1991-09-08-KA-FRA Shared Trunked Dispatch Radio Network SMA

COUNTY OF KAUAI

SPECIAL MANAGEMENT AREA (SMA)

USE PERMIT ASSESSMENT APPLICATIONS

FOR

KAUAI PUBLIC SAFETY

SHARED TRUNKED RADIO NETWORK

July 28, 1992

By: I. Herman Company
for
County of Kauai

USE PERMIT
RATIONALE

3/13/92

COUNTY OF KAUAI SHARED TRUNKED RADIO NETWORK

RATIONALE FOR USE PERMIT APPLICATIONS

This Report has been prepared to describe the proposed new Kauai County Radio Communications Network in sufficient detail to assist the Kauai County Planning Commission, and others, to evaluate the beneficial impact of the new Network on the Island of Kauai and its citizens. The ultimate objective is to present the rationale for obtaining USE PERMITS for the selected radio sites.

This Report provides a background and existing network description, the new network description, the individual site descriptions, and a conclusion.

I. BACKGROUND

Radio communications have been an essential asset to municipal and local government entities such as Kauai County for more than 65 years. The first such radio systems were one-way broadcasts for police use. As technology improved two-way radio systems became possible allowing police officers in the field to talk back to the dispatchers. As the efficiency improvements made possible by the use of two-way radio became known, two-way radio services were expanded to include Fire Departments, Emergency Medical and Ambulance services, and most all of State and Local government operations. Today there is no facet of government operations that is not significantly improved by two-way radio communications.

II. EXISTING KAUAI COUNTY RADIO NETWORK

The first Kauai County radio stations were believed to have been installed before World War II, but not much can be determined about the old system or its operation. The existing system is believed to have evolved from the first FM stations installed after 1950.

1. Location

Early Public Safety radio systems attempted to provide wide radio coverage by locating radio stations on high mountain peaks and utilizing high power and tall towers. Kauai County is no exception. Unfortunately, the topography of Kauai is such that its mountaintops

are not viable radio station locations. This is due to poor accessibility and the inability to provide reliable commercial electric power to remote high sites inaccessible by roads.
Additionally, these high mountain sites provided only marginally improved radio coverage to the predominant populated coastal areas when compared to carefully selected sites at lower elevations.

Kauai County currently has 5 150 MHz propagation sites. These are:

a. Kilauea Crater Hill Site

This site provides adequate radio coverage for the northeast island quadrant from Haena to Anahola. Control of the Kilauea repeater is dependent on marginal control direct from the Lihue Police Department Dispatch Center. This site will be reused in the new 800 MHz two-way radio network, but the interconnecting controls will be via microwave linkage.

b. Lihue Police Department Site

Lihue Police Department Dispatch Center contains a complete complement of authorized base stations but coverage is limited to the immediate Lihue area.

c. Mt. Kahili Site

This station is located on the Mt. Kahili ridge at the 2700' level and provides 150 MHz coverage from south of Anahola around the south island to Waimea. Coverage to Anahola and the heavily populated coastal area from Kapaa to Hanamaulu is fair to marginal. Control is direct line of site from the Lihue Dispatch Center.

Additionally, Mt. Kahili is a "helicopter access" only site. Power and equipment failures are most common when storms are in progress and the site is inaccessible. The site is totally inaccessible at night time and when low clouds cover the site.

Although Mt. Kahili will be reused in the new 800 MHz network, it will be equipped so as to be much less susceptible to critical failures. It will serve only as a highly reliable 2 GHz RF repeater site for the new digital microwave system, providing a link between Lihue and Kukuiolono Park.

Failure of that link will not disable the entire new network.

d. Kukuiolono Park Water Tank Site

This station is now located adjacent to the water tanks in Kukuiolono Park. A 450 MHz link from Lihue Dispatch Center operates a 150 MHz remote control station at this station that in turn operates 150 MHz stations at Mana or Kukui - using tones to select one or the other station. This Kukuiolono Water Tank station will not be reused in the new 800 MHz network.

e. Kukui Site

This is located adjacent to Highway 550 approximately 5 miles south of Kokee State Park and at the 2900' level. This station provides 150 MHz coverage in the upper regions of Puu Ka Pele Forest from Kokee State Park to Waimea and Eleele. Coverage in the Kokee State Park and along the South Coast from Waimea to Kekaha is marginal. Station control is from Lihue via Kukuiolono Park water tank.

Kukui will be reused in the new 800 MHz network (but only as the location of a highly reliable 2 GHz RF repeater component of the new digital microwave system) to provide a link between the new Kokee AF Station propagation site and Kukuiolono Park.

f. Mana Site

This station is located in a cane field northeast of the main gate at Barking Sands. This station provides 150 MHz coverage only in the Barking Sands and Polihale Park areas. Station control is from Lihue via Kukuiolono Park water tank.

Mana will not be reused in the new 800 MHz network.

2. Existing 150 MHz Network

The existing Kauai County 150 MHz network equipment is 15 to 20 years old. The network design dates from 1950 and has been updated mainly by equipment replacement. Functionally it is still "1950 state-of-the-art". In addition to its relative "old age", most of the equipment has been housed in wooden sheds and cabinets unprotected from high temperatures, high humidity and

exposure to insects, gechos, and other vermin. Under these conditions even new well constructed equipment deteriorates rapidly. None of the existing equipment can be reused.

3. Shelters

The existing Kauai County equipment buildings and shelters leave much to be desired. All are of wood construction and most are in a deteriorating condition. Kilauea Crater Hill was rebuilt by Fish & Wildlife volunteers three years ago, but it also shows signs of deterioration. It is also too small to accommodate all of the equipment needed at that site.

The Kilauea Crater Hill building is also the only building in the present network equipped with air conditioning - a non-redundant residential window type that appears to be in very poor condition.

All the buildings have inadequate space for the equipment installed, and all the buildings have been vandalized. These buildings are all considered aesthetically very unattractive.

4. Emergency Generators

Emergency generators of adequate capacity to operate all installed equipment and sufficient fuel to operate for two weeks or more are a necessity for reliable Public Safety Communications. Only Kilauea, Kukuiolono Park, and Mt. Kahili have generators installed. None of these generators are operational.

These generators are installed outdoors and all are rusted and corroded from the tropical marine weather that exists in Hawaii. Additionally, the maximum fuel supply capacity would be adequate for only one or two days.

Commercial power outages are more common during storm emergencies when communications facilities are most needed. An inoperative generator results in failure of the communications network.

III. NEW KAUAI COUNTY 800 MHz TRUNKED RADIO DESCRIPTION

1. Purpose

The installation and implementation of the new Kauai County 800 MHz trunked radio network will completely replace the obsolete and failure-prone 150 MHz network now used by the Kauai County Police, Fire, and Public Works Departments.

This new network will provide:

* Significantly improved Island-wide radio coverage
* Significantly increased capacity
* Significantly improved network reliability - especially during storm emergencies
* Island-wide use of hand-held portable radios - replacing mobile radio units in many cases
* Shared use by State and Federal Agencies - eliminating separate facilities in many cases
* Greater operational flexibility
* Functional expansion such as mobile data terminals and computer aided dispatch operations
* Improved control and monitoring of Civil Defense sirens
* Expansion capabilities for exceeding any foreseeable requirements for Kauai County
* Many functional capabilities not now considered by Kauai County

The approximate cost for infrastructure at all sites is $3,900,000. The addition of mobile and portable radios and siren control transceivers will elevate the cost to approximately $5,000,000.

2. Network Description

The network will consist of 10 stations, as shown in attached Drg. 90001-00-00B, Sheet #2. The Lihue Dispatch Center (to be located in the basement of the Kauai County Public Works Building) will be the center and controlling point for the entire network. All trunking controllers and network operation will be located in the Dispatch Center - providing good security and maintenance access for the critical operating controls.

The network will extend northward from the Lihue Dispatch Center to Kilauea Crater Hill via microwave stations at Vidinha Stadium, Puu Alanakau (Anahola Water Tank), and Puu Auau. It will extend west to Kukuiolono Park via microwave repeater at Mt. Kahili. At Kukuiolono Park the network will split with one leg via microwave to the PMRF/NAVY communication facility at Kokole Point, and via microwave to Kokee Air Force Station via Kukui and an existing microwave reflector system at Pohakuwaawaa. The stations at Vidinha Stadium, Puu Auau, Mt. Kahili, and Kukui will be equipped only with a highly reliable microwave repeater requiring very small space.

5-Channel, 800 MHz trunked stations for two-way radio communications will be located at Kilauea Crater Hill,

Puu Alanakau (Anahola Water Tank), Lihue Dispatch Center, Kukuiolono Park, Kokole Point, and Kokee Air Force Station. These stations will operate in a SIMULCAST configuration, controlled from Lihue Dispatch Center - thus avoiding the need for mobile or dispatch channel switching depending on geographic location of the vehicle or portable units.

The east and west legs of the network operate in parallel with each other, but are not dependent on one another. Thus a failure in one leg will not affect trunked radio operation in the other leg. Likewise, the Lihue Station also operates in parallel; however, it is completely independent of microwave for its operation. This configuration provides for high reliability and makes 100% failures extremely remote.

Optionally a single channel conventional 800 MHz sub-system will also be installed in parallel with the trunked system. This sub-system will operate completely independent of the trunked radio network.

IV. STATION LOCATIONS

Station locations were selected using the following criteria:

a. Radio propagation coverage to a selected area and the combination of areas covered are to include all of the main developed and populated area around the island of Kauai.

b. Each site to be a station in the microwave network designed to interconnect all stations to the Lihue Dispatch Center.

c. Each site to be an already developed and active radio communications site, or a developed site with existing commercial activity.

d. All sites are to be selected to minimize the requirement for new tall towers, with the exception of Kukui, where the existing Air Force 180' microwave tower will accommodate the County's antennas also. However, in Puu Alanakau the situation is that one existing guyed tall tower (owned by the State Public TV) will come down - to be replaced by a new less conspicuous self-supporting 120' tower. At Puu Alanakau there exist already a 150' cellular Cybertel tower and a 40' cable TV tower - along with 2 water tanks. Thus the addition of the new County equipment will actually improve on the appearance of the site by removing a deteriorated 150' guyed tower - replaced by a new self-supported lower tower 120' high.

e. All sites to be accessible with 2-wheel drive vehicles. All sites meet this criteria except Mt. Kahili, which is "helicopter access" only. Mt. Kahili will be a 2 GHz microwave repeater amplifier only site - of high reliability and with low maintenance requirements.

V. **STATION DESCRIPTIONS**

The more precise site (station) descriptions are given in Exhibit "A" attached hereto, with corresponding TKN Maps to show precise locations.

The County feels that the physical, environmental, and aesthetic impact of the new radio network on all sites will either be unobstrusive or an improvement on what exists there now.

VI. **CONCLUSION**

The County of Kauai requests that the process to obtain individual Use Permits for each of the aforementioned sites be implemented expeditiously in order to solve what is considered to be an intolerably sub-standard public safety communications system.

I. HERMAN COMPANY

R. D. Detwiler, P.E.

jm

I. HERMAN COMPANY
TELECOMMUNICATIONS ENGINEERING AND OPERATIONS SUPPORT

TELEPHONE: (415) 348-8272
FAX: (415) 348-8194

MAIN OFFICE: 800 SO. CLAREMONT STREET
(MAIL): P.O. BOX 5068
SAN MATEO, CA 94402

2/4/92

EXHIBIT "A"

KAUAI RADIO UPGRADE PROJECT

INFORMATION FOR PUBLIC HEARING NOTIFICATION PURPOSES

Responding to Mr. Peter A. Nakamura's Memo of 1/24/92, the 11 radio propagation sites to be used for the most urgently needed Kauai County's Upgraded Trunked Radio Network are named and briefly described below - giving also the requested Tax Key Numbers (TKN) for 10 of the sites (Kokole Pt. under USN jurisdiction was omitted). In addition, copies of the corresponding Tax Maps with proposed locations circled are also attached.

LIHUE DISPATCH CENTER
TKN # 3-6-05-3

60' Steel Monopole Tower to be located in median strip of parking lot approximately 100' from rear of Public Works Building (moved from previous location adjacent to P.W. Bldg.).

Two microwave Grid antennas and 3 vertical base station antennas (800 MHz) will be located near the top of the Monopole Tower.

VIDINHA STADIUM (Lihue Sports Stadium)
TKN # 3-6-02-16

Two microwave Grid antennas will be installed near the middle of the 120' light pole #A2 adjacent to the south side of the stadium. This is a microwave repeater site without 800 MHz propagation.

PUU ALANAKAU (Anahola Water Tank Site)
TKN # 4-8-03-23

A 120' self-supported Steel Tower and a 12'Wx18'Lx10'H fiberglass building with an outer layer of exposed aggregate (for aesthetic appearance) will be installed in the southwest corner of the Hawaiian Home Lands Water Facility.

Two microwave Grid antennas and 2 to 4 base station antennas (800 MHz) will be mounted near the top of the new tower. In addition, the Hawaii Public Broadcast Television equipment is proposed to be moved from their existing wood building and 150' guyed tower to the new Kauai County facility, and the building and tower removed to make room for additional water facilities.

PUU AUAU (Moloaa Farmers Water Tank)
TKN # 4-9-09-22

HONOLULU: WARD PLAZA, SUITE 330 • 210 WARD AVENUE, HONOLULU, HI 96814 PHONE: (808) 599-5568 FAX: (808) 599-4080

A 30' Steel self-supported tower is proposed to be located approximately 15' west of the existing 30' high water tank.

This is a microwave repeater site (no 800 MHz propagation). Two microwave Grid antennas will be installed near the top of the tower and a SOLAR POWER PANEL installed at the 15' level on the south side of the tower. The MW radio equipment and batteries will be installed in a 2'Wx2'Wx4'H weatherproof cabinet at the
base of the tower.

This site will be SOLAR POWERED.

KILAUEA CRATER HILL
TKN # 5-2-04-103

The existing 8'Wx20'Lx14'H wood building will be replaced with a 12'Wx24'Lx10'H Fiberglass building with an outer layer of exposed aggregate (for aesthetic appearance). The building will include a separate compartment for the emergency generator - eliminating the existing outside generator. All co-occupying radio equipment from other agencies will be consolidated in the new County building.

A separate concrete block enclosure will be constructed to conceal the propane fuel tank.

A new 20' Monopole Tower will be installed adjacent to the new building (same location) to support the microwave Grid antenna below the crest of the crater rim (for less contrast).

