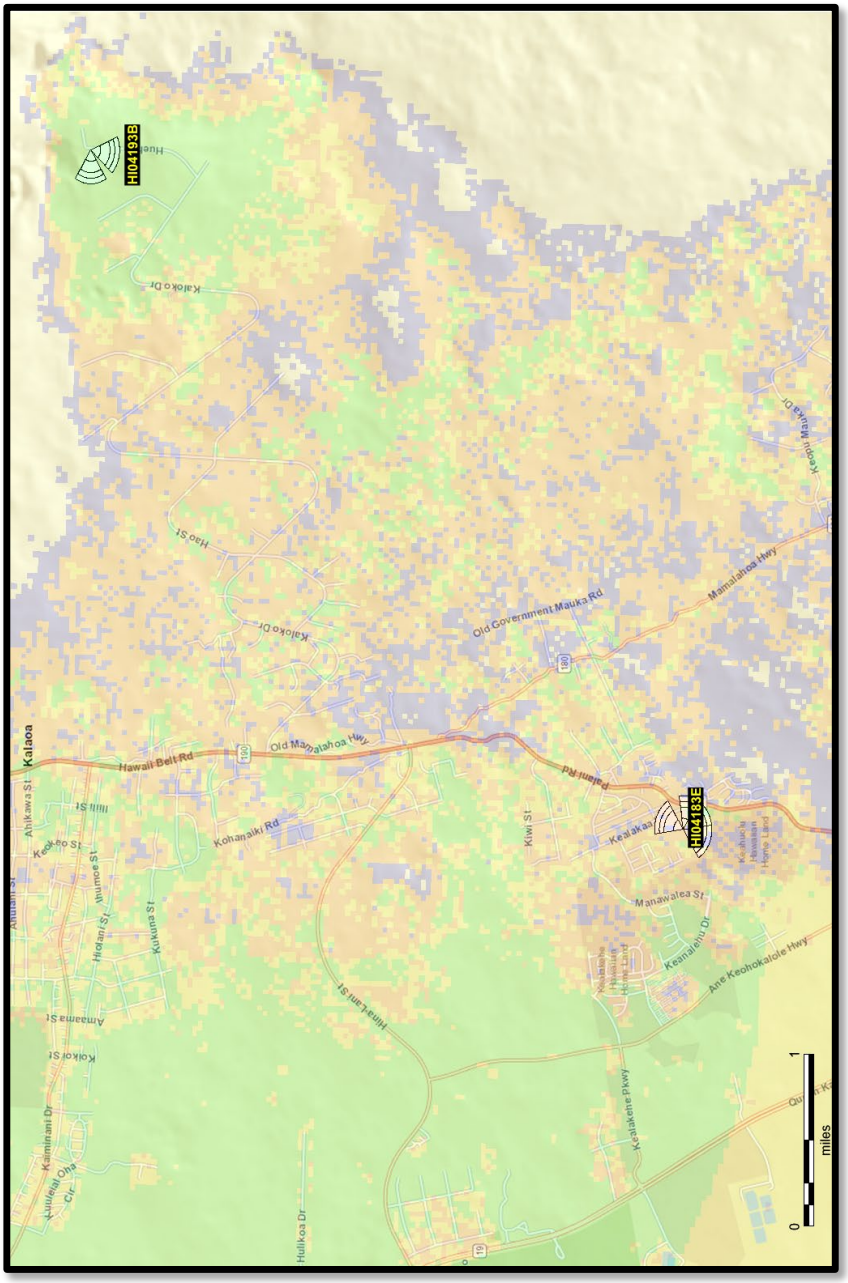




EXHIBIT G

HAWAII COUNTY LAND USE MAP

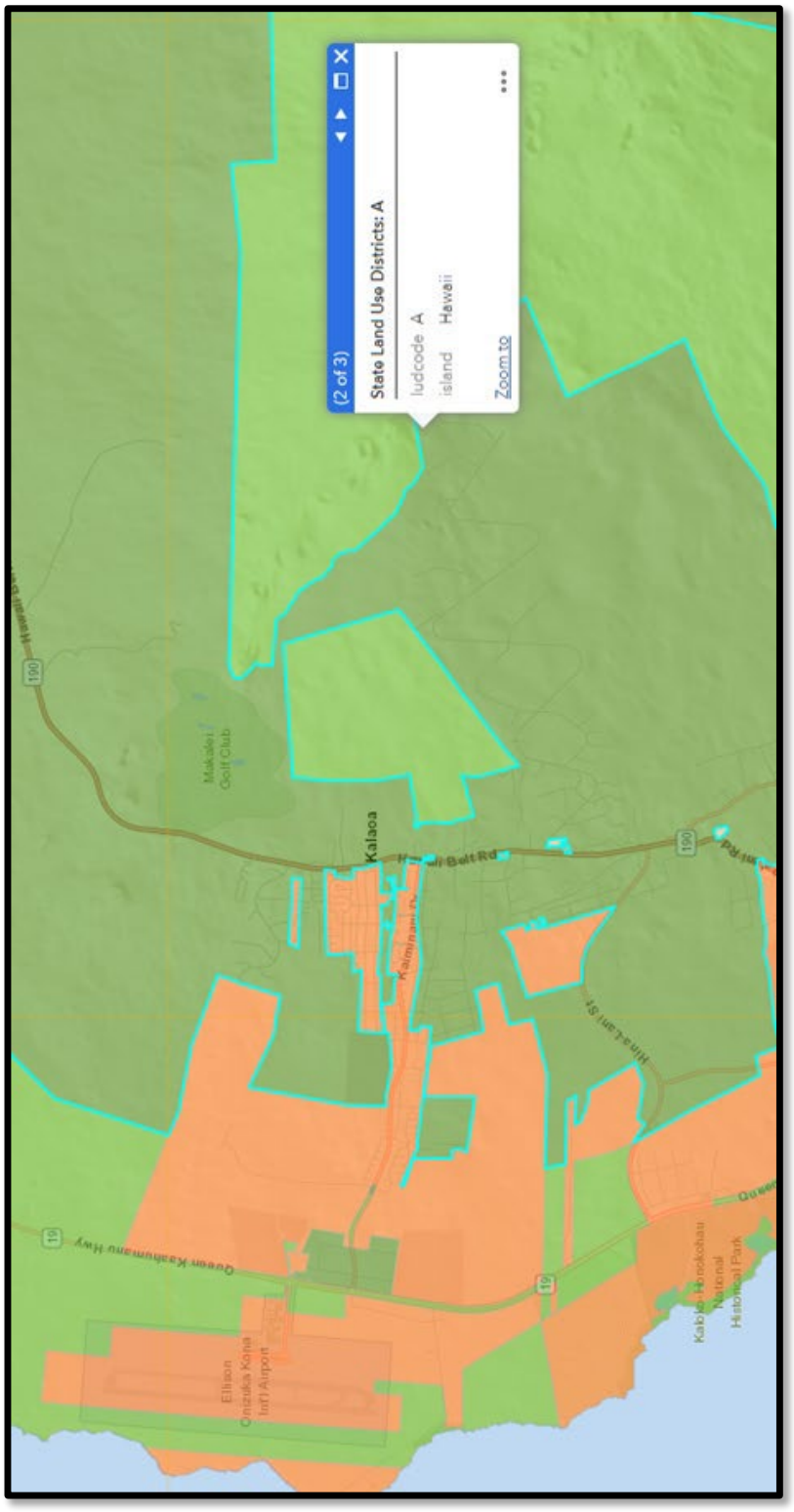
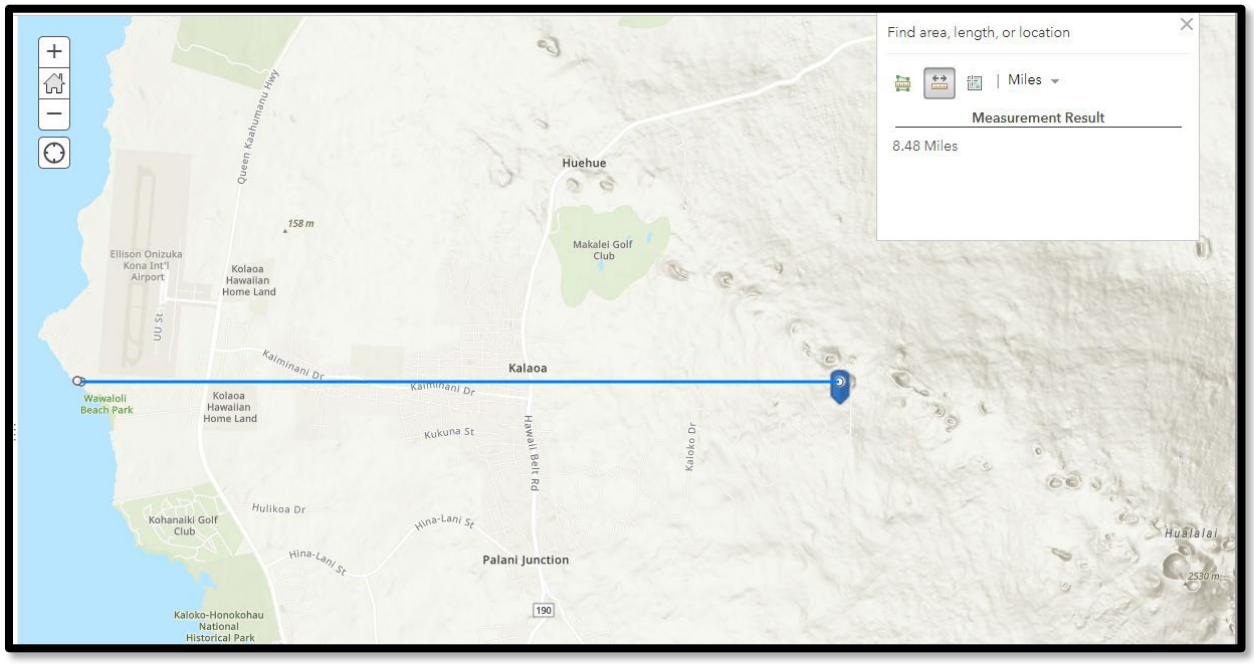


EXHIBIT H

HAWAII COUNTY SMA MAP



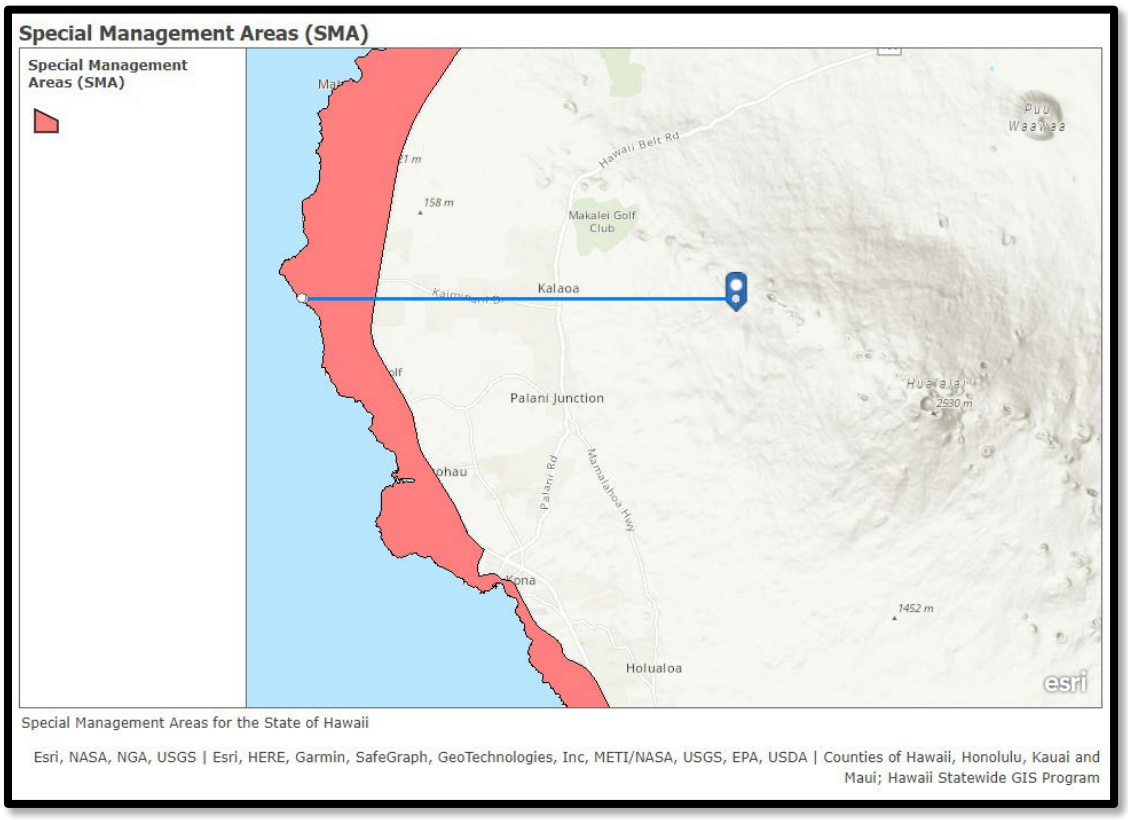


EXHIBIT I

ACCESS TO FACILITY

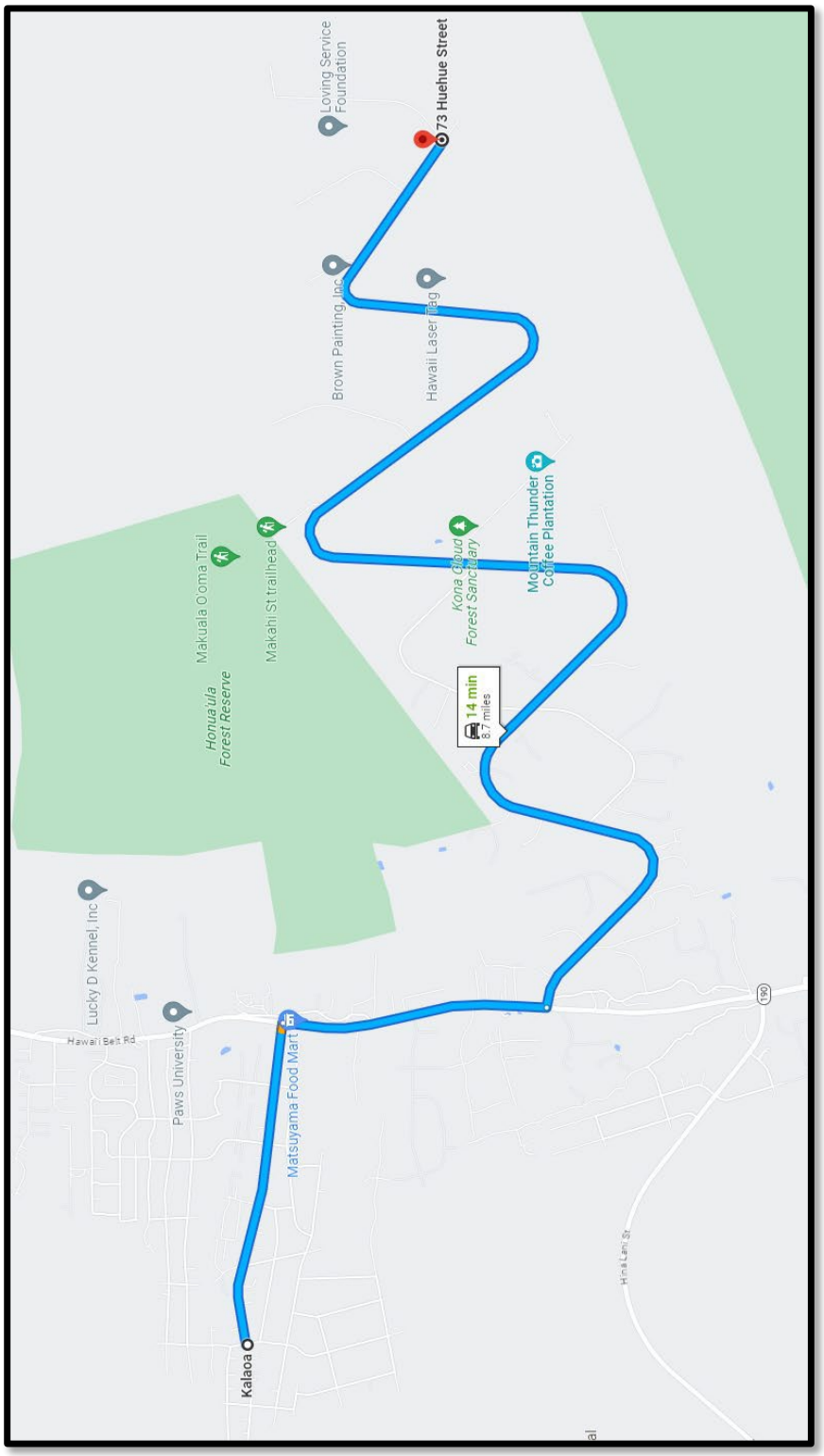


EXHIBIT J

HISTORIC DISTRICT MAP

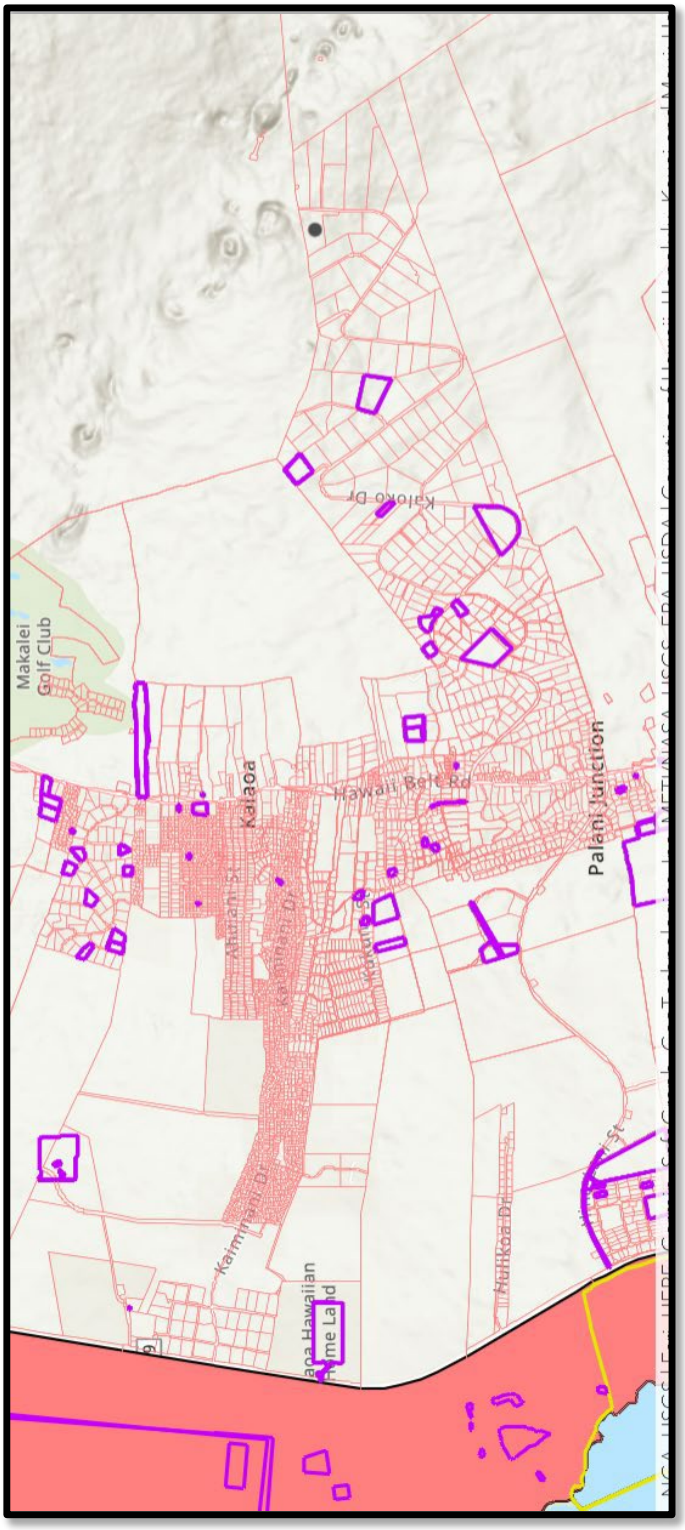
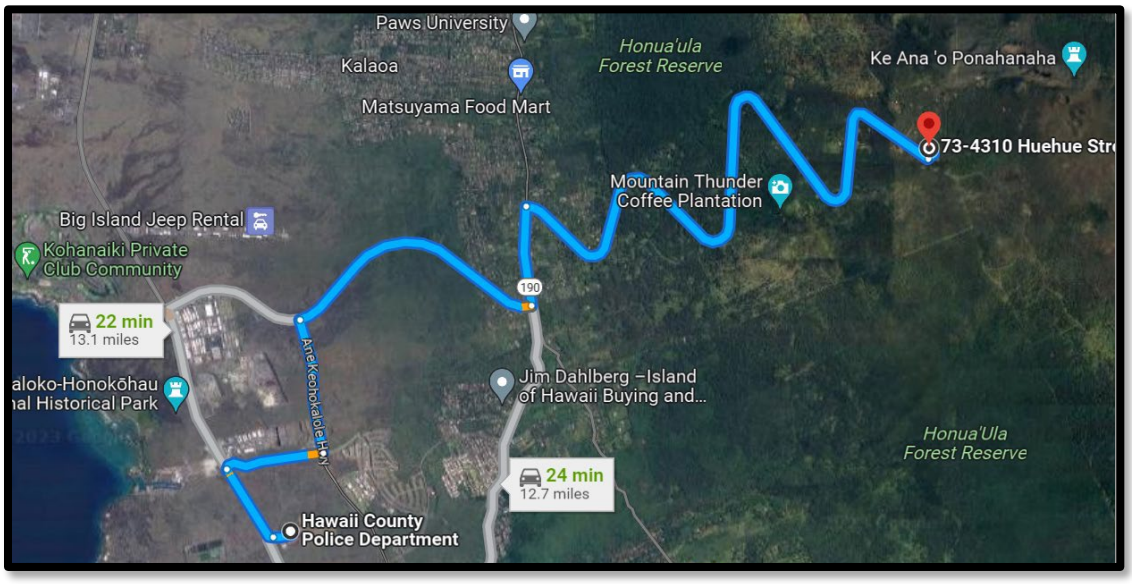


EXHIBIT K

POLICE AND FIRE STATION MAPS

Nearest Police Station – 12.5 miles



Nearest Fire Station – 12.9 miles

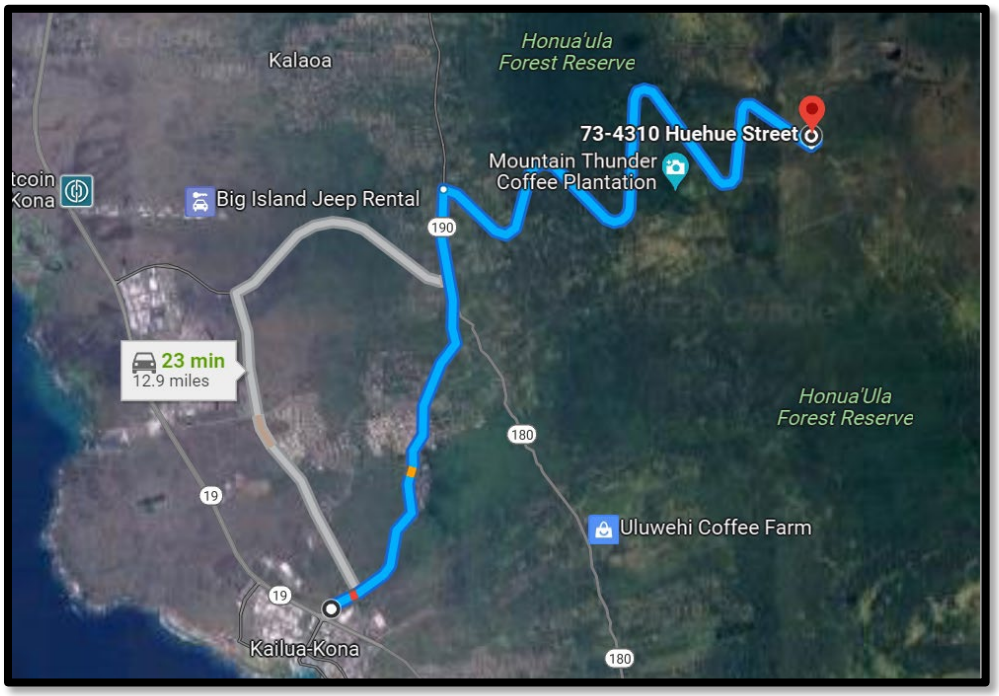


EXHIBIT L

NORTH KONA NATURAL BEAUTY SITES

North Kona

Table 7-11. Natural Beauty Sites, District of North Kona

Site	Tax Map Key	Ahupuaa or Region
Puu Waawaa	7-1-01:4	Puuwaawaa
Kiholo Bay/Beach Area	7-1-02:8	Puuwaawaa
Keawaiki	7-1-02:8; 7-1-03:2	Puuwaawaa; Puua-nahulu
Hualalai	7-2-01, 7-8-01	Kaupulehu
Kaupulehu	7-2-03:1, 2	Kaupulehu
Kua Bay Area	7-2-04	Maniniowali
Opae Ula Pond	7-2-04:1	Makalawena
Makalawena	7-2-04:1	Makalawena
Kahoiawa	7-2-04:3, 4	Awakee
Kakapa Bay Area	7-2-04:4	Kukio 2nd
Kukio Bay/Beach Area	7-2-04:5	Kukio Ist
Mahaiula Bay/Beach Area	7-2-05:3	Mahaiula
Kaloko Pond	7-3-09:2	Kaloko
Honokohau Fish Pond	7-4-08	Kealakehe
Honokohau coastline	7-4-08:4, 3	Honokohau-Kealakehe
Aimakapa	7-4-08:10	Honokohau
White Sand Beach	7-4-08:10	Honokohau
White Sand Beach	7-5-05:7	Keahuolu
Viewplane from Kuakini Highway going mauka & makai	7-7 and 7-8	Holualoa-Keauhou
Viewplane from Kamehameha III Road going mauka & makai	7-8-10	Kahaluu-Keauhou
Keauhou	7-8-12	Keauhou 1 & 2
Kahaluu Bay Area	7-8-14	Kahaluu 2
Viewplane along Queen Ka'ahumanu Highway going mauka and makai	Various	Various

EXHIBIT M

STATE HISTORIC PRESERVATION OFFICE REPORT

[Remainder of page intentionally left blank.]

TRILEAF

environmental architecture engineering

Section 106 Report

May 30, 2024



Kaloko Mauka
BU 824947
73-4310 Huehue Street
Kailua-Kona, Hawaii County, Hawaii 96740
Trileaf # 735423

Prepared For:
Crown Castle
2000 Corporate Dr.
Canonsburg, PA 15317

Prepared By:
Trileaf Corporation
2121 West Chandler Blvd., Suite 108
Chandler, AZ 85224

CROWN CASTLE USA
FCC / NEPA ENVIRONMENTAL COMPLIANCE CHECKLIST
Section 106 Only
To Be Used for Substantial Increases, Rooftops, Twilight Towers

Site Name:	**Kaloko Mauka**	**Contact Person:**	**Amanda Wrona**
BU/SCU#:	**824947**	**Contact Number:**	**480-850-0575**

YES	NO	
☐	☒	1. Will the facility affect districts, sites, buildings, structures, objects or other cultural resources listed, or eligible for listing, in the National Register of Historic Places?
☐	☒	2. Will the facility affect Indian religious sites?

A COPY OF A COMPLETED CROWN CASTLE INTERNATIONAL CORPORATION FCC ENVIRONMENTAL COMPLIANCE SURVEY DOCUMENTING THE PROCESS USED IN ARRIVING AT THE ABOVE ANSWERS MUST BE ATTACHED TO THIS FORM. IF ALL OF THE QUESTIONS ABOVE WERE ANSWERED "NO", NO FURTHER ACTION IS REQUIRED FOR FCC ENVIRONMENTAL PURPOSES.

Amanda Wrona
Name

May 30, 2024
Date

Trileaf Corporation
Company Name

Crown Castle USA
FCC Environmental Compliance Survey

Site Name: Kaloko Mauka
Location: 73-4310 Huehue Street, Kailua-Kona, Hawaii County, Hawaii 96740
Business Unit Number: 824947

This Survey will identify whether a proposed facility will require the preparation and filing of an FCC Environmental Assessment. In completing the survey, the consultant may analyze accurate, up-to-date information obtained from a commercial service in conjunction with consultation with the appropriate agencies and sources listed below. Unless otherwise specified, the consultant is not required to consult each of the listed agencies. A site inspection must be performed in all cases. This Survey supports the completion of the FCC/NEPA Environmental Compliance Checklist and shall be attached as an addendum to the Checklist.

Answer "yes/no" questions only after completing the enumerated steps.

Yes	No		
☐	☒	1.	**Based upon consultation with the State Historic Preservation Office ("SHPO") in accordance with the Programmatic Agreement, and taking into consideration the views of interested persons, will the facility affect districts, sites, buildings, structures or objects significant in American history, architecture, archeology, engineering or culture, that are listed, or eligible for listing, in the National Register of Historic Places?** **If the SHPO issues a "no effect" or "no adverse effect" letter, this question can be answered "no." If the SHPO issues an "adverse effect" finding, this question must be answered "yes."**

To answer this question, follow the steps listed in Exhibit A (attached). Provide copies of all correspondence from all parties contacted.

Supporting Information:
A search of the National Historic Landmarks (NHL), National Register of Historic Places (NRHP), and State Historic Preservation Office (SHPO) files was conducted by Matthew Clark, Principal Investigator contracted by Trileaf through ASM Affiliates, to identify any cultural resources within the area of direct effects and within a 0.50-mile radius for visual effects.

It was determined that there were no historic properties identified within the Area of Potential Effects (APE) for direct effects or visual effects. Additionally, the identification process did not locate archaeological materials that would be directly affected, or sites that are of cultural or religious significance to Tribes/NHOs. Documentation of these reviews was submitted to the SHPO via Form 621 on March 27, 2024. The SHPO concurred that the proposed undertaking has no historic properties affected in a response letter dated May 17, 2024. A copy of the SHPO concurrence letter, Form 621, and associated documents are located in Appendix E.

On February 5, 2024, Mr. Alex Roy with the County of Hawaii Planning Department and the Historic Hawaii Foundation were notified of the proposed project and invited to comment on the proposed project's potential effect on Historic Properties as well as indicate whether they are interested in consulting further on the proposed project. Additionally, a legal notice regarding the proposed telecommunications tower construction was posted in the *West Hawaii Today* on February 21, 2024. No comments from the local government, historical society, or legal notice have been received by Trileaf. Copies of the correspondence and legal notice are located in Appendix E.

☐ ☒ 2. **Based upon consultation with the Tribal Historical Preservation Officer ("THPO") or other official representatives of federally recognized tribes, will the proposed construction affect places or properties of significance to such tribes, including Indian religious sites?**

2 (a) If the proposed facility is NOT located on tribal land or an Indian reservation:

Determine whether any federally recognized Indian tribe or Native Hawaiian Organization (NHO) with ancestral ties to the immediate area of the proposed project wishes to participate in the Section 106 consultation process for the proposed project.

A. Enter information about the proposed construction into the FCC's Tower Construction Notification System (TCNS) in order to contact the appropriate Tribes and attach FCC Form 620 or Form 621 (unless such forms are not required for SHPO review). If not SHPO review ids required, provide the following information to the tribes: contact information for the applicant, a map of the proposed location of the facility, coordinates of the proposed facility, a description of the facility to be constructed including all proposed elements (such as, for example, access roads), and a description of the proposed site, including both aerial and site photographs.
B. After 30 days have passed, notify the FCC of the tribal non-responsiveness.
C. The FCC will initiate contact with the Tribe within 5 business days. If the subject Tribe does not respond within 15 calendar days of the date of FCC's communication, no further due diligence is required for that particular Tribe.
D. This section number 6 may be answered "no" only after each subject Tribe either, (i) concurs with Crown Castle's proposed project, or (ii) all of the above steps are completed.

2 (b) **If the proposed facility IS located on tribal land or reservation:**

Begin consultation with the THPO or tribal representative through the TCNS process. However, please note that the NPA does not apply on tribal land and therefore, the timeframes for tribal review do not apply. Please consult Corporate Regulatory with any questions.

Provide copies of all correspondence from all parties contacted.

Supporting Information:
On January 29, 2024 Trileaf submitted the Tower Construction Notification (TCNS) to the FCC who initiated contact with the tribes on February 2, 2024. As of May 9, 2024, all tribes have confirmed clearance either directly or by default via the FCC referral process. Trileaf determined that the subject Property is not located on or near a Native American Religious or Sacred Site. However, if archaeological remains or resources are unearthed during construction activities, Trileaf recommends that the client stop construction and notify our office immediately. Tribal consultation documentation and associated correspondence is located in Appendix F.

Amanda Wraa

_____ May 30, 2024
Signature Date

Project Scientist
Title

Trileaf Corporation
Company

Appendix A

Site Plans

T-Mobile

T-MOBILE SITE NUMBER: HI04193B
T-MOBILE SITE NAME: KALOKO MAUKA
SITE TYPE: MONOPOLE
TOWER HEIGHT: 73'-6"
T-MOBILE PROJECT NAME: ANCHOR/DRIP

BUSINESS UNIT #: 824947
SITE ADDRESS: 73-4310 HUEHUE STREET, KAILUA-KONA, HI 96740
COUNTY: HAWAII
JURISDICTION: COUNTY OF HAWAII

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	KALOKO MAUKA
SITE ADDRESS:	73-4310 HUEHUE STREET KAILUA-KONA, HI 96740
COUNTY:	HAWAII
MAP/PARCEL #:	730480030000
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	19.71737052
LONGITUDE:	-155.92304680
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	4957.35 FT
CURRENT ZONING:	A-20A
JURISDICTION:	COUNTY OF HAWAII
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	JONES,VANNOY M TR 73-4310 HUEHUE ST KAILUA KONA, HI 96740 8695
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 3375 KOAPAKA STREET, G300 HONOLULU, HI 96819
ELECTRIC PROVIDER:	HAWAIIAN ELECTRIC 808-329-3584
TELCO PROVIDER:	HAWAIIAN TELCOM 808-643-7788

PROJECT TEAM

A&E FIRM:	ENGINEERED TOWER SOLUTIONS, PLLC 3227 WELLINGTON COURT RALEIGH, NC 27615 CROWNAESERVICES@ETS-PLLC.COM
CROWN CASTLE USA INC. DISTRICT CONTACTS:	150 HAMAKUA DRIVE, #703 KAILUA, HI 96734
	KANOE EISELIN - PROJECT MANAGER (808) 277-4178 KANOE.EISELIN@CROWNCASTLE.COM
	ERIC SCHATZ - MARKET MANAGER (808) 723-0005 ERIC.SCHATZ@CROWNCASTLE.COM
	TROY BANTOLINA - CONSTRUCTION MANAGER (808) 479-4097 TROY.BANTOLINA@CROWNCASTLE.COM
	OLEG GAPONOV - A&E SPECIALIST (206) 336-7416 OLEG.GAPONOV@CROWNCASTLE.COM
	ADRIAN CATALAN - REAL ESTATE SPECIALIST (808) 358-5556 ADRIAN.CATALAN@CROWNCASTLE.COM

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
GN-1	GENERAL NOTES
A-1	OVERALL SITE PLAN
A-2	EXISTING SITE PLAN
A-3	FINAL SITE PLAN
A-4	TOWER ELEVATIONS
A-5	ANTENNA PLANS
A-6	EQUIPMENT DETAILS
A-7	EQUIPMENT DETAILS
A-8	PLUMBING DIAGRAM
E-1	PANEL SCHEDULE AND ELECTRICAL CONNECTION DIAGRAM
E-2	SITE ELECTRICAL PLAN
E-3	SITE GROUNDING PLAN
E-4	ANTENNA GROUNDING DIAGRAM
E-5	GROUNDING DETAILS
ATTACHED TOWER DESIGN DRAWINGS (BY EHRESMANN ENGINEERING)	
E01	73'-6" MONOPOLE
E02	73'-6" MONOPOLE MAP TYPE FOUNDATION DESIGN
E02A	73'-6" MONOPOLE PIER TYPE FOUNDATION DESIGN
N01H	STD TOWER & TOWER FOUNDATION NOTES
S1	73'-6" MONOPOLE SPECIAL INSPECTION STATEMENT

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.