MT. KAHILI
TKN # 2-4-09-6

This is an existing Kauai County installation. The site is shared with many other users. The TKN is not easily discernable from the Tax Map so the location coordinates taken from the topographic map are shown for more precise definition.

A new microwave RF repeater will be installed in the existing building (no 800 MHz) and will replace existing County-owned equipment located within the building. Two microwave Grid antennas will be installed on existing poles.

KUKUIOLONO PARK
TKN # 2-3-05-8

This is an existing Hawaii Air National Guard (HANG) microwave station located on WD McBryde Trust Estate. The existing site includes a 100' guyed tower and an 8'Wx12'Lx9'H Fiberglass building.

A new 12'Wx32'Lx10'H Fiberglass building is proposed to be installed on the south side and adjacent to the existing HANG building. Three microwave Grid antennas will be added to the existing HANG tower. Additionally, HANG and US NAVY equipment

will be relocated to the new Kauai County building (consolidation).

KUKUI (HANG MW Station)
TKN # 1-2-01-9

Kukui is an existing Hawaii Air National Guard (HANG) communications facility that includes a 180' guyed microwave tower and miscellaneous buildings occupied by HANG, Kauai County, Kauai Electric Company, and others. The tower is shared by all users.

Only two additional microwave Grid antennas are proposed to be added to the tower. The microwave repeater equipment will replace existing VHF base stations in the Kauai County-owned building.

Tax Map 1-2-01 shows the location of the Kukui site as well as the following Puu Ka Pele (alternate) site in the event the County opts not to use Kokee as an 800 MHz propagation site.

PUU KA PELE
TKN # 1-4-01-3

Puu Ka Pele is an established communication site on Department of Land and Natural Resources land (DLNR). Only Hawaiian Telephone Company (HTCO) has an existing facility there - consisting of a 50' self-supported tower on the rim of the canyon - approximately 50' south of the USGS Benchmark "Pele". The HTCO equipment building is located in a developed area well below the canyon rim, approximately 200' from Highway 55.

It is proposed to install a 12'Wx18'Lx10'H Fiberglass building adjacent to the east side of the existing parking lot (off the road). A 30' monopole tower is proposed to be installed 20' north of the USGS Benchmark "Pele". One microwave Grid antenna and 2 base station antennas (800 MHz) will be installed on a new inconspicuous monopole tower adjacent to HTCO's tower.

KOKEE (Air Force Radar Station)
TKN # 5-9-01-17

It is proposed to install a 12'Wx18'Lx10'H Fiberglass building inside the Kokee Air Force RADAR station adjacent to the main RADAR (within the military compound). A 20' steel monopole tower with one microwave Grid antenna and 2 base station antennas (800 MHz) is proposed for this station.

KOKOLE POINT (Pacific Missile Range Facility, PMRF)

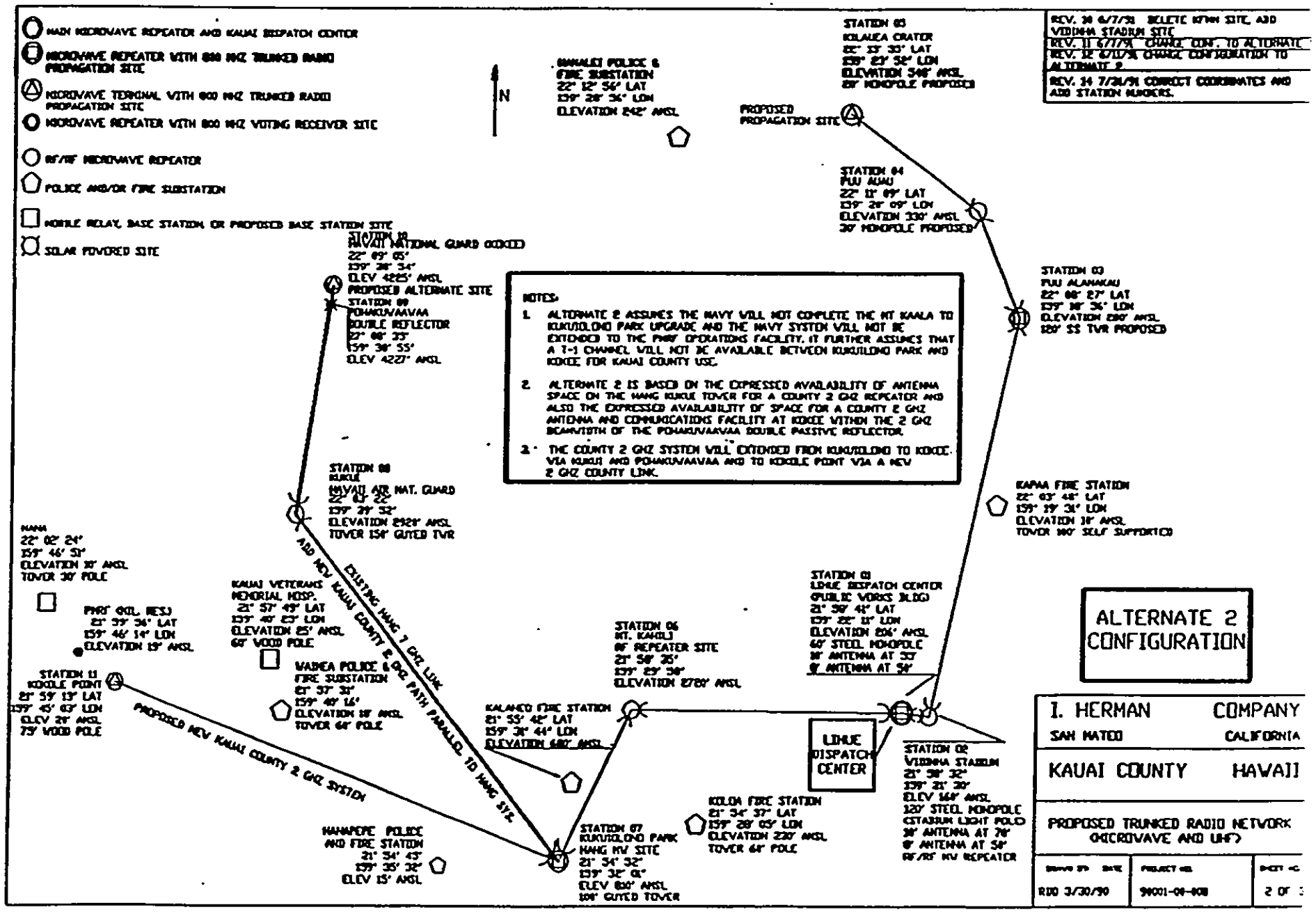
The Tax Map for the U.S. Navy Kokole Point location was not available at this writing, but it is understood that the USN (PMRF) has full jurisdiction over its usage.

This site is an existing Navy communications facility inside Barking Sands Pacific Missile Range Facility. Existing military buildings and antenna poles will be used. County equipment will fit inside the existing USN building, with new antennas to replace those mounted on an existing USN monopole.

Respectfully submitted,

R. D. Detwiler, P.E.
February 4, 1992

jm



SPECIAL MANAGEMENT AREA PERMIT ASSESSMENT APPLICATION
COUNTY OF KAUAI
DEPARTMENT OF PLANNING

PART A:

Lihue Dispatch Center

OWNER: County of Kauai, Hawaii

APPLICANT: County of Kauai, Hawaii

APPLICANT'S STATUS IF NOT OWNER: _____

ADDRESS: 3021 Umi Street, Lihue, Kauai, HI 96766

Attn: Steve Oliver PHONE: 808-245-3318

FAX NO.: 808-245-9029

TMK: 3-6-05-3 ZONING: _____ SLUD: _____

GENERAL PLAN: _____ CURRENT LAND USE: Civic Center

NATURE OF DEVELOPMENT: This project relocates the Kauai County Police Dispatch Center from the Police Department at 3060 Umi Street, to the basement of the Public Works Building at 3021 Umi Street. The project adds a 60' steel monopole tower located in the median of the parking lot.

*NOTE: An Environmental Assessment in accordance with HRS Chapter 343 is required for actions requiring a Shoreline Setback Variance. Please contact the Planning Department for further information.

VALUATION OF DEVELOPMENT: 1,282,417
(attached contractor's estimate)

DATE OF APPLICATION: _____

PART B:

THE PETITIONER SHALL BE RESPONSIBLE FOR FILING THE FOLLOWING WITH THE DEPARTMENT BEFORE AN APPLICATION IS CONSIDERED COMPLETE:

1. A written description of the proposed project, location and a statement of reasons/justification for project.

2. If property abuts the shoreline, a certified shoreline survey conducted by a registered land surveyor within 6 months of an application shall be submitted, except as may be waived by the Planning Director.

3. A plot plan of the property, drawn to scale, with all proposed and existing structures and other pertinent information. Also, preliminary building sketch plans are be submitted.

4. Any other plans or information required by the Director.

   Note: An Environmental Assessment or Environmental Impact Statement that has been declared adequate under the National Environmental Policy Act (NEPA) or under Chapter 343, HRS, may constitute a valid filing under this section.

5. Project assessment:

   a. Description of the area and environment involved including flora and fauna, and other features;

   b. Description of the existing land uses of the project site and surrounding areas;

   c. Description of how the proposed project will affect the area involved and surrounding areas. Specifically the assessment should evaluate if the proposal:

      1. involves an irrevocable commitment to loss or destruction of any natural or cultural resources, including but not limited to; historic sites, Special Treatment Districts as established by the County of Kauai Comprehensive Zoning Ordinance, viewplanes or scenic corridors as outlined in the Development Plans, and recreation areas and resources;

      2. curtails the range of beneficial uses of the environment;

3. conflicts with the County's or the State's long-term environmental policies or goals;

4. substantially affects the economic or social welfare and activities or the community, County or State;

5. involves substantial secondary impacts, such as population changes and effects on public facilities;

6. in itself has no significant adverse effect but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

7. substantially affect a rare, threatened, or endangered species of animal or plant, or its habitat;

8. detrimentally affects air or water quality or ambient noise levels; or

9. affects an environmentally sensitive area, such as flood plain, shoreline, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water or coastal water;

10. may have a major effect on the quality of the environment or affect the economic or social welfare of the area; and

11. would possibly be contrary to the policies and guidelines of the Rules and Regulations, the County's General Plan, Development Plans, and Zoning and Subdivision Ordinances.

d. Evaluation of the proposed development relative to the objectives and policies as contained in Chapter 205-A, HRS, and Section 3.0 of the Special Management Area (SMA) Rules and Regulations: (Please complete attached questionnaire)

5/15/92

RESPONSE TO KAUAI PLANNING DEPARTMENT QUESTIONNAIRE (PART"B")

Part B: Lihue Dispatch Center

1. Project Description

This project to relocate and upgrade the Kauai Police Department Dispatch Center is part of the overall upgrade of the Kauai County communication network that serves the Police, Fire, and Public Works Departments - shared also with State and Federal agencies.

The following facilities will be replaced and relocated to the Public Works Building.

a. The complete Kauai County Dispatch Center equipment will be replaced and relocated to the basement of the Public Works Building in the area now occupied by Public Works Engineering Division. See IHCO Drawing #90001-01-00, Floor Plan. There will be no exterior changes or additions to the building.

b. A new 60' steel monopole tower will be installed in the median of the parking lot. Cable access between the tower and the dispatch equipment room will be via underground conduit. See IHCO Drawings #90001-01-30-1 and 90001-01-30B-2.

2. Shoreline

The Lihue Civic Center does not abut the shoreline.

3. Plot Plan

See IHCO Drawing #90001-01-30-1.

4. Other Plans and Information

None required.

5. Project Assessment

a. Area Description

This site is located within the Civic Center Complex of Lihue.

b. Land Uses

This Civic Center area is used for State and County governmental operations.

c. Project Effect

This project will add a small but acceptable visual impact from the small monopole tower. This is an appropriate change that will provide a significant improvement in radio communication services for Kauai County.

c.1. This project will not result in the loss or destruction of any natural or cultural resources.

c.2. This project will not curtail the range of beneficial uses of the environment.

c.3. This project does not conflict with County or State long-term environmental policies or goals.

c.4. This project will substantially improve the County and State Public Safety and administrative communications functions and indirectly have a positive beneficial effect on the economic and social activities of the County and State.

c.5. This project will increase the Kauai County Police Dispatch facilities and significantly improve radio communication. This project will not increase the population.

c.6. This project will have no significant adverse or cumulative effect on the environment, nor does it involve a commitment for larger actions.

c.7. This project does not affect a rare, threatened, or endangered species of animal or plant, or its habitat.

c.8. This project will have no effect on the quality of water, air, or ambient noise levels.

c.9. This project will have no effect on any environmentally sensitive area, such as flood plain, shoreline, Tsunami zone, erosion prone area, geologically hazardous land, estuary, fresh water, or coastal water.

c.10. This project will not have a major effect on the economic and social welfare of the area.

c.11. This project is not contrary to the policies and guidelines of the Rules and Regulations, the County's General Plan, Development Plan, and Zoning and Subdivision ordinances.

d. Recreational Resources

This project does not provide for coastal recreational opportunities. See attached questionnaire for answers to other questions.

HISTORICAL RESOURCES: Lihue Dispatch Center

Objective: Protect, preserve, and where desirable, restore those natural and man-made historic and pre-historic resources in the Special Management Area that are significant in Hawaiian and American history and culture.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

	Yes	No
1. Is the project site within a Federal, State, and/or County designated historic/cultural district?	X	___
2. Is the project site listed on or nominated to the Hawaii or National Register of Historic Places?	X	___
3. Does the project site include land(s) which has not been previously surveyed by an archaeologist?	___	X
4. Has any site survey revealed any information on historic or archaeological resources? (Please provide copy or reference of survey)	X	___
5. Is the project site within or near a Hawaiian fishpond?	___	X
6. Is the project located within or near a historic settlement area? (cemeteries, burials, heiaus, etc.)	___	X

Discussion:

1. The Kauai County Public Works Building is located within the Lihue Civic Center Historic District.

2. The site is included in the National Register of Historic Places.

4. A copy of the National Register of Historic Places Nomination Form, excluding photographs, is attached.

Lihue Dispatch Center

RECREATIONAL RESOURCES:

Objective: Provide coastal recreational opportunities accessible to the public.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes" please elaborate or provide comments in "Discussion" section below.