ZONING INFO

TMK:	730480030000
ZONING DISTRICT:	A-20A
YARD SETBACKS:	FRONT = 30'-0" SIDE = 20'-0" REAR = 30'-0"
HEIGHT LIMIT	45'-0"
FLOOD ZONE	ZONE X
SEISMIC ZONE:	ZONE 4
TOWER WINDLOAD:	SEE REFERENCE DOCUMENTS

LOCATION MAP



NO SCALE

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE (4) ANTENNAS
- REMOVE (2) TMAs
- REMOVE (8) COAX CABLES (7/8")
- INSTALL (4) ANTENNAS
- INSTALL (4) RRHs
- INSTALL (2) HYBRID CABLES (1-5/8")
- INSTALL MOUNT MODIFICATIONS PER MOUNT ANALYSIS - CONDITIONAL PASSING REPORT ISSUED BY TRYLON DATED 02/07/2023

GROUND SCOPE OF WORK:
- REMOVE (1) WOOD POLE
- REMOVE (1) BBU CABINET
- REMOVE (2) RRUS11 B2 RRUs
- REMOVE (2) RADIO 4449 B71+B85
- REMOVE (2) TRIPLEXERS
- INSTALL (1) 6160 SITE SUPPORT CABINET
- INSTALL (1) B160 BATTERY CABINET
- INSTALL (1) AAV CABINET
- INSTALL (1) NEW STEEL MONOPOLE (BY EHRESMANN ENGINEERING)

NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

CALL HAWAII ONE CALL
(800) 423-7287
CALL 3 WORKING DAYS BEFORE YOU DIG!

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:

CODE TYPE	CODE
BUILDING	2018 IBC W/ AMENDMENTS
ELECTRICAL	2017 NEC W/ AMENDMENTS
ENERGY	2018 IECC W/ AMENDMENTS
FIRE PROTECTION	2006 NFPA-1

REFERENCE DOCUMENTS:

TOWER DESIGN:	EHRESMANN ENGINEERING
SEAL DATE:	12/02/2022
STRUCTURAL ANALYSIS:	CROWN CASTLE
SEAL DATE:	02/27/2023
MOUNT ANALYSIS:	TRYLON
DATED:	02/07/2023
RFDS REVISION:	9
DATED:	02/22/2023
ORDER ID:	578390
REVISION:	0

T-Mobile
3375 KOAPAKA STREET, G300
HONOLULU, HI 96819

CROWN CASTLE
150 HAMAKUA DRIVE, #703
KAILUA, HI 96734

ENGINEERED TOWER SOLUTIONS
3227 WELLINGTON COURT
RALEIGH, NC 27615

T-MOBILE SITE NUMBER:
HI04193B

BU #: **824947**
KALOKO MAUKA

73-4310 HUEHUE STREET
KAILUA-KONA, HI 96740

PROJECT NAME:
ANCHOR/DRIP
TMK: 730480030000
REPLACEMENT 73'-6"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	01/28/2022	AS	CONSTRUCTION	BS
1	12/21/2022	AS	REV. CONSTRUCTION	BS
2	02/21/2023	DF	REV. CONSTRUCTION	DG
3	05/08/2023	CP	REV. CONSTRUCTION	DG
4	05/11/2023	AS	REV. CONSTRUCTION	DG

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION

Christopher G. Fry
LICENSED PROFESSIONAL ENGINEER
No. 12578-S
HAWAII, U.S.A.

SIGNATURE

04/30/2024 — LICENSE EXPIRATION DATE
05/11/2023 — SEAL DATE

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.

SHEET NUMBER: T-1
REVISION: 4

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED– NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800–788–7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" – CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT: THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. 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 ANSI/TIA–322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS–STD–10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED–STD–10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
   CARRIER: T–MOBILE
   TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE–THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER–TO–CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
   #4 BARS AND SMALLER.....40 ksi
   #5 BARS AND LARGER.....60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.....3"
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 BARS AND LARGER.....2"
   #5 BARS AND SMALLER.....1–1/2"
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
   SLAB AND WALLS.....3/4"
   BEAMS AND COLUMNS.....1–1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

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 CONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON–METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON–METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD–WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
   4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
   4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI–CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL–CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER–ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "T–MOBILE".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE		
SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (–)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

APWA UNIFORM COLOR CODE:

WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, P



SITE PLAN DISCLAIMER:

PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM JURISDICTIONAL GIS. LEAF COMMUNICATIONS HAS NOT COMPLETED A SITE SURVEY AND THEREFORE MAKES NO CLAIMS AS TO THE ACCURACY OF INFORMATION DEPICTED ON THIS SHEET.

NOTES:

1. A SECURED LOCKED GATE RESTRICTS THE ACCESS TO EQUIPMENT, WHICH NO PUBLIC ACCESS IS ALLOWED, EXCEPT FOR AUTHORIZED PERSONNEL ONLY.
2. FIRE SAFETY DURING ALTERATION OR DEMOLITION SHALL COMPLY W/ NFPA 1, 2012 EDITION.

T-Mobile
3375 KOAPAKA STREET, G300
HONOLULU, HI 96819

CROWN CASTLE
150 HAMAKUA DRIVE, #703
KAILUA, HI 96734

ENGINEERED TOWER SOLUTIONS
3227 WELLINGTON COURT
RALEIGH, NC 27615

T-MOBILE SITE NUMBER:
HI04193B

BU #: **824947**
KALOKO MAUKA

73-4310 HUEHUE STREET
KAILUA-KONA, HI 96740

PROJECT NAME:
ANCHOR/DRIP
TMK: 730480030000
REPLACEMENT 73'-6"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	01/28/2022	AS	CONSTRUCTION	BS
1	12/21/2022	AS	REV. CONSTRUCTION	BS
2	02/21/2023	DF	REV. CONSTRUCTION	DG
3	05/08/2023	CP	REV. CONSTRUCTION	DG

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Christopher G. Fry
LICENSED PROFESSIONAL ENGINEER
No. 12578-S
HAWAII, U.S.A.

SIGNATURE

04/30/2024 — LICENSE EXPIRATION DATE
05/08/2023 — SEAL DATE

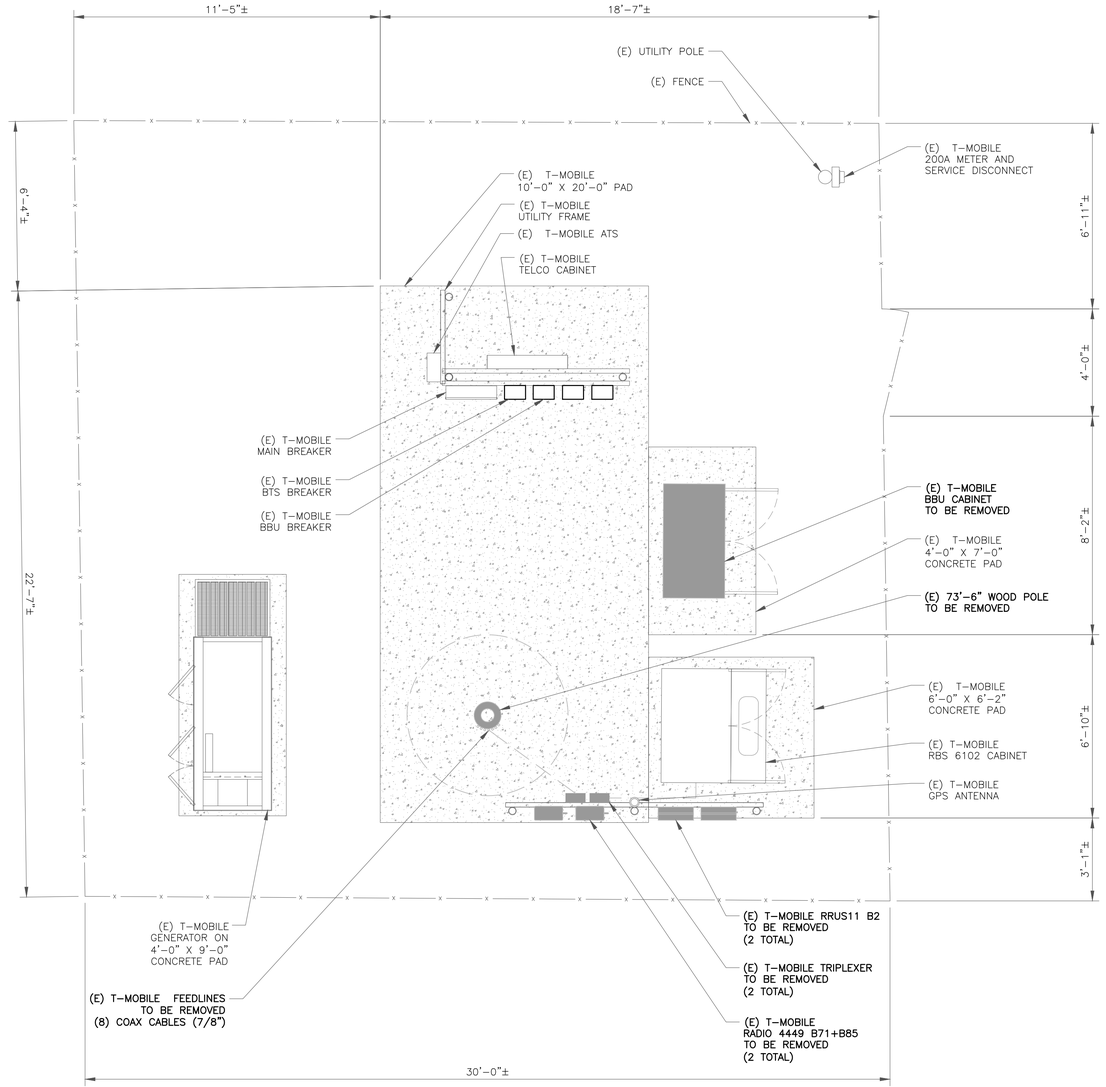
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SHEET NUMBER: A-1

REVISION: 3

NOTE:

TOWER MOUNTED EQUIPMENT NOT SHOWN FOR CLARITY.



1 EXISTING SITE PLAN

SCALE: 2' 1' 0 2' 3/8"=1'-0" (FULL SIZE) 3/16"=1'-0" (11x17)

N

T-Mobile
3375 KOAPAKA STREET, G300
HONOLULU, HI 96819

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150 HAMAKUA DRIVE, #703
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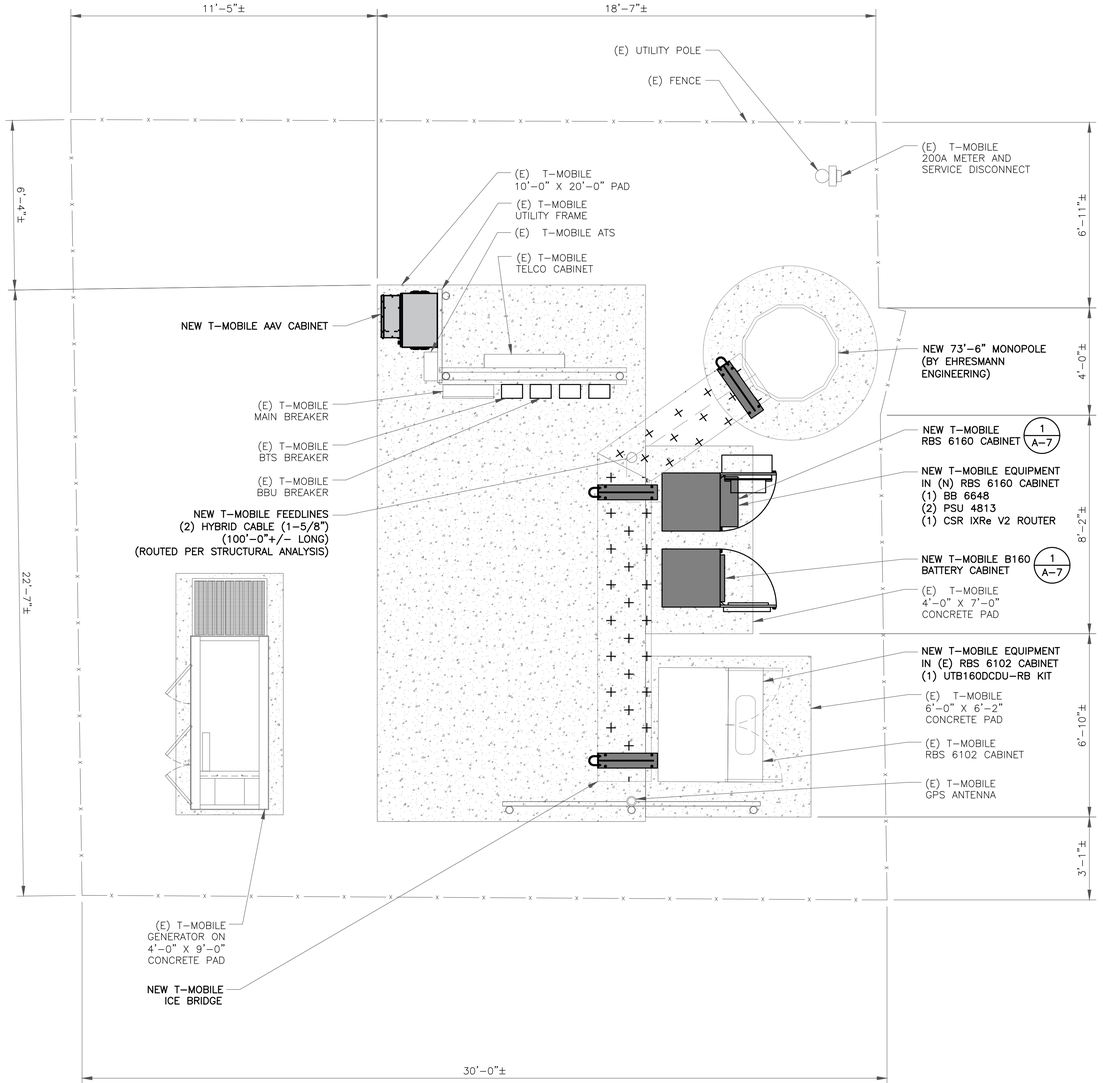
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SHEET NUMBER: A-2

REVISION: 3



1 FINAL SITE PLAN
SCALE: 2' 1' 0 2' 3/8"=1'-0" (FULL SIZE) 3/16"=1'-0" (11x17)

N

NOTE:

TOWER MOUNTED EQUIPMENT NOT SHOWN FOR CLARITY.

NOTE:

(E) RBS 6102 CABINET TO BE CONNECTED TO NEW B160 BACKUP BATTERY USING THE UTB160DCDU-RB KIT INSTALLED IN THE NEW B160

T-Mobile
3375 KOAPAKA STREET, G300
HONOLULU, HI 96819

CROWN CASTLE
150 HAMAKUA DRIVE, #703
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3227 WELLINGTON COURT
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T-MOBILE SITE NUMBER:
HI04193B

BU #: **824947**
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73-4310 HUEHUE STREET
KAILUA-KONA, HI 96740

PROJECT NAME:
ANCHOR/DRIP
TMK: 730480030000
REPLACEMENT 73'-6"
MONOPOLE

ISSUED FOR:

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4	05/11/2023	AS	REV. CONSTRUCTION	DG

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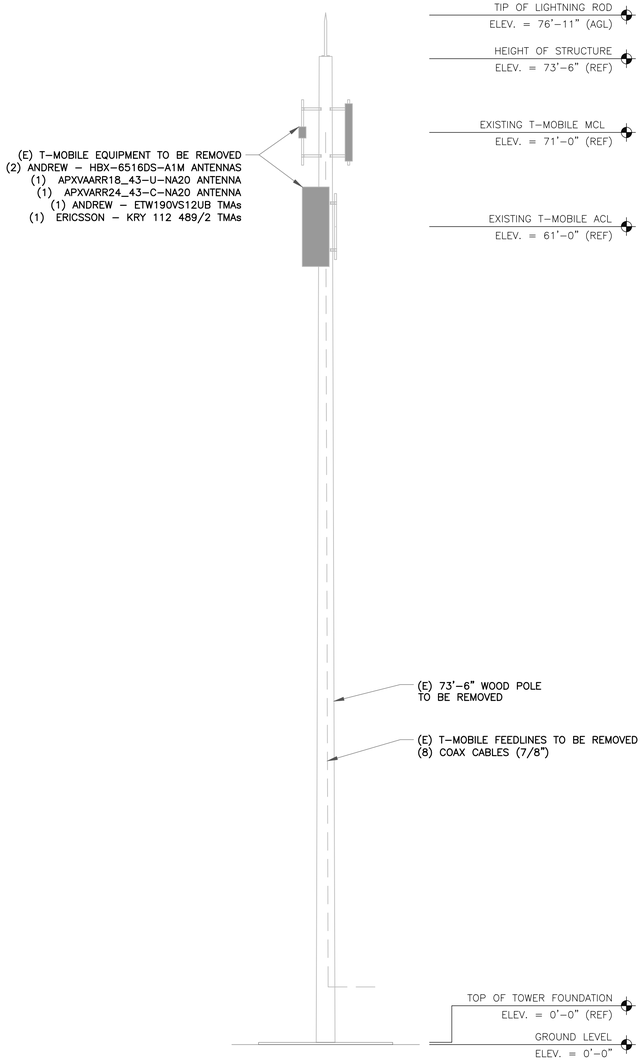
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SHEET NUMBER: A-3

REVISION: 4



1 EXISTING EAST ELEVATION

SCALE: 4' 2' 0 4' 3/16"=1'-0" (FULL SIZE) 3/32"=1'-0" (11x17)

T-MOBILE EQUIPMENT	
ANTENNA CL:	71'-0" / 73'-0"
MOUNT CL:	71'-0"

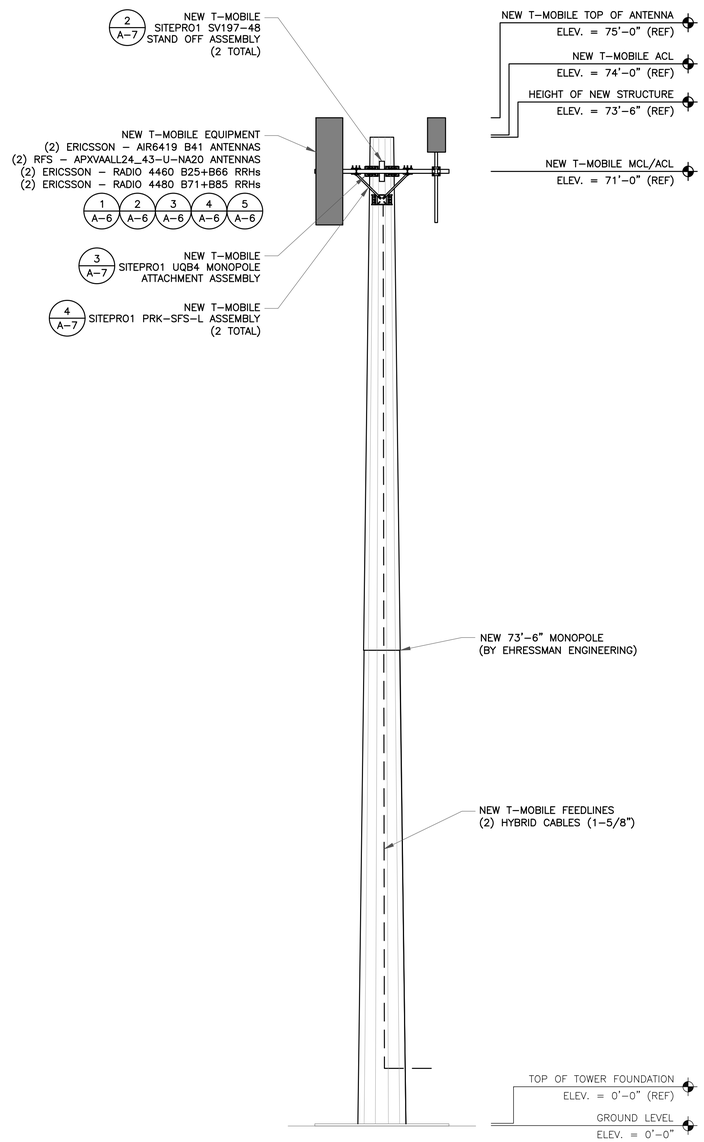
HEIGHT LIMIT:	45'-0"
SET BACKS	
FRONT:	30'-0"
SIDE:	20'-0"
REAR:	30'-0"

INSTALLER NOTES:

1. ALL NEW EQUIPMENT TO BE PAINTED TO MATCH EXISTING STRUCTURE AND/OR SURROUNDING ENVIRONMENT.
2. MONOPOLE ACCESS IS SECURED/LOCKED AND LIMITED TO AUTHORIZED PERSONNEL ONLY.

NOTE:

INSTALL MOUNT PER MOUNT ANALYSIS - CONDITIONAL PASSING REPORT ISSUED BY TRYLON DATED 02/07/2023



2 FINAL EAST ELEVATION

SCALE: 4' 2' 0 4' 3/16"=1'-0" (FULL SIZE) 3/32"=1'-0" (11x17)

T-Mobile
3375 KOAPAKA STREET, G300
HONOLULU, HI 96819

CROWN CASTLE
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T-MOBILE SITE NUMBER:
HI04193B

BU #: **824947**
KALOKO MAUKA

73-4310 HUEHUE STREET
KAILUA-KONA, HI 96740

PROJECT NAME:
ANCHOR/DRIP
TMK: 730480030000
REPLACEMENT 73'-6"
MONOPOLE

ISSUED FOR:

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4	05/11/2023	AS	REV. CONSTRUCTION	DG

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HAWAII, U.S.A.

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SHEET NUMBER: A-4

REVISION: 4

EXISTING ANTENNA SCHEDULE

SECTOR	POS.	TECHNOLOGY	RAD CENTER	AZIMUTH	ANTENNA MANUFACTURER	ANTENNA MODEL	MECH. TILT	ELECT. TILT	TOWER MOUNTED EQUIPMENT
ALPHA	A1	U1900 / G1900	71'-0"	190°	ANDREW	HBX-6516DS-A1M	3°	3°	–
ALPHA	A2	L600/L700	61'-0"	190°	RFS/CELWAVE	APXVAARR18_43-U-NA20	10°	3°	(1) ETW190VS12UB
BETA	B2	U1900 / G1900	71'-0"	270°	ANDREW	HBX-6516DS-A1M	4°	4°	–
BETA	B2	L600/L700	61'-0"	270°	RFS/CELWAVE	APXVAARR18_43-U-NA20	4°	4°	(1) KRY 112 489/2

CABLE SCHEDULE

STATUS	CABLE TYPE	SIZE	LENGTH	QUANTITY
EXISTING	COAX	7/8"	121'-0"	8
FINAL CABLE QUANTITY				8

1 EXISTING ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE

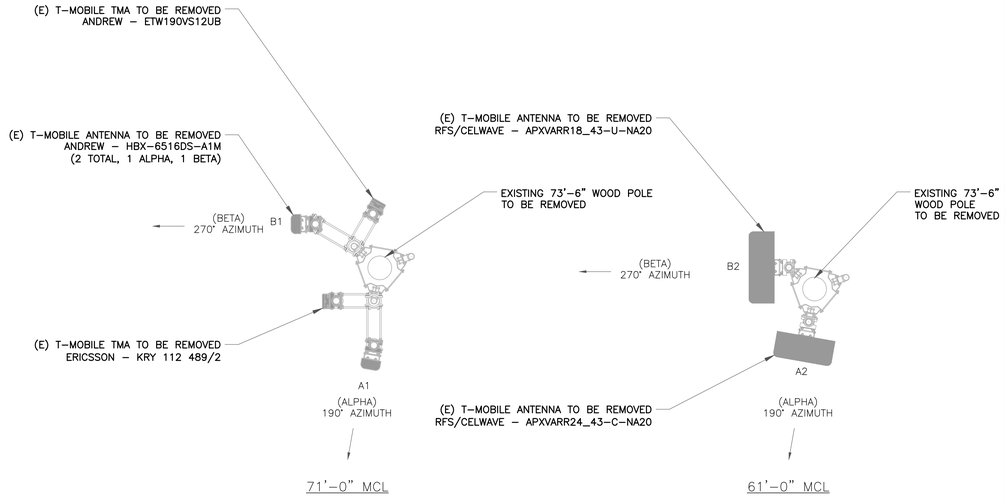
FINAL ANTENNA SCHEDULE

SECTOR	POS.	TECHNOLOGY	RAD CENTER	AZIMUTH	ANTENNA MANUFACTURER	ANTENNA MODEL	MECH. TILT	ELECT. TILT	TOWER MOUNTED EQUIPMENT
ALPHA	A1	L2500	74'-0"	190°	ERICSSON	AIR6419 B41	6°	4°	–
ALPHA	A2	L700/L600/LAWS3/ L2100/L1900/U1900/ G1900	71'-0"	190°	RFS/CELWAVE	APXVAALL24_43-U-NA20	6°	6°/4°	(1) ERICSSON – RADIO 4480 B71+B85 (1) ERICSSON – RADIO 4460 B25+B66
BETA	B1	L2500	74'-0"	270°	ERICSSON	AIR6419 B41	6°	4°	–
BETA	B2	L700/L600/LAWS3/ L2100/L1900/U1900/ G1900	71'-0"	270°	RFS/CELWAVE	APXVAALL24_43-U-NA20	6°	6°/4°	(1) ERICSSON – RADIO 4480 B71+B85 (1) ERICSSON – RADIO 4460 B25+B66

CABLE SCHEDULE

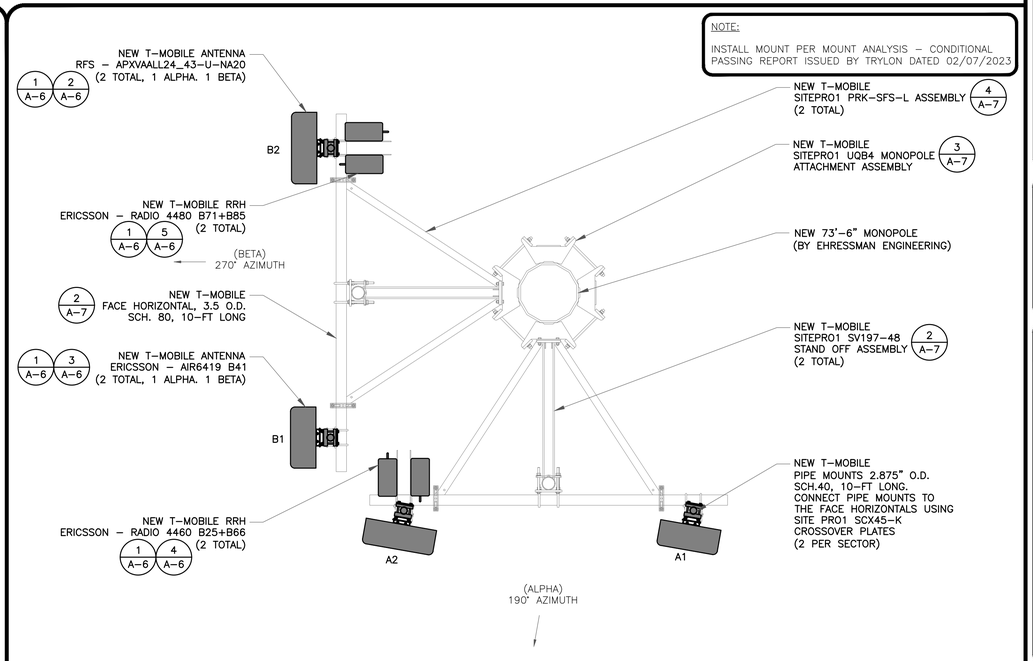
STATUS	CABLE TYPE	SIZE	LENGTH	QUANTITY
NEW	HYBRID	1-5/8"	100'-0"	2
FINAL CABLE QUANTITY				2

2 FINAL ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE



3 EXISTING ANTENNA PLAN
SCALE: 2' 1' 0 2' 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

NOTE:
INSTALL MOUNT PER MOUNT ANALYSIS – CONDITIONAL PASSING REPORT ISSUED BY TRYLON DATED 02/07/2023



4 FINAL ANTENNA PLAN
SCALE: 2' 1' 0 2' 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

T-Mobile
3375 KOAPAKA STREET, G300
HONOLULU, HI 96819

CROWN CASTLE
150 HAMAKUA DRIVE, #703
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ENGINEERED TOWER SOLUTIONS
3227 WELLINGTON COURT
RALEIGH, NC 27615

T-MOBILE SITE NUMBER:
HI04193B

BU #: **824947**
KALOKO MAUKA

73-4310 HUEHUE STREET
KAILUA-KONA, HI 96740

PROJECT NAME:
ANCHOR/DRIP
TMK: 730480030000
REPLACEMENT 73'-6"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
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LICENSED PROFESSIONAL ENGINEER
No. 12578-S
HAWAII, U.S.A.