	Yes	No
1. Will the proposed action involve or be near a dedicated public right-of-way to the beach?	___	X
2. Does the project site abut the shoreline?	___	X
3. Is the project site near a State or County Park?	___	X
4. Will the proposed action occur in or affect a surf site?	___	X
5. Will the proposed action occur in or affect a fishing area?	___	X
6. Will the proposed action occur in or affect a recreational or commercial boating area (including boat ramps)?	___	X
7. Is the project site near a sandy beach?	___	X
8. Are there swimming or other near shore recreational uses in the area?	___	X

Discussion:

Lihue Dispatch Center

COASTAL HAZARDS:

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

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments within the "Discussion" section below.

	Yes	No
1. Is the project site within a potential tsunami inundation area as depicted on the National Flood Insurance Rate maps (FIRM)?	___	X
2. Is the project site within a potential flood inundation area according to a FIRM?	___	X
3. Has the project site or nearby shoreline areas experienced shoreline erosion?	___	X
4. Have any seawalls/revetments/etc. been constructed or exist in the immediate vicinity?	___	X

Discussion:

SCENIC AND OPEN SPACE RESOURCES:

Lihue Dispatch Center

Objective: Protect, preserve and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

		Yes	No
1.	Does the project site abut a scenic landmark?	___	X
2.	Does the proposed action involve the construction of a multi-story structure or structures?	___	X
3.	Is the project site adjacent to vacant parcels?	___	X
4.	Does the proposed action involve the construction of structures visible between the nearest coastal roadway and the shoreline?	___	X
5.	Is the project site within the Shoreline Setback Area (20 or 40 feet inland from the shoreline)?	___	X

Discussion:

Lihue Dispatch Center

ECONOMIC USES:

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

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments within the "Discussion" section below.

		Yes	No
1.	Does the project involve a harbor or port?	___	X
2.	Is the proposed development related to or near to an existing major hotel, multi-family, or condominium project?	___	X
3.	Does the project site include agricultural lands designated for such use?	___	X
4.	Does the proposed development relate to commercial fishing or seafood production?	___	X
5.	Does the proposed development relate to energy production?	___	X

Discussion:

Lihue Dispatch Center

COASTAL ECOSYSTEMS:

Objective: Protect valuable coastal ecosystems from disruption and minimize adverse impacts on all coastal ecosystems.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

	Yes	No
1. Does the proposed development involve dredge or fill activities within or abutting any type of of waterway?	___	X
2. Will the proposed development require some form of effluent discharge into a body of water?	___	X
3. Will the proposed development require earthwork beyond clearing and grubbing?	___	X
4. Will the proposed development include the construction of special waste treatment facilities, such as injection wells, discharge pipes, septic tank systems or cesspools?	___	X
6. Is an intermittent or perennial stream or estuary located on or near the project site?	___	X
7. Does the project site provide habitat for endangered species of plants, birds, or mammals?	___	X
8. Is any such habitat located nearby?	___	X
9. Is there a wetland on the project site?	___	X
10. Is the project site situated in or abutting a Natural Area Reserve or Wildlife Refuge or Sanctuary?	___	X

Discussion:

PROJECT ASSESSMENT cont'd:

e. Evaluation of impacts which cannot be avoided and mitigating measures proposed to minimize that impact;

f. Evaluation of the proposed development relative to Section 4.0 of the SMA Rules and Regulations in accordance with the following aspects:

1. Substantial adverse environmental or ecological effects;

2. Consistency or compliance of the proposed development relative to the goals and objectives of Chapter 205A, HRS and Section 3.0 of the SMA Rules and Regulations;

3. Consistency or compliance of the proposed development relative to the County General Plan, Development Plan, and zoning ordinances.

e. Impacts

This project has no known impacts of significance.

f. Development Evaluation

1. This project has no substantial adverse environmental or ecological effects.

2a. This project complies with goals and objectives of Chapter 205A of the Hawaii Revised Statutes.

2b. This site is not located within a Special Management Area.

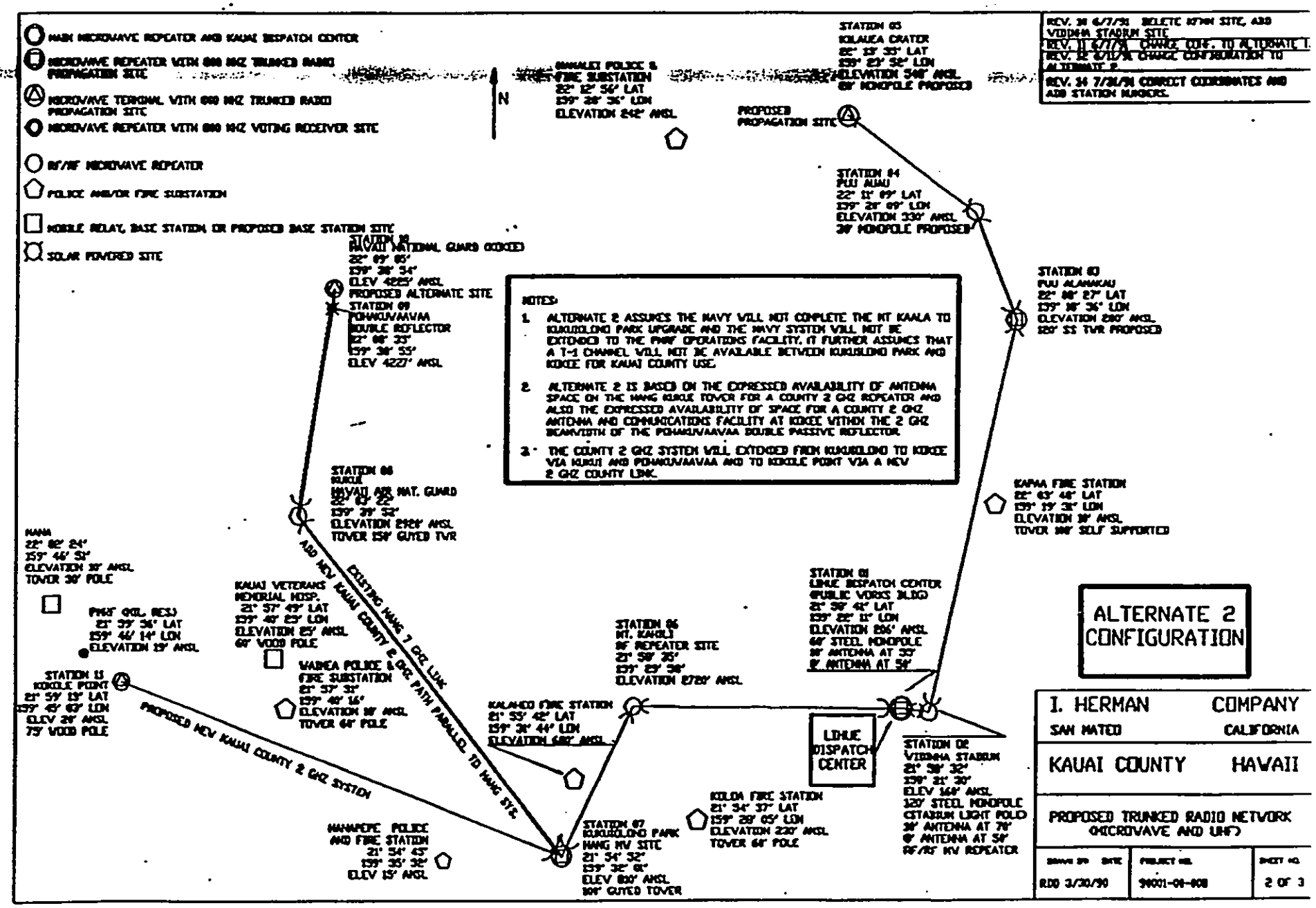
3. This project is in compliance with the County General Plan, Development Plan, and zoning ordinances.

SIGNATURE OF APPLICANT/REPRESENTATIVE
(Print name of applicant/representative)

DATE

Lihue Dispatch Center

EXHIBIT "1"

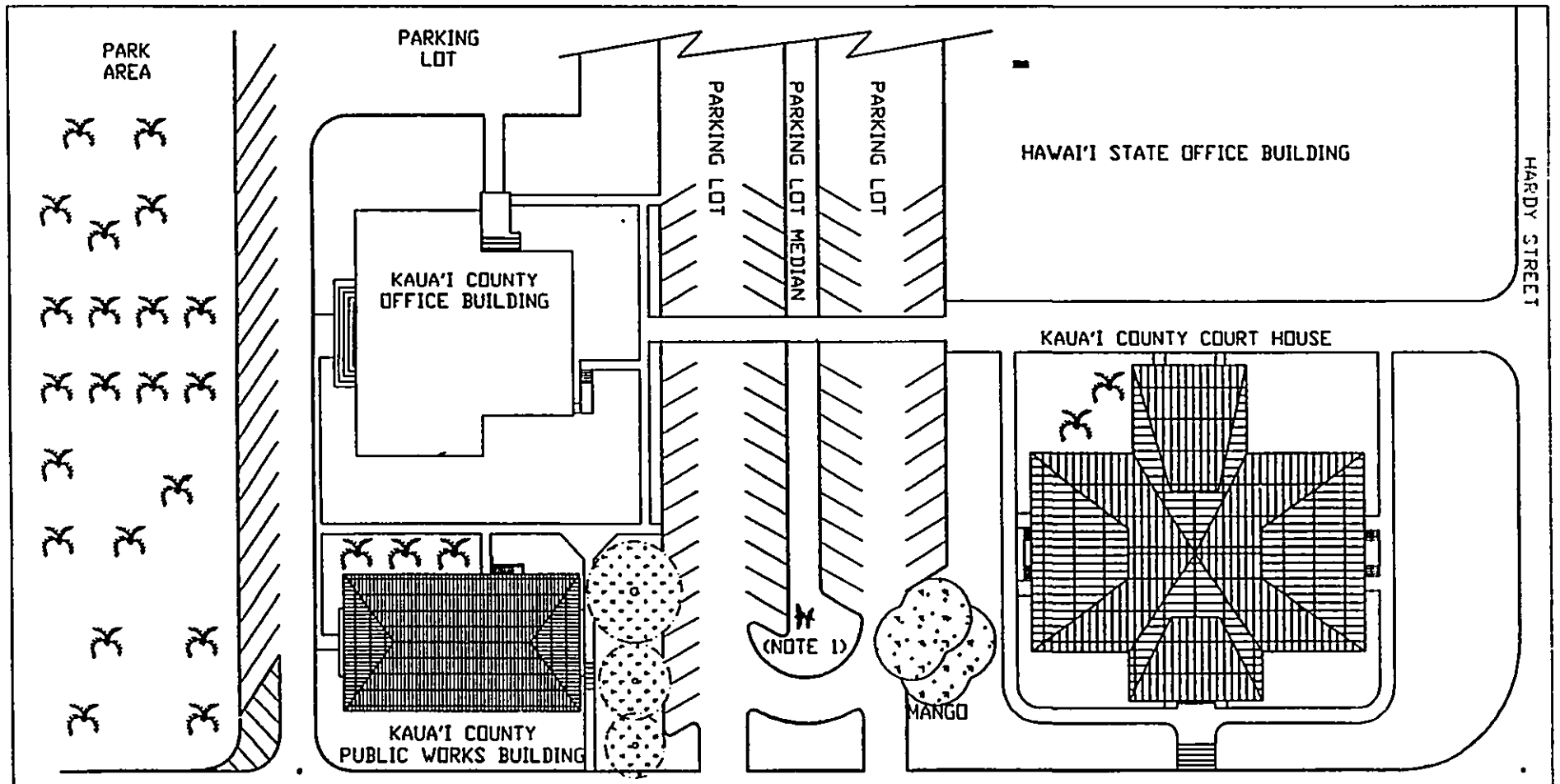


ALTERNATE 2 CONFIGURATION

I. HERMAN	COMPANY
SAN MATEO	CALIFORNIA
KAUAI COUNTY	HAWAII
PROPOSED TRUNKED RADIO NETWORK (MICROWAVE AND UHF)	
RDD 3/30/90	90001-06-808
	2 OF 3

Lihue Dispatch Center

EXHIBIT "2"



NOTES:

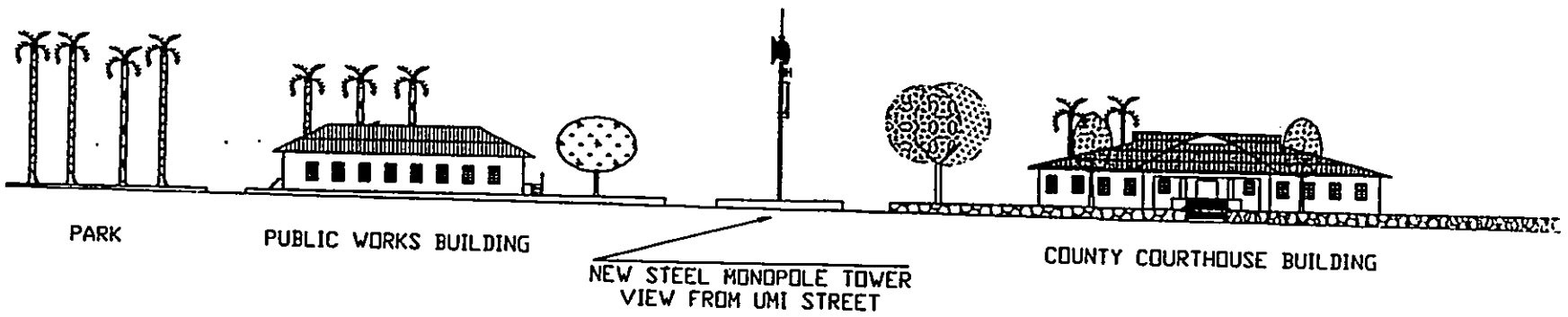
1. PROPOSED NEW 60' STEEL MONPOLE TOWER TO BE LOCATED IN THE PARKING LOT MEDIAN AT THE TURN-AROUND END OF THE LOT.

2. PROPOSED NEW KAUA'I COUNTY COMMUNICATIONS DISPATCH CENTER TO BE LOCATED IN BASEMENT OF THE PUBLIC WORKS BUILDING.

I. HERMAN COMPANY COMMUNICATIONS ENGINEERS SAN MATEO CALIFORNIA		
KAUA'I COUNTY, HAWAI'I COMMUNICATIONS SYSTEM		
LIHU'E DISPATCH CENTER AND TOWER LOCATION		
RDD 2/5/92	90001-01-30	1 OF 2

EXHIBIT "3"

LIHUE DISPATCH CENTER
PROPOSED MONOPOLE TOWER AND ANTENNA LOCATION



NOTES: 1. DRAWING IS TO SCALE.

2. REFER TO SHEET NO. 1 FOR PLAN VIEW.

3. 60' STEEL MONOPOLE TOWER AND ANTENNAS WILL BE LOCATED IN PARKING LOT MEDIAN BETWEEN BUILDINGS.

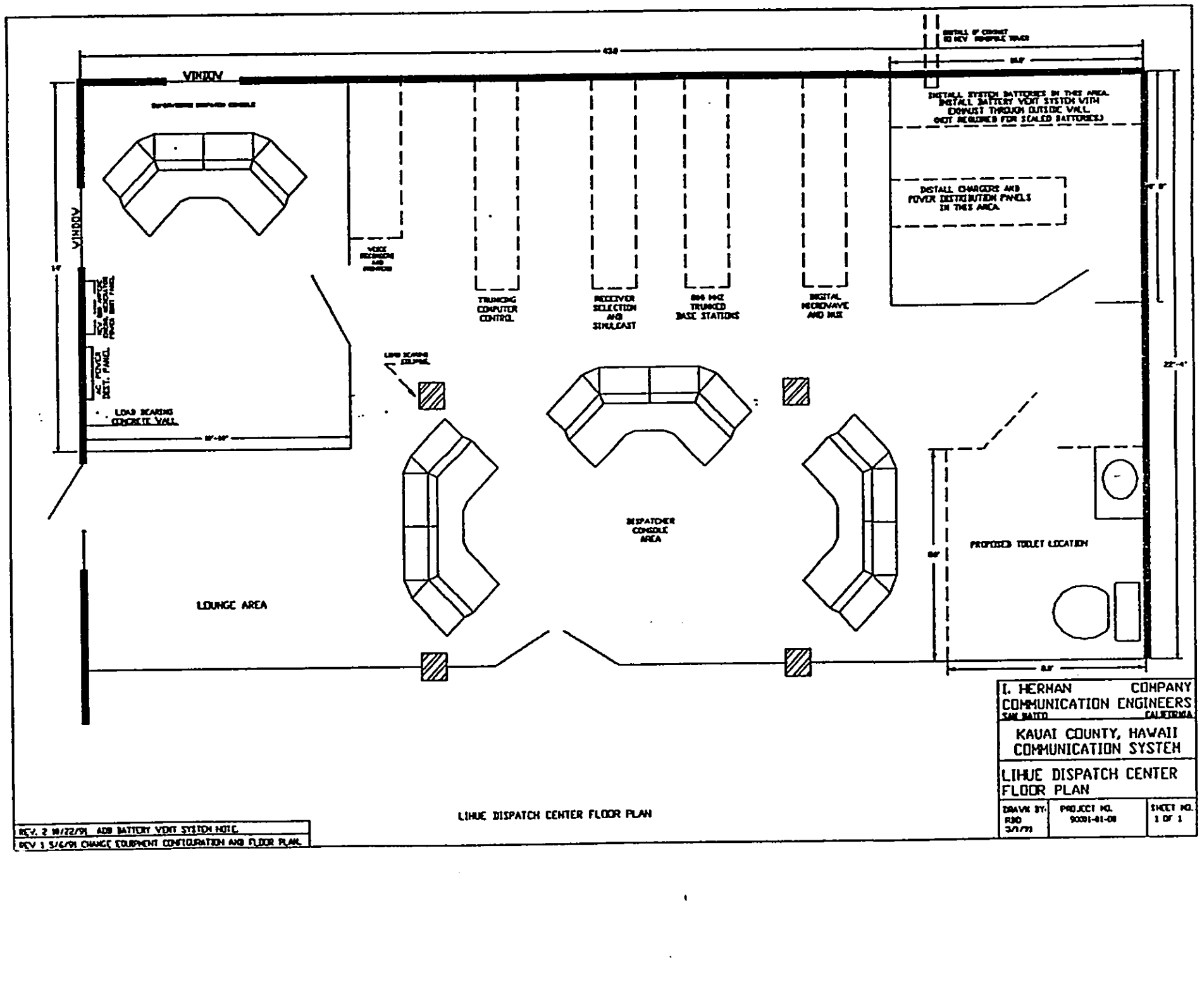
4. POLICE DISPATCH CENTER WILL BE LOCATED IN THE BASEMENT OF THE PUBLIC WORKS BUILDING.

5. KAUA'I COUNTY AND HAWAI'I STATE OFFICE BUILDINGS ARE NOT SHOWN.

I. HERMAN COMPANY COMMUNICATION ENGINEERS SAN MATEO CALIFORNIA		
KAUA'I COUNTY, HAWAI'I COMMUNICATIONS SYSTEM		
LIHU'E DISPATCH CENTER AND TOWER LOCATION		
RDD 3/9/92	90001-01-308	SHEET NO. 2 OF 2

Lihue Dispatch Center

EXHIBIT "4"



I. HERHAN COMPANY
COMMUNICATION ENGINEERS
SAN MATEO CALIFORNIA

KAUAI COUNTY, HAWAII
COMMUNICATION SYSTEM

LIHUE DISPATCH CENTER
FLOOR PLAN

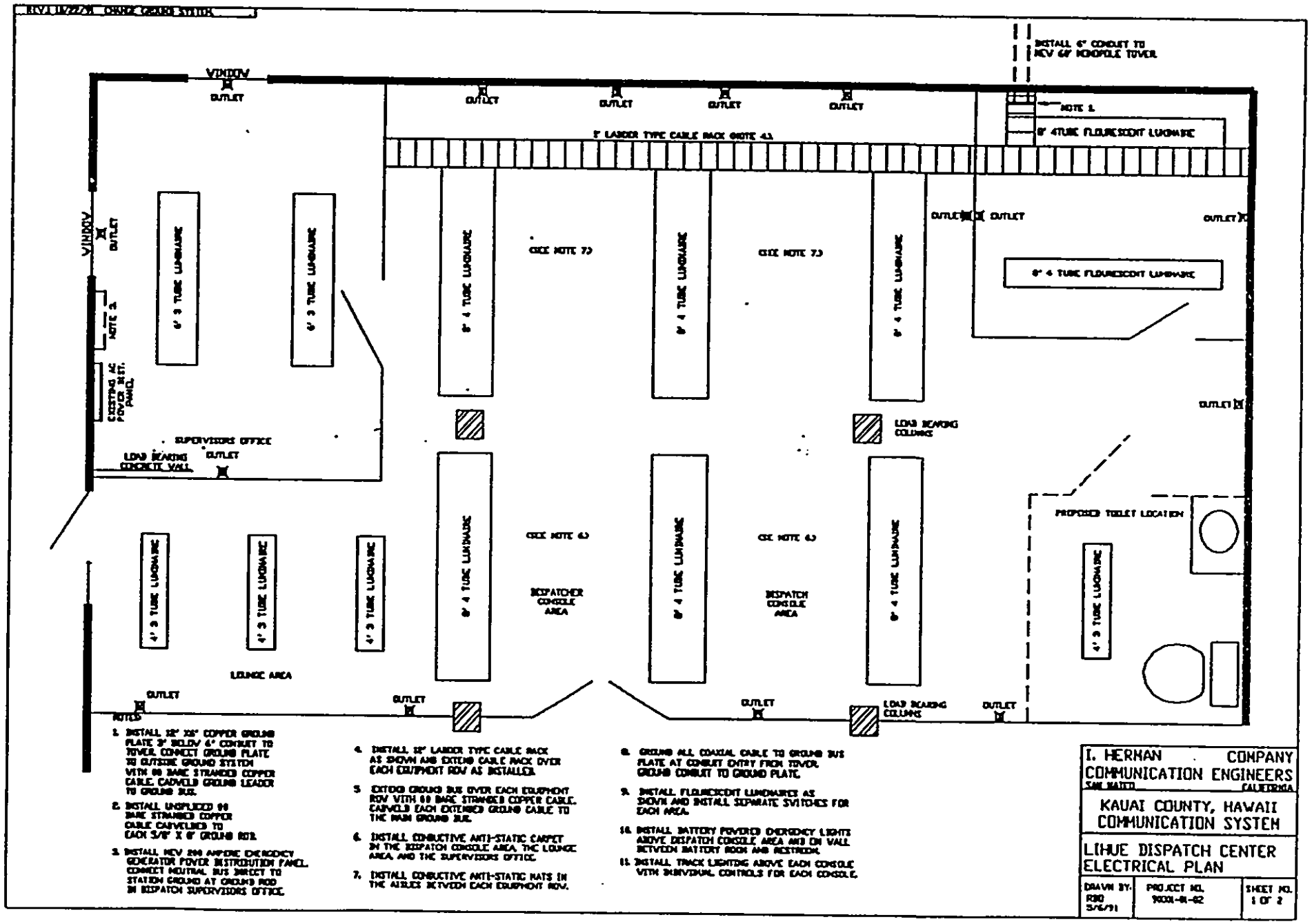
DRAWN BY:	PROJECT NO.	SHEET NO.
RBD 3/1/93	90091-01-08	1 OF 1

LIHUE DISPATCH CENTER FLOOR PLAN

REV. 2 10/22/91 ADD BATTERY VENT SYSTEM NOTE
REV 1 5/6/91 CHANGE EQUIPMENT CONFIGURATION AND FLOOR PLAN.

Lihue Dispatch Center

EXHIBIT "5"



NOTES:

1. INSTALL 12" X 24" COPPER GROUND PLATE 3' BELOW 4" CONDUIT TO TOWER. CONNECT GROUND PLATE TO OUTSIDE GROUND SYSTEM WITH #6 BARE STRANDED COPPER CABLE. CADWELD GROUND LEADER TO GROUND BUS.
2. INSTALL UNSPLICED #6 BARE STRANDED COPPER CABLE CADWELDED TO EACH 5/8" X 8' GROUND ROD.
3. INSTALL NEW 200 AMPERE EMERGENCY GENERATOR POWER DISTRIBUTION PANEL. CONNECT NEUTRAL BUS DIRECT TO STATION GROUND AT GROUND ROD IN DISPATCH SUPERVISORS OFFICE.
4. INSTALL 12" LADDER TYPE CABLE RACK AS SHOWN AND EXTEND CABLE RACK OVER EACH EQUIPMENT ROW AS INSTALLED.
5. EXTEND GROUND BUS OVER EACH EQUIPMENT ROW WITH #6 BARE STRANDED COPPER CABLE. CADWELD EACH EXTENDED GROUND CABLE TO THE MAIN GROUND BUS.
6. INSTALL CONDUCTIVE ANTI-STATIC CARPET IN THE DISPATCH CONSOLE AREA, THE LOUNGE AREA, AND THE SUPERVISORS OFFICE.
7. INSTALL CONDUCTIVE ANTI-STATIC MATS IN THE AISLES BETWEEN EACH EQUIPMENT ROW.
8. GROUND ALL COAXIAL CABLE TO GROUND BUS PLATE AT CONDUIT ENTRY FROM TOWER. GROUND CONDUIT TO GROUND PLATE.
9. INSTALL FLOURESCENT LUMINAIRES AS SHOWN AND INSTALL SEPARATE SWITCHES FOR EACH AREA.
10. INSTALL BATTERY POWERED EMERGENCY LIGHTS ABOVE DISPATCH CONSOLE AREA AND ON WALL BETWEEN BATTERY ROOM AND RESTROOM.
11. INSTALL TRACK LIGHTING ABOVE EACH CONSOLE WITH INDIVIDUAL CONTROLS FOR EACH CONSOLE.

I. HERMAN COMPANY
COMMUNICATION ENGINEERS
SAN MATEO CALIFORNIA

KAUAI COUNTY, HAWAII
COMMUNICATION SYSTEM

LIHUE DISPATCH CENTER
ELECTRICAL PLAN

DRAWN BY:	PROJECT NO.	SHEET NO.
RBD 5/6/91	9001-01-02	1 OF 2

EXHIBIT "6" Lihue Dispatch Center

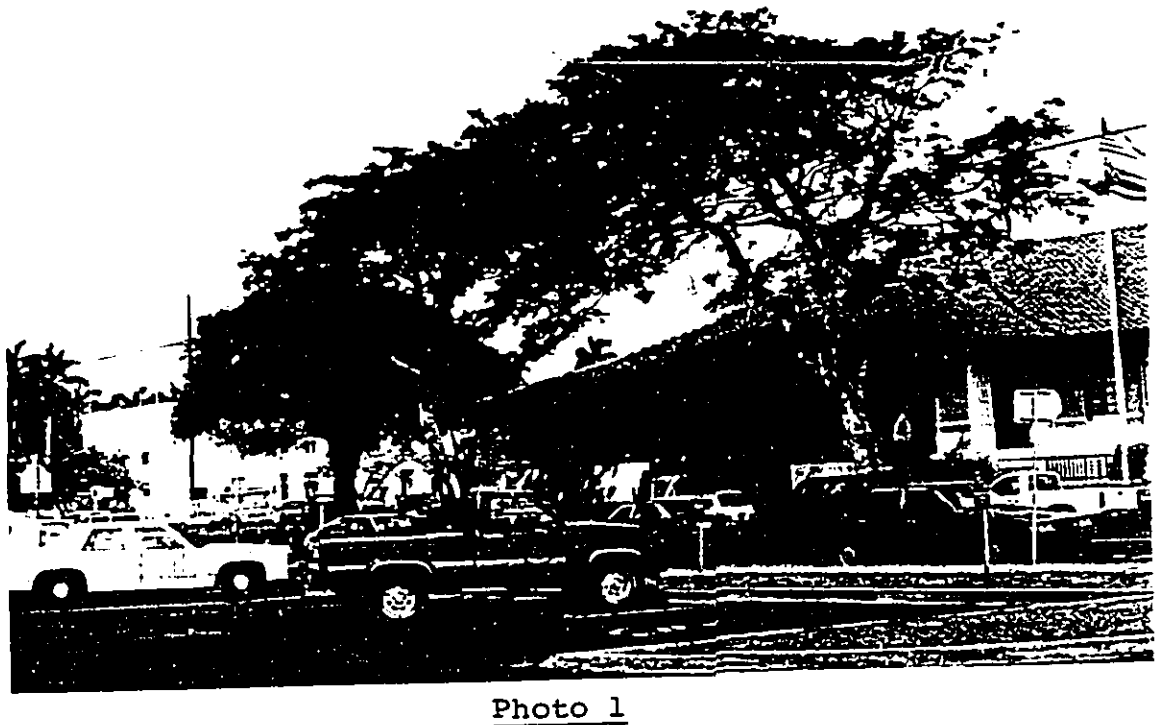


Photo 1

View of Kauai County Court House from KPD parking lot. County Office Building at left behind Mango tree.