SIGNATURE

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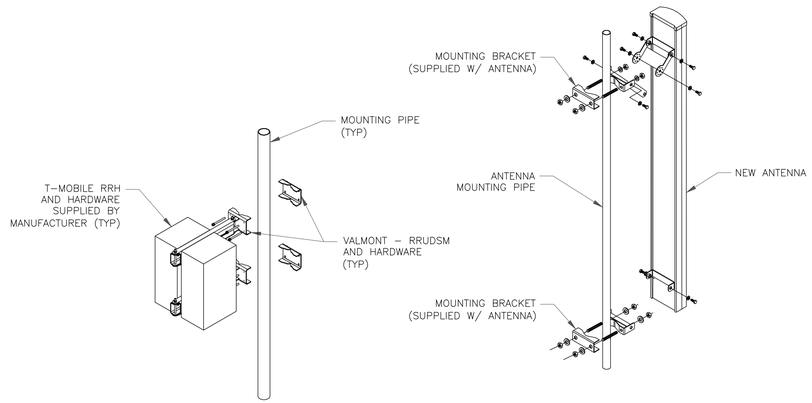
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SHEET NUMBER: A-5

REVISION: 4

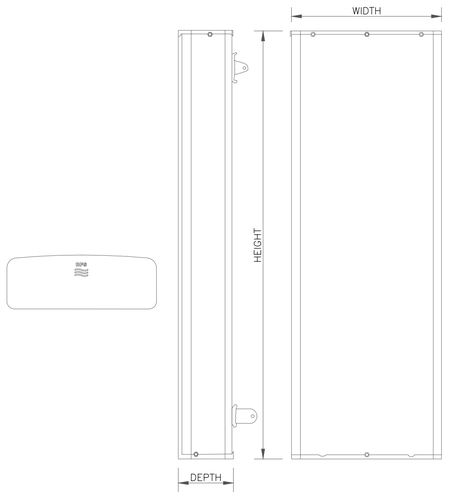
INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



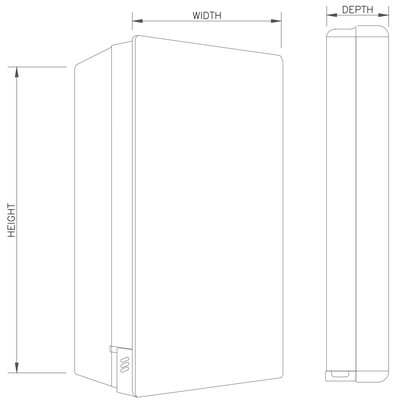
1 ANTENNA WITH RRHs MOUNTING DETAIL
SCALE: NOT TO SCALE

HEIGHT	WIDTH	DEPTH	WEIGHT
95.90"	24.00"	8.50"	168.60 LBS



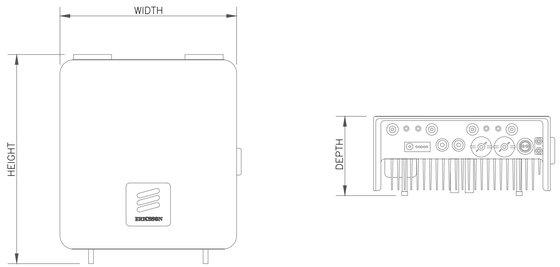
2 RFS - APXVAALL24-43-U-NA20
SCALE: NOT TO SCALE

HEIGHT	WIDTH	DEPTH	WEIGHT
30.80"	16.10"	10.80"	88.00 LBS



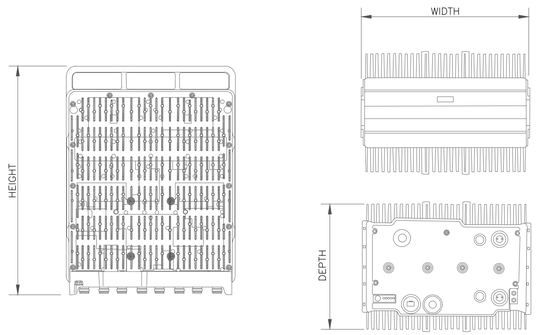
3 ERICSSON - AIR6419 B41
SCALE: NOT TO SCALE

HEIGHT	WIDTH	DEPTH	WEIGHT
17.00"	15.10"	11.90"	109.00 LBS



4 RADIO 4460 B2/B25
SCALE: NOT TO SCALE

HEIGHT	WIDTH	DEPTH	WEIGHT
17.91	13.20"	10.63"	73.21 LBS



5 ERICSSON - RADIO 4480
SCALE: NOT TO SCALE

T-Mobile
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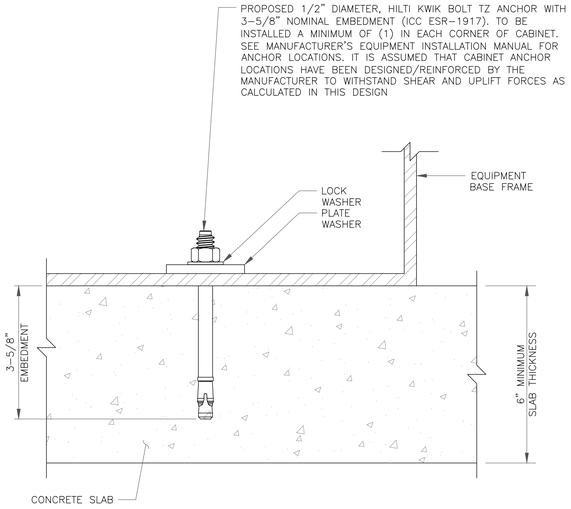
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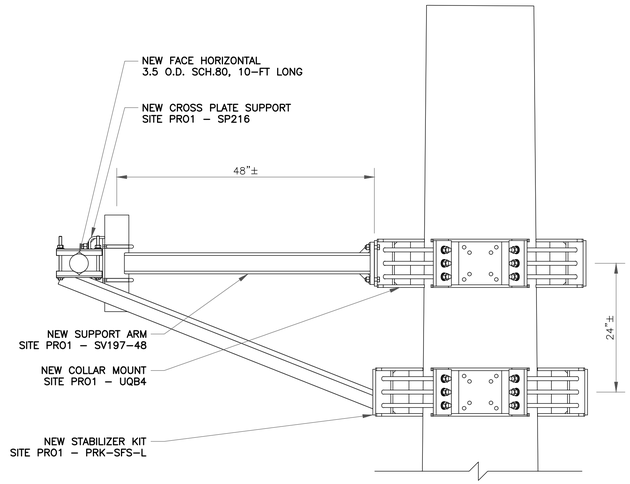
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SHEET NUMBER: A-6

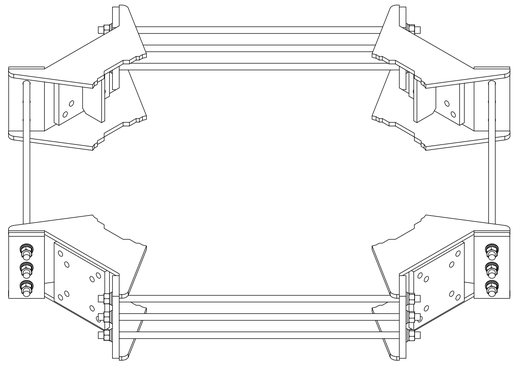
REVISION: 3



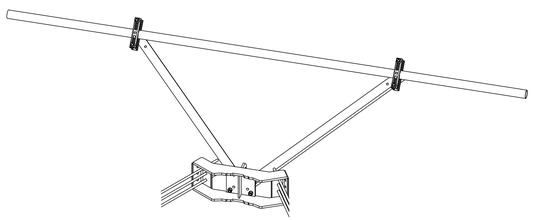
1 CABINET MOUNTING DETAIL
SCALE: NOT TO SCALE



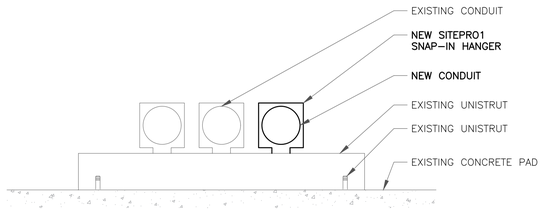
2 MOUNTING DETAIL
SCALE: NOT TO SCALE



3 SITEPRO1 - UQB4
SCALE: NOT TO SCALE

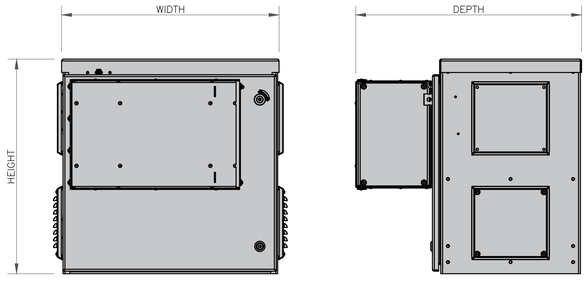


4 SITEPRO1 - PRK-SFS-L
SCALE: NOT TO SCALE



5 CONDUIT ROUTING DETAIL
SCALE: NOT TO SCALE

HEIGHT	WIDTH	DEPTH	WEIGHT
24.00"	24.00"	25.24"	64.00 LBS



6 EMERSON - AAV CABINET
SCALE: NOT TO SCALE

T-Mobile
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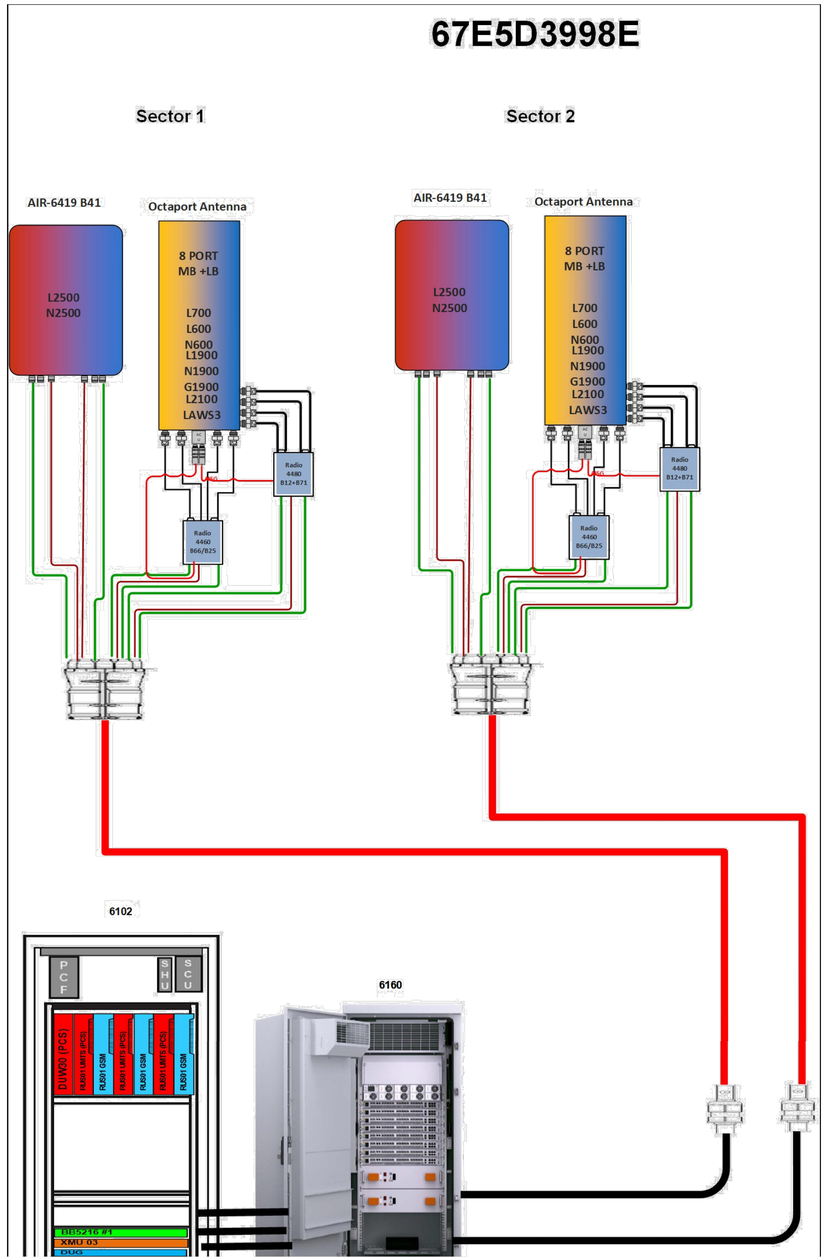
SIGNATURE

04/30/2024 — LICENSE EXPIRATION DATE
05/08/2023 — SEAL DATE

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SHEET NUMBER: A-7

REVISION: 3



1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
3375 KOAPAKA STREET, G300
HONOLULU, HI 96819

CROWN CASTLE
150 HAMAKUA DRIVE, #703
KAILUA, HI 96734

ENGINEERED TOWER SOLUTIONS
3227 WELLINGTON COURT
RALEIGH, NC 27615

T-MOBILE SITE NUMBER:
HI04193B

BU #: **824947**
KALOKO MAUKA

73-4310 HUEHUE STREET
KAILUA-KONA, HI 96740

PROJECT NAME:
ANCHOR/DRIP
TMK: 730480030000
REPLACEMENT 73'-6"
MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	01/28/2022	AS	CONSTRUCTION	BS
1	12/21/2022	AS	REV. CONSTRUCTION	BS
2	02/21/2023	DF	REV. CONSTRUCTION	DG
3	05/08/2023	CP	REV. CONSTRUCTION	DG

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION

Christopher G. Fly
LICENSED PROFESSIONAL ENGINEER
No. 12578-S
HAWAII, U.S.A.

SIGNATURE

04/30/2024 — LICENSE EXPIRATION DATE
05/08/2023 — SEAL DATE

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SHEET NUMBER: A-8

REVISION: 3

PPC PANEL - EXISTING - 200A DUAL MAIN INTERLOCKING CIRCUIT BREAKERS, 120/240V 1PH 3W NEMA 3R ENCLOSURE AIC - 65,000A

LOAD SERVED	VA (WATTS)		BREAKER		CKT #		CKT #	BREAKER		VA (WATTS)		LOAD SERVED
	A	B	P	TRIP				P	TRIP	A	B	
SURGE PROTECTION	0		2	60A	1	A	2	1	20A	180		GFCI RECEPTACLE
		0			3	B	4	1	20A		100	LIGHT
EXISTING 6102 CABINET	6,200		2	60A	5	A	6	1	20A	250		GEN BATT CHRGR
		6,200			7	B	8	1	20		200	GEN CONTR
EXISTING BBU CABINET	**1,000**		**2**	***50A**	9	A	10	1	20	200		GEN CONTR
		1,000			11	B	12	--	--		--	SPACE
SPACE	--		--	--	13	A	14	--	--	--		SPACE
SPACE		--	--	--	15	B	16	--	--		--	SPACE
SPACE	--		--	--	17	A	18	--	--	--		SPACE
SPACE		--	--	--	19	B	20	--	--		--	SPACE
SPACE	--		--	--	21	A	22	--	--	--		SPACE
SPACE		--	--	--	23	B	24	--	--		--	SPACE
	7,200	7,200	***INDICATES BREAKER TO BE REMOVED**							430	100	

TOTAL LOAD (VA):	7,630	7,300
TOTAL LOAD (A):	64	61

1 EXISTING PANEL SCHEDULE
SCALE: NOT TO SCALE

PPC PANEL - FINAL (MODIFIED) - 200A DUAL MAIN INTERLOCKING CIRCUIT BREAKERS, 120/240V 1PH 3W NEMA 3R ENCLOSURE AIC - 65,000AIR

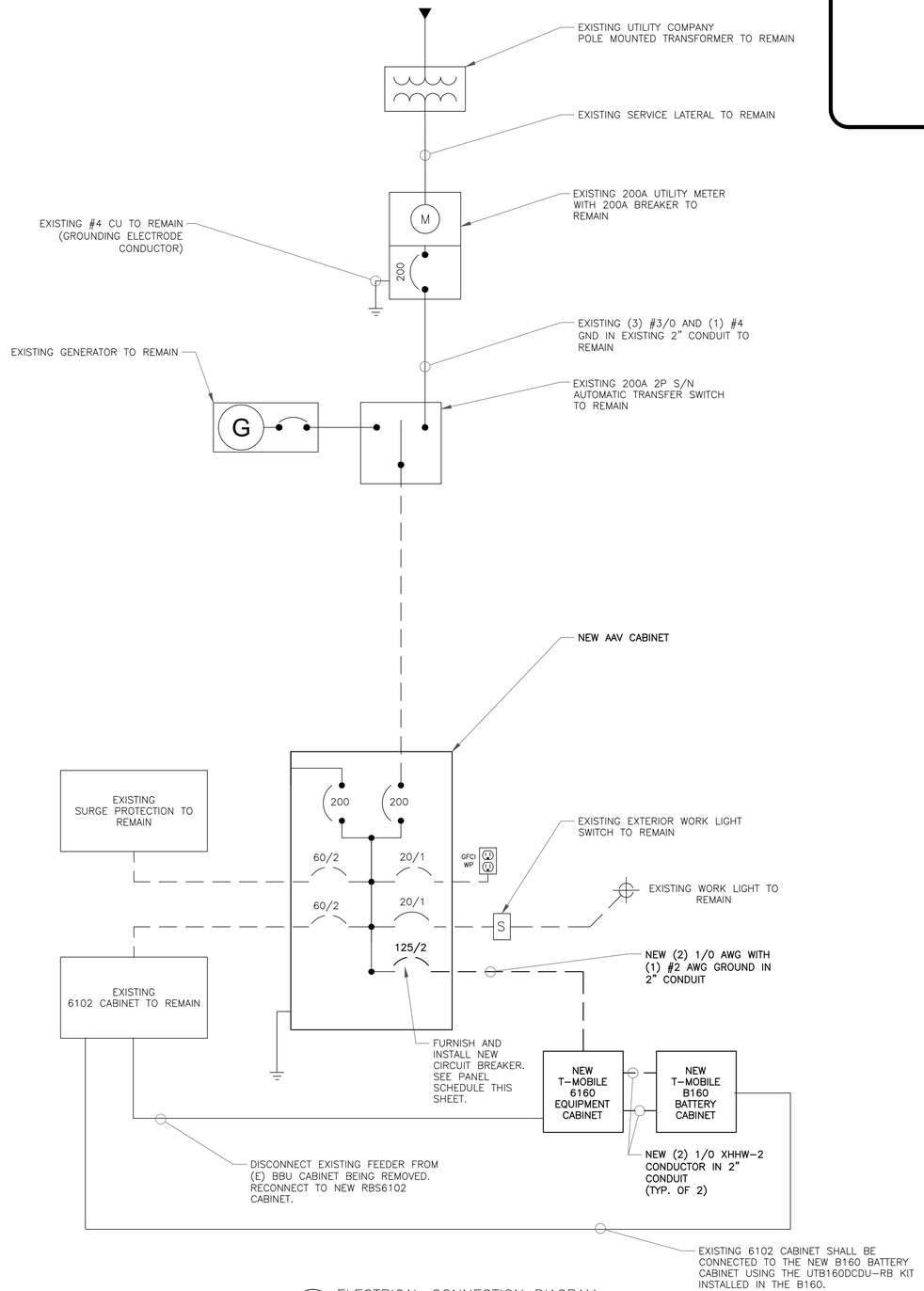
LOAD SERVED	VA (WATTS)		BREAKER		CKT #		CKT #	BREAKER		VA (WATTS)		LOAD SERVED
	A	B	P	TRIP				P	TRIP	A	B	
SURGE PROTECTION	0		2	60A	1	A	2	1	20A	180		GFCI RECEPTACLE
		0			3	B	4	1	20A		100	LIGHT
EXISTING 6102 CABINET	6,200		2	60A	5	A	6	1	20A	250		GEN BATT CHRGR
		6,200			7	B	8	1	20A		200	GEN CONTR
SPACE	--		--	--	9	A	10	--	--	200		GEN CONTR
SPACE		--	--	--	11	B	12	**2**	***125A**	--	**8,250**	**NEW 6160 CABINET**
SPACE	--		--	--	13	A	14			**8,250**	--	
SPACE		--	--	--	15	B	16	--	--		--	SPACE
SPACE	--		--	--	17	A	18	--	--	--		SPACE
SPACE		--	--	--	19	B	20	--	--		--	SPACE
SPACE	--		--	--	21	A	22	--	--	--		SPACE
SPACE		--	--	--	23	B	24	--	--		--	SPACE
	6,200	6,200	***INDICATES BREAKER TO BE INSTALLED**							8,880	8,550	

TOTAL LOAD (VA):	15,080	14,750
TOTAL LOAD (A):	126	123

2 FINAL PANEL SCHEDULE
SCALE: NOT TO SCALE

GENERAL NOTES:

1. ALL NEW CONDUCTORS SHALL BE COPPER. TYPE THHW, THWN, THWN-2, XHHW OR XHHW-2 UNLESS NOTED OTHERWISE.
2. CONTRACTOR SHALL FIELD-VERIFY ALL EXISTING ITEMS SHOWN ON THE DRAWINGS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3. ALL GROUNDING AND BONDING SHALL BE INSTALLED IN ACCORDANCE WITH NEC ART. 250 AND T-MOBILE GROUNDING REQUIREMENTS.



3 ELECTRICAL CONNECTION DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
3375 KOAPAKA STREET, G300
HONOLULU, HI 96819

CROWN CASTLE
150 HAMAKUA DRIVE, #703
KAILUA, HI 96734

ENGINEERED TOWER SOLUTIONS
3227 WELLINGTON COURT
RALEIGH, NC 27615

T-MOBILE SITE NUMBER:
HI04193B

BU #: **824947**
KALOKO MAUKA

73-4310 HUEHUE STREET
KAILUA-KONA, HI 96740

PROJECT NAME:
ANCHOR/DRIP
TMK: 730480030000
REPLACEMENT 73'-6" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
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RICHARD J. MOSS
LICENSED PROFESSIONAL ENGINEER
No. 13356 - E
HAWAII U.S.A.
5.12.23
LIC. EXP. 4.30.24

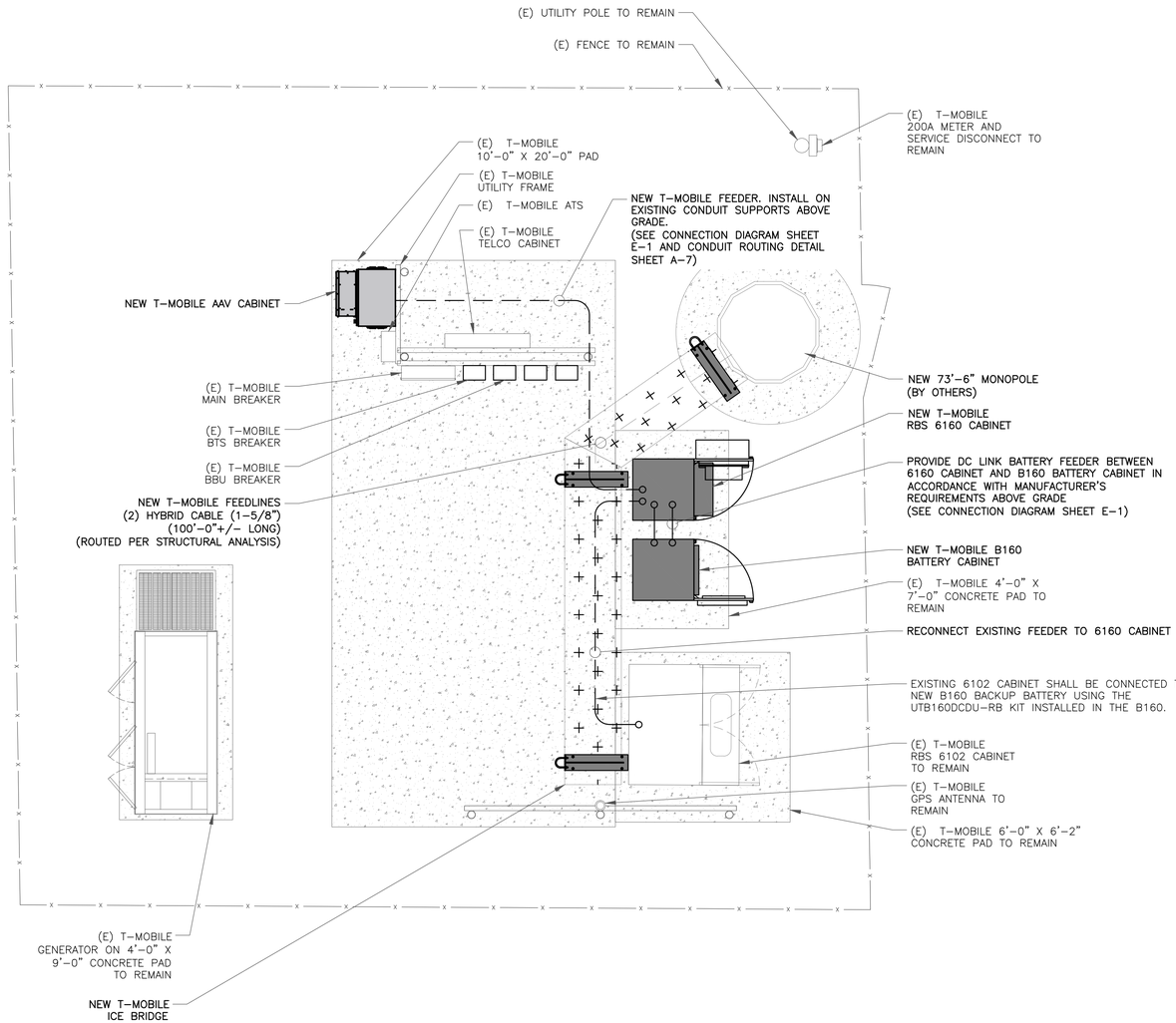
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SHEET NUMBER: E-1

REVISION: 4

NOTE:

TOWER MOUNTED EQUIPMENT NOT SHOWN FOR CLARITY.



1 SITE ELECTRICAL PLAN

SCALE: 2' 1' 0 2' 3/8"=1'–0" (FULL SIZE) 3/16"=1'–0" (11x17)

T··Mobile·

3375 KOAPAKA STREET, G300
HONOLULU, HI 96819

CROWN CASTLE

150 HAMAKUA DRIVE, #703
KAILUA, HI 96734

ENGINEERED TOWER SOLUTIONS

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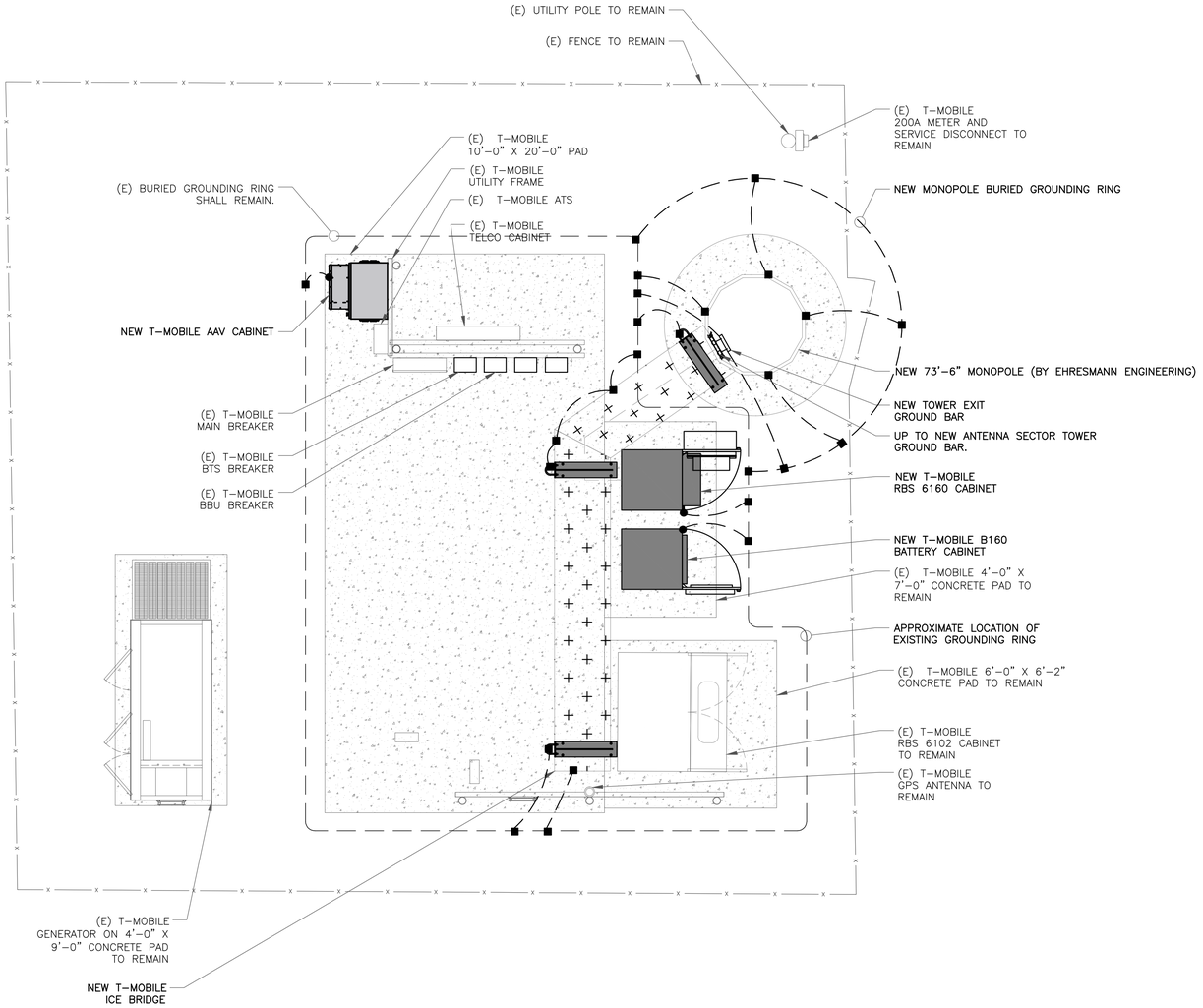
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SHEET NUMBER: E-2

REVISION: 4



1 SITE GROUNDING PLAN
SCALE: 2' 1' 0 2' 3/8"=1'–0" (FULL SIZE) 3/16"=1'–0" (11x17)

NOTE:

TOWER MOUNTED EQUIPMENT NOT SHOWN FOR CLARITY.

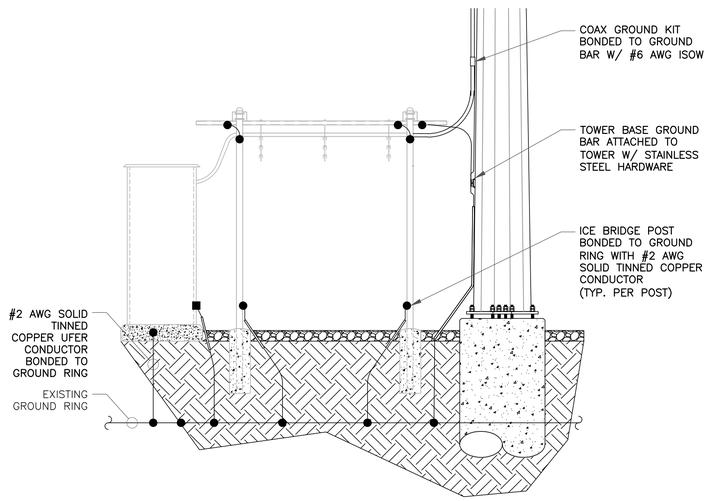
GROUNDING PLAN LEGEND:

--- GROUND WIRE
■ EXOTHERMIC WELD
● MECHANICAL CONNECTION
COPPER GROUND ROD
GROUND ROD W/ TEST WELL

CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS (ATT–TP–76416 7.6.7).

EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE (ATT–TP–76416 7.6.7.2).

DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICES CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR PER TP76300 SECTION H 6 AND TP76416 FIGURE 7–11 REQUIREMENTS.



6 ICE BRIDGE/COAX/GROUNDING BAR ELEVATION
SCALE: NOT TO SCALE

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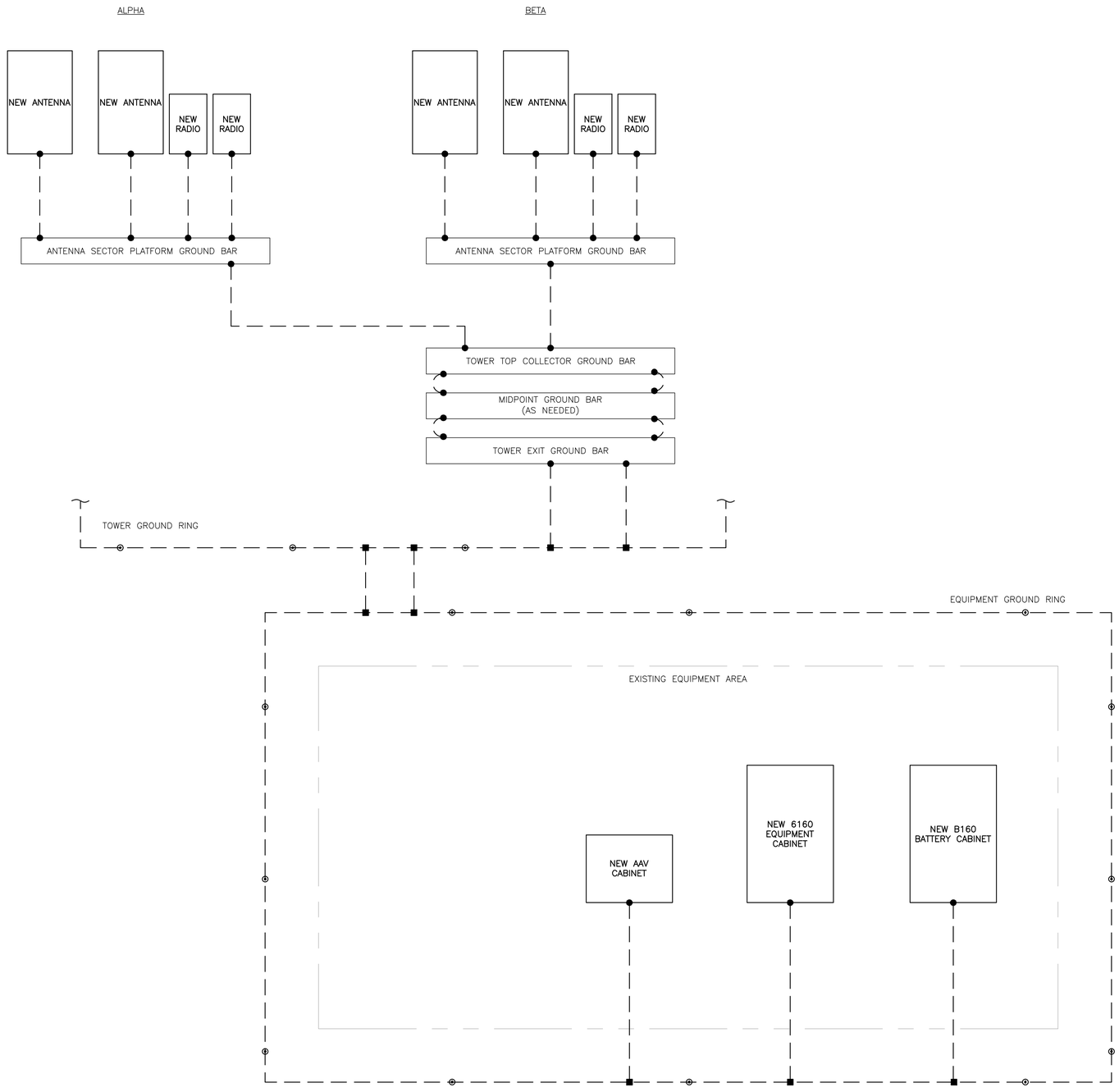
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SHEET NUMBER: E-3

REVISION: 4



1 GROUNDING SCHEMATIC
SCALE: NOT TO SCALE

GROUNDING PLAN LEGEND:

--- GROUND WIRE
■ EXOTHERMIC WELD
● MECHANICAL CONNECTION
COPPER GROUND ROD
GROUND ROD W/ TEST WELL

CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS (ATT-TP-76416 7.6.7).

EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE (ATT-TP-76416 7.6.7.2).

DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICES CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR PER TP76300 SECTION H 6 AND TP76416 FIGURE 7-11 REQUIREMENTS.

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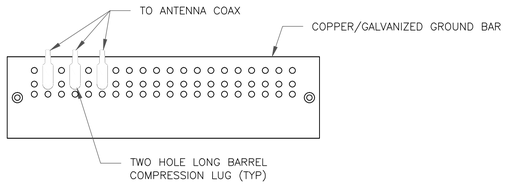
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SHEET NUMBER: E-4

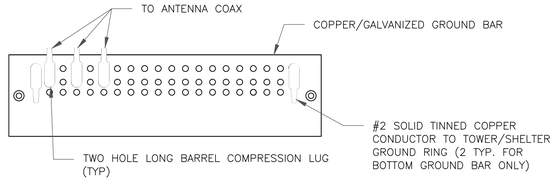
REVISION: 4



NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL.

1 ANTENNA GROUND BAR DETAIL
SCALE: NOT TO SCALE

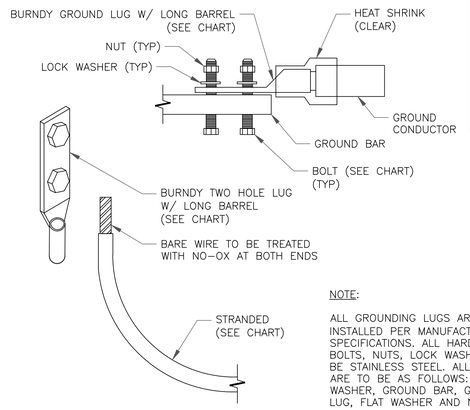


NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE

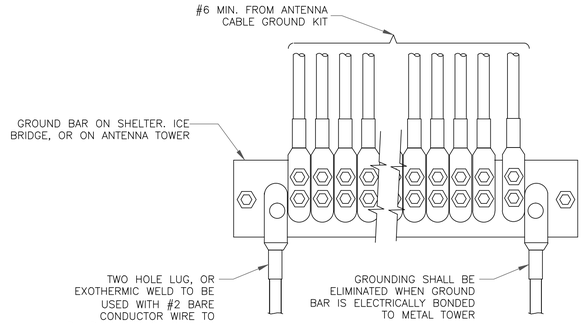
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" – 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" – 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" – 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" – 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" – 16 NC SS 2 BOLT



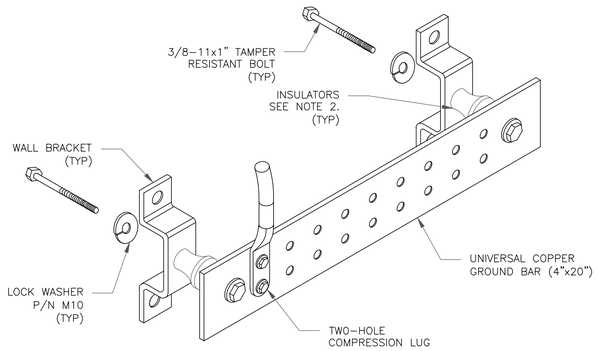
NOTE:

ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

3 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



4 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE

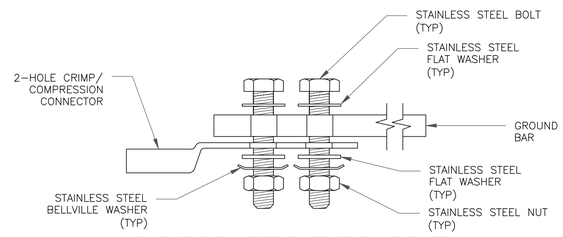


NOTES:

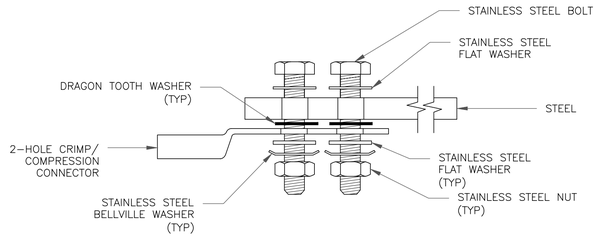
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.