Photo 2

View of parking lot median from KPD parking lot. 60' steel monopole tower proposed to be installed in "turn-around" center at end of median.

EXHIBIT "7" Lihue Dispatch Center

Photo 3

View of parking lot and median from across Umi Street. 60' steel monopole tower proposed to be installed in center of "turn-around" at end of median.

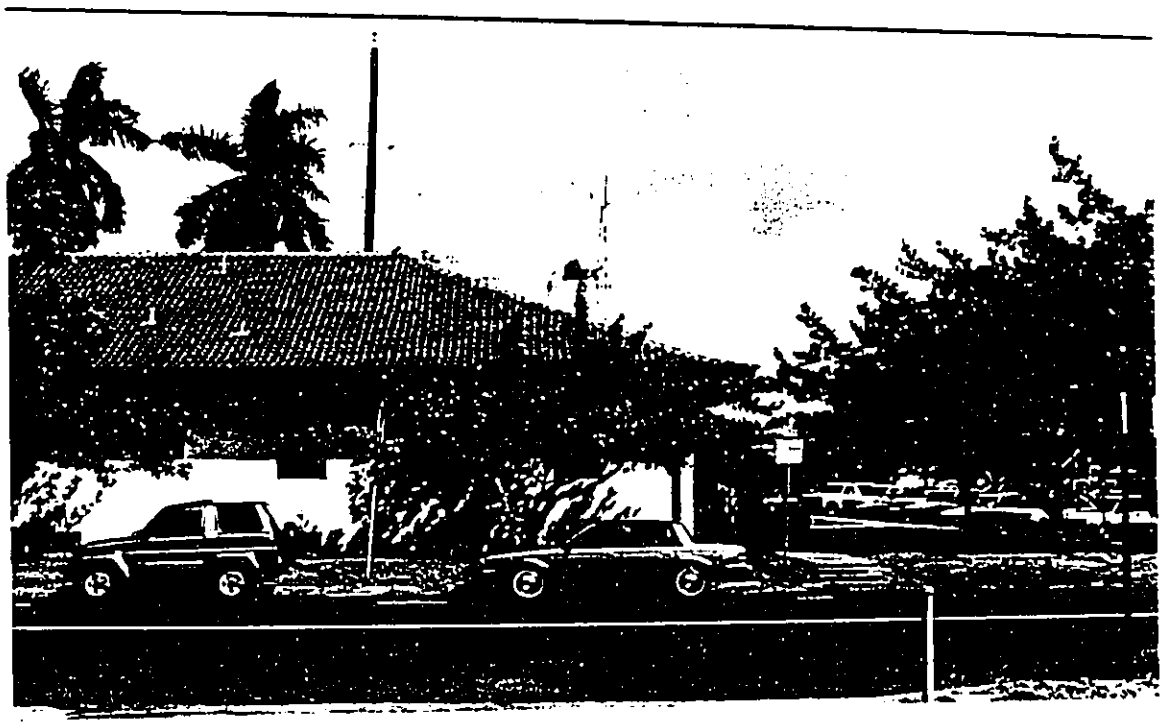


Photo 4

Back side of Public Works Building. The existing 60' wood pole may be removed after installation of 60' steel monopole tower in parking lot median.

7. DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
_EXCELLENT	_DETERIORATED	X UNALTERED	X ORIGINAL SITE
X GOOD	_RUINS	_ALTERED	_MOVED DATE_____
_FAIR	_UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

The Lihue Civic Center Historic District is comprised of a park and three buildings, the County Building, the County Building Annex, and the County Courthouse. All features are located within one city block, a large open space in the heart of downtown Lihue, a town of 4,000 people. Surrounded by a shopping center, business and residential areas, and more recent government buildings, the district is one of several distinct elements contributing to Lihue's urban fabric, and represents the historic center of this major plantation town, Kauai's county seat.

The three buildings house county government offices and courts, and serve as a hub for government activities on the island of Kauai. Built within a twenty-five year period, they represent the architectural aspirations of their time, employing the popular neo-classical revival and Spanish Mission revival styles. The buildings are all of masonry construction and of one or two stories in height, which is in keeping with the scale of the city.

The oldest of the buildings is the County Building, erected in 1913. Designed by the Honolulu firm of Ripley & Davis, it is a two-story, concrete building rendered in a neo-classical revival style. This rectangular building is five bays wide with its design emphasis placed on the center, outset, entry bay. Approached by pyramiding steps, the two-story high pedimented entry is distinguished by its Ionic columns, wrought iron light fixtures and its frieze with the legend "County Building" in the center and abstracted Ionic designs above either pilaster. The building sits on a raised foundation and terminates with a simple parapet. Each bay contains a jalousie window on the first and second floor with an air conditioner in the transom space. The windows and the removal of a metal cornice, which was located below the parapet, are the only major exterior alterations.

The interior focuses upon a central two-story open foyer which features a concrete staircase. The stairway divides at the mid-height landing to give access to each side of the second floor. A square iron balustrade with wood handrailings surrounds the gallery on the second floor. These are all original features. The building faces a park with a large expanse of green lawn with palm trees. Originally the palms were located only on either side of a no longer extant walkway, which led to the county building.

To the right of the County Building is the County Building Annex, which was built in 1930 as the Territorial Office Building. Designed by Honolulu architect Hart Wood, this modest one-story reinforced

Lihue Dispatch Center

EXHIBIT "8"

Form No. 10-300 (Rev. 10-74)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

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SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

1. NAME

HISTORIC: Lihue Civic Center Historic District

AND/OR COMMON:

2. LOCATION

STREET & NUMBER: _____ NOT FOR PUBLICATION

CITY, TOWN: Lihue _____ VICINITY OF

CONGRESSIONAL DISTRICT: Second

STATE: Hawaii CODE: 15 COUNTY: Kauai CODE: 007

3. CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE	
X DISTRICT	X PUBLIC	X OCCUPIED	_ AGRICULTURE	_ MUSEUM
_ BUILDING(S)	_ PRIVATE	_ UNOCCUPIED	_ COMMERCIAL	_ PARK
_ STRUCTURE	_ BOTH	_ WORK IN PROGRESS	_ EDUCATIONAL	_ PRIVATE RESIDENCE
_ SITE	PUBLIC ACQUISITION	ACCESSIBLE	_ ENTERTAINMENT	_ RELIGIOUS
_ OBJECT	_ IN PROCESS	X YES: RESTRICTED	X GOVERNMENT	_ SCIENTIFIC
	_ BEING CONSIDERED	_ YES: UNRESTRICTED	_ INDUSTRIAL	_ TRANSPORTATION
		_ NO	_ MILITARY	_ OTHER:

4. OWNER OF PROPERTY

NAME: State of Hawaii and County of Kauai

STREET & NUMBER: 1151 Punchbowl Street and 4396 Rice Street

CITY, TOWN: Honolulu and Lihue _____ VICINITY OF

STATE: Hawaii

5. LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC.: Bureau of Conveyances

STREET & NUMBER: 1151 Punchbowl Street

CITY, TOWN: Honolulu

STATE: Hawaii

6. REPRESENTATION IN EXISTING SURVEYS

TITLE: Historic Inventory for Kauai

DATE: 1974 _FEDERAL _STATE X COUNTY _LOCAL

DEPOSITORY FOR SURVEY RECORDS: Department of Land and Natural Resources

CITY, TOWN: Honolulu

STATE: Hawaii

8 SIGNIFICANCE

PERIOD

—PREHISTORIC
—1400-1499
—1500-1599
—1600-1699
—1700-1799
—1800-1899
X 1900-

AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW

—ARCHEOLOGY-PREHISTORIC
—ARCHEOLOGY-HISTORIC
—AGRICULTURE
X ARCHITECTURE
—ART
—COMMERCE
—COMMUNICATIONS
—COMMUNITY PLANNING
—CONSERVATION
—ECONOMICS
—EDUCATION
—ENGINEERING
—EXPLORATION/SETTLEMENT
—INDUSTRY
—INVENTION
—LANDSCAPE ARCHITECTURE
—LAW
—LITERATURE
—MILITARY
—MUSIC
—PHILOSOPHY
X POLITICS/GOVERNMENT
—RELIGION
—SCIENCE
—SCULPTURE
—SOCIAL/HUMANITARIAN
—THEATER
—TRANSPORTATION
—OTHER (SPECIFY)

SPECIFIC DATES 1913-1938 BUILDER/ARCHITECT See description of individual buildings

STATEMENT OF SIGNIFICANCE

The Lihue Civic Center Historic District, as the center of government activity on the island of Kauai, is of local political and governmental significance. Located adjacent to the shopping center, the focal corner of the two main arterial strips which comprise downtown Lihue, the district stands as a distinct element within the cityscape and embodies the history of the development of county government on Kauai and all the events associated with it.

Lihue dates from the late 1830's when Kaikioewa, the governor of Kauai, moved his home from the traditional seat of government, Waimea, to the hilly lands overlooking Nawiliwili Bay. Here he established an early sugar cane plantation and supposedly called the area Lihue, the name of the place on Oahu from which he came. With Kaikioewa's death in 1839 the new plantation foundered, but in 1849 was revitalized as Lihue Plantation by Henry A. Peirce, Charles Reed Bishop, and William Little Lee. In 1851, a frame courthouse was built on lands east of the present civic center district, and in 1854, the Rice family, who eventually came to control Lihue Plantation, bought into this enterprise. During most of the nineteenth century, Lihue, with its courthouse and plantation store (located on the present shopping center lands), served as the center of island government, with Governor Paul Kanoa (1845-1876) and a number of his successors living in the area.

Following annexation, the Territorial government passed the County Act in 1905, establishing county governments on the four largest islands in the Hawaii chain. Lihue became the county seat of Kauai and the commissioners held monthly meetings in the 1851 courthouse. In 1913 the present County Building was erected, the first structure in the territory built expressly to house a county government. With its completion, the 1851 courthouse was razed, with Lihue High School eventually being built on that site. The area surrounding the County Building developed as the hub of government activities with the construction of the Territorial Office Building in 1930 and the County Courthouse in 1938. Originally the County Courthouse was to be built in the park in front of the County Building; however, public outcry against that location resulted in the construction of Umi Street and the Courthouse on its present site.

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concrete building is rendered in a Spanish Mission style. It features a red tiled, double pitched, hipped roof, stucco walls and a centered recessed lanai (porch) with a pair of Doric columns. Projected windows are located on the sides of the building.

To the rear of the Annex is the County Courthouse, fronting on Umi Street, which was built contemporaneously with the courthouse. The cruciform shaped, one-story, reinforced concrete building is rendered in a Spanish Mission style, with stucco walls and a red tiled, double pitched hipped roof with gablets. It is distinguished by an outset entry lanai (porch) with square columns. The building is eleven bays wide with projected windows in each bay, except the three center bays which feature a double door entry flanked by a pair of projected windows. The building sits on a raised foundation with herring bone designed concrete blocks providing ornamentation and ventilation. On the interior, the main entry opens into a central octagonal space with articulated low arched openings leading to three corridors, with offices off each. The central area's ceiling has intersecting beams creating a coffered effect. A boot scraper is located on either side of the steps leading to the entry lanai (porch).

There are no intrusions within the district. The remainder of the block, which is not included in the district, contains parking lots and a modern State office building.

9 MAJOR BIBLIOGRAPHICAL REFERENCES

Ethel M. Damon, Koamalu, Privately printed, Honolulu, 1931

Garden Island, December 20, 1913, January 20, 1914, April 21, 1914, June 17, 1930, November 25, 1930, September 15, 1936, September 22, 1936, December 1, 1936, and March 1, 1938.

Original blueprints in State Design Office for Courthouse and Territorial Building.

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY 5 acres

UTM REFERENCES

	ZONE	EASTING	NORTHING
A			
B			
C			
D			

VERBAL BOUNDARY DESCRIPTION

This nomination includes a portion of the property designated by TMK 3-6-5: 1, 2, 3 in 1981, as indicated by the enclosed map labeled Lihue Civic Center Historic District.

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
STATE	CODE	COUNTY	CODE

11 FORM PREPARED BY

NAME / TITLE

Nathan Napoka, Historian and Don Hibbard, Architectural Historian

ORGANIZATION — DATE

Department of Land and Natural Resources — February 24, 1981

STREET & NUMBER — TELEPHONE

1151 Punchbowl Street — 548-7460

CITY OR TOWN — STATE

Honolulu — Hawaii

12 STATE HISTORIC PRESERVATION OFFICER CERTIFICATION

THE EVALUATED SIGNIFICANCE OF THIS PROPERTY WITHIN THE STATE IS:

NATIONAL ___ STATE ___ LOCAL X

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

STATE HISTORIC PRESERVATION OFFICER SIGNATURE

TITLE — DATE

FOR NPS USE ONLY

I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

DATE

DIRECTOR, OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION

ATTEST: DATE

KEEPER OF THE NATIONAL REGISTER

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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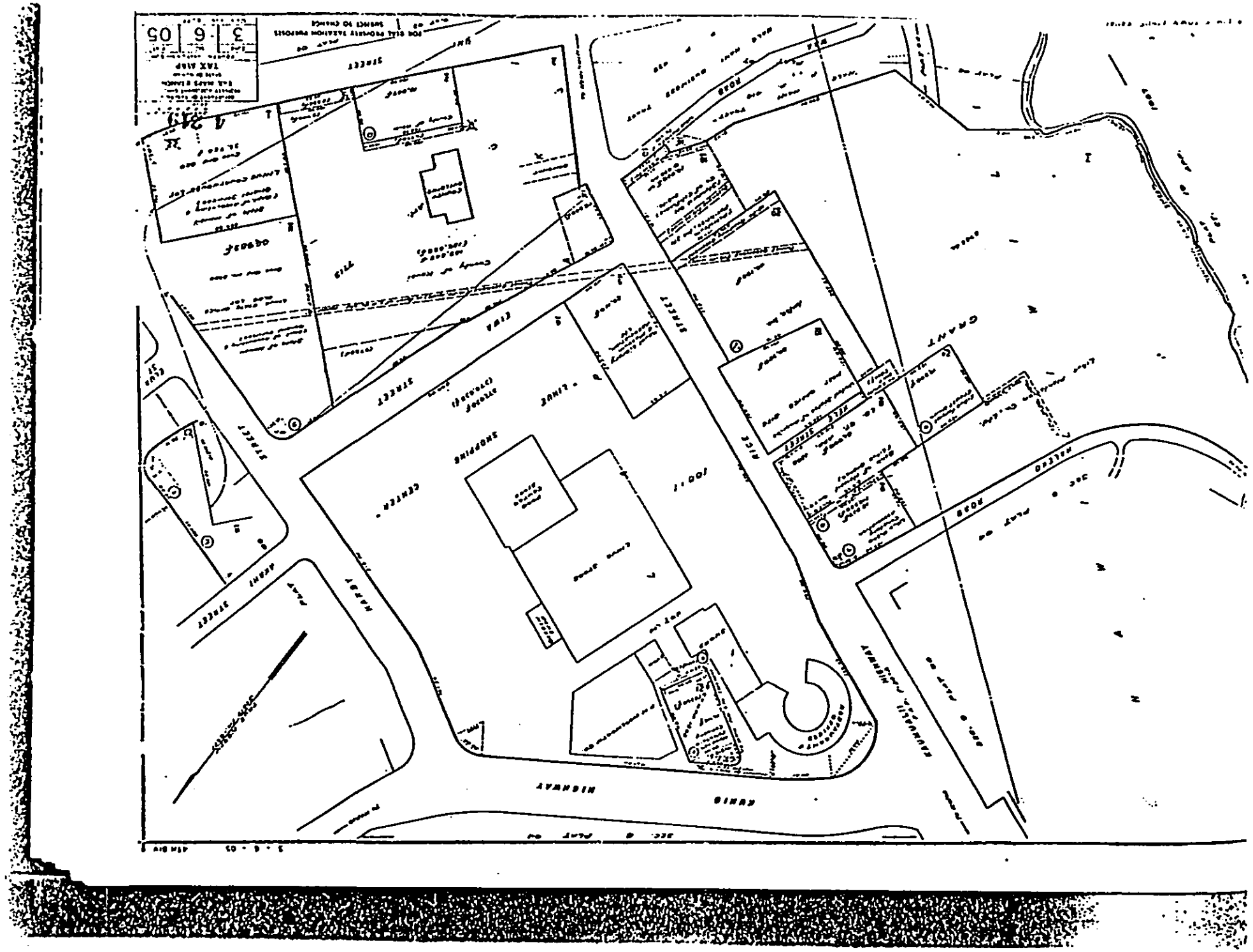
The buildings within the district are of architectural significance as examples of styles typical of their period. Both the County Building and the Annex were designed by major Honolulu architectural firms. The County Building and the no longer extant Lihue Store, both built in 1913, were the earliest buildings on Kauai constructed of concrete and presaged a new era in the development of Lihue. The County Courthouse, designed by State Department of Public Works architect Harry Stewart, is one of the better examples on Kauai of the local adaptation of the Spanish Mission style to island architecture in the 1930's. The only buildings on the island of similar style and comparable design merit are the Lihue Post Office (1938) and the Lihue Theater (1931). The construction of the courthouse solidified the concept of a municipal government center characterized by open space, a concept adhered to in recent years with the construction of the new police station and the State office building.



12/17/91

ENVIRONMENTAL CONSIDERATIONS
FOR
PROPOSED RELOCATION OF POLICE DISPATCH CENTER
TO PUBLIC WORKS BUILDING

The upgrade of the KAUAI COUNTY COMMUNICATIONS NETWORK to a modern "state of the art" 800 MHz TRUNKED RADIO NETWORK requires more space than is now available in the existing Dispatch Center located in the Police Department. The most logical site and the only one available in close proximity with adequate space and within radio propagation range is the Basement of the Public Works Building.

ADVANTAGES

The Public Works Building location offers several distinct advantages for the new COMMUNICATION DISPATCH CENTER compared to other sites that were considered.

a. Retains a centralized location in the center of the County and State office buildings, including the Kauai County Civil Defense Operating Center.

b. The COMMUNICATIONS DISPATCH CENTER and the Dispatchers in the Public Works Building will not be exposed to prisoners being moved or held in the Police Department.

c. The Civil Defense Emergency Operation Center will

have a full function dispatch operating console connected directly to the centralized communications network, with a significant improvement and coordination of communications during emergencies.

d. The new COMMUNICATIONS DISPATCH CENTER will be connected to the nearby EOC emergency standby generator to insure continued full service operation during commercial power outages.

BUILDING CHANGES

a. Internal Changes

The County Engineering Services now use the proposed basement space for drawing files and other storage. Attached IHCO Drawing #90001-01-00 depicts the proposed floor plan for the new DISPATCH CENTER. A new toilet for dispatcher use is included, as well as a lounge area. It may also be desirable to add limited kitchen facilities in the lounge area.

b. Exterior Changes

No changes to the exterior of the Public Works Building are required except for the invisible underground conduit between the building and the proposed new tower location in the parking lot area. See attached IHCO drawing #90001-01-~~23~~ -30, Sheets 1, 2 a~~nd~~ showing the tower ~~semi-hidden by existing trees.~~ in the Turn-around area at the end of the Parking lot median strip.

c. Structural Changes

No structural changes to the Public Works Building are required. There will be no attachments to the exterior of the building.

d. Tower

A 60' steel monopole tower with no guy wires or peripheral lines extending from the tower is planned, as depicted in Drawing #90001-01-~~28~~ 30, Sheets 2 and 3. All antennas will be installed on the tower, including two Civil Defense antennas now located on top of the County Office Building. The Amateur Radio antennas located on top of the County Office Building are not part of this project.

Transmission lines to the antennas will be routed through the underground conduit and the built-in tube of the tower to the antenna, and will not be visible. No antennas, transmission lines, or other equipment will be attached to the exterior of the Public Works Building, as shown in the aforementioned drawings.

ELECTROMAGNETIC RADIATION

The electromagnetic radiation exposure level is infinitesimally small on all radio frequencies, as calculated in the enclosed Exhibits A, B, C & D. Not only are the transmitter power levels small, but the height of the transmitting antennas on the tower insure that the exposure will be negligibly small. Power density radiation for all antennas

was calculated using methods of ANSI C95.1-1982 Radio Frequency Protection Guide. The "CONCLUSION" paragraph in each of the aforementioned Exhibits shows that, as expected, the calculated radiation levels are an infinitesimally small fraction of the tolerable level prescribed by ANSI C95.

SUMMATION

The relocation of the Kauai County Communications Dispatch Center and the new 800 MHz trunked radio network to the KAUAI COUNTY PUBLIC WORKS BUILDING will provide a vastly improved communications capability to the Kauai Police Department, Kauai Fire Department, and other governmental agencies.

The project will result in a significant improvement in service to the citizens and visitors of Kauai, clearly without any negative aesthetic or environmental impact to the historic Kauai County government central area.

Respectfully submitted,

I. HERMAN COMPANY

I. Herman

ELECTROMAGNETIC RADIATION

POWER DENSITY CALCULATIONS (800 MHz)

Site: LIHUE DISPATCH CENTER
Path: Vertical Polarized Omni-directional
Frequency: 860 MHz (nominal) λ = 0.3488M, 1.1445Ft.
Power: 75 Watts per Transmitter, 5 Transmitters = 375 W Max.
(+48.75 dBm/Transmitter, +55.74 dBm for 5 Transmitters)

Losses: Combiner + Line Loss assumed 3.5 dB maximum

Power at Antenna: 33.5 Watts/Transmitter, 167.5 W Max.
(+45.25 dBm/Transmitter, +52.24 dBm Max.)

Antenna: 800 MHz, 7.5 dB gain, Omni-directional
Antenna Height: 55' AGL to Center of Antenna

1. Far Field Power Density at 55'

$$W = \frac{GP}{4\pi r^2} = \frac{5.62 \times 167.5}{4\pi(16.764)^2} = 0.2667 \text{ W/M}^2 = 0.0267 \text{ mW/cM}^2$$

2. Power Density at Base of Tower

Coupling Factor Coaxial to Antenna = -20 dB = 0.01 Max.

$W = 0.0267 \times 0.01 = \underline{2.67 \times 10^{-4} \text{ mW/cM}^2}$

3. ANSI C95.1 - 1982 Radio Frequency Protection Guide

Maximum Power Density 300-1500 MHz

$$W_{ANSI} = \frac{f}{300} = \frac{860}{300} = \underline{2.87 \text{ mW/cM}^2}$$

CONCLUSION

As shown under Item 2 above, the calculated UHF (800 MHz) radiation of this antenna is less than one ten thousandth (1/10,000) of the radiation allowed by ANSI, which is negligible.

R. D. Detwiler, PE
11/25/91

ELECTROMAGNETIC RADIATION

POWER DENSITY CALCULATIONS (MICROWAVE)

Site: LIHUE DISPATCH CENTER TO VIDINHA STADIUM
Path: Lihue-Vidinha Stadium
Frequency: 1.92 GHz, λ = 0.1563M or 0.5126Ft.
Power: 0.10 Watts = +20.0 dBm = 100 mw.
Transmission Line Losses: -2.65 dB
Power at Antenna: +17.35 dBm = 54.33 mw. = 0.054 watts
Antenna: 8' 2 GHz Grid at 47' AGL, +31.20 dB gain

1. Far Field Distance from Antenna

$$r = \frac{2D^2}{\lambda} = \frac{2(2.4384)^2}{0.1563} = 76.082M = 249.6\ Ft.$$

2. Far Field Power Density

$$W = \frac{GP}{4\pi r^2} = \frac{(1318.25)(0.054W)}{4\pi(76.082)^2} = 0.000978W/M^2 = 0.000098mW/cM^2$$

3. Normalized "On Axis" Distance equal to Antenna Height (47' or 14.33M)

$$X = \frac{r\lambda}{2D^2} = \frac{14.326x0.1563}{2(2.4384)^2} = 0.1883M$$

4. Normalized "On Axis" Power Density Gain Factor @ 47' = 20 (From Table 2 and Graph A6, ANSI 95.3)

5. Near Field Power Density at 47'

$$W_{nf} = 20x0.000098 = 0.00196\ mW/cM^2$$

6. At ground level beneath the antenna (47' AGL) the "On Axis" nearfield power density (0.00196) is multiplied by the 90° "Off Axis" antenna discrimination of the ANIXTER-MARK P2096GR 8' diameter antenna. -31.2 dB=0.000794, W=(0.00196)(0.000794)=1.553×10^{-6} mW/cM^2

7. The ANSI 95.1 Radio Frequency Protection Guide, Table 1, (RFPG) recommends an exposure limit of 5.0 mW/cM^2 for the frequency range 1,500 to 100,000 MHz (1.5 to 100 GHz).

CONCLUSION

As shown under Item 6 above, the calculated microwave radiation of this antenna is only 1.553×10^{-6} mW/cM^2, which is an infinitesimally negligible amount compared to the recommended maximum of 5.0 mW/cM^2 by ANSI (Item 7). The expected ground radiation level is in the order of 3 ten millionths of the allowed amount.

R. D. Detwiler, PE
11/21/91

ELECTROMAGNETIC RADIATION

POWER DENSITY CALCULATIONS (150 MHz)

Site: LIHUE DISPATCH CENTER
Path: Vertical Polarized Omni-directional
Frequency: 155.760 MHz, λ = 1.930M, = 6.331'
Power: 100 Watts = +50 dBm = +20 dBW
Transmission Line Loss: -1.0 dB
Power at Antenna: 79.433 Watts = +49 dBm = +19 dBW
Antenna: 150 MHz, 5.8 dB gain, Omni-directional
Antenna Height: 30' AGL to Center of Antenna
Vertical Beamwidth: 18°

1. Far Field Power Density at 30'

$$W = \frac{GP}{4\pi r^2} = 0.287 \text{ W/M}^2 = 0.029 \text{ mW/cM}^2$$

2. Power Density at Base of Tower

Coupling factor coaxial to antenna -20 dB = 0.01

$W = 0.029 \times 0.01 = \underline{2.9 \times 10^{-4} \text{ mW/cM}^2}$

3. ANSI C95.1 - 1982 Radio Frequency Protection Guide

Maximum power density 30-300 MHz = $\underline{1.0 \text{ mW/cM}^2}$

CONCLUSIONS

As shown under Item 2 above, the calculated VHF (150 MHz) radiation of this antenna is less than three ten thousandths (3/10,000) of the radiation allowed by ANSI, which is negligible.

R. D. Detwiler
11/22/91

ELECTROMAGNETIC RADIATION

POWER DENSITY CALCULATIONS (MICROWAVE)

Site: LIHUE DISPATCH CENTER TO MT. KAHILI
Frequency: 1.92 GHz, λ =0.1563M, or 0.5126Ft.
Power: 0.5 Watts, or +27.0 dBm
Transm. Line Loss: (100'@2.15 dB+0.85 dB conn. loss) = 3.0 dB
Power at Antenna: +24.0 dBm (251.2 MW or 0.251 Watts)
Antenna: 10' 2 GHz Grid at 55' AGL, +33.2 dB gain

r	=	Distance from antenna to Point of Calculation
D	=	Diameter of Antenna
λ	=	Wavelength
P	=	Transmitted Power
G	=	Antenna Gain
W	=	Power Density
X	=	Normalized "on axis" Distance from Antenna
W_{nf}	=	Near Field Power Density
ANSI	=	American National Standards Institute

1. Far Field Distance from Antenna

Far Field Distance

$$r = \frac{2D^2}{\lambda} = \frac{2(3.048)^2}{0.1563} = 118.9M = 390'$$

2. Far Field Power Density

$$W = \frac{GP}{4\pi r^2} = \frac{2089.3 \times 0.251}{4\pi(118.9)^2} = 0.003 W/M^2 = 0.0003\ mW/cM^2$$

3. Normalized "On Axis" Distance equal to Antenna Height

(55' or 16.76M)

$$X = \frac{r\lambda}{2D^2} = \frac{16.764 \times 0.1563}{2(3.048)^2} = 0.1410M$$

4. Normalized "On Axis" Power Density Gain Factor @ 55' = 50

(From Table A2 and Graph A6, ANSI 95.3)

5. Near Field Power Density at 55'

W_{nf} = 50x0.0003 = 0.015 mW/cM^2

6. At ground level beneath the antenna (55' AGL) the "on axis" near field power density (55') is divided by the 90° "off axis" antenna discrimination. See ANIXTER-MARK linear pattern envelope for the P-20120G 10' dia. antenna. -37.5 dB = 0.000178,
W = (0.015)(0.000178) = 2.67x10^{-6} mW/cM^2

7. The ANSI 95.1 Radio Frequency Protection Guide, Table 1, (RFPG) recommends an exposure limit of 5.0 mW/cM^2 for the frequency range 1,500 to 100,000 MHz (1.5 to 100 GHz).

CONCLUSION

As shown under Item 6 above, the calculated microwave radiation of this antenna is only 2.67x10^{-6} mW/cM^2, which is an infinitesimal negligible amount compared to the recommended maximum of 5.0 mW/cM^2 by ANSI (Item 7). The expected radiation level is in the order of 5 ten millionths of the allowed amount.

R. D. Detwiler PE
11/21/91

[redacted]

VIDINHA STADIUM

SPECIAL MANAGEMENT AREA PERMIT ASSESSMENT APPLICATION
COUNTY OF KAUAI
DEPARTMENT OF PLANNING

Vidinha Stadium

PART A:

OWNER: County of Kauai, Hawaii

APPLICANT: County of Kauai, Hawaii

APPLICANT'S STATUS IF NOT OWNER: _____

ADDRESS: 3021 Umi Street, Lihue, Kauai, HI 96766

Attn: Ed Renaud PHONE: 808-245-3318

FAX NO.: 808-245-9029

TMK: #3-6-02-16 ZONING: Agricultural SLUD: _____

GENERAL PLAN: _____ CURRENT LAND USE: Lihue Sports Stadium

NATURE OF DEVELOPMENT: This project will implement a 2 GHz microwave repeater station to link the new Lihue Dispatch Center to a new communication facility at Puu Alanakau (Anahola). The changes will add 2 microwave grid antennas at the 60' (center) level of the 120' light pole A2 adjacent to the south side of the stadium. Electronic equipment will be installed inside the stadium storage area.

*NOTE: An Environmental Assessment in accordance with HRS Chapter 343 is required for actions requiring a Shoreline Setback Variance. Please contact the Planning Department for further information.

VALUATION OF DEVELOPMENT: $57,737 (attached contractor's estimate)

DATE OF APPLICATION: _____

5/18/92

RESPONSE TO KAUAI PLANNING DEPARTMENT QUESTIONNAIRE (PART "B")

Vidinha Stadium

Part B:

1. This project to install a low power microwave repeater system at Vidinha Stadium is part of the overall upgrade of the Kauai County Communication network that serves the Police, Fire, and Public Works Departments - shared also with State and Federal agencies.

   The following facilities will be installed at Vidinha Stadium.

   a. Electronic equipment, including a small battery/charger system will be installed within the storage area of the stadium.

   b. An 8' and 10' grid antenna will be installed at the 60' level of the 120' Light Pole A2 (see attached IHCO Drawing 90001-02-00).

2. Shoreline

   Vidinha Stadium does not abut the shoreline.

3. Plot Plan

   See IHCO Drawing 90001-02-00.

4. Other Plans and Information

   None required.

5. Project Assessment

   a. Area Description

      This site is located in the Vidinha Sports Stadium.

   b. Land Uses

      The Sports Stadium is used for public spectator sports and athletic events.

   c. Project Effect

      This project will add a small but acceptable visual impact from the antennas added to the Light Pole. (See IHCO Drawing 90001-02-00.)

c.1. This project will not result in the loss or destruction of any natural or cultural resources.

c.2. This project will not curtail the range of beneficial uses of the environment.

c.3. This project does not conflict with County or State long-term environmental policies or goals.

c.4. This project will substantially improve the County and State Public Safety and Administrative communications functions and indirectly have a positive beneficial effect on the economic and social activities of the County and State.

c.5. This project will add one small facility to the Kauai County communication network. This project will have no effect on the population growth.

c.6. This project will have no significant adverse or cumulative effect on the environment, nor does it involve a commitment for larger actions.

c.7. This project does not affect a rare, threatened, or endangered species of animal or plant, or its habitat.

c.8. This project will have no effect on the quality of water, air, or ambient noise levels.

c.9. This project will have no effect on any environmentally sensitive area, such as flood plan, shoreline, Tsunami zone, erosion prone area, geologically hazardous land, estuary, fresh water, or coastal water.

c.10. This project will not have a major effect on the economic and social welfare of the area.

c.11. This project is not contrary to the policies and guidelines of the Rules and Regulations, the County's General Plan, and Zoning and Subdivision ordinances.

d. Recreational Resources

This project does not provide for coastal recreational opportunities. See attached questionnaire for answers to other questions.

RECREATIONAL RESOURCES:

Objective: Provide coastal recreational opportunities accessible to the public.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes" please elaborate or provide comments in "Discussion" section below.

	Yes	No
1. Will the proposed action involve or be near a dedicated public right-of-way to the beach?	___	X
2. Does the project site abut the shoreline?	___	X
3. Is the project site near a State or County Park?	___	X
4. Will the proposed action occur in or affect a surf site?	___	X
5. Will the proposed action occur in or affect a fishing area?	___	X
6. Will the proposed action occur in or affect a recreational or commercial boating area (including boat ramps)?	___	X
7. Is the project site near a sandy beach?	___	X
8. Are there swimming or other near shore recreational uses in the area?	___	X

Discussion:

HISTORICAL RESOURCES:

Objective: Protect, preserve, and where desirable, restore those natural and man-made historic and pre-historic resources in the Special Management Area that are significant in Hawaiian and American history and culture.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

		Yes	No
1.	Is the project site within a Federal, State, and/or County designated historic/cultural district?	___	X
2.	Is the project site listed on or nominated to the Hawaii or National Register of Historic Places?	___	X
3.	Does the project site include land(s) which has not been previously surveyed by an archaeologist?	___	X
4.	Has any site survey revealed any information on historic or archaeological resources? (Please provide copy or reference of survey)	___	X
5.	Is the project site within or near a Hawaiian fishpond?	___	X
6.	Is the project located within or near a historic settlement area? (cemeteries, burials, heiaus, etc.)	___	X

Discussion:

Vidinha Stadium

SCENIC AND OPEN SPACE RESOURCES:

Objective: Protect, preserve and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

		Yes	No
1.	Does the project site abut a scenic landmark?	___	X
2.	Does the proposed action involve the construction of a multi-story structure or structures?	___	X
3.	Is the project site adjacent to vacant parcels?	___	X
4.	Does the proposed action involve the construction of structures visible between the nearest coastal roadway and the shoreline?	___	X
5.	Is the project site within the Shoreline Setback Area (20 or 40 feet inland from the shoreline)?	___	X

Discussion:

COASTAL ECOSYSTEMS:

Objective: Protect valuable coastal ecosystems from disruption and minimize adverse impacts on all coastal ecosystems.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

	Yes	No
1. Does the proposed development involve dredge or fill activities within or abutting any type of of waterway?	___	X
2. Will the proposed development require some form of effluent discharge into a body of water?	___	X
3. Will the proposed development require earthwork beyond clearing and grubbing?	___	X
4. Will the proposed development include the construction of special waste treatment facilities, such as injection wells, discharge pipes, septic tank systems or cesspools?	___	X
6. Is an intermittent or perennial stream or estuary located on or near the project site?	___	X
7. Does the project site provide habitat for endangered species of plants, birds, or mammals?	___	X
8. Is any such habitat located nearby?	___	X
9. Is there a wetland on the project site?	___	X
10. Is the project site situated in or abutting a Natural Area Reserve or Wildlife Refuge or Sanctuary?	___	X

Discussion:

ECONOMIC USES:

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

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments within the "Discussion" section below.

		Yes	No
1.	Does the project involve a harbor or port?	___	X
2.	Is the proposed development related to or near to an existing major hotel, multi-family, or condominium project?	___	X
3.	Does the project site include agricultural lands designated for such use?	___	X
4.	Does the proposed development relate to commercial fishing or seafood production?	___	X
5.	Does the proposed development relate to energy production?	___	X

Discussion:

COASTAL HAZARDS: Vidinha Stadium

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

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments within the "Discussion" section below.

	Yes	No
1. Is the project site within a potential tsunami inundation area as depicted on the National Flood Insurance Rate maps (FIRM)?	___	X
2. Is the project site within a potential flood inundation area according to a FIRM?	___	X
3. Has the project site or nearby shoreline areas experienced shoreline erosion?	___	X
4. Have any seawalls/revetments/etc. been constructed or exist in the immediate vicinity?	___	X

Discussion:

PROJECT ASSESSMENT cont'd:

e. Evaluation of impacts which cannot be avoided and mitigating measures proposed to minimize that impact;

f. Evaluation of the proposed development relative to Section 4.0 of the SMA Rules and Regulations in accordance with the following aspects:

1. Substantial adverse environmental or ecological effects;

2. Consistency or compliance of the proposed development relative to the goals and objectives of Chapter 205A, HRS and Section 3.0 of the SMA Rules and Regulations;

3. Consistency or compliance of the proposed development relative to the County General Plan, Development Plan, and zoning ordinances.

e. Impacts

This project has no known impacts of significance.

f. Development Evaluation

1. This project has no substantial adverse environmental or ecological effects.

2a. This project complies with goals and objectives of Chapter 205A of the Hawaii Revised Statutes.

2b. This site is not located within a Special Management Area.

3. This project is in compliance with the County General Plan, Development Plan, and zoning ordinances.

SIGNATURE OF APPLICANT/REPRESENTATIVE
(Print name of applicant/representative)

DATE

Vidinha Stadium

EXHIBIT "1"

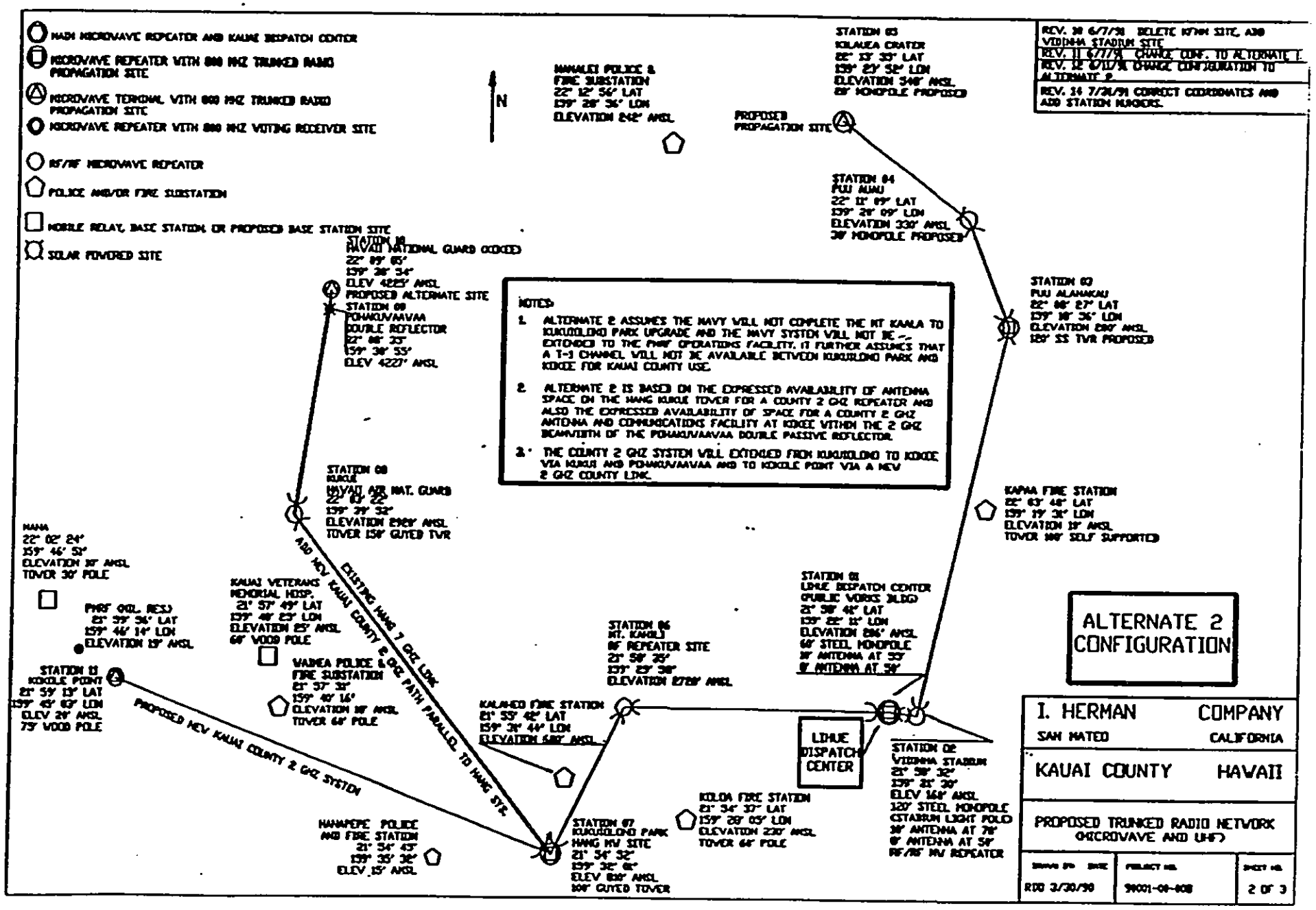
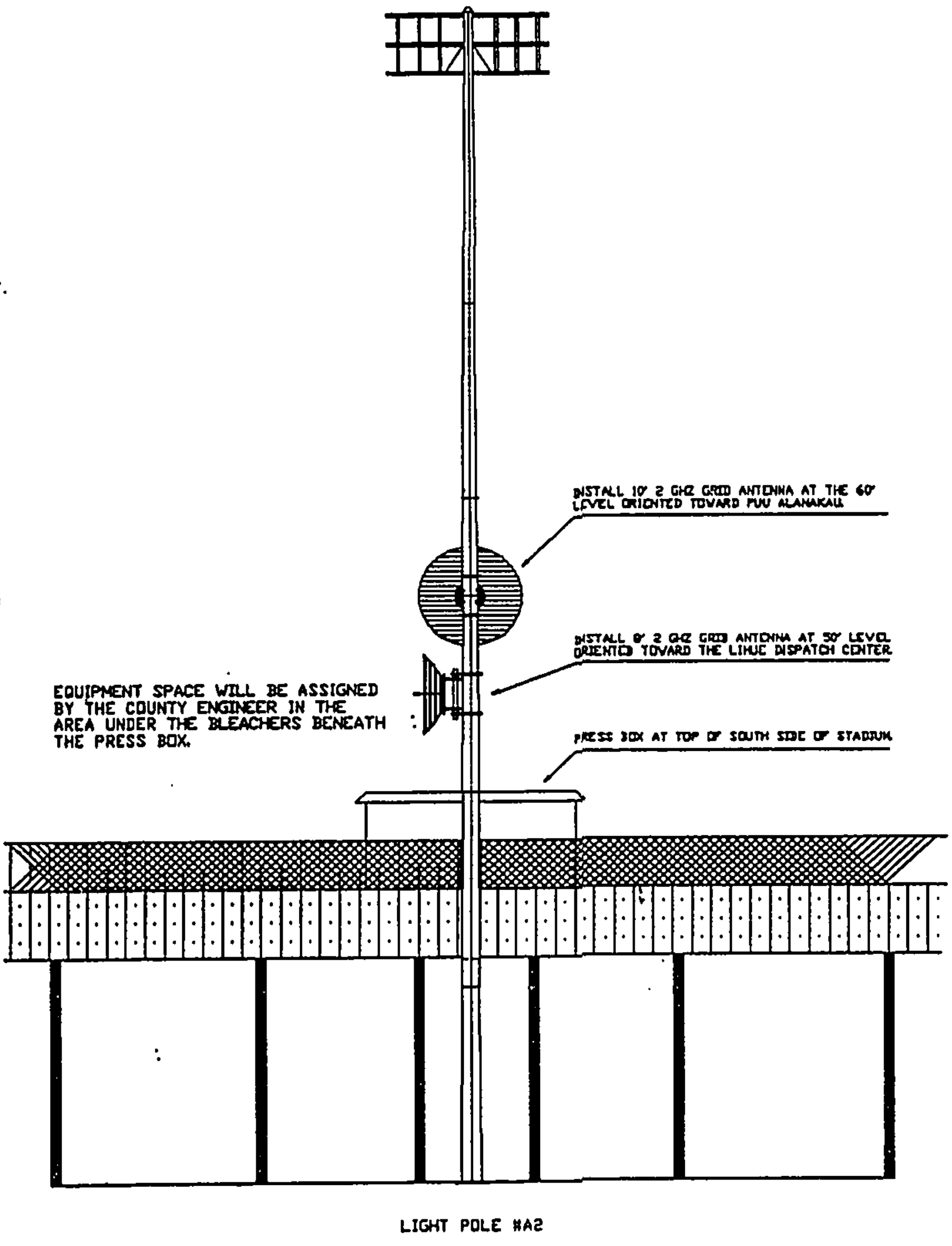