2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

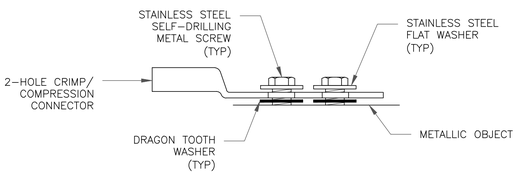
5 GROUND BAR DETAIL
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

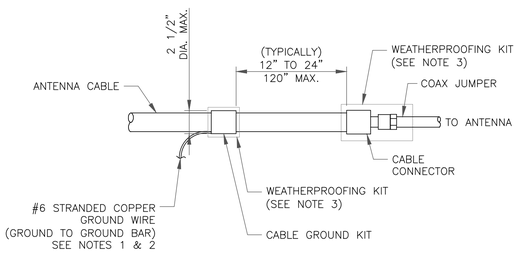


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

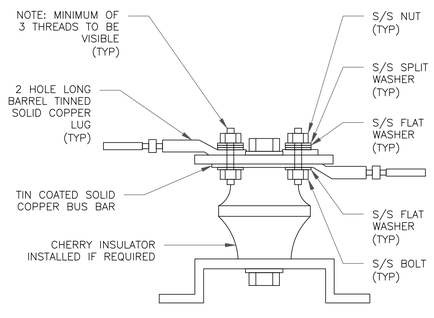
9 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



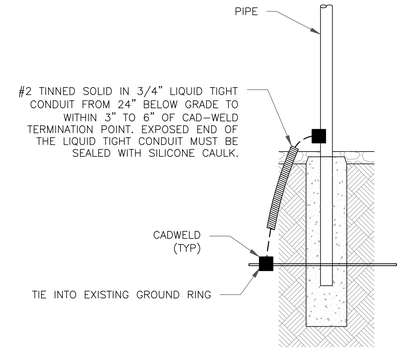
NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

6 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

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2	02/21/2023	DF	REV. CONSTRUCTION	DG
3	05/08/2023	CP	REV. CONSTRUCTION	DG
4	05/12/2023	CP	REV. CONSTRUCTION	DG

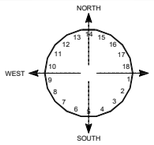
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION

RICHARD J. MOSS
LICENSED PROFESSIONAL ENGINEER
No. 13356 - E
HAWAII U.S.A.
5.12.23
LIC. EXP. 4.30.24

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.

SHEET NUMBER: E-5

REVISION: 4



MONOPOLE DESIGN CRITERIA:

DESIGN PER TIA-222-H
174 MPH WIND & NO ICE (3-SEC GUST)
60 MPH WIND & NO ICE (SERVICE)
RISK CATEGORY II
EXPOSURE CATEGORY C
TOPOGRAPHIC CATEGORY 1

SEISMIC DESIGN CRITERIA:

SEISMIC DESIGN CATEGORY E
SITE CLASS C
Ss= 2.31
S1= 1.023
T_L = 12

SITE INFORMATION:

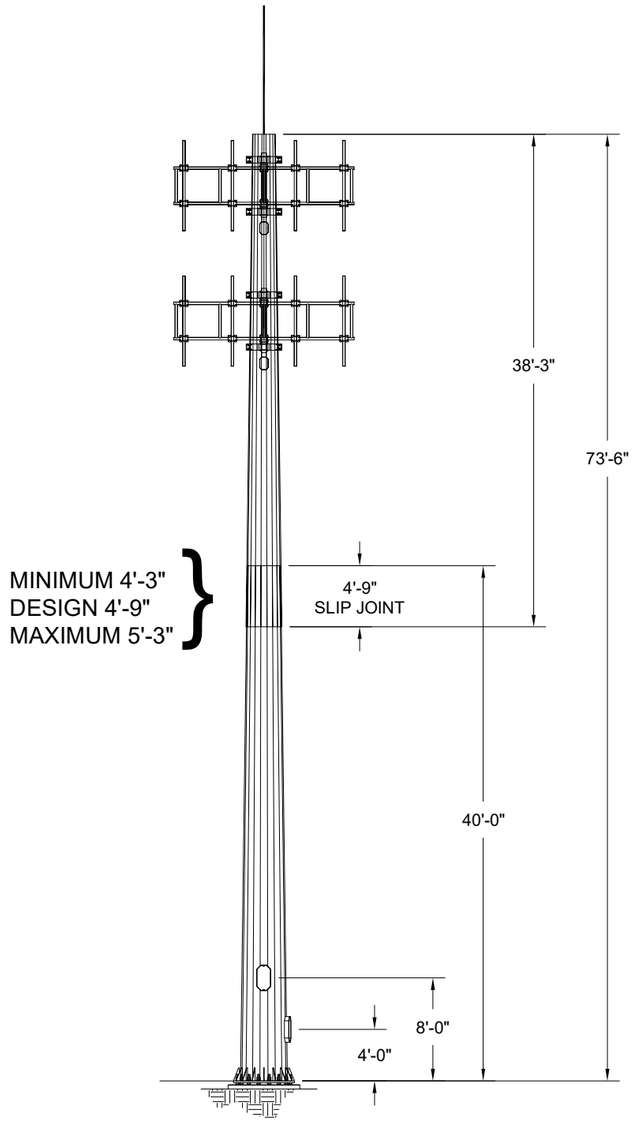
COORDINATES: LATITUDE: 19° 43' 02.64" N
LONGITUDE: 155° 55' 22.88" W
ADDRESS: HUE HUE ST. TMK (3)7-3-048:004
KAILUA-KONA, HI 96740
COUNTY: HAWAII COUNTY, HAWAII

MAXIMUM BASE MOMENT & FORCES		
MOMENT (FT-KIPS)	SHEAR (KIPS)	AXIAL (KIPS)
2347	40	21

NOTES:

1. ORIENT V-NOTCH ON TOP OF TEMPLATE AND REFERENCE TAB ON BASE PLATE @ 0°.
2. STAMP "EE 112850" ON TOP OF BASE PLATE (NEAR NORTH TAB) WITH 1/2" STEEL STAMPS.

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DESIGN LOADING:

ELEV.	ITEM	FEEDLINES
73.5	Lightning Rod 2"x10'	
69.5	250 SQ FT x Ka (Ka=1.0)	(12) 1 5/8" (INSIDE POLE)
59	125 SQ FT x Ka (Ka=1.0)	(12) 1 5/8" (INSIDE POLE)

POLE DATA					
POLE 65 KSI 18 SIDED					
ELEV.	WALL THICKNESS	TAPER	TUBE LENGTH	TOP DIA.	BASE DIA.
35'-3"- 73'-6"	1/4"	.306"/FT.	38-3"	21"	32 3/4"
0' - 40'-0"	5/16"	.306"/FT.	40'-0"	30 3/4"	43"

ANCHOR BOLT DATA:

(16x) 1 3/4"Ø F1554 GRADE 105 KSI
X 6'-0" LG ON A 50"Ø BOLT CIRCLE
TEMPLATE O.D. = Ø55" A36

BASE PLATE DATA:

57"Ø, 1 3/4" THICK, ROUND
ASTM A572 50 KSI

(16x) 3/8" THICK X 12" TALL GUSSETS
ASTM A572 65 KSI

REV	DESCRIPTION	DATE
7		
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2		
1		
0	DRAWING CREATED	11-14-22

	NAME
DRAWN BY:	TER
CHECKED BY:	
ENG APPR.	
MFG APPR.	
Q.C.	

SITE: 824947 - KALOKO MAUKA, HI

JOB# 112850

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

WELLS L. HOLMES
LICENSED PROFESSIONAL ENGINEER
No. 16863-S
HAWAII U.S.A.

12/02/2022

EXPIRES: 4-30-2024

VSE Project Number: U1408-543-221

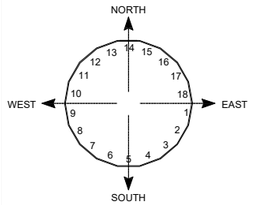
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Ehresmann Engineering
4400 West 31st Street
Yankton, SD 57078
605-665-7532
605-665-9780

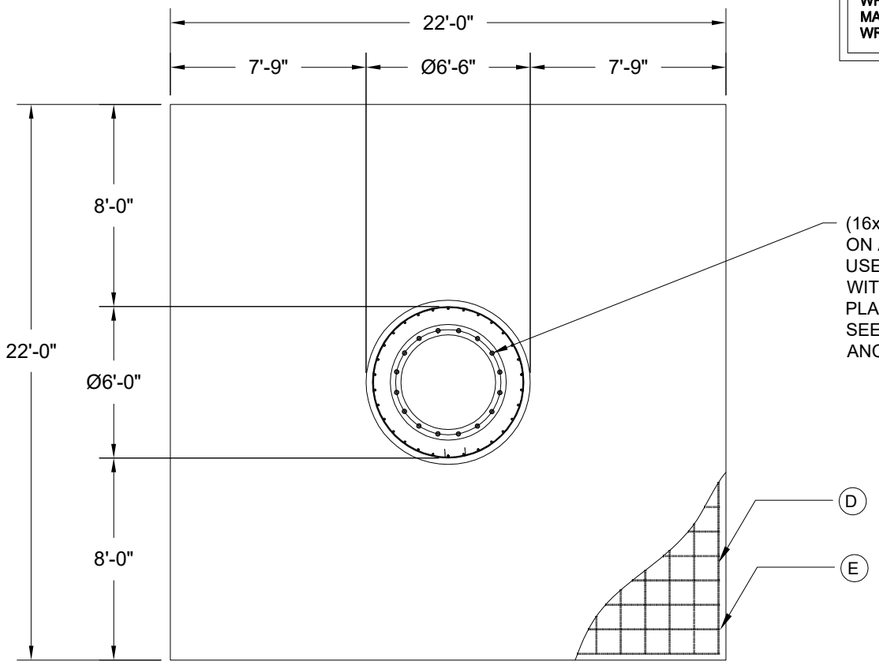
TITLE: 73'-6" MONOPOLE

DWG. NO. 112850E01

SHEET NO. E01 Rev. 0



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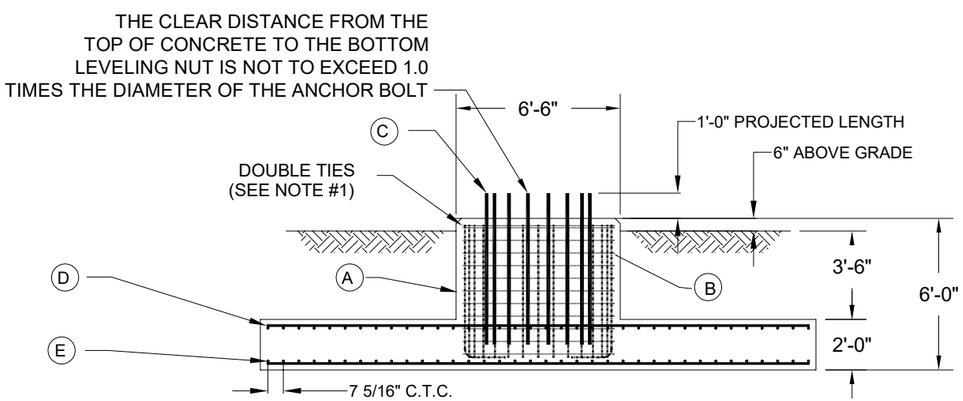
TOP VIEW

MATERIAL LIST				
ITEM	QTY	GRADE	DESCRIPTION	
A	30	60	#8 BARS	19" HOOK, 5'-3"
B	12	60	#4 BARS (6" SPACING C.T.C.)	4" HOOKS 8 3/8" LAP (STAGGERED) 6'-0"
* C	16	105	1 3/4"Ø X 6'-0"	6'-0"
D	72	60	#9 BARS (36) EACH WAY-TOP	21'-6"
E	72	60	#9 BARS (36) EACH WAY-BOTTOM	21'-6"

* SUPPLIED BY EE, ALL OTHER MATERIAL TO BE SUPPLIED BY THE CONTRACTOR.

NOTES:

1. LATERAL REINFORCEMENT, CONSISTING OF TWO (2) HORIZONTAL TIES SHALL BE DISTRIBUTED WITHIN 5" OF TOP OF CONCRETE PER ACI 318. THE ENDS OF ALL CIRCULAR TIES SHALL TERMINATE WITH STANDARD HOOKS THAT ENGAGE A LONGITUDINAL COLUMN BAR.
2. FOUNDATION DESIGN BASED ON SOILS REPORT BY TEP, INC. DATED OCTOBER 6TH, 2022, PROJECT NO. 134255.717941. CONTRACTOR TO REVIEW SOILS REPORT FOR POSSIBLE SPECIAL INSTRUCTIONS BY GEOTECHNICAL ENGINEER.
3. MINIMUM COMPACTED UNIT WEIGHT OF ALL BACKFILL TO BE 100 PCF.
4. 40.77 CUBIC YARDS CONCRETE REQUIRED THIS FOUNDATION.
5. MONOPOLE BASE REACTIONS;
   MOMENT = 2,347 FT-KIPS
   SHEAR = 40 KIPS
   AXIAL = 21 KIPS



ELEVATION VIEW

VECTOR ENGINEERS
651 W. GALENA PARK BLVD. STE. 101
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WELLS L. HOLMES
LICENSED PROFESSIONAL ENGINEER
No. 16863-S
HAWAII U.S.A.

12/02/2022

EXPIRES: 4-30-2024

VSE Project Number: U1408-543-221

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION WHEN REQUIRED BY H.A.R. 16-115-9.

CONCRETE MIX REQUIREMENTS:

CEMENT: TYPE I/II PORTLAND CEMENT
28 DAY COMPRESSIVE STRENGTH = 4500 PSI
MAXIMUM WATER/CEMENT RATIO = 0.45
SLUMP = 4"-6"
ENTRAINED AIR CONTENT = 5%-7%

REV	DESCRIPTION	DATE
7		
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0	DRAWING CREATED	11-14-22

	NAME
DRAWN BY:	TER
CHECKED BY:	
ENG APPR.	
MFG APPR.	
Q.C.	
SITE: 824947 - KALOKO MAUKA, HI	
JOB# 112850	

Ehresmann Engineering
4400 West 31st Street
Yankton, SD 57078
605-665-7532
605-665-9780

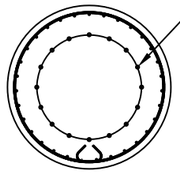
TITLE: 73'-6"" MONOPOLE MAP TYPE FOUNDATION DESIGN

DWG. NO. 112850E02

SHEET NO. E02 Rev. 0

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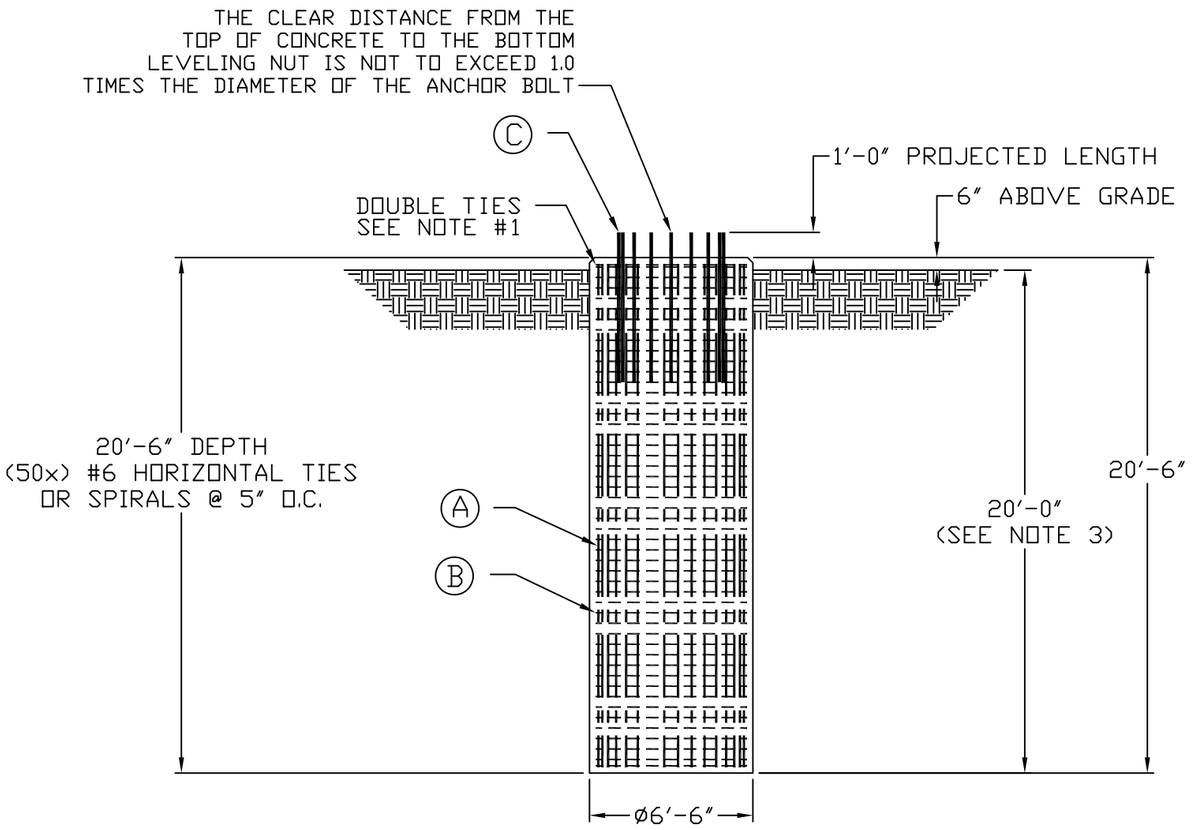


(16X) 1 3/4"ø ANCHOR BOLTS ON A ø50" BOLT CIRCLE. USE TEMPLATE FURNISHED WITH MONOPOLE TO CORRECTLY PLACE ANCHOR BOLTS AS SHOWN. SEE DWG #112850E03 FOR PROPER ANCHOR BOLT & TEMPLATE ASSEMBLY.

PLAN VIEW

	MATERIAL LIST				
	ITEM	QTY	GRADE	DESCRIPTION	
	A	31	60	#8 BARS	20'-0"
	B	50	60	#6 BARS	4 1/2" HOOKS (135°) 8" LAP (STAGGERED) 6'-0"
*	C	16	105	1 3/4"ø X 6'-0"	6'-0"

* SUPPLIED BY EE, ALL OTHER MATERIAL TO BE SUPPLIED BY THE CONTRACTOR.



ELEVATION VIEW

NOTES:

1. LATERAL REINFORCEMENT, CONSISTING OF TWO (2) HORIZONTAL TIES SHALL BE DISTRIBUTED WITHIN 5" OF TOP OF CONCRETE PER ACI 318. THE ENDS OF ALL CIRCULAR TIES SHALL TERMINATE WITH STANDARD HOOKS THAT ENGAGE A LONGITUDINAL COLUMN BAR.
2. FOUNDATION DESIGN BASED ON SOILS REPORT BY TEP, INC. DATED OCTOBER 6TH, 2022; PROJECT NO. 134255.717941. CONTRACTOR TO REVIEW SOILS REPORT FOR POSSIBLE SPECIAL INSTRUCTIONS BY GEOTECHNICAL ENGINEER.
3. PLEASE NOTE THAT FOUNDATION DEPTH AS DESIGNED IS DEEPER THAN WHAT WAS INVESTIGATED DURING THE SOIL BORING. IF ADDITIONAL INVESTIGATION IS NOT COMPLETED PRIOR TO INSTALLATION, THE GEOTECHNICAL ENGINEER OR QUALIFIED REPRESENTATIVE IS TO BE ON-SITE DURING DRILLING TO VERIFY SOIL CONDITIONS BELOW THE BORING DEPTH. IF CHANGES IN SOIL ARE FOUND WHICH REQUIRE MODIFICATIONS TO DESIGN PARAMETERS, EE SHALL BE NOTIFIED IMMEDIATELY FOR REVIEW OF THIS FOUNDATION DESIGN.
4. 25.19 CUBIC YARDS CONCRETE REQUIRED THIS FOUNDATION.
5. MONOPOLE BASE REACTIONS;
   MOMENT = 2,347 FT-KIPS
   SHEAR = 40 KIPS
   AXIAL = 21 KIPS

VECTOR ENGINEERS
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DRAPER, UTAH 84020
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WELLS L. HOLMES
LICENSED PROFESSIONAL ENGINEER
No. 16863-S
HAWAII U.S.A.

12/02/2022

EXPIRES: 4-30-2024

VSE Project Number: U1408-543-221

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION WHEN REQUIRED BY H.A.R. 16-115-9.

CONCRETE MIX REQUIREMENTS:

CEMENT: TYPE I/II PORTLAND CEMENT
28 DAY COMPRESSIVE STRENGTH = 4500 PSI
MAXIMUM WATER/CEMENT RATIO = 0.45
SLUMP = 6"-8"
ENTRAINED AIR CONTENT = 5%-7%

REV	DESCRIPTION	DATE
7		
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1		
0	DRAWING CREATED	11/30/29

	NAME
DRAWN BY:	EJH
CHECKED BY:	
ENG APPR.	
MFG APPR.	
Q.C.	

Site: 824947-KALOKO MAUKA, HI

Job# 112850

Ehresmann Engineering
4400 West 31st Street
Yankton, SD 57078
605-665-7532
605-665-9780

TITLE: 73'-6" MONOPOLE PIER TYPE FOUNDATION DESIGN

DWG. NO. 112850E02A

Sheet NO. E02A | Rev. 1A

GENERAL:
Ehresmann Engineering (EE) designs and manufactures steel towers/poles and tower components to the most stringent industry standards, and uses the highest quality materials. However, certain hazards are inherent in tower work. For this reason, it is imperative that erection of towers and installation of tower components be accomplished in a safe and workmanlike manner, and only by experienced and professional contractors. Unless the customer specifies otherwise in writing, or unless otherwise noted in our design documents or on our installation drawings, design of and/or fabrication of items by Ehresmann Engineering shall meet the conditions outlined in these notes.

1. All tower designs and/or work shall be in accordance with TIA-222-H, “Structural Standard for Antenna Supporting Structures, Antennas and Small Wind Turbine Support Structures” or as otherwise specified in writing by the customer.
2. Purchasers shall verify the installation is in conformance with all local, state, and federal requirements. This also includes requirements for obstruction marking and lighting.
3. If towers, tower components, mounts, foundations or modification materials are not installed in accordance with Ehresmann Engineering installation drawings and specifications, then all designs are considered invalid, and EE disclaims any responsibility for said design and/or certification.
4. The purchaser shall be responsible to inspect condition of underground anchors prior to work on towers, and to furnish any and all soils reports, where required.
5. All items must be inventoried at the time of delivery to the job site/storage facility. Any shortages reported after this delivery will be the responsibility of the Contractor/Owner.
6. Any problems that occur with scheduling, transportation, delivery, foundation installation, erection or any items furnished by EE must be reported immediately to allow EE time to take corrective measures. EE will make every effort to repair/replace necessary items in an expedited manner and/or will pursue corrective measures in the most economical way possible at our discretion. However, under no circumstances will EE pay for or be responsible for any down time or expenses incurred due to down time.
7. EE will make every effort to deliver materials at the requested time. However, we cannot and will not be responsible for delays caused by breakdowns, weather and/or other factors out of our control once the materials have left our facility. We strongly suggest that cranes, tower crews, etc... not be scheduled until delivery is verified to be on time. EE will not be responsible for any costs incurred due to these possible delays.
8. Any and all permits, licenses, or payment of taxes required for construction are the sole responsibility of the purchaser.
9. Manufacturer Assistance: Contractors / Erectors may contact Ehresmann Engineering at (605) 665-7532 for questions on design, materials, or installation regarding items furnished by Ehresmann Engineering.
10. Ehresmann Engineering is available, upon request, to supervise installation and/or completion of modifications, or to provide on-site inspection after project completion.
11. Although rare, excessive deflection can occasionally occur in canister poles and concealment/shrouded structures at low wind speeds. Since the phenomenon is influenced by many factors and variables, it is generally unpredictable. Therefore, it is the tower/pole owner's responsibility to periodically observe the structure for excessive deflection and any resulting damage or affects on the structure or its connections. In the event of excessive deflection or movement of the structure, Ehresmann Engineering is to be notified immediately. Modifications to the structure may be required at the owner's expense.

**Please also reference site specific design documents and drawings for additional notes.

Anchor Rod Tightening:
Prior to placing anchor rods in the concrete, it is recommended that an anchor rod rotation capacity test be run with at least one anchor rod. This test may be run in a Skidmore-Wilhelm device or in a mockup of the base plate using a small piece of plate with one hole of equivalent grade, thickness, and finish. The test consists of steps 2 through 12 as outlined below and adapted as necessary for the mock set-up. It is recommended that the nut be rotated at least to the required rotation as given in step 12. After the test, the nuts should be removed and all threads (rod and nut) inspected for damage. Once the anchor rod is removed from the test plate, the nuts shall again be turned onto the rod well past the location of the leveling nut and backed off by one worker using an ordinary wrench with no cheater bar. The threads are considered damaged if more than minimal effort is required to turn the nut. Please note that nuts should be turned onto ALL anchor rods and backed of with minimal effort as outlined above to verify threads of ALL anchor rods and nuts prior to placement in concrete.

Recommended Steps for Anchor Rod Tightening:
1. Verify proper position of anchor rods.
2. Verify that all nuts can be turned onto the rods well past the elevation of the bottom of the leveling nut and backed off by one worker using an ordinary wrench without a cheater bar.
3. If threads of anchor rods were lubricated more than 24 hours before placing the leveling nut or have been wet since they were lubricated, the exposed threads of the anchor rods should be relubricated (Beeswax and toilet-ring wax have been shown to provide good lubrication).
4. Place leveling nuts on anchor rods and level.
5. Place leveling nut washers.
6. Set pole or tower legs.
7. Plumb pole or legs and/or level base plates.
8. Place top nut washers.
9. Threads and bearing surfaces of the top nuts should be lubricated, placed and tightened to the snug-tight condition in a star pattern.
10. Tighten leveling nuts to the snug-tight condition in a star pattern.
11. Mark the reference position of the top nut in the snug-tight condition with a suitable marking on one flat with a corresponding reference mark on the base plate at each bolt.
12. Top nuts shall be rotated, with the leveling nut secured, an additional 1/3 turn for anchor rods 1.5 in. or less in diameter and an additional 1/6 turn for anchor rod diameters greater than 1.5" per TIA-222-H section 4.9.9.
13. Locking nuts are to be installed over all top nuts when tightening is completed.

Erection / Installation:
When installing items provided by Ehresmann Engineering, the contractor (person performing the erection or modification) shall comply with the following:

1. All structural work shall be performed in relatively calmweather, with wind velocities not exceeding 15 MPH at any height of the tower. Additionally it is recommended that work be completed in accordance with ANSI/TIA-322 and ANSI/ASSE A10.48. 2. All structural work shall be performed by a competent and reputable contractor with experience in similar tower work.
3. Our drawings indicate the major operations to be performed, but do not show every field condition that may be encountered. Prior to beginning work, the contractor should survey the job thoroughly to eliminate future field problems.
4. It is the contractor’s sole responsibility to determine the erection procedure and sequence to insure the stability and safety of the tower and adequacy of temporary or incomplete connections during construction.
5. All nuts for bearing type connections shall be tightened to a "snug tight" condition as defined by AISC. All nuts for direct tension/fully pre-tensioned or slip critical connections (except anchor rod nuts) shall be tightened per the ‘turn-of-the-nut’ method in accordance with AISC.
6. It shall be the contractor's responsibility to ensure that all practices and procedures used during assembly, installation and erection work required on the tower or foundations do not endanger the safety of any personnel nor the structural integrity of the tower.
7. The contractor shall use only safe and workmanlike procedures when modifying a tower.
8. The contractor shall not correct any errors in manufacturing or design without special permission and written instructions from Ehresmann Engineering. This means straightening, relocation or reaming of bolt holes, drifting or any other application of force to make the members fit. (This restriction does not apply to diagonal members designed for initial tension or specific ‘draw’.) The contractor shall immediately notify Ehresmann Engineering through the appropriate channels to effect correction.
9. The contractor shall immediately notify Ehresmann Engineering of any material which is damaged during erection or installation. The contractor shall not correct or substitute any member damaged during installation without written consent and instructions from Ehresmann Engineering.
10. The contractor shall refrain from exerting excessive forces on the tower or on modification material during installation. Tower member design does not include stresses due to erection since erection equipment and conditions are unknown. Our design assumes that the services of competent and qualified personnel will be utilized to develop proper procedures and rigging plans. Our design also assumes that competent and qualified personnel will be hired to perform the work.
11. All field-punched holes shall be touched up with cold galvanizing. Under no circumstances shall the torching of holes be allowed.
12. All factory installed bracing placed within monopole tube sections is to remain in place until erection is complete. Do not remove bracing without prior consultation with EE.

Concrete & Foundation Installation:
1. All rebar shall have 3" minimum cover, unless specified otherwise, and shall conform to ASTM A615. Rebar grade to be as specified on site drawings.
2. Tie and secure all rebar and anchor bolts/shafts before placing concrete.
3. Hook length as specified for vertical bars is from back side of bend. Minimum straight length of hook after bend shall be 12x bar diameter.
4. Bending of rebar to be in accordance with ACI-318 latest edition.
5. Sides of excavation may need to be braced or sloped back as required for stability and in accordance with all applicable safety regulations.
6. Base of excavation shall be clean and free of all debris.
7. All excavation, backfill and soil compaction to be completed in accordance with Geotechnical Engineer's recommendations. However, compacted density of all backfill must meet minimum unit weight as specified on site drawings.
8. Attention shall be given to final site drainage and compaction of the fill placed around the foundation to minimize surface water infiltration around the foundation.
9. Concrete strength and mix values to be listed on site specific foundation drawings. Alternate values may be acceptable and could be dependent on placement methods. However, use of alternate values must be approved by EOR prior to installation. EE will not be responsible for any delays due to request for approval of alternate values. It is the Contractor's responsibility to allow adequate time for approval.
10. Use of water reducers may be required for some placement methods to achieve necessary slump and/or flow without exceeding maximum water/cement ratios. It is Contractor's responsibility to utilize proper mix to ensure proper placement of concrete for the method of placement chosen.
11. Exposed edges of all foundations to be chamfered 1" x 45°.
12. Use steel top and bottom anchor bolt templates provided by EE for proper anchor bolt spacing and placement.
13. All concrete work shall be in accordance with ACI 318 (Latest Edition). ACI specifications for "Cold Weather" or "Hot Weather" concreting shall be followed as applicable.

Structural Steel & Hardware:
1. All fabricated steel shall have a minimum yield strength of 36 ksi. Use of higher strength steel for some members/items will be noted in design documents or drawings as applicable.
2. All fabricated steel shall be hot dip galvanized per ASTM A123.
3. All structural fasteners shall be ASTM F3125 Gr. A325 unless specified otherwise.
4. U-Bolts to be ASTM A36, A572 Gr. 50, or A193 Gr. B7 depending on size and application. Reference site specific drawings for additional details.
5. Step Bolts to be ASTM A449
6. All hardware shall be hot dip galvanized per ASTM A153 or ASTM F2329.
7. Welded connections shall conform to the latest revision of the American Welding Society, A.W.S. D1.1.
8. All structural components shall be verified for proper assembly by the field crew prior to installation.

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PHONE (801) 990-1775
WWW.VECTORSE.COM

WELLS L. HOLMES
LICENSED PROFESSIONAL ENGINEER
No. 16863-S
HAWAII U.S.A.

12/02/2022

EXPIRES: 4-30-2024

VSE Project Number: U1408-543-221

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION WHEN REQUIRED BY H.A.R. 16-115-9.

REV	DESCRIPTION	DATE
7		
6		
5		
4		
3	COMPANY NAME	6/27/22
2	TUBE BRACING NOTE	10/29/19
1	U-BOLT/STEP-BOLT GR.	10/16/19
0	DRAWING CREATED	03-13-17

	NAME
DRAWN BY:	EJH
CHECKED BY:	
ENG APPR.	
MFG APPR.	
Q.C.	
SITE:	824947 - KALOKO MAUKA, HI
JOB#	112850

Ehresmann Engineering
4400 West 31st Street
Yankton, SD 57078
605-665-7532
605-665-9780

TITLE: STD TOWER & TOWER FOUNDATION NOTES

DWG. NO. 112850N01H

SHEET NO. N01H

Rev. 3

SPECIAL INSPECTION STATEMENT IN ACCORDANCE WITH IBC SECTION 1704.3

SPECIAL INSPECTIONS REQUIRED:		
REINFORCED CONCRETE:	CONTINUOUS	PERIODIC
PIER OR PIER/PAD FOUNDATION		X
DEEP PIER DRILLING (IF APPLICABLE)	X	
REINFORCING STEEL		X
CONCRETE PLACEMENT	X	
SAMPLING & TESTING		X
ANCHORS/BOLTS CAST IN CONCRETE		X
SOILS		X
STRUCTURAL STEEL:		
HIGH-STRENGTH BOLTS		X
STRUCTURAL OBSERVATION:		
YES		X

VERIFICATION AND TESTING SHALL BE COMPLETED AS FOLLOWS:

REINFORCED CONCRETE CONSTRUCTION (MONOPOLE FOUNDATION):

- VERIFY PROPER DIMENSIONS AND DEPTH OF FOUNDATION (INCLUDING DEPTH OF DRILLED HOLE PRIOR TO CONCRETE PLACEMENT IF APPLICABLE)
- INSPECTION OF REINFORCING STEEL TO INCLUDE VERIFICATION OF PROPER MATERIAL GRADE, QTY, SIZE AND PLACEMENT
- VERIFY PROJECTION LENGTH OF ANCHOR BOLTS ABOVE TOP OF CONCRETE PRIOR TO CONCRETE SETTING
- VERIFY USE OF APPROVED CONCRETE MIX DESIGN
- VERIFY PROPER CONCRETE SLUMP AND AIR CONTENT BY TESTING AT THE TIME FRESH CONCRETE IS SAMPLED FOR STRENGTH TESTS
- VERIFY PROPER PLACEMENT OF CONCRETE IN ACCORDANCE WITH APPROVED TECHNIQUES.
- VERIFY CONCRETE COMPRESSIVE STRENGTH BY MEANS OF STANDARD TEST CYLINDERS TO BE BROKE AT 7 DAYS AND 28 DAYS MINIMUM.

STRUCTURAL STEEL CONSTRUCTION (MONOPOLE STRUCTURE):

INSPECTION OF HIGH-STRENGTH BOLTED CONNECTIONS:

- VERIFY IDENTIFICATION MARKINGS/GRADE, QTY AND SIZE OF BOLTS, NUTS & WASHERS
- VISUALLY INSPECT SNUG-TIGHT BOLTED JOINTS TO VERIFY ALL PLIES IN CONTACT AND LOCK-WASHERS COMPRESSED
- VERIFY PROPER TIGHTENING OF PRETENSIONED CONNECTIONS USING TURN-OF-NUT METHOD WITH MATCHMARKING

STRUCTURAL OBSERVATION:

- VERIFY PROPER INSTALLATION/ERECTION OF MONOPOLE PER DESIGN SPECIFICATIONS UPON COMPLETION OF INSTALLATION. VERIFICATION TO INCLUDE THE FOLLOWING:
  - MINIMUM SLIP JOINT OVERLAPS
  - STRUCTURE PLUMB IN ACCORDANCE WITH TIA-222
  - MAXIMUM CLEAR DISTANCE BETWEEN TOP OF FOUNDATION AND LEVELING NUT

VERIFICATION OF ALL ITEMS AS OUTLINED ABOVE SHALL BE BASED ON DESIGN SPECIFICATIONS AND INSTALLATION DETAILS AS COMPLETED BY EHRESMANN ENGINEERING.

SPECIAL INSPECTOR SHALL IDENTIFY AND DOCUMENT RESULTS OF ALL INSPECTIONS AND MATERIAL TESTING AS OUTLINED. INSPECTION REPORTS SHALL BE SUBMITTED AS SOON AS POSSIBLE UPON COMPLETION OF INSPECTION BUT NO MORE THAN 5 WORKING DAYS UNLESS OTHERWISE AGREED BY PROJECT OWNER.

DEVIATION OR NON-COMPLIANCE SHALL BE CORRECTED BY CONTRACTOR. ANY DEVIATIONS NOT CORRECTED ARE TO BE CLEARLY IDENTIFIED IN FINAL REPORTS AND EHRESMANN ENGINEERING SHOULD BE NOTIFIED IMMEDIATELY FOR CONSULTATION.

THE PROJECT OWNER OR AN AGENT OF THE OWNER IS RESPONSIBLE FOR SCHEDULING AND FUNDING ALL SPECIAL INSPECTION SERVICES.

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

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION WHEN REQUIRED BY H.A.R. 16-115-9.

WELLS L. HOLMES
LICENSED PROFESSIONAL ENGINEER
No. 16863-S
HAWAII U.S.A.

12/02/2022

EXPIRES: 4-30-2024

VSE Project Number: U1408-543-221

REV	DESCRIPTION	DATE
7		
6		
5		
4		
3		
2		
1		
0	DRAWING CREATED	11/30/29

	NAME
DRAWN BY:	EJH
CHECKED BY:	
ENG APPR.	
MFG APPR.	
Q.C.	

Site: 824947 – KALOKO MAUKA, HI

Job# 112850

Ehresmann Engineering
4400 West 31st Street
Yankton, SD 57078
605-665-7532
605-665-9780

TITLE: 73'-6" MONOPOLE SPECIAL INSPECTION STATEMENT

DWG. NO. 112850SI

Sheet NO. SI

Rev. 1A

Appendix B

Site Maps



Site Location & Surrounding Properties



Site Location

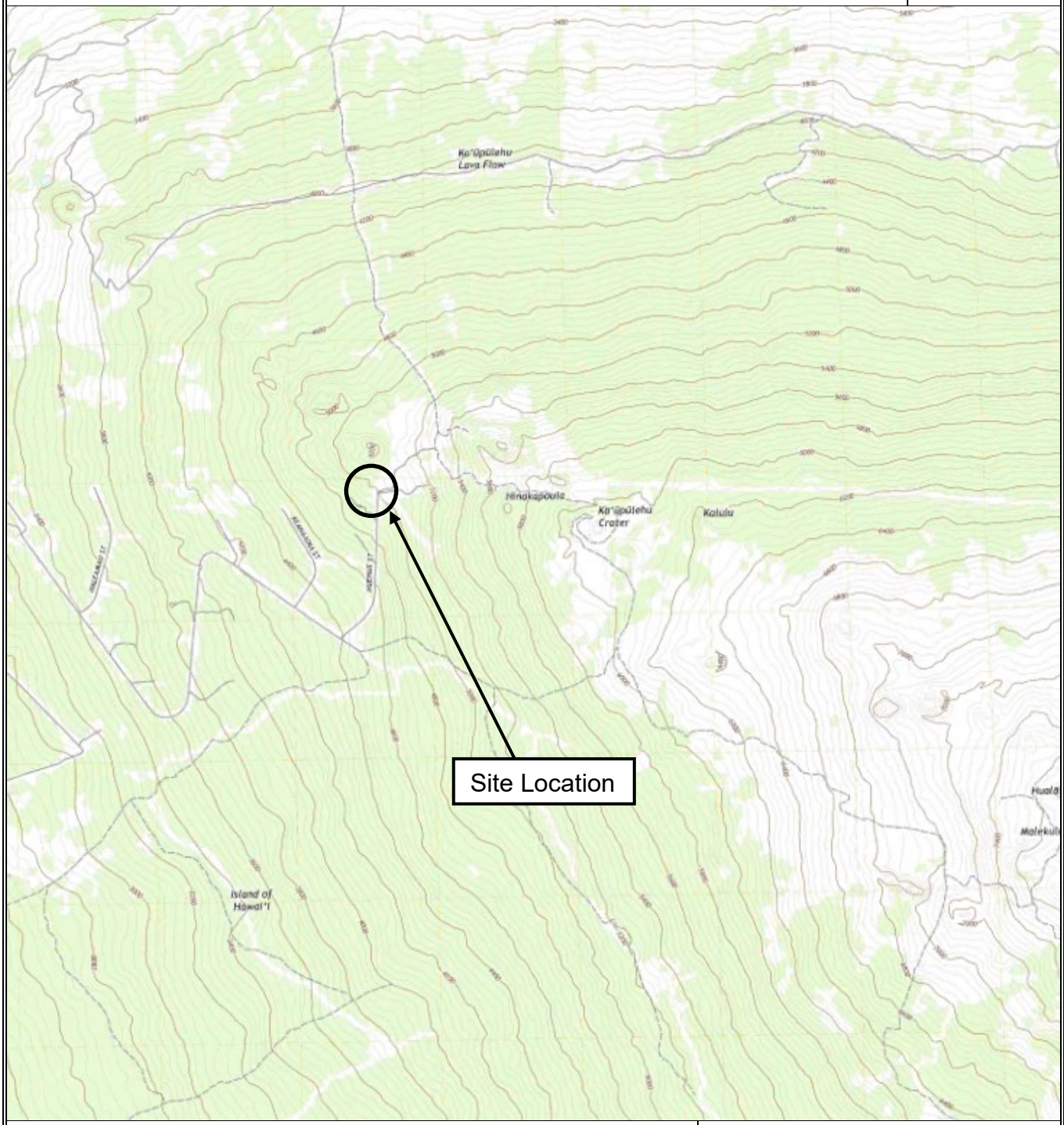
Aerial Photographs (2018)

Crown Castle – Kaloko Mauka
73-4310 Huehue Street
Kailua-Kona, HI 96740

TRILEAF
environmental architecture engineering

Kailua Quadrangle, Hawaii (2017)
Contour Interval = 10 Feet
Scale 1 Inch = ~2,000 Feet
Latitude: 19° 43’ 2.535” N, Longitude: -155° 55’ 22.965” W

North



Site Vicinity Map

Crown Castle – Kaloko Mauka
73-4310 Huehue Street
Kailua-Kona, HI 96740

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National Park Service
National Historic Trails and Scenic Routes

North

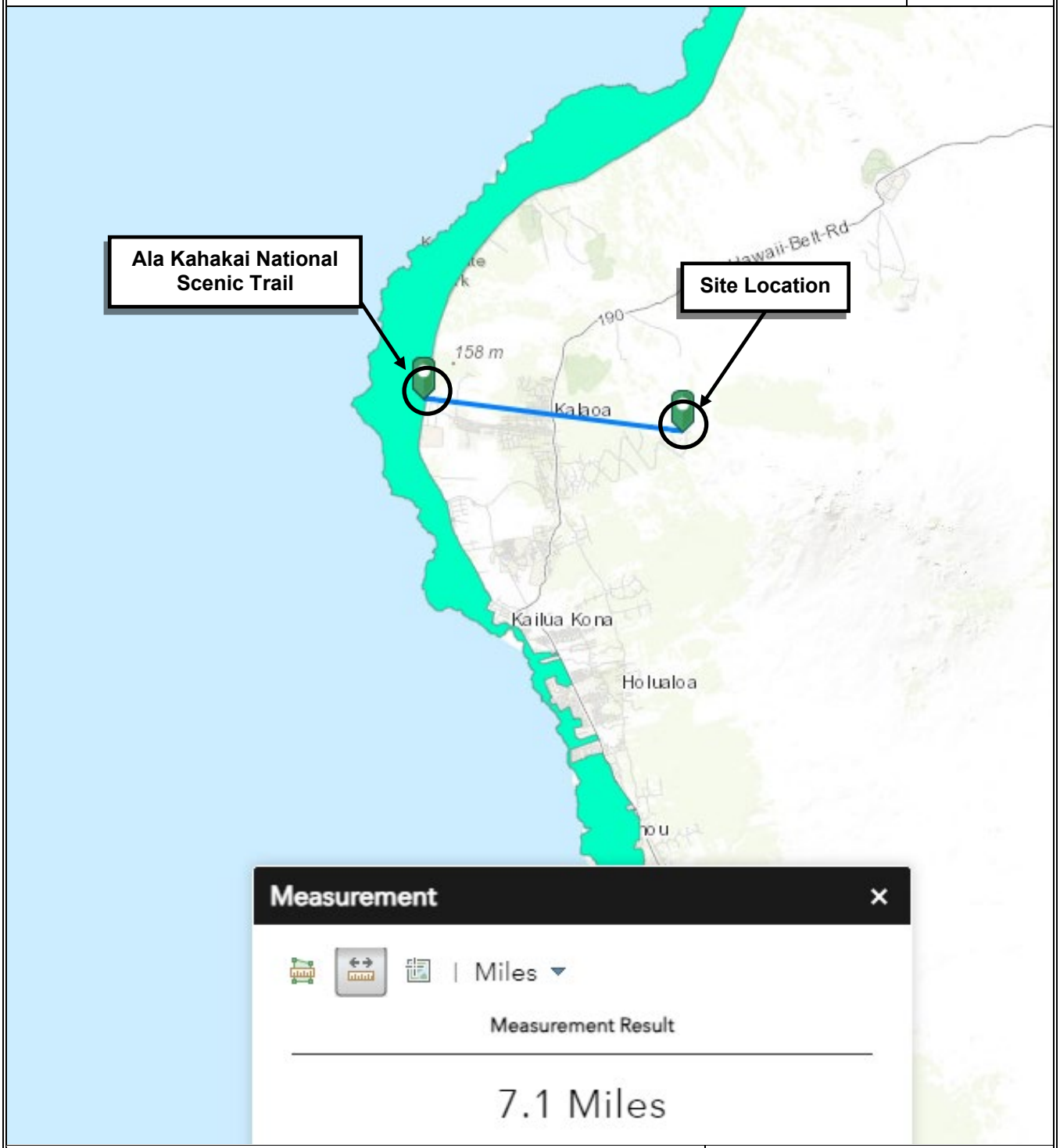


National Park Service – Trails and Routes Map
Crown Castle – Kaloko Mauka
73-4310 Huehue Street
Kailua-Kona, HI 96740

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National Park Service
National Historic Trails and Scenic Routes

North



National Park Service – Trails and Routes Map

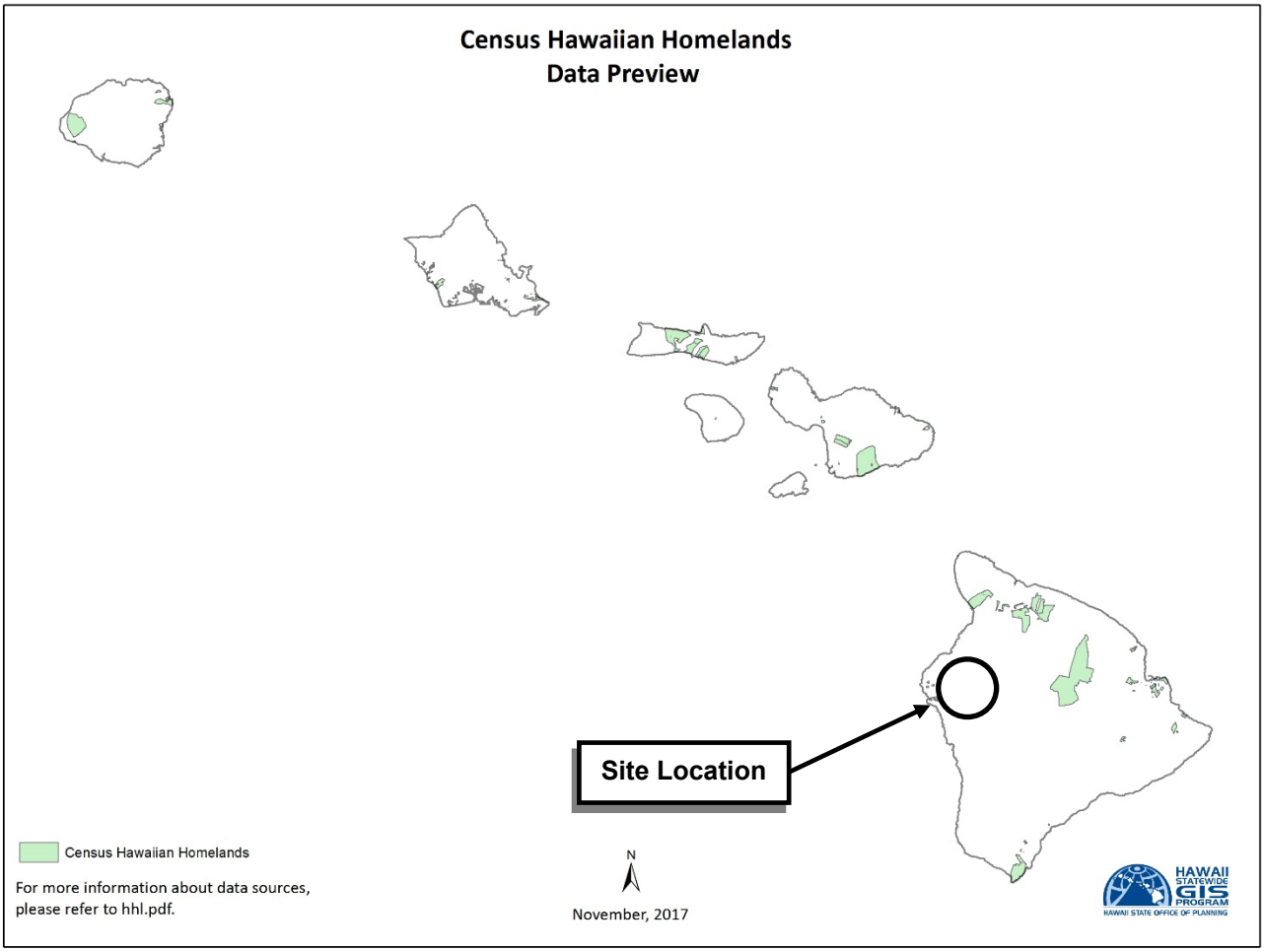
Crown Castle – Kaloko Mauka
73-4310 Huehue Street
Kailua-Kona, HI 96740

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Department of Hawaiian Home Lands (DHHL)

Hawaiian Home Lands

North



Bureau of Indian Affairs – Reservation Map

Crown Castle – Kaloko Mauka
73-4310 Huehue Street
Kailua-Kona, HI 96740

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Appendix C

Site Photographs



Site Photograph 1 – Looking north at the Site



Site Photograph 2 – Looking east at the Site

Site Photographs

Crown Castle – Kaloko Mauka
73-4310 Huehue Street
Kailua-Kona, HI 96740

Photographed:

March 5, 2024



Site Photograph 3 – Looking south at the Site



Site Photograph 4 – Looking west away from the Site

Site Photographs

Crown Castle – Kaloko Mauka
73-4310 Huehue Street
Kailua-Kona, HI 96740

Photographed:

March 5, 2024

Appendix D

Documentation of Officially Designated Wilderness Areas, Wildlife Preserves and Endangered Species

N/A

Appendix E

Section 106 Review

State Historic Preservation Division
HRS 6E Submittal Form

Per §6E, Hawai'i Revised Statutes, if the Project requires review by the State Historic Preservation Division (SHPD), please review and fill out this form and submit all requested information to SHPD. Please submit this form and project documentation **electronically** to:

dlnr.intake.shpd@hawaii.gov

If you are unable to submit electronically, please contact SHPD at (808) 692-8015. Mahalo.

The submission date of this form is:

1. APPLICANT (select one)

☑ Property Owner ☐ Government Agency

2. AGENCY (select one)

☑ Planning Department ☐ Department of Public Works ☐ Other (specify):

Type of Permit Applied For:

3. APPLICANT CONTACT

3.1) Name: Amanda Wrona 3.2) Title: Project Scientist I

3.3) Street Address: 2121 W Chandler Boulevard, Suite 108, Chandler

3.4) County: Maricopa 3.5) State: AZ 3.6) Zip Code: 85224

3.7) Phone: 480-850-0575 3.8) Email: a.wrona@trileaf.com

4. PROJECT DATA

4.1) Permit Number (if applicable):

4.2) TMK [e.g. (3) 1-2-003:004]: TMK: (3) 7-3-048:003

4.3) Street Address: 73-4310 Huehue Street, Kailua-Kona

4.4) County: Hawaii 4.5) State: HI 4.6) Zip Code: 96740

4.7) Total Property Acreage: 23.6

4.8) Project Area (acreage, square feet): 600

4.9) List any previous SHPD correspondence (LOG Number & DOC Number, if applicable):

LOG NO. DOC NO.

5. PROJECT INFORMATION

5.1) Does the Project involve a Historic Property? A Historic Property is any building, structure, object,

district, area, or site, including heiau and underwater site, **which is over 50 years old** (*HRS §6E-2*).

☐ Yes ☑ No

5.2) The date(s) of construction for the historic property (building, structure, object, district, area, or site, including heiau and underwater site) is N/A

5.3) Is the Property listed on the Hawai‘i and or National Register of Historic Places? To check: http://dlnr.hawaii.gov/shpd/

☐ Yes ☑ No

5.4) Detailed Project Description and Scope of Work:

Our client proposes to replace an existing 73-foot 6-inch wooden pole (overall height of 76 feet 11 inches) with a proposed 73-foot 6-inch monopole with an overall height of 75 feet. The new monopole and proposed associated equipment will be installed within the existing 30-foot by 29-foot 1-inch fenced compound lease area. There is no proposed ground disturbance outside of the existing lease area.

5.5) Description of **previous** ground disturbance (e.g. previous grading and grubbing):

A pole and lease area was already built. The site is currently a gravel covered fenced equipment compound.

5.6) Description of **proposed** ground disturbance (e.g. # of trenches, Length x Width x Depth):

The new monopole and proposed associated equipment will be installed within the existing 30-foot by 29-foot 1-inch fenced compound lease area. There is no proposed ground disturbance outside of the lease area.

5.7) The Agency shall ensure whether historic properties are present in the project area, and, if so, it shall ensure that these properties are properly identified and inventoried. Identify all known historic properties:

None

5.8) Once a historic property is identified, then an assessment of significance shall occur.

Integrity (check all that apply):

☐ Location ☐ Design ☐ Setting ☐ Materials ☐ Workmanship ☐ Feeling ☐ Association

Criteria (check all that apply):

☐ a – associated with events that have made an important contribution to the broad patterns of our history
☐ b – associated with the lives of persons important in our past
☐ c – embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value
☐ d – have yielded, or is likely to yield, information important for research on prehistory or history
☐ e – have an important value to the Native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out or still carried out, at the property or due to associations with traditional beliefs, events, or oral accounts - - these associations being important to the group’s history and cultural identity

5.9) The effects or impacts of a project on significant historic properties shall be determined by the agency.

Effect Determination (select one):

☑ No Historic Properties Affected
☐ Effect, with Agreed Upon Mitigation Commitments (§6E-42, HRS)
☐ Effect, with Proposed Mitigation Commitments (§6E-8, HRS)

5.10) This project is (check all that apply, if applicable):

☐ an activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency;

☐ carried out with Federal financial assistance; and or

☑ requiring a Federal permit, license or approval.

If any of these boxes are checked, then the Project may also be subject to compliance with Section 106 of the National Historic Preservation Act (NHPA).

6. PROJECT SUBMITTALS

6.1) Please submit a copy of the Tax Map Key (TMK) map

6.2) Please submit a copy of the property map showing the project area and indicate if the project area is smaller than the property area.

6.3) Please submit a permit set of drawings. A permit set is a set of drawings prepared and signed by a licensed architect or engineer and is at least 65% complete.

6.4) Are you submitting a survey?

☑ Yes ☐ No

Specify Survey: Historic Properties Review and Assessment

6.5) Did SHPD request the survey?

☐ Yes ☑ No

If 'Yes', then please provide the date, SHPD LOG NO, and DOC NO:

Date: LOG NO. DOC NO.

6.6) **SURVEY REVIEW FEES**. Fee for Review of Reports and Plans (§§13-275-4 and 284-4). A filing fee will be charged for all reports and plans submitted to our office for review. Please go to:

http://dlnr.hawaii.gov/shpd/about/branches/archaeology/filing-fee-schedule/

A check payable to the Hawaii Historic Preservation Special Fund should accompany all reports or plans submitted.

6.7) Please submit color photos/images of the Historic Property (any building, structure, object, district, area, or site, including heiau and underwater site) that will be affected by the Project.

The following are the minimum number and type of color photographs required:

Quantity	Description
1-2	Street view(s) of the resource and surrounding area
1-2	Over view of exterior work area
1	exterior photo of the North elevation (if applicable)
1	exterior photo of the South elevation (if applicable)
1	exterior photo of the East elevation (if applicable)
1	exterior photo of the West elevation (if applicable)
1-2	interior photos(s) of areas affected (if applicable)

CHECKLIST

☑ **SHPD FORM 6E** (this form)

☑ **PROJECT SUBMITTALS** (any requested documentation for items 6.1 - 6.7 of this form)

☐ **FILING FEE FORM** (if applicable)

TRILEAF
environmental architecture engineering
2121 West Chandler Boulevard, Suite 108, Chandler, Arizona 85224 - 480.850.0575 - www.trileaf.com

March 27, 2024

Hawaii State Historic Preservation Division
Attn: Alan Downer, Administrator
Kakuhihewa Building
601 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707
808-692-8015
dlnr.intake@shpd@hawaii.gov

RE: **Crown Castle – Kaloko Mauka / BU# 824947 – Trileaf Project #735423**
73-4310 Huehue Street, Kailua-Kona, HI 96740, TMK: (3) 7-3-048:003
Hawaii County, Kailua Quadrangle (USGS)
Latitude: 19° 43' 2.535" N, Longitude: 155° 55' 22.965" W
TMK: (3) 7-3-048:003

Dear Dr. Downer:

Trileaf Corporation is in the process of completing a Section 106 Review for a proposed wireless communications tower to be located at the above referenced property. Our client proposes to replace an existing 73-foot 6-inch wooden pole (overall height of 76 feet 11 inches) with a proposed 73-foot 6-inch monopole with an overall height of 75 feet. The new monopole and proposed associated equipment will be installed within the existing 30-foot by 29-foot 1-inch fenced compound lease area. There is no proposed ground disturbance outside of the existing lease area. This site is surrounded by a forest. The antenna will be licensed by the Federal Communications Commission (FCC).

In accordance with the *Nationwide Programmatic Agreement for Review of Effects on Historic Properties for Certain Undertakings Approved by the Federal Communications Commission*, dated September 2004, a cultural resource investigation has been conducted. Our investigation includes determining if the site is contained in, on, or within the view shed of a building, site, district, structure or object, significant in American history, architecture, archeology, engineering or culture, that is listed, or eligible for listing on the State or National Registers of Historic Places, or located in or on an Indian Religious Site.

Summary reports of this investigation, maps, photographs and other information are provided in the attached Form 621. As noted, no Historic Properties were identified in the APE for direct or visual effects, resulting in the finding that this project will have no effect on any National Register of Historic Places (NRHP) listed, eligible, or potentially eligible structures or sites. In addition, no archaeological sites or artifacts were encountered during the archaeological survey.

We appreciate your co-operation in this regard and anticipate your concurrence with these findings. Please call me at (480) 850-0575 or email a.wrona@trileaf.com if you need additional information or have any questions. Thank you for your assistance in this regard.

Sincerely,

Amanda Wrona

Amanda Wrona
Project Scientist I

FCC Form 621

Notification Date: **7AM EST 03/28/2024**
File Number: **0011000506**

FCC Wireless Telecommunications Bureau
Collocation ("CO") Submission Packet

Approved by OMB
3060 – 1039
See instructions for
public burden estimates

General Information

1) (Select only one) **(NE)** **NE** – New **UA** – Update of Application **WD** – Withdrawal of Application	
2) If this application is for an Update or Withdrawal, enter the file number of the pending application currently on file.	File Number:

Applicant Information

3) FCC Registration Number (FRN): **0013810239**
4) Name: **Crown Castle**

Contact Name

5) First Name: **Lisa**	6) MI:	7) Last Name: **Klingensmith**	8) Suffix:
9) Title:			

Contact Information

10) P.O. Box:	**And /Or**	11) Street Address: **2000 Corporate Drive**		
12) City: **Cannonsburg**			13) State: **PA**	14) Zip Code: **15317**
15) Telephone Number: **(480)850-0575**		16) Fax Number:		
17) E-mail Address: **a.wrona@trileaf.com**				

Consultant Information

18) FCC Registration Number (FRN): **0011724176**
19) Name: **ASM Affiliates on behalf of Trileaf Corporation**

Principal Investigator

20) First Name: **Matthew**	21) MI:	22) Last Name: **Clark**	23) Suffix:
24) Title: **Principal Investigator**			

Principal Investigator Contact Information

25) P.O. Box:	**And /Or**	26) Street Address: **507A E. Lanikaula St.**		
27) City: **Hilo**			28) State: **HI**	29) Zip Code: **96720**
30) Telephone Number: **(480)850-0575**		31) Fax Number: **(480)850-0578**		
32) E-mail Address: **a.wrona@trileaf.com**				

Professional Qualification

33) Does the Principal Investigator satisfy the Secretary of the Interior's Professional Qualification Standards?	(X) Yes ( ) No

34) Areas of Professional Qualification:

(X) Archaeologist

( ) Architectural Historian

( ) Historian

( ) Architect

( ) Other (Specify) _____

Additional Staff

35) Are there other staff involved who meet the Professional Qualification Standards of the Secretary of the Interior?	( ) Yes (X) No

If "YES," complete the following:

36) First Name:	37) MI:	38) Last Name:	39) Suffix:

40) Title:

41) Areas of Professional Qualification:

( ) Archaeologist

( ) Architectural Historian

( ) Historian

( ) Architect

( ) Other (Specify) _____

Site Information

Tower Construction Notification System

1) TCNS Notification Number: **275983**

Site Information

2) Positive Train Control Filing Subject to Expedited Treatment Under Program Comment: ( ) Yes (X) No

3) Site Name: **Kaloko Mauka**

4) Site Address: **73-4310 Huehue Street**

5) Detailed Description of Project:

Our client proposes to replace an existing 73'6" wooden pole (overall height 76'11") w/ a new 73'6" monopole w/ an overall height of 75'. New monopole & new associated equip. will be installed w/in an existing 30'x29'1" lease area.

6) City: **Kailua-Kona**	7) State: **HI**	8) Zip Code: **96740**

9) County/Borough/Parish: **HAWAII**

10) Nearest Crossroads: **Kaloko Drive and Huehue Street**

11) **NAD 83** Latitude (DD-MM-SS.S): **19-43-02.5** (X) N or ( ) S

12) **NAD 83** Longitude (DD-MM-SS.S): **155-55-23.0** ( ) E or (X) W

Collocation Information

13) Antennas will be located on (Select One):

(X) Communications Tower (Select One): ( ) Guyed Lattice Tower ( ) Self-supporting Lattice (X) Monopole

( ) Other (Describe): _____

( ) Non-Tower Structure (Describe Structure): _____

14) Tower height above ground level (including top-mounted attachments such as lightning rods): **22.9** ( ) Feet (X) Meters

15) Description of Antennas to be collocated (*e.g.* number, type, shape, dimensions, color):

Proposed antennas will be collocated at a centerline height of 71 feet

16) Will the Antennas be placed at multiple levels on the structure? ( ) Yes (X) No

If "Yes", describe placement:

_____

If "No", specify the height of collocation above ground: **75.0** (X) Feet ( ) Meters

17) Structure Completion Year: **2010** (YYYY)

(X) Check here if your year provided is approximate.

18) Has the Communications Tower or Non-Tower Structure been the subject of SHPO/THPO review? If "Yes", specify the following: Company that made the submission: _____ Date submitted: _____ SHPO/THPO Reference Number: _____	( ) **Y**es (**X**) **N**o
19) Is the Communications Tower or Non-Tower Structure eligible for listing on the National Register?	( ) **Y**es (**X**) **N**o

Collocation Status

20) Current Collocation Status (Select One):

(**X**) Construction and/or installation has not yet commenced

( ) Construction and/or installation has commenced, but is not completed

Construction and/or installation commenced on: _____

( ) Construction has been completed

Construction and/or installation commenced on: _____ Construction and/or installation completed on: _____

Determination of Effect

21) Direct Effects (Select One):

(**X**) No Historic Properties in Area of Potential Effects (APE)

( ) No Effect on Historic Properties in APE

( ) No Adverse Effect on Historic Properties in APE

( ) Adverse Effect on one or more Historic Properties in APE

22) Visual Effects (Select One):

(**X**) No Historic Properties in Area of Potential Effects (APE)

( ) No Effect on Historic Properties in APE

( ) No Adverse Effect on Historic Properties in APE

( ) Adverse Effect on one or more Historic Properties in APE

Tribal/NHO Involvement

1) Have Indian Tribes or Native Hawaiian Organizations (NHOs) been identified that may attach religious and cultural significance to historic properties which may be affected by the undertaking within the APEs for direct and visual effects?	(**X**) **Y**es ( ) **N**o

2a) Tribes/NHOs contacted through TCNS Notification Number: **275983** Number of Tribes/NHOs: **1**

2b) Tribes/NHOs contacted through an alternate system: Number of Tribes/NHOs: **0**

Tribe/NHO Contacted Through TCNS

3) Tribe/NHO FRN:

4) Tribe/NHO Name: **Office of Hawaiian Affairs**

Contact Name

5) First Name: **Kai**	6) MI:	7) Last Name: **Markell**	8) Suffix:

9) Title: **Compliance Enforcement Manager**

Dates & Response

10) Date Contacted **02/01/2024** 11) Date Replied

(**X**) No Reply

( ) Replied/No Interest

( ) Replied/Have Interest

( ) Replied/Other

Other Tribes/NHOs Contacted

Tribe/NHO Information

1) FCC Registration Number (FRN):
2) Name:

Contact Name

3) First Name:	4) MI:	5) Last Name:	6) Suffix:
7) Title:			

Contact Information

8) P.O. Box:	**And /Or**	9) Street Address:		
10) City:			11) State:	12) Zip Code:
13) Telephone Number:		14) Fax Number:		
15) E-mail Address:				
16) Preferred means of communication: ( ) E-mail ( ) Letter ( ) Both				

Dates & Response

17) Date Contacted _____ 18) Date Replied _____

( ) No Reply

( ) Replied/No Interest

( ) Replied/Have Interest

( ) Replied/Other

Historic Properties

Properties Identified

1) Have any historic properties been identified within the APEs for direct and visual effect?	( ) Yes (X) No
2) Has the identification process located archaeological materials that would be directly affected, or sites that are of cultural or religious significance to Tribes/NHOs?	( ) Yes (X) No
3) Are there more than 10 historic properties within the APEs for direct and visual effect? If "Yes", you are required to attach a Cultural Resources Report in lieu of adding the Historic Property below.	( ) Yes (X) No

Historic Property

4) Property Name:
5) SHPO Site Number:

Property Address

6) Street Address:		
7) City:	8) State:	9) Zip Code:
10) County/Borough/Parish:		

Status & Eligibility

11) Is this property listed on the National Register? Source: _____	( ) Yes ( ) No
12) Is this property eligible for listing on the National Register? Source: _____	( ) Yes ( ) No
13) Is this property a National Historic Landmark?	( ) Yes ( ) No

14) Direct Effects (Select One):

( ) No Effect on this Historic Property in APE

( ) No Adverse Effect on this Historic Property in APE

( ) Adverse Effect on this Historic Property in APE

15) Visual Effects (Select One):

( ) No Effect on this Historic Property in APE

( ) No Adverse Effect on this Historic Property in APE

( ) Adverse Effect on this Historic Property in APE

Local Government Involvement

Local Government Agency

1) FCC Registration Number (FRN):
2) Name: **County of Hawaii Planning Department**

Contact Name

3) First Name: **Alex**	4) MI:	5) Last Name: **Roy**	6) Suffix:
7) Title: **Certified Local Government Coordinator**			

Contact Information

8) P.O. Box:	**And /Or**	9) Street Address: **101 Pauahi Street, Suite 3**		
10) City: **Hilo**			11) State: **HI**	12) Zip Code: **96720**
13) Telephone Number: **(808)961-8140**		14) Fax Number:		
15) E-mail Address: **alex.roy@hawaiicounty.gov**				

16) Preferred means of communication:

(**X**) E-mail

( ) Letter

( ) Both

Dates & Response

17) Date Contacted **02/05/2024** 18) Date Replied _____

(**X**) No Reply

( ) Replied/No Interest

( ) Replied/Have Interest

( ) Replied/Other

Additional Information

19) Information on local government's role or interest (optional):

Other Consulting Parties

Other Consulting Parties Contacted

1) Has any other agency been contacted and invited to become a consulting party?	(**X**) **Y**es ( ) **N**o

Consulting Party

2) FCC Registration Number (FRN):
3) Name: **Historic Hawaii Foundation**

Contact Name

4) First Name: **To Whom**	5) MI:	6) Last Name: **It May Concern**	7) Suffix:
8) Title:			

Contact Information

9) P.O. Box:	**And /Or**	10) Street Address: **680 Iwilei Road, Suite 690**		
11) City: **Honolulu**			12) State: **HI**	13) Zip Code: **96817**
14) Telephone Number: **(808)523-2900**		15) Fax Number:		
16) E-mail Address: **member@historichawaii.org**				

17) Preferred means of communication:

(**X**) E-mail

( ) Letter

( ) Both

Dates & Response

18) Date Contacted **02/05/2024** 19) Date Replied _____

(**X**) No Reply

( ) Replied/No Interest

( ) Replied/Have Interest

( ) Replied/Other

Additional Information

20) Information on other consulting parties' role or interest (optional):

Designation of SHPO/THPO

1) Designate the Lead State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO) based on the location of the tower/collocation.

SHPO/THPO

Name: **State Historic Preservation Office (Hawaii)**

2) You may also designate up to three additional SHPOs/THPOs if the APEs include multiple states. If the APEs include other countries, enter the name of the National Historic Preservation Agency and any state and provincial Historic Preservation Agency

SHPO/THPO Name: _____

SHPO/THPO Name: _____

SHPO/THPO Name: _____

Certification

I certify that all representations on this FCC Form 621 Submission Packet and the accompanying attachments are true, correct, and complete.

Party Authorized to Sign

First Name: **Amanda**	MI:	Last Name: **Wrona**	Suffix:

Signature: **Amanda Wrona** Date: **03/27/2024**

FAILURE TO SIGN THIS APPLICATION MAY RESULT IN DISMISSAL OF THE APPLICATION AND FORFEITURE OF ANY FEES PAID.

WILLFUL FALSE STATEMENTS MADE ON THIS FORM OR ANY ATTACHMENTS ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. Code, Title 18, Section 1001) AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. Code, Title 47, Section 312(a)(1)), AND/OR FORFEITURE (U.S. Code, Title 47, Section 503).

Attachments :

Type	Description	Date Entered
Resumes/Vitae	Resumes	03/27/2024
Map Documents	Maps	03/27/2024
Area of Potential Effects	APE	03/27/2024
Tribal/NHO Involvement	Tribal	03/27/2024
Local Government Involvement	CLG	03/27/2024
Public Involvement	PN	03/27/2024
Historic Properties for Visual Effects	Historic Properties for Visual Effects	03/27/2024
Historic Properties for Direct Effects	Historic Properties for Direct Effects	03/27/2024
Photographs	Photographs	03/27/2024
Other	ITC	03/27/2024
State-Specific Forms	SHPO packet	03/27/2024

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Attachment 1. Consultant Information

Provide a current copy of the resume or curriculum vitae for the Principal Investigator and any researcher or other person who contributed to, reviewed, or provided significant input into the research, analysis, writing or conclusions presented in this filing.

A current copy of the resume for the Principal Investigator and any researcher or other person who contributed to, reviewed, or provided significant input into the research, analysis, writing, or conclusions presented in this filing.

Matthew R. Clark, M.A.
Senior Archaeologist, Co-Director ASM Affiliates-Hilo
Total Year of Experience: 25

ASM affiliates
Archaeology • History • Ethnography • Architectural History

Education

M.A.	2017/Cultural Heritage Management/University of Hawai‘i-Hilo
B.A.	1998/Anthropology/University of Vermont, Burlington

Employment History

2023-present	Director, ASM Affiliates, Hilo, Hawai‘i and Kahului, Maui
2017-2023	Director, ASM Affiliates, Hilo, Hawai‘i
2013-2017	Senior Archaeologist, ASM Affiliates, Hilo, Hawai‘i
2000-2013	Archaeologist, Rechtman Consulting, LLC, Hilo, Hawai‘i
1998-2000	Archaeologist, Holman and Associates, San Francisco, CA

Professional Profile

Matthew R. Clark, M.A., is the Director of ASM's Hilo and Kahului offices and a Senior Archaeologist. He has 25 years of professional archaeological experience, 23 of those years spent in Hawai‘i. He has worked on projects throughout the Hawaiian Islands, and has also participated in projects in Vermont, California, Iowa, New Jersey, and Anguilla, British West Indies. Well-versed in all aspects of archaeology, Mr. Clark has extensive experience in general project, field, and laboratory management including, but not limited to, inventory and reconnaissance surveys, preservation planning, burial treatment planning, data recovery, site testing, excavation, archaeological monitoring, feature restoration, artifact identification and cataloguing, site recordation, GIS, community consultation, record searches, historical background research, Section 106 compliance, ethnographic studies, and technical report writing. Mr. Clark earned his Master of Arts degree in Heritage Management in 2017 from the University of Hawai‘i at Hilo. His Master's thesis explored Kanaka Maoli trail systems in the Ka‘ū region of Hawai‘i Island, and focused on incorporating community heritage values into the management of cultural landscapes. Mr. Clark is identified as a Principal Archaeologist on ASM's Permit to Conduct Archaeological Studies in the State of Hawai‘i issued by the State Historic Preservation Division. In 2021, he was appointed to a 5-year term on the Hawai‘i County Cultural Resources Commission where he currently serves as the chair of the Investigative Sub-committee of SHPD-approved Preservation Plans.

Awards/Commissions

Phi Beta Kappa, University of Vermont (1998).
Graduated Cum Laude from the University of Vermont (1998).
Member of the Hawai‘i County Cultural Resources Commission (5-year term: 2021-2026)

Professional Memberships

Society for Hawaiian Archaeology

Master's Thesis

2017 Crossing the ‘A‘ā: Connecting Cultural Landscapes and Community Values Along the Kula Kai Trails of Hīlea, Ka‘ū, Hawai‘i, Department of Anthropology, University of Hawai‘i at Hilo. (link to PDF copy of thesis)

Selected technical Reports and Projects

Archaeological Reconnaissance Survey of the County of Hawai‘i's 3,128-acre PONC Kahuku Coastal Property, Kahuku Ahupua‘a, Ka‘ū District, island of Hawai‘i. Directed a field crew during the reconnaissance of the entire roughly 3,100-acre property and was the primary author of the reconnaissance survey report (2020).

Archaeological Reconnaissance Survey in support of an Environmental Assessment (EA) for the Planned Department of Hawaiian Home Lands (DHHL) Honokōwai Community. Served as field director and co-author for an archaeological reconnaissance of 777 acres in Honokōwai Ahupua‘a, Lahaina District, Island

of Maui. Conducted background research and preliminary documentation of cultural features located on the property and provided recommendations to DHHL regarding the documentation and treatment of those resources within the context of the proposed development (2019).

Archaeological Inventory Survey of the planned Kukuiola and Village 9 developments within the Villages at LaʻiʻŌpua urban planned community in Kealakehe Ahupuaʻa, North Kona District, Island of Hawaiʻi. Directed a field crew in the survey of a 35.774-acre State-owned parcel and the recordation of archaeological features located therein to update the findings of an earlier archaeological inventory survey and was the primary author responsible for report preparation (2019).

Archaeological Reconnaissance Survey of Kamehameha Schools Lands in Keawanui and Kaʻamola Ahupuaʻa, Kona District, Island of Molokaʻi. Served as field director and co-author for an archaeological reconnaissance of roughly 440 acres and provided preliminary documentation of archaeological sites in an effort to support KS planning efforts (2019).

Kamehameha Schools Coastal Punaluʻu Archaeological Reconnaissance Project. Directed a field crew and co-author for the archaeological reconnaissance of roughly 300 acres of a coastal ʻaʻā flow in the Kaʻū District of Hawaiʻi Island and provided preliminary documentation of archaeological sites in an effort to support KS planning efforts (2018).

Archaeological Inventory Survey of a roughly 1,600 acre property in Kīʻolokū, Hiʻonaʻā, and Honuʻapo ahupuaʻa, Kaʻū District, Island of Hawaiʻi. Directed a field crew in the survey of the property and the recordation of archaeological features located therein. Conducted historical research at the Edmund Olson Trust Archive in Pāpaʻikou, and was the primary author responsible for report preparation (2017).

An Updated Archaeological Inventory Survey for the County of Hawaiʻi Owned Lands at Kaiholena 1st and 2nd ahupuaʻa, North Kohala District, Island of Hawaiʻi. Directed a field crew, recorded roughly 300 archaeological features, and collected GPS data for each feature to aid in the creation of a GIS management tool to be used by the agency landowner (2016).

Archaeological Inventory Survey of a roughly 210-acre portion of the NELHA HOST Park situated North of Makako Bay Drive ʻOʻoma 1st and Kalaoa 5th ahupuaʻa, North Kona District, Island of Hawaiʻi. Directed a field crew in the documentation of over 300 archaeological features and the collection of GPS and served as the primary author of the AIS report (2015).

Archaeological Survey of a Proposed Remote Ungulate Fence at the Kaiholena Unit of The Nature Conservancy's Kaʻū Preserve, Hīlea Nui, Kaʻū, Island of Hawaiʻi. Conducted a pedestrian survey of a roughly 2.85-mile long by 15-foot wide corridor for the proposed remote fence line within the Kaʻū Forest Reserve. Conducted historical research and prepared an archaeological compliance report for the study (2014).

Archaeological Inventory Survey of a 35.5-acre Parcel Located at Pohoiki Bay, County of Hawaiʻi, Pohoiki and Keahialaka ahupuaʻa, Puna District, Island of Hawaiʻi, 2014. Directed a field crew in the survey of the property and the recordation of archaeological features located therein. Also conducted historical research and cultural interviews and served as the primary author of the AIS report (2014).

An Archaeological Inventory Survey for the Proposed Expansion of the County Park at Honuʻapo. Directed a field crew in the survey of the study area and the recordation of archaeological features located in Honuʻapo and Hionaʻā ahupuaʻa, Kaʻū District, Island of Hawaiʻi. Also responsible for historical research and drafting the AIS report (2013).

References:

Robert B. Rechtman, ASM Affiliates, (808) 969-6066
Kathleen Kawelu, University of Hawaiʻi at Hilo Anthropology Department, (808) 333-6717
Peter Mills, University of Hawaiʻi at Hilo Anthropology Department, (808) 932-7268
Sean Naleimaile, DLNR State Historic Preservation Division, (808) 640-5699

TRILEAF

Professional Resume

AMANDA WRONA

PROJECT SCIENTIST

Education

Biological Sciences, B. S.
Arizona State University / Tempe, AZ

Areas of Expertise

Ms. Amanda Wrona has experience performing National Environmental Policy Act (NEPA) reviews for wireless telecommunications projects.

Environmental service expertise includes:

Information Section 7 Consultation
National Wetland Inventory Maps
Flood Insurance Rate Maps
Critical Habitat Maps
Soil Characterization
Field Reconnaissance
Section 106 Compliance
NEPA Environmental Assessments
Form 620/621 Submittals
Local Government Consultation
Native American Consultation

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Attachment 2. Site Information – Photographs

You are required to provide photographs and maps as part of this filing. Additional site information can be provided in an optional attachment.

Photograph Requirements:

Except in cases where no Historic Properties were identified within the Areas of Potential Effects, submit photographs as described below. Photographs should be in color, marked so as to identify the project, keyed to the relevant map or text, and dated; the focal length of the lens and the height of the camera should be noted. The source of any photograph included but not taken by the Applicant or its consultant (including copies of historic images) should be identified on the photograph.

a. **Photographs taken from the site should show views from the proposed location in all directions. The direction (e.g., north, south, etc.) should be indicated on each photograph, and, as a group, the photographs should present a complete (360 degree) view of the area around the proposed site.**
   Please see attached photographs, which were taken by Matthew R. Clark, M.A., A Secretary of the Interior qualified archaeologist with ASM Affiliates, contracted by Trileaf, during a field survey on March 5, 2024, unless otherwise noted.

b. **Photographs of all listed in and eligible properties within the Areas of Potential Effects.**

   N/A

c. **If any listed or eligible properties are visible from the proposed site, photographs looking at the site from each historic property. The approximate distance in feet (meters) between the site and the historic property should be included. If any listed or eligible properties are within the APE, photos looking at each historic property should be included.**
   N/A

   Aerial photographs of the site were obtained using Google Earth and are dated to 2018.

Please refer to Appendix C for Site Photographs

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Attachment 3. Site Information – Map Requirements

Include one or more 7.5-minute quad USGS topographical maps that:

a. **Identify the Areas of Potential Effects for both Direct and Visual Effects. If a map is copied from the original, include a key with the name of quad and date.**
b. **Show the location of the proposed site and any access roads or other easements including excavations.**
c. **Show the locations of each property listed.**
d. **Include keys for any symbols, colors, or other identifiers.**
e. **Submit color maps whenever possible.**

The following maps have been attached to this report:

Topographic Map (2017)

Topographic Map with Location of Direct APE and Visual APE

Aerial Map with Location of Direct APE and Visual APE

Please refer to Appendix B for Site Maps

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Attachment 4. Site Information – Additional Site Information

Describe any additional structures, access roads, utility lines, fences, easements, or other construction planned for the site.

Crown Castle proposes to replace an existing 73-foot 6-inch wooden pole (overall height of 76 feet 11 inches) with a proposed 73-foot 6-inch monopole with an overall height of 75 feet. The new monopole and proposed associated equipment will be installed within the existing 30-foot by 29-foot 1-inch fenced compound lease area. There is no proposed ground disturbance outside of the existing lease area. This site is surrounded by a forest.

The construction drawings provided by *Crown Castle* are included in this attachment.

Please refer to Appendix A for Site Plans

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Attachment 5. Area of Potential Effects

You are required to provide two attachments regarding the Determination of Effect: Areas of Potential Effect and Mitigation of Effect (if applicable).

Areas of Potential Effect Guidelines:

a. Describe the APE for direct effects and explain how this APE was determined.

Under the NPA for FCC Projects, the Direct APE (APE-DE) "is defined as the area of potential ground disturbance and any property, or any portion thereof that will be physically altered or destroyed by the undertaking" (FCC 2004). On November 24, 2008, the FCC further clarified that the APE-DE is limited to the tower or non-tower structure on which the collocation will be mounted as well as the lease area including the access route and utility corridor. The APE-DE for this project consists of 600 square-foot lease area in the northeastern corner of a 23.6-acre privately owned TMK parcel.

b. Describe the APE for visual effects and explain how this APE was determined.

Per the NPA, the Visual APE (APE-VE) is the "geographic area in which the project has the potential to introduce visual elements that diminish or alter the setting, including the landscape, where the setting is a character-defining feature of a historic property that makes it eligible for listing on the National Register of Historic Places (NRHP)" (FCC 2004). The presumed APE-VE for construction of new facilities is the area from where the tower will be visible: a. Within a ½ mile from the tower site if the proposed tower is 200 feet or less in height; b. Within ¾ of a mile from the tower site if the proposed tower is more than 200 but no more than 400 feet in overall height; or c. Within 1½ miles from the tower site if the proposed tower is more than 400 feet in overall height.

Due to the height of the proposed installation (75-feet), the presumed APE for visual effects for this project is a 0.5-mile radius from the subject property.

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Attachment 5. Continued

Mitigation of Effect Guidelines:

In the case of where an Adverse Visual Effect or Adverse Direct Effect has been determined you must provide the following:

a. **Copies of any correspondence and summaries of any oral communication with the SHPO/THPO and any consulting parties.**

   N/A

b. **Describe any alternatives that have been considered that might avoid, minimize, or mitigate any adverse effects. Explain the Applicant's conclusion regarding the feasibility of each alternative.**

   N/A

For each property identified as a Historic Property in the online e-106 form:

a. **Indicate whether the Applicant believes the proposed undertaking would have a) no effect; b) no adverse effect; or, c) an adverse effect. Explain how each such assessment was made. Provide supporting documentation where necessary.**

   There were no recorded HRHP, NHRP, or determined eligible resources located within the APE for direct effects or the 0.5-mile APE for visual effects. No archaeological artifacts were encountered during the field survey. Thus, the proposed undertaking (T-Mobile Kaloko Mauka/ HI04193B Collocation) will have ***No Effect on Historic Properties within either the Visual APE or the Direct APE***. No additional cultural resources work is deemed necessary.

   Please see the attached Cultural Resources Assessment.

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March 22, 2024

Alan Downer, Ph.D.
Deputy SHPO and SHPD Administrator
Department of Land and Natural Resources
State Historic Preservation Division
601 Kamokila Blvd., Suite 555
Kapolei, HI 96707

Subject: Historic Properties Review and Assessment to Accompany FCC Wireless Telecommunications Bureau Collocation Submission Packet (FCC Form 621) for the Proposed T-Mobile Kaloko Mauka/ HI04193B Collocation Upgrade, Kaloko Ahupua'a, North Kona District, Island of Hawai'i, TMK: (3) 7-3-048:003 (por.)

Dear Alan:

At the request of Trileaf, on behalf of Crown Castle, ASM Affiliates (ASM) conducted an historic properties review and assessment for the proposed modification of an existing telecommunications facility within a portion of Tax Map Key (TMK): (3) 7-3-048:003 and located at 73-4310 Huehue St., North Kona district, Island of Hawai'i (Figures 1, 2, and 3). Crown Castle in conjunction with T-Mobile proposes to make modifications to an existing wireless telecommunications facility within an existing 30' x 29'1" fenced compound lease area (Figure 4). The current study was conducted in accordance with the *Nationwide Programmatic Agreement (PA) for the Collocation of Wireless Antennas* executed by the Federal Communications Commission (FCC), the National Conference of State Historic Preservation Officers (NCSHPO), and the Advisory Council on Historic Preservation (ACHP); and the *Nationwide Programmatic Agreement For Review Of Effects On Historic Properties For Certain Undertakings Approved By The Federal Communications Commission* (September 2004). The current document is to be included as part of the FCC Wireless Telecommunications Bureau Collocation Submission Packet (FCC Form 621). This report was prepared to meet the requirements of the FCC's environmental rules (47 Code of Federal Regulations [C.F.R.] § 1.1301-1.1319) and Section 106 of the National Historic Preservation Act (NHPA).

The proposed undertaking, known as the T-Mobile Kaloko Mauka/ HI04193B collocation project (Figures 5 and 6), consists of the following modifications to an existing unmanned telecommunications monopole tower: four antennae will be removed, 2 TMA's will be removed, 8 coax cables will be removed, 4 RRHs will be installed, two 1-5/8 Hybrid cables will be installed, the installation of one 6160 support cabinet, one B160 battery cabinet, one AAV cabinet, and one new steel monopole, and the removal of one wood pole, one BBU cabinet, two RRUS11 B2 RRUs, two radio 4449 B71+B85, and two triplexers. The three (3) proposed equipment cabinets will be installed on an existing 4'x 7'concrete pad, an existing 10' x 20' pad, and an existing 6' x 6' 2" concrete pad. The four (4) additional antennas will be added at a top height of 75'. Ground disturbance will be limited to the installation of the new steel monopole within the existing wireless communication facility.

The Direct APE is located roughly 5,000 feet above sea level. It is situated within a 600 square-foot lease area in the northeastern corner of a 23.6-acre privately owned TMK parcel (see Figure 2). ASM conducted a field inspection of the Direct APE and background research to determine whether historic properties listed, or eligible for listing, in the National Register of Historic Places (NRHP) or the Hawai'i Register of Historic Places (HRHP) exist within the Direct APE or within the 0.5-mile Area of Potential Effects for Visual Effects (visual APE) (see Figure 3).

Culture-Historical Context

The Direct APE is located within Kaloko Ahupuaʻa which is situated in the moku (district) of Kona and is the western most district on Hawaiʻi Island. More specifically, the Direct APE is within the Kona ʻĀkau (North Kona) region that was traditionally extended from Keahualono at its northern end to Puʻuohau at its southern end (Pukui 1983). This region of North Kona was known for its barren coastal region and was called "Kekaha wai ʻole o nā Kona," explained by Pukui (1983:185) as the "waterless Kekaha of the Kona district." This region has also been subject to volcanic forces and has been covered on multiple occasions by lava flows. The Direct APE is situated on the 1800-1801 Kaʻūpūlehu ʻaʻā flow that emanated from Hualālai Volcano.

An important feature of the Kehaha region in Precontact times was the coastline, which contains numerous shallow bays, some of which were transformed by the ancient people into fishponds. Kaloko Ahupuaʻa has been literally defined by Pukui et al. (1974:78) as "the pond," and is likely a reference to the famed fishpond located at the coast. Early residents of Kaloko mostly inhabited the coastal portion of the *ahupuaʻa* where marine resources could be easily exploited. By the 17th and 18th century, Kaloko had a sizable population concentrated at the coast in complexes containing a large heiau, a fishpond, a cemetery, and the residence of a high chief (Puette and Dye 2003).

Although Kaloko is situated in the waterless lands of Kekaha, legendary (Maguire 1966) and archaeological evidence (Wolforth et al. 2005) confirms that the upland portion of the *ahupuaʻa* was a part of an extensive agricultural system that extended across the leeward slopes of Hualālai and Mauna Loa where rainfall was high, and the soils were enriched with volcanic ash (Kirch and McCoy 2023). This agricultural field system, known as the Kona Field System extended from Kaū Ahupuaʻa to the north of Kaloko, south to Hoʻokena Ahupuaʻa (Cordy 1995; Horrocks and Rechtman 2009), with most intensive agricultural occurring between 150-1,200-foot elevation where there was adequate soil and rainfall. The coastal inhabitants utilized mauka/makai trails to access fertile upland agricultural areas. The Direct APE, while not within an area that was utilized for agriculture, is within a vegetation zone known as the *wao* zone (3,000 feet in elevation and above), an area utilized by early Hawaiians for gathering forest resources. The *wao* had several divisions, including the *wao kanaka* (sometimes referred to as the *ʻamaʻu*) which was the area most accessible to humans, the *wao kele*, where giant trees and tree ferns grew, and the *wao akua*, a place of supernatural power, the realm of gods, a place humans seldom ventured. Hard woods, *kukui* nuts, pandanus leaves, *māmaki* tree bark, sandalwood, and other materials, were gathered in the *wao kanaka* (Handy and Handy 1972:56).

The population of Kaloko Ahupuaʻa declined after European contact, and by the 1830s the shoreline population had dwindled in favor of agricultural and ranching pursuits between 1,200 and 1,700 feet of elevation, with some agricultural activity taking place at higher elevations (Nees and Williams 1995). The TMK parcel in which the Direct APE is located was, according to county tax records, previously owned by John Avery Maguire and the Mauna Loa Cattle Corporation, indicating possible ranching land use prior to its current residential land use.

Literature Review Results

Previous archaeological studies have addressed the *mauka* extent of Kona Field System features in the Upland-Forest Zone (2,000 to 5,600 feet elevation) of Kaloko Ahupuaʻa. Cordy et al. (1991) reported that the formal agricultural fields in Kaloko Ahupuaʻa did not extend above the 2,300-foot elevation, and between that elevation and 3,400 feet only scattered agricultural features were identified. Their field study included a reconnaissance survey of 100-meter by 100-meter sample units stratified by elevation, and the highest sample unit (4,000 feet elevation) that they investigated was found to be culturally sterile. Additionally, a *mauka-makai* oriented transect between the 3,000- and 5,600-foot elevation was also culturally sterile. Writing of the Kaloko Mauka subdivision area in general, Cordy et al. (1991:445) concluded that the "low density of remains, and the nature of remains, strongly suggest that the forest in this area was not extensively cleared, but rather was cut in small patches."

Cordy et al.'s (1991) model describing limited use of the Upland Forest Zone in Kaloko has been supported by several archaeological studies conducted *makai* of the study parcel. No historic properties have been observed during archaeological investigations from 4,600 to 2,400 feet (Barna 2020, 2022; Barrera 1998; Rechtman 1998, 2003, 2015a, 2015b; Rechtman and Rivera 2002). An inventory survey by Puette and Dye (2003) recorded no archaeological sites on a parcel located between 2,100 and 2,400 feet elevation, but field inspections by Rosendahl (1989a, 1989b, 1993) of three parcels below the 2,200 foot contour identified four sites. The sites include a small terrace, a modified outcrop, modified lava tube, and rock alignments and mounds. All of these sites were interpreted as either of recent origin or agriculturally related, and no further work was conducted at any of these sites. Nees and Williams (1995) encountered lava tubes with Hawaiian burials, but also at these lower elevations of the Upland-Forest Zone. It should also be noted that no archaeological features were reported on the 1800-1801 Kaʻūpūlehu *ʻaʻā* flow in any of these previous studies.

A review of DLNR-SHPD records for Kaloko Mauka parcels located above 2,400 feet indicates that no other archaeological sites, features, or deposits have been reported above that elevation. Therefore, while Cordy et al.'s (1991) model seems to hold for the lowest elevations of the Kaloko Mauka subdivision, their findings above 2,400 feet remain uncorroborated.

Results of Field Inspection of Direct APE

On March 5, 2024, Matthew R. Clark, M.A. (Principal Investigator), conducted an archaeological field inspection of the Direct APE (Figures 7 through 10). The lease area is enclosed by a chain link fence, with direct access being provided through a driveway via Huehue Street along the southern edge of the Direct APE. No historic properties of any kind were observed during the field inspection.

Results of Background Research for 0.5-mile Radius Visual APE

On March 4, 2024, ASM conducted a search of relevant records on file with the SHPO/DLNR-SHPD for information on previously identified historic properties that are listed in or eligible for listing in the NRHP or HRHP. The results of the literature search indicate that there are no such historic properties located within the visual APE.

Determination of Effect

The current study has identified no NRHP-listed or eligible historic properties within the Direct APE or the 0.5-mile visual APE. Thus, the proposed undertaking (T-Mobile Kaloko Mauka/ HI04193B Collocation) will have no effect on historic properties within either the visual APE or the direct APE.

Should you have any questions or concerns, please feel free to contact me directly.

Sincerely,

Matthew R. Clark, M.A.
Principal Investigator

References Cited

Barna, B.
2020 Archaeological Field Inspection of in support of a County of Hawaii Grubbing Permit for Khanittha Gault property, TMK:(3) 7-3-026:011, Kaloko, North Kona, Hawai‘i. ASM Affiliates Project 35340.00. Prepared for Khanittha Gault.

2022 An archaeological field inspection in support of the Proposed Subdivision of the Sunshine Holdings LLC property, TMK:(3) 7-3-025:012, Kaloko, North Kona, Hawai‘i. ASM Affiliates Project Number 41290.00. Prepared for Micah Christensen.

Barrera, W., Jr.
1998 Archaeological Reconnaissance Survey of a 20 Acre Property, TMK: 7-3-25:14 in Kaloko Ahupuaa, North Kona, Island of Hawaii. Chiniago, Inc. Revised 1998.

Cordy, R.
1995 Central Kona Archaeological Settlement Patterns. State Historic Preservation Division, DLNR, State of Hawaii. Revised 1995. Prepared for Planning Department, County of Hawaii.

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Handy, E. S. C. and E. G. Handy
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Horrocks, M. and R. B. Rechtman (CrossRef)
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2023 *Feathered Gods and Fishhooks: The Archaeology of Ancient Hawai‘i*. Revised ed. University of Hawaii Press, Honolulu.

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Nees, R. and S. Williams
1995 Archaeological Investigations in Five Parcels of the Kaloko Mauka Subdivision, Kaloko Ahupua‘a, North Kona District, Island of Hawaii. Ogden Environmental and Energy Co., Inc. Prepared for Dennis Haserot.

Puette, S. and T. S. Dye
2003 Archaeological Inventory Survey for Kaloko Mauka Parcel, Hawai‘i Island. T.S. Dye & Colleagues. Revised 2003. Prepared for Roy E. King, Jr.

Pukui, M. K. (editor)
1983 *‘Ōlelo No‘eau: Hawaiian proverbs & poetical sayings*. Bishop Museum Press, Honolulu.

Pukui, M. K., S. H. Elbert, and E. Mo‘okini
1974 *Place Names of Hawaii*. Revised and Expanded ed. University of Hawaii Press, Honolulu.

Rechtman, R. B.

1998 Archaeological Field Inspection, Kaloko Mauka Parcel (TMK: 3-7-3-25:15), Kaloko Ahupuaʻa, North Kona District, Island of Hawaii. Paul H. Rosendahl, Ph. D., Inc. 1925-120398. Revised 1998. Prepared for Jim Cardin.

2003 Archaeological Assessment Survey of TMK: 3-7-3-26:5 in Kaloko Mauka, Kaloko Ahupuaʻa, North Kona District, Island of Hawaiʻi. Rechtman Consulting, LLC RC-0173. Revised 2003. Prepared for Roger Weiss, Kailua-Kona, HI.

2015a Archaeological Field Inspection of TMK: (3) 7-3-026:003, Kaloko Ahupuaʻa North Kona, Island of Hawaiʻi in Response to SHPD Comment Letter on Change of Zone Application. ASM Affiliates Letter Report Project Number 24700. Revised 2015. Prepared for DLNR-SHPD.

2015b Archaeological Field Inspection of TMK: (3) 7-3-048:001, Kaloko Ahupuaʻa North Kona, Island of Hawaiʻi in Support of a Change of Zoning Application. ASM Affiliates Letter Report Project Number 24800. Prepared for James Leonard, AICP, Hilo, HI.

Rechtman, R. B. and M. E. Rivera

2002 Archaeological Assessment Survey of TMK: 3-7-3-26:4 in Kaloko Mauka, Kaloko Ahupuaʻa, North Kona District, Island of Hawaiʻi. Rechtman Consulting, LLC 0122. Revised 2002. Prepared for Geoffrey Newlon, Keaʻau HI.

Rosendahl, P. H.

1989a Kaloko Mauka Parcel #1 Field Inspection, Land of Kaloko, North Kona District, Island of Hawaii (TMK: 3-7-3-24:7). Paul H. Rosendahl, Ph. D., Inc. 615-060689. Revised 1989. Prepared for Sidney Fuke & Associates.

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1993 Archaeological Field Inspection, Kaloko Mauka Parcel (TMK: 3-7-3-24:5), Land of Kaloko, North Kona District, Island of Hawaii 1358-022293. Revised 1993. Prepared for William Wilton.

Wolforth, T., C. Monahan, K. Johnson, T. Paikuli-Campbell, and R. Spear

2005 Archaeological Inventory Survey of the Northern Portion of the Kaloko Heights Project in Kohanaiki and Kaloko Ahupuaʻa, North Kona District, Hawaiʻi Island, Hawaiʻi: Settlement Paterns Investigations in the Southern Kekaha Middle Elevations [TMK 3-7-3-09:32]. Scientific Consultant Services, Inc. Project 455-2. Revised 2005. Prepared for Stanford Carr Development, LLC.

Figures and Tables

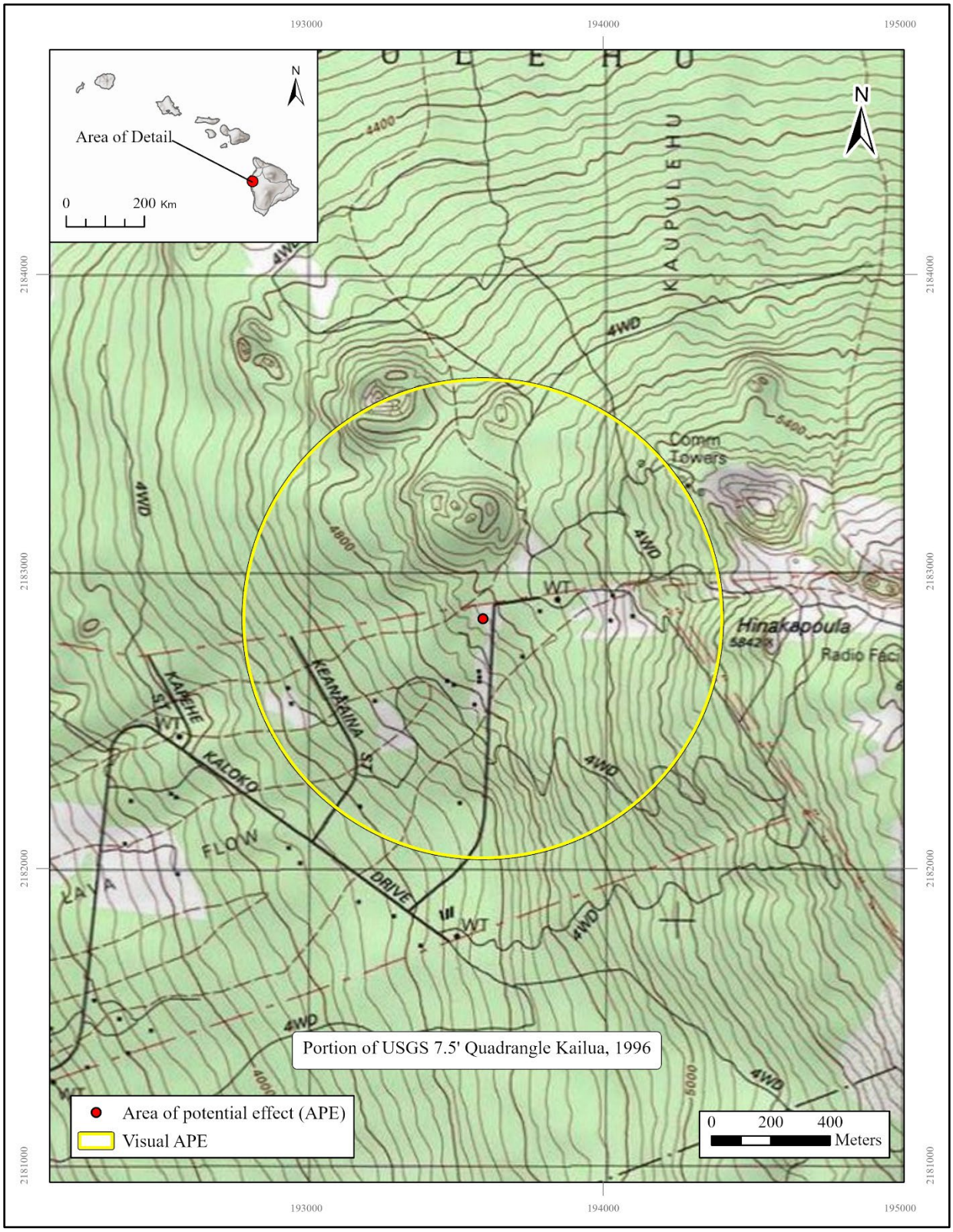


Figure 1. Location of the Direct APE and the Visual APE.

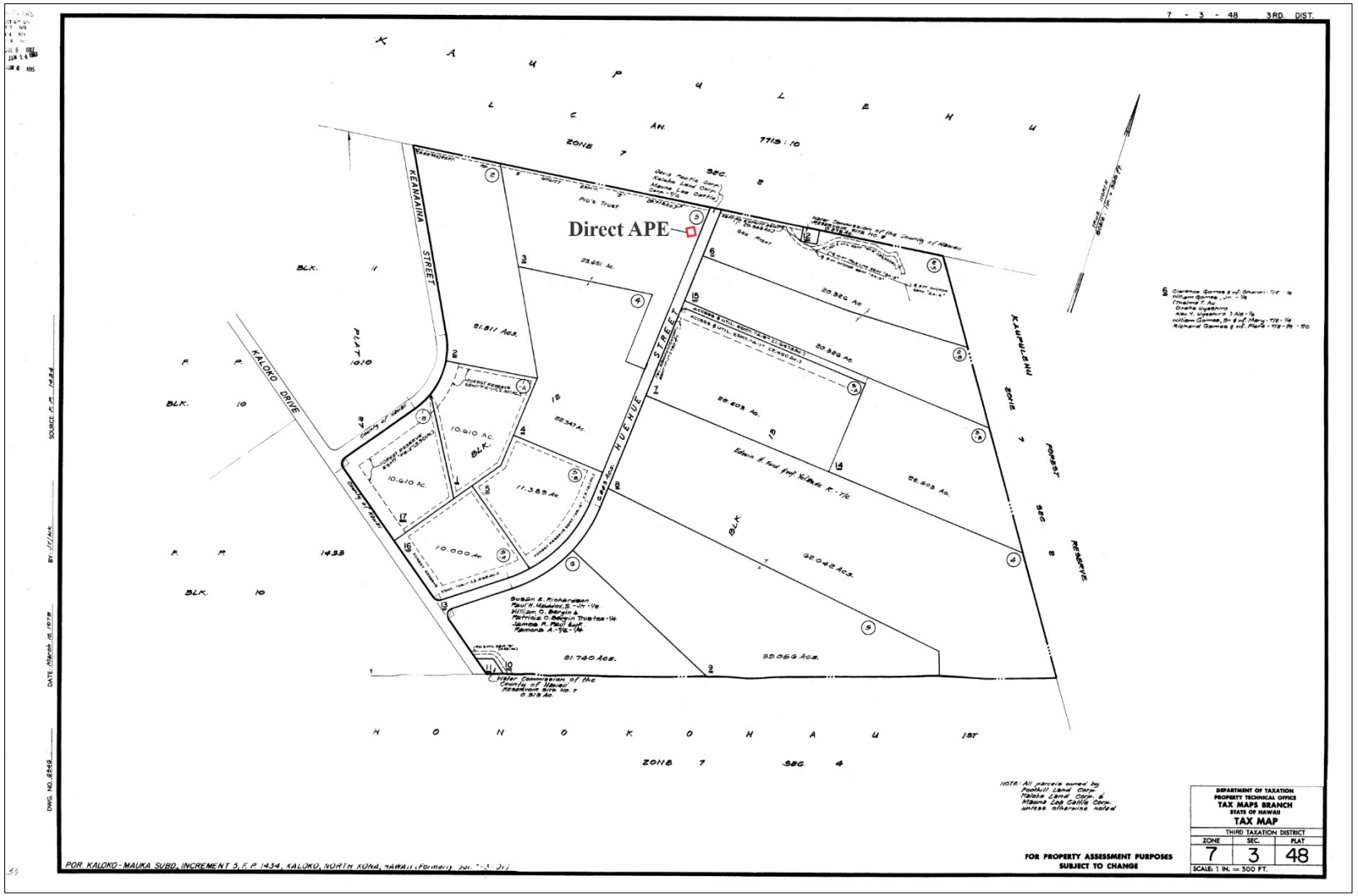


Figure 2. TMK: (3) 7-3-048, showing the Direct APE, a portion of parcel 003.

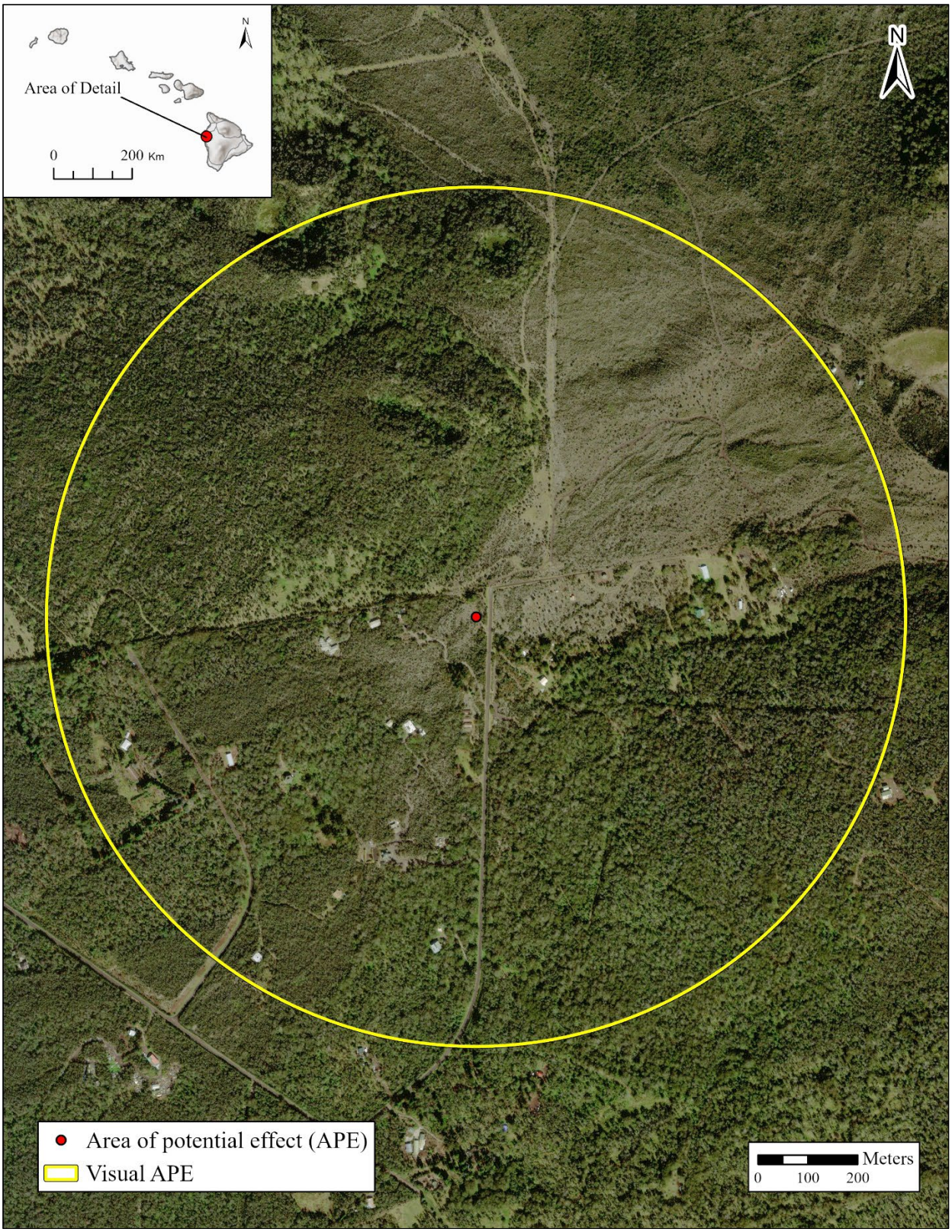


Figure 3. Satellite imagery showing the Direct APE and the Visual APE.

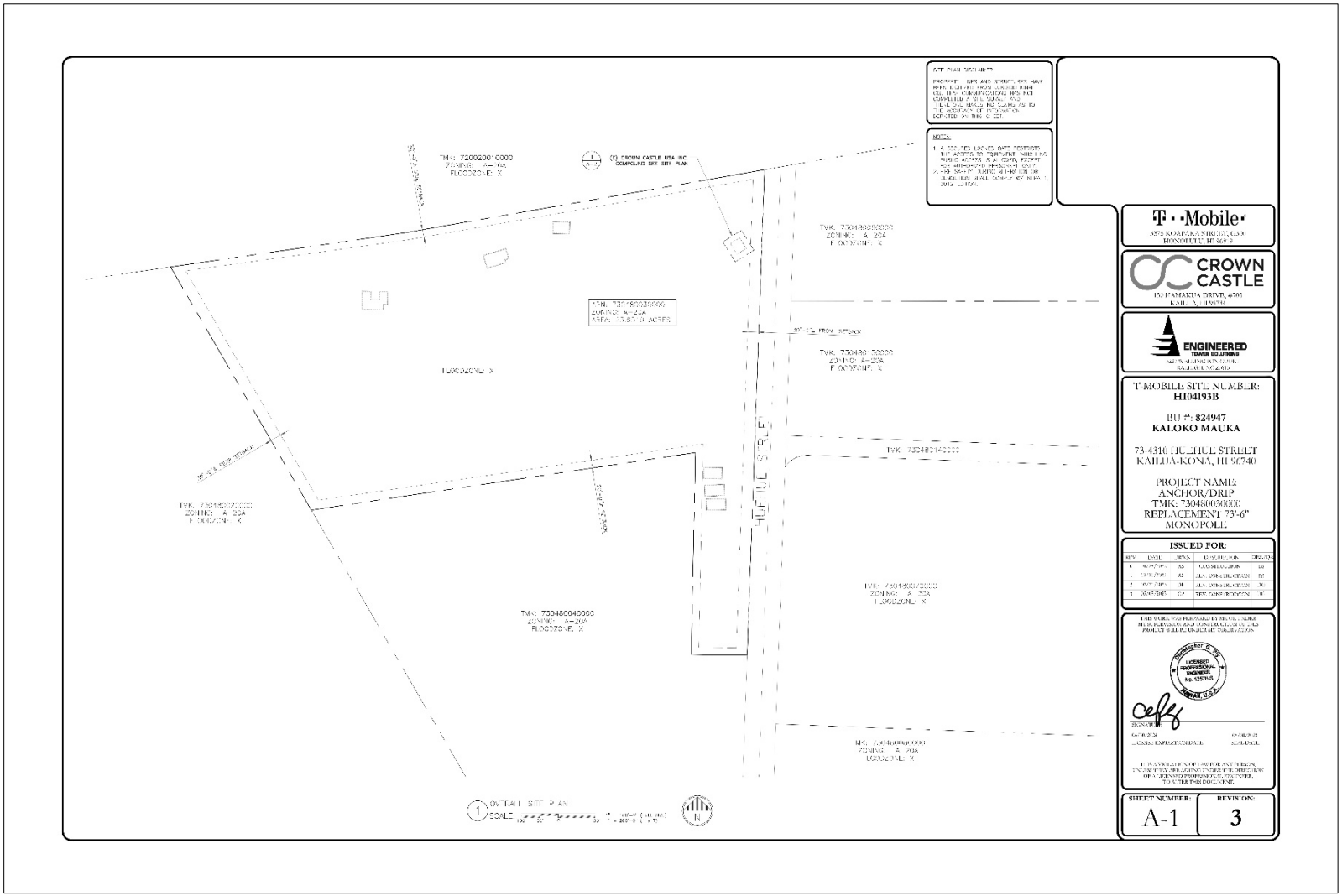


Figure 4. Overall site plan for proposed T-Mobile HI104193B collocation project .

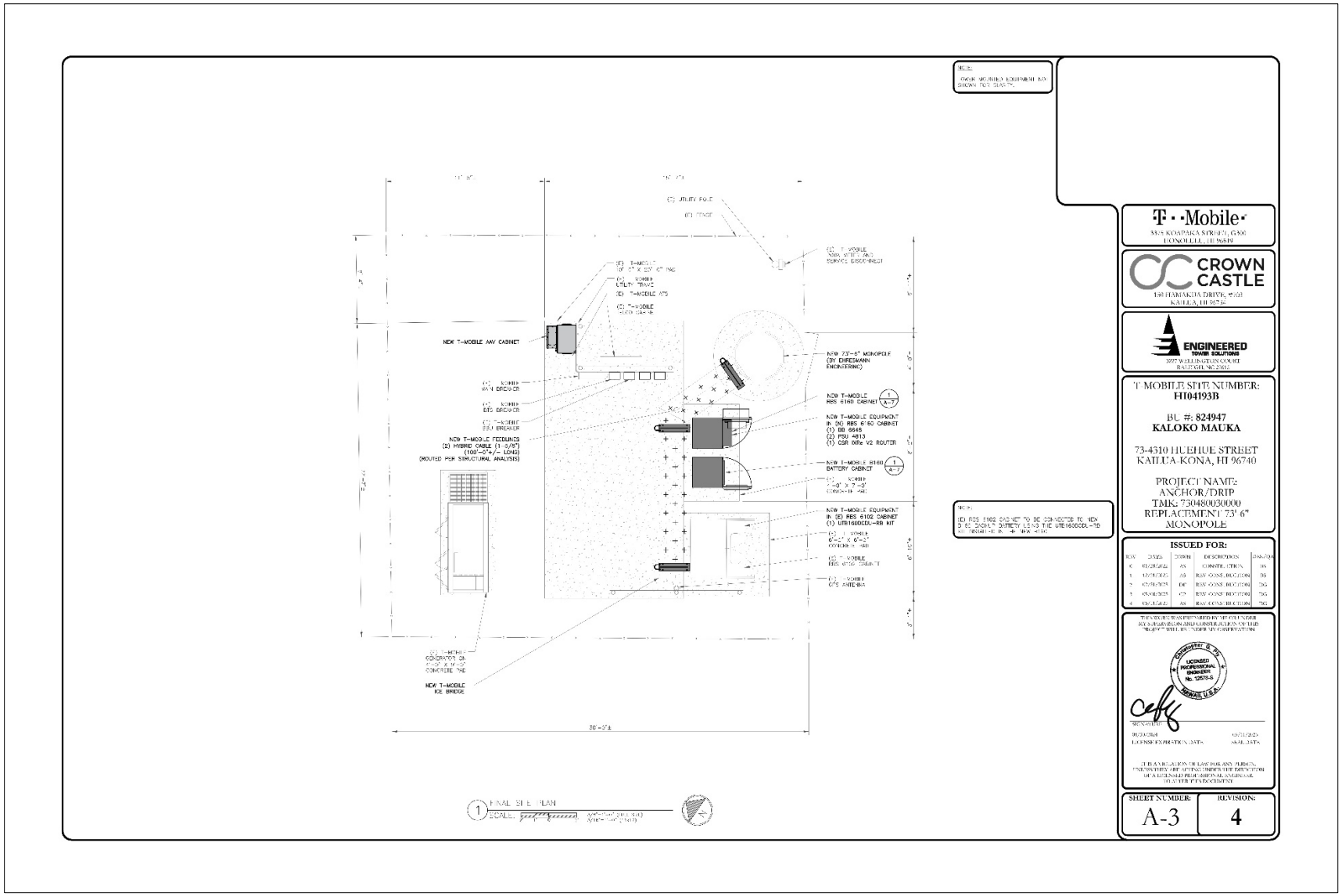


Figure 5. Final proposed site plan.

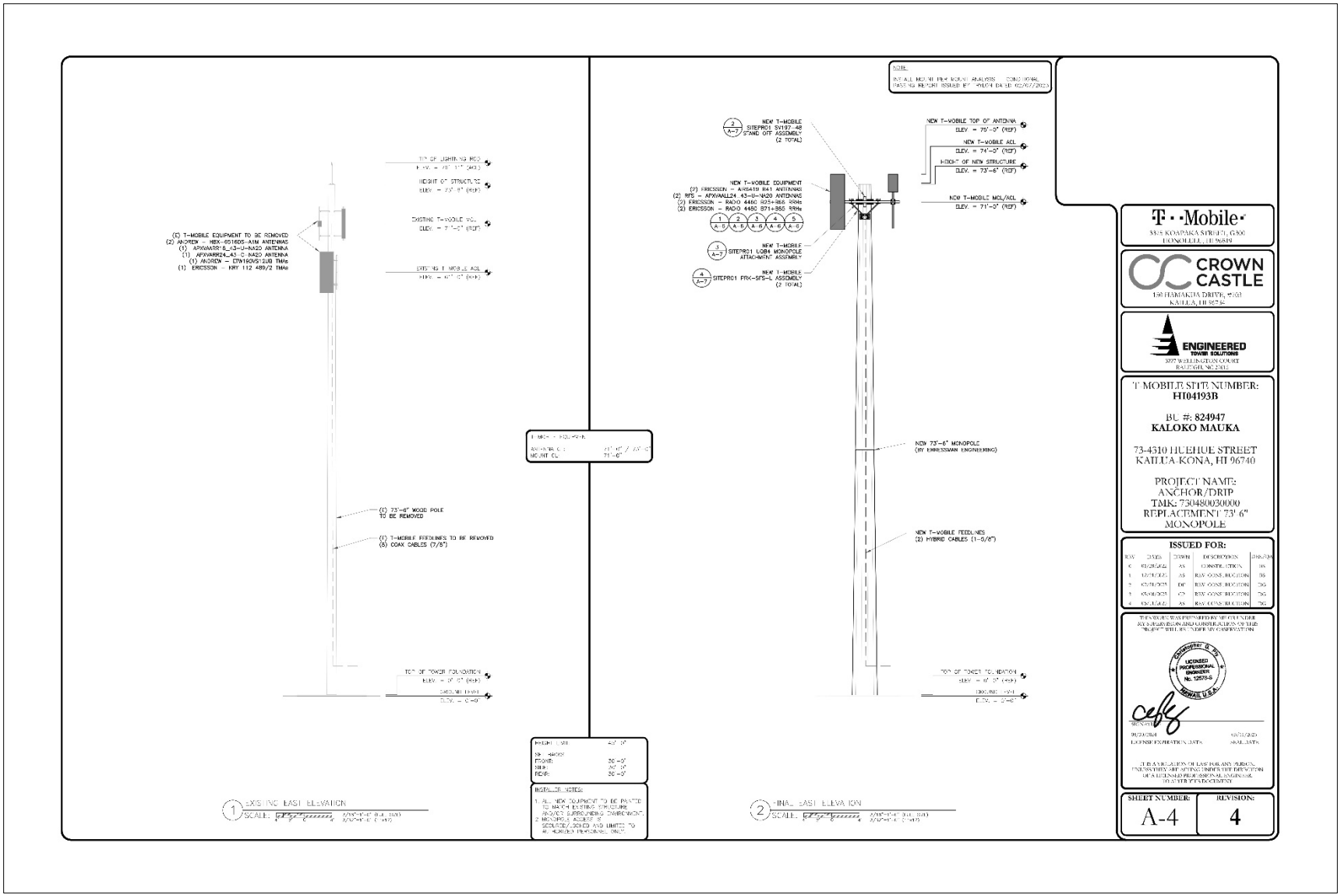


Figure 6. Existing and final elevation drawings.



Figure 7. Direct APE as seen from Huehue Street, view to the north.



Figure 8. Direct APE, view to the east.



Figure 9. Direct APE as seen from Huehue Street, view to the south.



Figure 10. Direct APE as seen from Huehue Street, view to the west.

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3060-1039
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Attachment 6. Tribal and NHO Involvement

At an early stage in the planning process, the Nationwide Agreement requires the Applicant to gather information from appropriate Indian Tribes or Native Hawaiian Organizations ("NHOs") to assist in the identification of Historic Properties of religious and cultural significance to them. Describe measures taken to identify Indian tribes and NHOs that may attach religious and cultural significance to Historic Properties that may be affected by the construction within the Areas of Potential Effects ("APE") for direct and visual effects. If such Indian tribes or NHOs were identified, list them and provide a summary of contacts by either the FCC, the Applicant, or the Applicant's representative. Provide copies of relevant documents, including correspondence. If no such Indian tribes or NHOs were identified, please explain.

Trileaf Corporation completed the Tower Construction Notification System (TCNS) on January 29, 2024 and received the notification of interested tribes on February 2, 2024. The attached FCC Notification email lists the Tribes identified through the TCNS process. A second notice will be sent to all interested tribes/organizations, after a period of 30 days and the consultation process will continue per the FCC's guidelines. Any relevant comments from Tribes received by Trileaf will be forwarded to your office.

From: towernotifyinfo@fcc.gov
Sent: Friday, February 2, 2024 2:02 AM
To: Tribal
Cc: tcnsweekly@fcc.gov
Subject: NOTICE OF ORGANIZATION(S) WHICH WERE SENT PROPOSED TOWER CONSTRUCTION NOTIFICATION INFORMATION - Email ID #8765803

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear Applicant:

Thank you for using the Federal Communications Commission's (FCC) Tower Construction Notification System (TCNS). The purpose of this electronic mail message is to inform you that the following authorized persons were sent the notification that you provided through TCNS, which relates to your proposed antenna structure. The information was forwarded by the FCC to authorized TCNS users by electronic mail and/or regular mail (letter). We note that the review period for all parties begins upon receipt of the Submission Packet pursuant to Section VII.A of the NPA and notifications that do not provide this serve as information only.

Persons who have received the notification that you provided include leaders or their designees of federally-recognized American Indian Tribes, including Alaska Native Villages (collectively "Tribal Nations"), Native Hawaiian Organizations (NHOs), and State Historic Preservation Officers (SHPOs). For your convenience in identifying the referenced Tribal Nations and NHOs and in making further contacts, the City and State of the Seat of Government for each Tribal Nation and NHO, as well as the designated contact person, is included in the listing below. We note that Tribal Nations may have Section 106 cultural interests in ancestral homelands or other locations that are far removed from their current Seat of Government. Pursuant to the Commission's rules as set forth in the Nationwide Programmatic Agreement for Review of Effects on Historic Properties for Certain Undertakings Approved by the Federal Communications Commission (NPA), all Tribal Nations and NHOs listed below must be afforded a reasonable opportunity to respond to this notification, consistent with the procedures set forth below, unless the proposed construction falls within an exclusion designated by the Tribal Nation or NHO. (NPA, Section IV.F.4).

The notification that you provided was forwarded to the following Tribal Nations and NHOs. A Tribal Nation or NHO may not respond until a full Submission Packet is provided. If, upon receipt, the Tribal Nation or NHO does not respond within a reasonable time, you should make a reasonable effort at follow-up contact, unless the Tribal Nation or NHO has agreed to different procedures (NPA, Section IV.F.5). In the event a Tribal Nation or NHO does not respond to a follow-up inquiry, or if a substantive or procedural disagreement arises between you and a Tribal Nation or NHO, you must seek guidance from the Commission (NPA, Section IV.G). These procedures are further set forth in the FCC's Second Report and Order released on March 30, 2018 (FCC 18-30).

1. Compliance Enforcement Manager Kai Markell - Office of Hawaiian Affairs - 560 N. Nimitz Hwy., Suite 200 Honolulu, HI - OHACompliance@oha.org - 808-594-0227 - electronic mail and regular mail

Exclusions: The Office of Hawaiian Affairs (OHA) is not interested in reviewing TCNS projects that involve the replacement of existing structures on rooftops or buildings; the installation of new structures on rooftops or buildings; or, projects that do not involve ground disturbing work.

The notification that you provided was also forwarded to the following SHPOs in the State in which you propose to construct and neighboring States. The information was provided to these SHPOs as a courtesy for their information and planning. You need make no effort at this time to follow up with any SHPO that does not respond to this notification. Prior to construction, you must provide the SHPO of the State in which you propose to construct (or the Tribal Historic Preservation Officer, if the project will be located on certain Tribal lands), with a Submission Packet pursuant to Section VII.A of the NPA unless the project is excluded from SHPO review under Section III D or E of the NPA.

2. Chairperson Suzanne D Case - Department of Land & Natural Resources - 1151 Punchbowl Street - Room 220 Honolulu, HI - suzanne.case@hawaii.gov; Russell.Y.Tsuji@hawaii.gov - 808-587-0401 - electronic mail

3. Deputy SHPO Theresa K Donham - State Historic Preservation Office (Hawaii) - 601 Kamokila Blvd Room 555 Kapolei, HI - theresa.k.donham@hawaii.gov - 808-692-8015 - electronic mail

TCNS automatically forwards all notifications to all Tribal Nations and SHPOs that have an expressed interest in the geographic area of a proposal. However, if a proposal for PTC wayside poles falls within a designated exclusion, you need not expect any response and need not pursue any additional process with that Tribal Nation or SHPO. In addition, a particular Tribal Nation or SHPO may also set forth policies or procedures within its details box that exclude from review certain facilities (for example, a statement that it does not review collocations with no ground disturbance; or that indicates that no response within 30 days indicates no interest in participating in pre-construction review).

Please be advised that the FCC cannot guarantee that the contact(s) listed above have opened and reviewed an electronic or regular mail notification. If you learn that any of the above contact information is no longer valid, please contact the FCC by emailing tcnshelp@fcc.gov. The following information relating to the proposed tower was forwarded to the person(s) listed above:

Notification Received: 01/29/2024
Notification ID: 275983
Excluded from SHPO Review: No
Tower Owner Individual or Entity Name: Crown Castle
Consultant Name: Crystal Macklin
Street Address: 1515 Des Peres Rd. Ste 200
Suite 200
City: St. Louis
State: MISSOURI
Zip Code: 63131
Phone: 314-997-6111
Email: tribal@trileaf.com

Structure Type: MTOWER - Monopole
Latitude: 19 deg 43 min 2.5 sec N
Longitude: 155 deg 55 min 23.0 sec W
Location Description: 73-4310 Huehue Street
City: Kailua-Kona
State: HAWAII
County: HAWAII
Detailed Description of Project: Our client proposes to replace an existing 73'6" wooden pole (overall height 76'11") w/ a new 73'6" monopole w/ an overall height of 75'. New monopole & new associated equip. will be installed w/in an existing 30'x29'1" lease area.
Ground Elevation: 1511.0 meters
Support Structure: 22.4 meters above ground level
Overall Structure: 22.9 meters above ground level
Overall Height AMSL: 1533.9 meters above mean sea level

If you have any questions or comments regarding this notice, please contact the FCC using the electronic Help Request form located on the FCC's website at:

https://urldefense.proofpoint.com/v2/url?u=https-3A__www.fcc.gov_wireless_available-2Dsupport-2Dservices&d=DwIFaQ&c=euGZstcaTDllvimEN8b7jXrwqOf-v5A_CdpgnVfiiMM&r=tVy9dfE6fJUkHc15_Itk39MNoGtgWe1vmeedh3_FbFk&m=SJr4rVzshrKNUvTap6REz9VT8UruzzsiOljNv-6ZP9I4wtKgzLpyPHJ-khTg3hsr&s=02sjxyHIUVdmX-xXJde9lPmEqRcL2N_btzYcEdsnUt0&e=

You may also call the FCC Support Center at (877) 480-3201 (TTY 717-338-2824). Hours are from 8:00 a.m. to 6:00 p.m. Eastern Time, Monday through Friday (except Federal holidays). To provide quality service and ensure security, all telephone calls are recorded.

Thank you,
Federal Communications Commission

This email has been scanned for spam and viruses by Proofpoint Essentials. Visit the following link to report this email as spam:
https://us1.proofpointessentials.com/app/report_spam.php?mod_id=11&mod_option=logitem&report=1&type=easyspam&k=k1&payload=53616c7465645f5f255f8f55643c4a5e1ce189588117a381ad35b071a73d4d1527d5840c8b1531959138b172f92fc3364699a79b29c46390315ab2d7101caefd5cc8592ef05edb31cee92050043cc33524bdf410969958338c979c7221a51cdfcff64613ed559b39a0c9e542facbac34e50906bd5c05d34acba28cfa1d3e2cb3365c99f051186191f86bb3c0c86722825b9f22fed17e924f4c61ed89a3a015ff

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3060-1039
See instructions for
Public burden estimates

Attachment 7. Historic Properties Direct Effects

a. List all properties within the APE for direct effects.

There are no historic properties identified within the APE-DE for the proposed project.

b. Provide the name and address (including U.S. Postal Service ZIP Code) of each property in the APE for direct effects, not listed in part "a" (above), that the Applicant considers to be eligible for listing in the National Register as a result of the Applicant's research. For each such property, describe how it satisfies the criteria of eligibility (36 C.F.R. Part 63). For each property that was specifically considered and determined not to be eligible, describe why it does not satisfy the criteria of eligibility.

There are no additional properties in the APE for direct effects not listed in part "a."

c. Describe the techniques and the methodology, including any field survey, used to identify Historic Properties within the APE for direct effects.[1] If no archeological field survey was performed, provide a report substantiating that: i) the depth of previous disturbance exceeds the proposed construction depth (excluding footings and other anchoring mechanisms) by at least 2 feet; or, ii) geomorphological evidence indicates that cultural resource-bearing soils do not occur within the project area or may occur but at depths that exceed 2 feet below the proposed construction depth.[2]

ASM Archaeologists contracted through Trileaf performed this survey in response to the planned use of the above-described parcel and the potential impacts that such use might present to archaeological and architectural cultural resources. The Phase I cultural resource survey was designed to discover all prehistoric and historical period cultural resources that might be present within the project area.

The field survey of the project area, which included a pedestrian survey, and visual inspection, yielded no evidence for the presence of archaeological resources within the APE. Additionally, no

[1] Pursuant to Section VI.D.2.a. of the Nationwide Agreement, Applicants shall make a reasonable and good faith effort to identify above ground and archeological Historic Properties, including buildings, structures, and historic districts, that lie within the APE for direct effects. Such reasonable and good faith efforts may include a field survey where appropriate.

[2] Under Section VI.D.2.d. of the Nationwide Agreement, an archeological field survey is required even if none of these conditions applies, if an Indian tribe or NHO provides evidence that supports a high probability of the presence of intact archeological Historic Properties within the APE for direct effects.

NRHP-listed or eligible properties were identified within the proposed project's Direct APE. No NRHP listed or eligible properties were identified within the Visual APE (0.5-mile radius).

Based on these findings, Trileaf recommends:

No Historic Properties in the APE-DE and the APE-VE.

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3060-1039
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Public burden estimates

Attachment 8. Historic Properties Visual Effects

Historic Properties Identified for Visual Effects Guidelines

a. Provide the name and address (including U.S. Postal Service ZIP Code) of each property in the APE for visual effects that is listed in the National Register, has been formally determined eligible for listing by the Keeper of the National Register, or is identified as considered eligible for listing in the records of the SHPO/THPO, pursuant to Section VI.D.I.a. of the Nationwide Agreement.

N/A

b. Provide the name and address (including U.S. Postal Service ZIP Code) of each Historic Property in the APE for visual effects, not listed in part "a", identified through the comments of Indian Tribes, NHOs, local governments, or members of the public. Identify each individual or group whose comments led to the inclusion of a Historic Property in this attachment. For each such property, describe how it satisfies the criteria of eligibility (36 C.F.R. Part 63).

As of the date of this report, Trileaf Corporation has not received comments from Indian Tribes, NHOs, local governments, or members of the public that identify Historic Properties in the APE for visual effects.

c. For any properties listed in the above Historic Properties list, that the Applicant considers no longer eligible for inclusion in the National Register, explain the basis for this recommendation.

N/A

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3060-1039
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Public burden estimates

Attachment 9. Local Government

a. If any local government has been contacted and invited to become a consulting party pursuant to Section V.A. of the Nationwide Programmatic Agreement, list the local government agencies contacted. Provide a summary of contacts and copies of any relevant documents (e.g., correspondence or notices).

On February 5, 2024, Mr. Alex Roy with the County of Hawaii Planning Department was notified of the proposed project. He has been invited to comment on the proposed project's potential effect on Historic Properties and to indicate whether he is interested in consulting further on the proposed project. A copy of Trileaf Corporation's correspondence with the County of Hawaii Planning Department is attached. As of this date, no response has been received from Mr Roy. Should a response be received, a copy will be forwarded to all consulting parties as an addendum to this packet.

b. If a local government agency will be contacted but has not been to date, explain why and when such contact will take place.

N/A

TRILEAF
environmental architecture engineering
2121 West Chandler Boulevard, Suite 108, Chandler, Arizona 85224 - 480.850.0575 - www.trileaf.com

February 5, 2024

County of Hawaii Planning Department
Attn: Mr. Alex J. Roy, M.Sc., Certified Local Government Coordinator
101 Pauahi Street, Suite 3
Hilo, Hawaii 96720
Phone: 808-961-8140
Email: alex.roy@hawaiicounty.gov

RE: **Crown Castle – Kaloko Mauka / BU# 824947 – Trileaf Project #735423**
73-4310 Huehue Street, Kailua-Kona, HI 96740
Hawaii County, Kailua Quadrangle (USGS)
Latitude: 19° 43' 2.535" N, Longitude: 155° 55' 22.965" W

Dear Mr. Roy:

Trileaf Corporation is in the process of completing a Section 106 Review at the referenced property. Our client proposes to replace an existing 73-foot 6-inch wooden pole (overall height of 76 feet 11 inches) with a proposed 73-foot 6-inch monopole with an overall height of 75 feet. The new monopole and proposed associated equipment will be installed within the existing 30-foot by 29-foot 1-inch fenced compound lease area. There is no proposed ground disturbance outside of the existing lease area. This site is surrounded by a forest. The antenna will be licensed by the Federal Communications Commission (FCC).

Our investigation includes determining if the site is contained in, on or within the viewshed of a building, site, district, structure or object, significant in American history, architecture, archaeology, engineering or culture, that is listed, or eligible for listing on the State or National Registers of Historic Places, or located in or on an Indian Religious Site.

Trileaf is requesting information regarding this tower's potential effect on Historic Properties. All information received will be forwarded to the State Historic Preservation Office (SHPO) as part of the Section 106 review process. *Additionally, this invitation to comment is separate from any local planning/zoning process that may apply to this project*.

If you wish to comment or be considered a consulting party, please respond within thirty (30) days of the date of this letter. If a response is not received within thirty (30) days, it will be assumed that you have no objections to this undertaking. A site topography map and aerial photograph are enclosed for your reference.

Please call me at (480) 850-0575 or email a.wrona@trileaf.com if you need additional information or have any questions. Thank you for your assistance in this regard.

Sincerely,

Amanda Wrona

Amanda Wrona
Project Scientist I

Approved by OMB
3060-1039
See instructions for
Public burden estimates

Attachment 10. Other Consulting Parties and Public Notice

List additional consulting parties that were invited to participate by the Applicant, or independently requested to participate. Provide any relevant correspondence or other documents.

On February 5, 2024, the Historic Hawaii Foundation was notified of the proposed project. They were invited to comment on the proposed project's potential effect on Historic Properties and to indicate whether they are interested in consulting further on the proposed project. A copy of Trileaf's correspondence with the Historic Hawaii Foundation is attached. As of this date, no response has been received from the Historic Hawaii Foundation. Should a response be received, a copy will be forwarded to all consulting parties as an addendum to this packet.

You are required to provide a Public Notice Attachment.

Attached, please find a copy of a legal notice regarding the proposed telecommunications tower construction that was posted in the *West Hawaii Today* on February 21, 2024. As of the date of this submission packet, no comments regarding this notice have been received by Trileaf Corporation. Should a response be received, copies will be forwarded to all consulting parties as an addendum to this submission packet.

TRILEAF
environmental architecture engineering
2121 West Chandler Boulevard, Suite 108, Chandler, Arizona 85224 - 480.850.0575 - www.trileaf.com

February 5, 2024

Historic Hawaii Foundation
680 Iwilei Road, Suite 690
Honolulu, HI 96817
Phone: 808-523-2900
Email: member@historichawaii.org

RE: **Crown Castle – Kaloko Mauka / BU# 824947 – Trileaf Project #735423**
73-4310 Huehue Street, Kailua-Kona, HI 96740
Hawaii County, Kailua Quadrangle (USGS)
Latitude: 19° 43' 2.535" N, Longitude: 155° 55' 22.965" W

To Whom It May Concern,

Trileaf Corporation is in the process of completing a Section 106 Review at the referenced property. Our client proposes to replace an existing 73-foot 6-inch wooden pole (overall height of 76 feet 11 inches) with a proposed 73-foot 6-inch monopole with an overall height of 75 feet. The new monopole and proposed associated equipment will be installed within the existing 30-foot by 29-foot 1-inch fenced compound lease area. There is no proposed ground disturbance outside of the existing lease area. This site is surrounded by a forest. The antenna will be licensed by the Federal Communications Commission (FCC).

Our investigation includes determining if the site is contained in, on or within the viewshed of a building, site, district, structure or object, significant in American history, architecture, archaeology, engineering or culture, that is listed, or eligible for listing on the State or National Registers of Historic Places, or located in or on an Indian Religious Site.

Trileaf is requesting information regarding this tower's potential effect on Historic Properties. All information received will be forwarded to the State Historic Preservation Office (SHPO) as part of the Section 106 review process. *Additionally, this invitation to comment is separate from any local planning/zoning process that may apply to this project*.

If you wish to comment or be considered a consulting party, please respond within thirty (30) days of the date of this letter. If a response is not received within thirty (30) days, it will be assumed that you have no objections to this undertaking. A site topography map and aerial photograph are enclosed for your reference.

Please call me at (480) 850-0575 or email a.wrona@trileaf.com if you need additional information or have any questions. Thank you for your assistance in this regard.

Sincerely,

Amanda Wrona

Amanda Wrona
Project Scientist I

AFFIDAVIT OF PUBLICATION

IN THE MATTER OF
PUBLIC NOTICE - CNS-3781778

STATE OF HAWAII }
} SS.
City and County of Honolulu }

Doc. Date: FEB 2 1 2024 **# Pages:** 1
Notary Name: COLLEEN E. SORANAKA First Judicial Circuit
Doc. Description: Affidavit of Publication

FEB 2 1 2024
Notary Signature Date

COLLEEN E. SORANAKA NOTARY PUBLIC No. 90-263 STATE OF HAWAII

Kimberly Masu being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of Oahu Publications, Inc. publisher of The Honolulu Star-Advertiser, MidWeek, The Garden Island, West Hawaii Today, and Hawaii Tribune-Herald, that said newspapers are newspapers of general circulation in the State of Hawaii, and that the attached notice is true notice as was published in the

Honolulu Star-Advertiser 0 times on:

MidWeek 0 times on:

The Garden Island 0 times on:

Hawaii Tribune-Herald 0 times on:

West Hawaii Today 1 times on:
02/21/2024

Other Publications: 0 times on:

And that affiant is not a party to or in any way interested in the above entitled matter.

Kimberly Masu

Subscribed to and sworn before me this 21st day of February A.D. 20 24

Colleen E. Soranaka, Notary Public of the First Judicial Circuit, State of Hawaii
My commission expires: Jan 06 2028

COLLEEN E. SORANAKA NOTARY PUBLIC No. 90-263 STATE OF HAWAII

Ad # 0001444375

ICSP.NO.: _____

CNS-3781778#

Crown Castle is proposing to remove and replace an existing 76-foot 11-inch wooden pole with a new 75-foot monopole telecommunications tower at the following site: 73-4310 Huehue Street, Kailua-Kona, Hawaii County, HI 96740, Lat: [19-43-2.535], Long: [-155-55-22.965]. The tower is not expected to be lighted. Crown Castle invites comments from any interested party on the impact of the proposed action on any districts, sites, buildings, structures or objects significant in American history, archaeology, engineering or culture that are listed or determined eligible for listing in the National Register of Historic Places and/or specific reason the proposed action may have a significant impact on the quality of the human environment. Specific information regarding the project is available by contacting Amanda Wrona, a.wrona@trileaf.com, 480-850-0575 during normal business hours. Comments must be received at 2121 W Chandler Boulevard, Suite 108, Chandler, AZ 85224 by March 22, 2024.

Crown Castle is also notifying any interested party that believes the proposed action may have a significant impact on the environment that a Request for Environmental Review (Review) may be submitted to the Federal Communications Commission (FCC). Such Request may only raise environmental concerns. Information regarding the project may be found under file number A1274373 on the FCC website www.fcc.gov/asr/applications. The Request must be filed with the FCC within 30 days of the notice being posted on the FCC website. The FCC requires that all Requests be filed electronically at www.fcc.gov/asr/environmentalrequest. The Request must also be served upon Crown Castle by mailing a copy to 2000 Corporate Drive, Canonsburg, PA 15317 ATTN: Regulatory Department.

(WHT1444375 2/21/24)

Approved by OMB
3060-1039
See instructions for
Public burden estimates

Attachment 11. SHPO Specific Forms

The required cover sheet is attached at the beginning of this packet.

JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA

DAWN N.S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RYAN K.P. KANAKA'OLE
FIRST DEPUTY

DEAN D. UYENO
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII | KA MOKU'ĀINA 'O HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI 'ĀINA

STATE HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING
601 KAMOKILA BLVD, STE 555
KAPOLEI, HAWAII 96707

May 17, 2024

IN REPLY REFER TO:
Project No. 2024PR00402
Doc. No. 2404JG16
Archaeology

Amanda Wrona, Project Scientist I
The Trileaf Corporation
2121 W Chandler Boulevard, Suite 108
Maricopa, AZ 85224
a.wrona@trileaf.com

Dear Amanda Wrona:

SUBJECT: **National Historic Preservation Act (NHPA) Section 106 Historic Preservation Review**
Crown Castle – Kaloko Mauka / BU# 824947 – Trileaf Project #735423
Proposed T-Mobile Kaloko Mauka/HI04193B Collocation Upgrade
TCNS Notification No. 275983
Request for Concurrence with Effect Determination
Kalaoa 1-5 Ahupua'a, North Kona District, Island of Hawai'i
TMK: (3) 7-3-048:003 por.

This letter provides the State Historic Preservation Division's (SHPD's) review of the subject project received by our office on April 1, 2024. The project has been determined to be a federal undertaking as defined in 36 CFR 800.16(y) and, thus, subject to compliance with Section 106 of the NHPA. The Trileaf Corporation submission included a Hawai'i Revised Statutes (HRS) 6E Submission Form and a Federal Communications Commision (FCC) Form 621 which includes a project description, maps and photos, summaries of the identification and consultation efforts, and a request for the SHPO's concurrence with a project effect determination of *no historic properties affected*.

The Trileaf Corportation submission indicates the T-Mobile Kaloko Mauka/HI04193B collocation project consists of the following modifications to an existing unmanned telecommunications monopole tower: four antennae will be removed, two TMA's will be removed, eight coax cables will be removed, 4 RRHs will be installed, two 1-5/8 Hybrid cables will be installed, the installation of one 6160 support cabinet, one B160 battery cabinet, one AAV cabinet, and one new steel monopole, and the removal of one wood pole, one BBU cabinet, two RRUS11 B2 RRUs, two radio 4449 B71+B85, and two triplexers. The three proposed equipment cabinets will be installed on an existing concrete pads. The four additional antennas will be added at a top height of 75 ft. Ground disturbance will be limited to the installation of the new steel monopole within the existing wireless communication facility.

Additionally, Trileaf Corporation indicates that ASM Affiliates completed a historic properties review and assessment in support of the project (Clark, March 2024). It included a field inspection of the Area of Potential Effects (APE) on March 4, 2024. No historic properties were identified within the APE or within a 0.5-mile radius surrounding the APE.

The SHPO concurs with a project effect determination of *no historic properties affected* pursuant to 36 CFR800.4(d)(1), for the proposed project. No historic properties have been identified within the APE.

Please contact Joshua Gastilo at joshua.gastilo@hawaii.gov for questions regarding archaeological resources of this letter.

Aloha,



Dawn N.S. Chang
DLNR Chairperson
State Historic Preservation Officer

cc: Matt Clark, ASM Affiliates, mclark@asmaffiliates.com

From: towernotifyinfo@fcc.gov
To: Amanda Wrona
Subject: Section 106 New Filing Submitted- Email ID #9563918
Date: Wednesday, March 27, 2024 3:45:52 PM

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

The following new Section 106 filing has been submitted:

File Number: 0011000506
TCNS Number: 275983
Purpose: Collocation Submission Packet
Has the Communications Tower or Non-Tower Structure been the subject of SHPO/THPO review? No
Notification Date: 7AM EST 03/28/2024

Applicant: Crown Castle
Consultant: ASM Affiliates on behalf of Trileaf Corporation
Positive Train Control Filing Subject to Expedited Treatment Under Program Comment: No
Site Name: Kaloko Mauka
Site Address: 73-4310 Huehue Street
Detailed Description of Project: Our client proposes to replace an existing 73'6" wooden pole (overall height 76'11") w/ a new 73'6" monopole w/ an overall height of 75'. New monopole & new associated equip. will be installed w/in an existing 30'x29'1" lease area.
Site Coordinates: 19-43-2.5 N, 155-55-23.0 W
City: Kailua-Kona
County: HAWAII
State:HI
Lead SHPO/THPO: State Historic Preservation Office (Hawaii)

Consultant Contact Information:
Name: ASM Affiliates on behalf of Trileaf Corporation
Title: Principal Investigator
PO Box:
Address: 507A E. Lanikaula St.
City: Hilo
State: HI
Zip: 96720
Phone: 480-850-0575
Fax: 480-850-0578
Email: a.wrona@trileaf.com

NOTICE OF FRAUDULENT USE OF SYSTEM, ABUSE OF PASSWORD AND RELATED MISUSE
Use of the Section 106 system is intended to facilitate consultation under Section 106 of the National Historic Preservation Act and may contain information that is confidential, privileged or otherwise protected from disclosure under applicable laws. Any person having access to Section 106 information shall use it only for its intended purpose. Appropriate action will be

taken with respect to any misuse of the system.

Appendix F

Native American Correspondence

Tribal Summary Table

Site: Kaloko Mauka	Site ID: 824947
TCNS Number: 275983	FCC Start: February 2, 2024

Tribe	TCNS auto-reply	Follow Up Request from Tribe		Follow Up(s) to Tribe		Final Reply		FCC Referral	Standing Agreements & Comments
		Date	Requested Information	Date	Sent	Date	Comments		
Office of Hawaiian Affairs				3/28/2024	Sent Letter & Form 620/621	4/9/2024	We now have enough information to conclude that we have no concerns regarding this project.		

From: towernotifyinfo@fcc.gov
Sent: Friday, February 2, 2024 2:02 AM
To: Tribal
Cc: tcnsweekly@fcc.gov
Subject: NOTICE OF ORGANIZATION(S) WHICH WERE SENT PROPOSED TOWER CONSTRUCTION NOTIFICATION INFORMATION - Email ID #8765803

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear Applicant:

Thank you for using the Federal Communications Commission's (FCC) Tower Construction Notification System (TCNS). The purpose of this electronic mail message is to inform you that the following authorized persons were sent the notification that you provided through TCNS, which relates to your proposed antenna structure. The information was forwarded by the FCC to authorized TCNS users by electronic mail and/or regular mail (letter). We note that the review period for all parties begins upon receipt of the Submission Packet pursuant to Section VII.A of the NPA and notifications that do not provide this serve as information only.

Persons who have received the notification that you provided include leaders or their designees of federally-recognized American Indian Tribes, including Alaska Native Villages (collectively "Tribal Nations"), Native Hawaiian Organizations (NHOs), and State Historic Preservation Officers (SHPOs). For your convenience in identifying the referenced Tribal Nations and NHOs and in making further contacts, the City and State of the Seat of Government for each Tribal Nation and NHO, as well as the designated contact person, is included in the listing below. We note that Tribal Nations may have Section 106 cultural interests in ancestral homelands or other locations that are far removed from their current Seat of Government. Pursuant to the Commission's rules as set forth in the Nationwide Programmatic Agreement for Review of Effects on Historic Properties for Certain Undertakings Approved by the Federal Communications Commission (NPA), all Tribal Nations and NHOs listed below must be afforded a reasonable opportunity to respond to this notification, consistent with the procedures set forth below, unless the proposed construction falls within an exclusion designated by the Tribal Nation or NHO. (NPA, Section IV.F.4).

The notification that you provided was forwarded to the following Tribal Nations and NHOs. A Tribal Nation or NHO may not respond until a full Submission Packet is provided. If, upon receipt, the Tribal Nation or NHO does not respond within a reasonable time, you should make a reasonable effort at follow-up contact, unless the Tribal Nation or NHO has agreed to different procedures (NPA, Section IV.F.5). In the event a Tribal Nation or NHO does not respond to a follow-up inquiry, or if a substantive or procedural disagreement arises between you and a Tribal Nation or NHO, you must seek guidance from the Commission (NPA, Section IV.G). These procedures are further set forth in the FCC's Second Report and Order released on March 30, 2018 (FCC 18-30).

1. Compliance Enforcement Manager Kai Markell - Office of Hawaiian Affairs - 560 N. Nimitz Hwy., Suite 200 Honolulu, HI - OHACompliance@oha.org - 808-594-0227 - electronic mail and regular mail

Exclusions: The Office of Hawaiian Affairs (OHA) is not interested in reviewing TCNS projects that involve the replacement of existing structures on rooftops or buildings; the installation of new structures on rooftops or buildings; or, projects that do not involve ground disturbing work.

The notification that you provided was also forwarded to the following SHPOs in the State in which you propose to construct and neighboring States. The information was provided to these SHPOs as a courtesy for their information and planning. You need make no effort at this time to follow up with any SHPO that does not respond to this notification. Prior to construction, you must provide the SHPO of the State in which you propose to construct (or the Tribal Historic Preservation Officer, if the project will be located on certain Tribal lands), with a Submission Packet pursuant to Section VII.A of the NPA unless the project is excluded from SHPO review under Section III D or E of the NPA.

2. Chairperson Suzanne D Case - Department of Land & Natural Resources - 1151 Punchbowl Street - Room 220 Honolulu, HI - suzanne.case@hawaii.gov; Russell.Y.Tsuji@hawaii.gov - 808-587-0401 - electronic mail

3. Deputy SHPO Theresa K Donham - State Historic Preservation Office (Hawaii) - 601 Kamokila Blvd Room 555 Kapolei, HI - theresa.k.donham@hawaii.gov - 808-692-8015 - electronic mail

TCNS automatically forwards all notifications to all Tribal Nations and SHPOs that have an expressed interest in the geographic area of a proposal. However, if a proposal for PTC wayside poles falls within a designated exclusion, you need not expect any response and need not pursue any additional process with that Tribal Nation or SHPO. In addition, a particular Tribal Nation or SHPO may also set forth policies or procedures within its details box that exclude from review certain facilities (for example, a statement that it does not review collocations with no ground disturbance; or that indicates that no response within 30 days indicates no interest in participating in pre-construction review).

Please be advised that the FCC cannot guarantee that the contact(s) listed above have opened and reviewed an electronic or regular mail notification. If you learn that any of the above contact information is no longer valid, please contact the FCC by emailing tcnshelp@fcc.gov. The following information relating to the proposed tower was forwarded to the person(s) listed above:

Notification Received: 01/29/2024
Notification ID: 275983
Excluded from SHPO Review: No
Tower Owner Individual or Entity Name: Crown Castle
Consultant Name: Crystal Macklin
Street Address: 1515 Des Peres Rd. Ste 200
Suite 200
City: St. Louis
State: MISSOURI
Zip Code: 63131
Phone: 314-997-6111
Email: tribal@trileaf.com

Structure Type: MTOWER - Monopole
Latitude: 19 deg 43 min 2.5 sec N
Longitude: 155 deg 55 min 23.0 sec W
Location Description: 73-4310 Huehue Street
City: Kailua-Kona
State: HAWAII
County: HAWAII
Detailed Description of Project: Our client proposes to replace an existing 73'6" wooden pole (overall height 76'11") w/ a new 73'6" monopole w/ an overall height of 75'. New monopole & new associated equip. will be installed w/in an existing 30'x29'1" lease area.
Ground Elevation: 1511.0 meters
Support Structure: 22.4 meters above ground level
Overall Structure: 22.9 meters above ground level
Overall Height AMSL: 1533.9 meters above mean sea level

If you have any questions or comments regarding this notice, please contact the FCC using the electronic Help Request form located on the FCC's website at:

https://urldefense.proofpoint.com/v2/url?u=https-3A__www.fcc.gov_wireless_available-2Dsupport-2Dservices&d=DwIFaQ&c=euGZstcaTDllvimEN8b7jXrwqOf-v5A_CdpgnVfiiMM&r=tVy9dfE6fJUkHc15_Itk39MNoGtgWe1vmeedh3_FbFk&m=SJr4rVzshrKNUvTap6REz9VT8UruzzsiOljNv-6ZP9I4wtKgzLpyPHJ-khTg3hsr&s=02sjxyHIUVdmX-xXJde9lPmEqRcL2N_btzYcEdsnUt0&e=

You may also call the FCC Support Center at (877) 480-3201 (TTY 717-338-2824). Hours are from 8:00 a.m. to 6:00 p.m. Eastern Time, Monday through Friday (except Federal holidays). To provide quality service and ensure security, all telephone calls are recorded.

Thank you,
Federal Communications Commission

This email has been scanned for spam and viruses by Proofpoint Essentials. Visit the following link to report this email as spam:
https://us1.proofpointessentials.com/app/report_spam.php?mod_id=11&mod_option=logitem&report=1&type=easyspam&k=k1&payload=53616c7465645f5f255f8f55643c4a5e1ce189588117a381ad35b071a73d4d1527d5840c8b1531959138b172f92fc3364699a79b29c46390315ab2d7101caefd5cc8592ef05edb31cee92050043cc33524bdf410969958338c979c7221a51cdfcff64613ed559b39a0c9e542facbac34e50906bd5c05d34acba28cfa1d3e2cb3365c99f051186191f86bb3c0c86722825b9f22fed17e924f4c61ed89a3a015ff

TRILEAF
environmental architecture engineering
1515 Des Peres Road, Suite 200, Saint Louis, Missouri 63131 - 314.997.6111 www.trileaf.com

March 28, 2024

Office of Hawaiian Affairs
Mr. Kai Markell
560 N. Nimitz Highway
Suite 200
Honolulu, HI 96817

RE: Crown Castle
Trileaf Project # 735423 / 824947 / Kaloko Mauka
73-4310 Huehue Street, Kailua-Kona, Hawaii County, HI 96740
Latitude: 19° 43' 2.54" N, Longitude: 155° 55' 22.97" W
TCNS # 275983

Dear Mr. Markell:

This project was originally submitted in TCNS on 2/2/2024. Trileaf Corporation is in the process of completing a NEPA Review at the above referenced property. Our investigation includes determining if the site is contained in, on, or within the viewshed of a building, site, district, structure or object, significant in American history, architecture, archeology, engineering or culture, that is listed or eligible for listing on the State or National Registers of Historic Places, or located in or on, or within the viewshed of an Indian Religious Site. Trileaf has learned your tribe has an interest in property located within this County.

Our client proposes to replace an existing 73-foot 6-inch wooden pole (overall height of 76 feet 11 inches) with a proposed 73-foot 6-inch monopole with an overall height of 75 feet. The new monopole and proposed associated equipment will be installed within the existing 30-foot by 29-foot 1-inch fenced compound lease area. There is no proposed ground disturbance outside of the existing lease area. This site is surrounded by a forest.

The form 620/621 submission packet is attached for your review. Please let us know if you have any objections or comments on this project as soon as possible. Contact me at (314) 997-6111 or email tribal@trileaf.com if you have any questions. Thank you for your assistance in this regard.

Sincerely,

Crystal L. Macklin
Tribal Consultation Manager

From: Kamakana Ferreira
To: Tribal
Subject: RE: TCNS # 275983 - Office of Hawaiian Affairs - For Review
Date: Tuesday, April 9, 2024 7:00:36 PM
Attachments: image001.png

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Thank you for sending the full submittal packet over to the Office of Hawaiian Affairs (OHA) pursuant to our request for information on February 6 via the FCC TCNS website. We now have enough information to conclude that we have no concerns regarding this project. Given the height of the project above sea level and a lack of historic properties being found above 2400 feet, OHA agrees that there is little chance of encountering subsurface deposits.

Mahalo,

Kamakana C. Ferreira, M.A.
Lead Compliance Specialist
Office of Hawaiian Affairs
560 N. Nimitz Hwy
Honolulu, Hi. 96817

(808)594-0227

From: Tribal <tribal@trileaf.com>
Sent: Thursday, March 28, 2024 5:44 AM
To: OHACompliance @oha.org <OHACompliance@oha.org>
Subject: TCNS # 275983 - Office of Hawaiian Affairs - For Review

Hello,

Please find attached the information regarding the above project. Please let me know if you have any questions or concerns as soon as possible.

Thank you,

Crystal Macklin
Tribal Consultation Manager

TRILEAF
environmental architecture engineering

1515 Des Peres Rd, Suite 200
St. Louis, MO 63131
Office: (314) 997-6111, ext. 243

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JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA

DAWN N.S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RYAN K.P. KANAKA'OLE
FIRST DEPUTY

DEAN D. UYENO
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII | KA MOKU'ĀINA 'O HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI 'ĀINA

STATE HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING
601 KAMOKILA BLVD, STE 555
KAPOLEI, HAWAII 96707

May 17, 2024

IN REPLY REFER TO:
Project No. 2024PR00402
Doc. No. 2404JG16
Archaeology

Amanda Wrona, Project Scientist I
The Trileaf Corporation
2121 W Chandler Boulevard, Suite 108
Maricopa, AZ 85224
a.wrona@trileaf.com

Dear Amanda Wrona:

SUBJECT: **National Historic Preservation Act (NHPA) Section 106 Historic Preservation Review**
Crown Castle – Kaloko Mauka / BU# 824947 – Trileaf Project #735423
Proposed T-Mobile Kaloko Mauka/HI04193B Collocation Upgrade
TCNS Notification No. 275983
Request for Concurrence with Effect Determination
Kalaoa 1-5 Ahupua'a, North Kona District, Island of Hawai'i
TMK: (3) 7-3-048:003 por.

This letter provides the State Historic Preservation Division's (SHPD's) review of the subject project received by our office on April 1, 2024. The project has been determined to be a federal undertaking as defined in 36 CFR 800.16(y) and, thus, subject to compliance with Section 106 of the NHPA. The Trileaf Corporation submission included a Hawai'i Revised Statutes (HRS) 6E Submission Form and a Federal Communications Commision (FCC) Form 621 which includes a project description, maps and photos, summaries of the identification and consultation efforts, and a request for the SHPO's concurrence with a project effect determination of *no historic properties affected*.

The Trileaf Corportation submission indicates the T-Mobile Kaloko Mauka/HI04193B collocation project consists of the following modifications to an existing unmanned telecommunications monopole tower: four antennae will be removed, two TMA's will be removed, eight coax cables will be removed, 4 RRHs will be installed, two 1-5/8 Hybrid cables will be installed, the installation of one 6160 support cabinet, one B160 battery cabinet, one AAV cabinet, and one new steel monopole, and the removal of one wood pole, one BBU cabinet, two RRUS11 B2 RRUs, two radio 4449 B71+B85, and two triplexers. The three proposed equipment cabinets will be installed on an existing concrete pads. The four additional antennas will be added at a top height of 75 ft. Ground disturbance will be limited to the installation of the new steel monopole within the existing wireless communication facility.

Additionally, Trileaf Corporation indicates that ASM Affiliates completed a historic properties review and assessment in support of the project (Clark, March 2024). It included a field inspection of the Area of Potential Effects (APE) on March 4, 2024. No historic properties were identified within the APE or within a 0.5-mile radius surrounding the APE.

The SHPO concurs with a project effect determination of *no historic properties affected* pursuant to 36 CFR800.4(d)(1), for the proposed project. No historic properties have been identified within the APE.

Please contact Joshua Gastilo at joshua.gastilo@hawaii.gov for questions regarding archaeological resources of this letter.

Aloha,

Dawn N.S. Chang
DLNR Chairperson
State Historic Preservation Officer

cc: Matt Clark, ASM Affiliates, mclark@asmaffiliates.com

Appendix G

Resumes

TRILEAF

Professional Resume

AMANDA WRONA

PROJECT SCIENTIST

Education

Biological Sciences, B. S.
Arizona State University / Tempe, AZ

Areas of Expertise

Ms. Amanda Wrona has experience performing National Environmental Policy Act (NEPA) reviews for wireless telecommunications projects.

Environmental service expertise includes:

Information Section 7 Consultation
National Wetland Inventory Maps
Flood Insurance Rate Maps
Critical Habitat Maps
Soil Characterization
Field Reconnaissance
Section 106 Compliance
NEPA Environmental Assessments
Form 620/621 Submittals
Local Government Consultation
Native American Consultation

TRILEAF

Professional Resume

EMILY V. SENNE

PROJECT MANAGER

Education

B.S. Biology / Emphasis Marine and Freshwater Ecology.
University of Wisconsin - Whitewater / Whitewater, WI

Areas of Expertise

Ms. Senne has experience performing site inspections and conducting environmental due diligence pursuant to EPA All Appropriate Inquiries (AAI) and the American Society of Testing and Materials (ASTM), as well as performing National Environmental Policy Act (NEPA) and National Programmatic Agreement (NPA) reviews for commercial real estate, lending, and wireless telecommunications projects. Ms. Moss operates as the primary point-of-contact for clients over a large geography, specializing within the Western Region of the United States.

Environmental service expertise includes:

Archaeological and Architectural Impacts
Critical Habitat Maps
Environmental Evaluation Summaries
Field Reconnaissance
Flood Insurance Rate Maps
Form 620/621 Submittals
Historical City Directories
Historical Topographic Maps and Aerial Imagery
Indoor Air Quality Assessments
Informal Section 7 Consultation
Land Use History
Local Government Consultation
Migratory Bird Evaluations
Mold and Lead-Based Paint Surveys
National Wetlands Inventory Maps
Native American Consultation
NEPA Environmental Assessments
Phase I Environmental Site Assessments
Preliminary Risk Assessments
Records Search with Risk Assessment (RSRA)
Section 106 Compliance
Soil and Groundwater Management Plans
Soil Characterization
Vendor Management

Certifications/Affiliations

Adult Child Infant CARE CPR & First Aid Certification
ANSI/FCC RF Radiation Safety Competent Person
Environmental Professional (EP) as defined by ASTM Standard E1527-21 (AAI)

William P. Kenoi
Mayor

Duane Kanuha
Director

Bobby Command
Deputy Director

West Hawai'i Office
74-5044 Ane Keohokalole Hwy
Kailua-Kona, Hawai'i 96740
Phone (808) 323-4770
Fax (808) 327-3563

County of Hawai'i
PLANNING DEPARTMENT

East Hawai'i Office
101 Pauahi Street, Suite 3
Hilo, Hawai'i 96720
Phone (808) 961-8288
Fax (808) 961-8742

June 13, 2013

Christina Perez
The LYLE Company
3140 Gold Camp Drive Suite 30
Rancho Cordova, CA 95670

RE: Request for Zoning Verification for Telecommunication Antenna
Tax Map Key ("TMK"): (3) 7-3-048:003; COR 13-084648

Dear Christina Perez:

This letter is in response to your e-mail dated April 11, 2013 requesting zoning verification for a Telecommunications Antenna.

The subject property is zoned by Hawai'i County as Agricultural 20 acres (A-20a) and is located within the State Land Use "Agricultural" District. The A-20a zone is subject to possible changes by the Hawai'i County Council but does not have an automatic time for expiration. Please see Hawai'i County Code (HCC) Section 25-4-12 for the section referring to Telecommunication Antennas & Towers. The zoning code is Chapter 25 which can be found at www.cohplanningdepartment.com

Final Plan Approval was granted by the Planning Director on April 2, 1997, which approved the Telecommunication Antenna.

The existing Telecommunication Antenna is a legal use and is considered a Nonconforming Use of the subject property pursuant to Section 25-4-61(a) of the HCC. Prior to 2007, Hawai'i County allowed the construction and operation of wireless communication antennas and towers on State Land Use Agricultural Districts lands with a Special Permit. In 2007, the Hawai'i State Legislature adopted Act 171, which allowed wireless communication antennas and towers to be permitted uses in the State Land Use Agricultural District with no Special Permit required by the County Planning Commission. In 2010, the Hawai'i County Council adopted Ordinance 10-17, which allows a telecommunication antenna or tower in the County Agricultural District if a Use Permit is first granted by the County Planning Commission. The installation of additional antennas or equipment upon the existing tower within its existing building envelope may be permitted, provided that such additions are first reviewed and approved by this office through Plan Approval. Any contemplated expansion of the pole and its support facility may require the issuance of a Use Permit from the Planning Commission.

Planning Dept.
Exhibit 2

Copies of the Final Plan approval can be obtained at a cost of $1.00 for the 1st page and $0.10 for each additional page for each new document. You will need to make arrangements with a copy company if you need copies of materials such as site plans which are larger than 11" X 17".

Please contact the Building Division at (808) 323-4720 for the Certificate of Occupancy and final inspections.

In order for the Planning Director to determine compliance with current zoning regulations, a site plan prepared by a licensed surveyor would need to be submitted, which shows the location and use of all existing structures on the property.

The Planning Department does not have any record of citations issued for violations of the Hawai'i County Zoning code for the subject parcel. Previous building permits issued for the subject parcel would have been required to be in compliance with height restrictions, setback requirements, landscaping and parking requirements at time of issuance.

If you have any further questions about this matter, please contact Mark Taylor at the West Hawai'i office at (808) 323-4784.

Sincerely,

DUANE KANUHA
Planning Director

MJT:mjt
\\Coh21\planning_kona\Staff\Mark\zoning verification vs 2\73048003 telecommunication.doc

Cc: West Hawai'i Office

JOSH GREEN, M.D.
GOVERNOR OF HAWAII
KE KIA'AINA O KA MOKU'AINA O HAWAI'I

KENNETH S. FINK, M.D, MGA, MPH
DIRECTOR OF HEALTH
KA LUNA HO'OKELE

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 916
HILO, HAWAII 96721-0916

MEMORANDUM

DATE: October 18, 2024

TO: Mr. Zendo Kern
Planning Director, County of Hawaii

FROM: Eric Honda
District Environmental Health Program Chief

SUBJECT: Use Permit Application (PL-USE-2024-000029)
Applicant: Crown Castle
Request: To Allow an Upgrade to an Existing Telecommunication Facility, Including Replacement of an Existing 73'-6" Wood Pole with a New 73'-6" Steel Monopole and Equipment Compound
Tax Map Key: (3) 7-3-048:003 (por.) North Kona, Hawai'i

In most cases, the District Health Office will no longer provide individual comments to agencies or project owners to expedite the land use review and process.

Agencies, project owners, and their agents should apply Department of Health "Standard Comments" regarding land use to their standard project comments in their submittal. Standard comments can be found on the Land Use Planning Review section of the Department of Health website: https://health.hawaii.gov/epo/landuse/. Contact information for each Branch/Office is available on that website.

Note: Agencies and project owners are responsible for adhering to all applicable standard comments and obtaining proper and necessary permits before the commencement of any work.

General summary comments have been included for your convenience. However, these comments are not all-inclusive and do not substitute for review of and compliance with all applicable standard comments for the various DOH individual programs.

Clean Air Branch

1. All project activities shall comply with the Hawaii Administrative Rules (HAR),

Planning Dept.
Exhibit 3

Chapters 11-59 and 11-60.1.

2. Control of Fugitive Dust: You must reasonably control the generation of all airborne, visible fugitive dust and comply with the fugitive dust provisions of HAR §11-60.1-33. Note that activities that occur near existing residences, businesses, public areas, and major thoroughfares exacerbate potential dust concerns. It is recommended that a dust control management plan be developed which identifies and mitigates all activities that may generate airborne and visible fugitive dust and that buffer zones be established wherever possible.
3. Standard comments for the Clean Air Branch are at: https://health.hawaii.gov/epo/landuse/

Clean Water Branch

1. All project activities shall comply with the HAR, Chapters 11-53, 11-54, and 11-55.
    1. The following Clean Water Branch website contains information for agencies and/or project owners who are seeking comments regarding environmental compliance for their projects with HAR, Chapters 11-53, 11-54, and 11-55: https://health.hawaii.gov/cwb/clean-water-branch-home-page/cwb- standard-comments/.

Hazard Evaluation & Emergency Response Office

1. A Phase I Environmental Site Assessment (ESA) and Phase II Site Investigation should be conducted for projects wherever current or former activities on site may have resulted in releases of hazardous substances, including oil or chemicals. Areas of concern include current and former industrial areas, harbors, airports, and formerly and currently zoned agricultural lands used for growing sugar, pineapple or other agricultural products.
2. Standard comments for the Hazard Evaluation & Emergency Response Office are at: https://health.hawaii.gov/epo/landuse/.

Indoor and Radiological Health Branch

1. Project activities shall comply with HAR Chapters 11-39, 11-45, 11-46, 11-501, 11-502,
11-503, and 11-504.
2. Noise may be generated during demolition and/or construction. The applicable maximum permissible sound levels, as stated in Title 11, HAR, Chapter 11-46, "Community Noise Control," shall not be exceeded unless a noise permit is obtained from the Department of Health.
3. Construction/Demolition Involving Asbestos: If the proposed project includes renovation/demolition activities that may involve asbestos, the applicant should contact the Asbestos and Lead Section of the Branch at https://health.hawaii.gov/irhb/asbestos/.

Safe Drinking Water Branch

1. Agencies and/or project owners are responsible for ensuring environmental compliance for their projects in the areas of 1) Public Water Systems; 2) Underground Injection Control; and 3) Groundwater and Source Water Protection in accordance with HAR Chapters 11-19, 11-20, 11-21, 11-23, 11-23A, and 11-25. They may be responsible for fulfilling additional requirements related to the Safe Drinking Water program: https://health.hawaii.gov/sdwb/.
2. Standard comments for the Safe Drinking Water Branch can be found at: https://health.hawaii.gov/epo/landuse/.

Solid & Hazardous Waste Branch

1. Hazardous Waste Program - The state regulations for hazardous waste and used oil are in HAR Chapters 11-260.1 to 11-279.1. These rules apply to the identification, handling, transportation, storage, and disposal of regulated hazardous waste and used oil.
2. Solid Waste Programs - The laws and regulations are contained in HRS Chapters 339D, 342G, 342H, and 342I, and HAR Chapters 11-58.1 and 11-282. Generators and handlers of solid waste shall ensure proper recycling or disposal at DOH-permitted solid waste management facilities. If possible, waste prevention, reuse, and recycling are preferred options over disposal. The Office of Solid Waste Management also oversees the electronic device recycling and recovery law, the glass advanced disposal fee program, and the deposit beverage container program.
3. Underground Storage Tank Program – The state regulations for underground storage tanks are in HAR Chapter 11-280.1. These rules apply to the design, operation, closure, and release response requirements for underground storage tank systems, including unknown underground tanks identified during construction.
4. Standard comments for the Solid & Hazardous Waste Branch can be found at: https://health.hawaii.gov/epo/landuse/.

Wastewater Branch

For comments, please email the Wastewater Branch at doh.wwb@doh.hawaii.gov.

Sanitation / Local DOH Comments:

1. According to HAR §11-26-35, No person, firm, or corporation shall demolish or clear any structure without first ascertaining the presence or absence of rodents that may endanger public health by dispersal from such premises. Should any such inspection reveal the presence of rodents, the rodents shall be eradicated before demolishing or clearing the structure. A demolition permit is required prior to demolition.

Other

1. CDC - Healthy Places - Healthy Community Design Checklist Toolkit recommends that state and county planning departments, developers, planners, engineers, and other interested parties apply these principles when planning or reviewing new developments or redevelopment projects.

2. If new information is found or changes are made to your submittal, DOH reserves the right to implement appropriate environmental health restrictions as required. Should there be any questions on this matter, please contact the Department of Health, Hawaii District Health Office, at (808) 933-0917.