EXHIBIT "2"

Vidinha Stadium



I. HERMAN COMPANY
COMMUNICATIONS ENGINEERS
SAN MATEO CALIFORNIA

KAUA'I COUNTY, HAWAII
COMMUNICATIONS SYTEM

VIDINHA STADIUM STATION
ANTENNA PLACEMENT

SHEET NO. 1 OF 1

12/19/91

ENVIRONMENTAL CONSIDERATIONS
FOR
VIDINHA STADIUM SITE
FOR MICROWAVE RELAY STATION

The upgrade of the KAUAI COUNTY COMMUNICATIONS NETWORK requires that a low power microwave relay station be located at Vidinha Stadium utilizing the existing stadium lighting poles to support the two microwave antennas. This site is strategically located for minimal implementation cost with negligible impact on aesthetics.

MICROWAVE RELAY REQUIREMENTS

A "line of sight" microwave path does not exist between the proposed Dispatch Center in the Public Works Building and the first trunked radio and microwave station site at Puu Alanakau (Anahola). Thus, an intermediate site is required to make the connecting microwave link between the two stations.

Vidinha Stadium fulfills all the necessary intermediate stations' relay requirements. The South Center light standard (pole #A2) will be utilized to support the antennas, obviating a new tower requirement. The available antenna space midway on the existing pole provides for a "line of sight" microwave path to each station in both directions. Only a small amount of space in the stadium manager's office

will be required for the microwave relay repeater (see Drg. 90001-02-00 attached).

STRUCTURAL

The two microwave grid antennas will be mounted at the 50' and 60' levels on light pole #A2 that is directly adjacent to the Press Box. The lower antenna is 10' above the top of the Press Box and the second antenna 20' above the Press Box, as shown in the aforementioned drawing.

The two antenna transmission lines will be installed on the external surface of the pole since there is no access to the tube interior. A messenger cable at the 25' level of the tower will be used for entry into the stadium manager's office.

The two microwave antennas are not a significant load for these poles, although a stress analysis will be made by a structural engineer for the historical record.

ELECTROMAGNETIC RADIATION

The power output of each 2 GHz transmitter is less than 0.1 watt each (100 milliwatts). The American National Standards Institute (ANSI) C95.1 Radio Frequency Protection Guide (RFPG) limit for 0.1 hour exposure at 1,500 to 100,000 MHz (1.5 to 100 GHz) is 5 milliwatts (0.005 watts) per square centimeter.

The near field power density levels were calculated per methods described in ANSI C95.

(From the 10' antenna, highest power density)
At the edge of the Press Box:
The Near Field Power Density = 0.0007 mW/cM^2,
or 1/10,000 of the ANSI RFPG of 5 mW/cM^2.

(From the 8' antenna, highest power density)
On the ground at the Tower Base:
The Near Field Power Density = 0.00000155 mW/cM^2,
or 3/10,000 of the ANSI RFPG of 5 mW/cM^2.

AIR QUALITY

This project will not affect the air quality.

ZONING

a. The Vidinha Stadium occupies TMK:3-6-02:16 and TMK:3-6-02:18. Parcel 16 is classified "Agricultural" by the State Land Use Commission, General Planned "Urban Mixed Use" and zoned "Agricultural" by the County of Kauai.

b. Pursuant to Chapter 205-4.5(7) Hawaii Revised Statutes (HRS), the construction of microwave antennas for communications equipment is permissible.

CONCLUSION

This microwave relay installation will have no adverse environmental impact on the air or water quality, no adverse effects on public health and safety, and no significant aesthetic impact. The resulting upgraded radio service with this usage of the Vidinha site will provide invaluable public safety radio service to the citizens of Kauai.

Respectfully submitted,

I. HERMAN COMPANY

I. Herman

I. Herman

ELECTROMAGNETIC RADIATION

POWER DENSITY CALCULATIONS (MICROWAVE)

Site: VIDINHA STADIUM
Path: Vidinha Stadium - Lihue Dispatch Center
Frequency: 1.92 GHz, λ = 0.1563M, or 0.5126Ft.
Power: 0.10 Watts = +20 dBm = 100 mW
Transmission Line Loss: -2.65 dB
Power at Antenna: +17.35 dBm = 54.33 mW = 0.054 Watts
Antenna: 8' 2 GHz Grid at 50' AGL, +31.2 dB Gain

1. Far Field Distance from Antenna

$$r = \frac{2D^2}{\lambda} = \frac{2(2.4384)^2}{0.1563} = 76.082M = 249.6'$$

2. Far Field Power Density

$$W = \frac{GP}{4\pi r^2} = \frac{(1318.25)(0.054)}{4\pi(76.082)^2} = 0.00098\ W/M^2 = 0.000098\ mW/cM^2$$

3. Normalized "On Axis" Distance equal to Antenna Height (50' or 15.24M)

$$X = \frac{r}{2D^2} = \frac{15.24x0.1563}{2x(2.4384)^2} = 0.2003M$$

4. Normalized "On Axis" Power Density Factor at 50' = 20 (From Table 2 and Graph A6, ANSI C95.3)

5. Near Field Power Density at 50'

$$W_{nf} = 20x0.000098 = 0.002\ mW/cM^2$$

6. At ground level beneath the antenna (50' AGL) the "On Axis" near field power density (0.002) is multiplied by the 90° "Off Axis" antenna discrimination of the ANIXTER-MARK P-2096GR 8' diameter antenna.
-31.2 dB = 0.000794, W = 0.002x0.000794 = $1.5562x10^{-6}$ mW/cM^2

7. The ANSI 95.1 Radio Frequency Protection Guide (RFPG), Table 1, recommends an exposure limit of 5.0 mW/cM^2 for the frequency range 1,500 to 100,000 MHz (1.5 to 100 GHz).

CONCLUSIONS

As shown under Item 6 above, the calculated microwave radiation of this antenna is only 1.5562x10-6 mW/cM^2, which is an infinitesimally negligible amount compared to the recommended maximum under Item 7 above. The projected radiation level is in the order of 3 ten millionths of the allowed amount.

R. D. Detwiler, PE
11/26/91

ELECTROMAGNETIC RADIATION

POWER DENSITY CALCULATIONS (MICROWAVE)

Site: VIDINHA STADUIM
Path: Vidinha Stadium - Puu Alanakau
Frequency: 1.92 GHz, λ = 0.1563M, or 0.5126Ft.
Power: 0.1 Watts or +20.0 dBm
Transmission Line Loss: -2.65 dBm
Power at Antenna: +17.35 dBm = 54.33 mW = 0.054 Watts
Antenna: 10' 2 GHz Grid at 60' AGL, +33.2 dB gain

1. Far Field Distance from Antenna

$$r = \frac{2D^2}{\lambda} = \frac{2(3.048)^2}{0.1563} = 118.9M = 390'$$

2. Far Field Power Density

$$W = \frac{GP}{4\pi r^2} = \frac{2089.3 \times 0.054}{4\pi(118.9)^2} = 0.000064 \text{ mW/cM}^2$$

3. Normalized "On Axis" Distance equal to Antenna Height (60' or 18.29M)

$$X = \frac{r\lambda}{2D^2} = \frac{18.29 \times 0.1563}{2(3.048)^2} = 0.1539M$$

4. Normalized "On Axis" Power Density Factor at 60' = 30 (From Table 2 and Graph A6, ANSI C95.3)

5. Near Field Power Density at 60'

$$W_{nf} = 30 \times 0.000064 = 0.0013 \text{ mW/cM}^2$$

6. Near Field Power Density at Ground Level
ANIXTER-MARK P-20120G 90° "OFF AXIS" discrimination = -37 dB = 0.0002.

$$W_{nf} = 0.0002 \times 0.0013 = \underline{0.00000026 \text{ mW/cM}^2}$$

7. Normalized "On Axis" distance to edge of Stadium Press Box (12')

$$X = \frac{r^2}{2D^2} = 0.038M$$

8. Normalized "On Axis" Power Density Factor at 12' (to edge of Stadium Press box) = 55 (from Table A2 and Graph A6, ANSI C95.3)

9. Near Field Density at 12' (edge of Press Box)

W_{nf} = Density factor x Far Field Density x "Off Axis Correction"
= 55x0.0013x0.01 = 0.0007 mW/cM^2

ANSI C95.1 RFPG Table 1 Limit is 5.0 mW/cM^2 for the 1,500 to 100,000 MHz range (1.5 to 100 GHz).

CONCLUSIONS

The calculated electromagnetic radiation levels under Items 6 and 9 above are well within the maximum recommended level by ANSI. At the Press Box level the radiation is 14 one hundred thousanths of the ANSI standard, and at ground level it is 2.6 one hundred millionths of the standard. This is consistent with the use of microwave repeaters of a mere 0.1 watts power and no 800 MHz transmitters. The electromagnetic radiation factor is totally negligible.

R. D. Detwiler, PE
11/25/91

PUU ALANAKAU

SPECIAL MANAGEMENT AREA PERMIT ASSESSMENT APPLICATION
COUNTY OF KAUAI
DEPARTMENT OF PLANNING

PART A: Puu Alanakau

OWNER: Hawaiian Home Lands

APPLICANT: County of Kauai, Hawaii

APPLICANT'S STATUS IF NOT OWNER: Tenant

ADDRESS: 3021 Umi Street, Lihue, Kauai, HI 96766

Attn: Ed Renaud PHONE: 808-245-3318

FAX NO.: 808-245-9029

TMK: #4-8-03-23 ZONING: Agricultural SLUD: _____

GENERAL PLAN: _____ CURRENT LAND USE: Domestic Water Supply & Communications Station

NATURE OF DEVELOPMENT: This project will add a microwave relay station and Public Safety trunked radio station for Police, Fire, and Public Works radio communications. Additionally, the Hawaii Public Television relay station will be relocated within the new building. In addition to the new building, the old 150' guyed tower now used by the Hawaii Public Television Network will be replaced with a new 120' steel self-supported tower.

*NOTE: An Environmental Assessment in accordance with HRS Chapter 343 is required for actions requiring a Shoreline Setback Variance. Please contact the Planning Department for further information.

VALUATION OF DEVELOPMENT: $503,374
(attached contractor's estimate)

DATE OF APPLICATION: _____

PART B:

THE PETITIONER SHALL BE RESPONSIBLE FOR FILING THE FOLLOWING WITH THE DEPARTMENT BEFORE AN APPLICATION IS CONSIDERED COMPLETE:

1. A written description of the proposed project, location and a statement of reasons/justification for project.

2. If property abuts the shoreline, a certified shoreline survey conducted by a registered land surveyor within 6 months of an application shall be submitted, except as may be waived by the Planning Director.

3. A plot plan of the property, drawn to scale, with all proposed and existing structures and other pertinent information. Also, preliminary building sketch plans are be submitted.

4. Any other plans or information required by the Director.

   Note: An Environmental Assessment or Environmental Impact Statement that has been declared adequate under the National Environmental Policy Act (NEPA) or under Chapter 343, HRS, may constitute a valid filing under this section.

5. Project assessment:

   a. Description of the area and environment involved including flora and fauna, and other features;

   b. Description of the existing land uses of the project site and surrounding areas;

   c. Description of how the proposed project will affect the area involved and surrounding areas. Specifically the assessment should evaluate if the proposal:

      1. involves an irrevocable commitment to loss or destruction of any natural or cultural resources, including but not limited to; historic sites, Special Treatment Districts as established by the County of Kauai Comprehensive Zoning Ordinance, viewplanes or scenic corridors as outlined in the Development Plans, and recreation areas and resources;

      2. curtails the range of beneficial uses of the environment;

3. conflicts with the County's or the State's long-term environmental policies or goals;

4. substantially affects the economic or social welfare and activities or the community, County or State;

5. involves substantial secondary impacts, such as population changes and effects on public facilities;

6. in itself has no significant adverse effect but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

7. substantially affect a rare, threatened, or endangered species of animal or plant, or its habitat;

8. detrimentally affects air or water quality or ambient noise levels; or

9. affects an environmentally sensitive area, such as flood plain, shoreline, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water or coastal water;

10. may have a major effect on the quality of the environment or affect the economic or social welfare of the area; and

11. would possibly be contrary to the policies and guidelines of the Rules and Regulations, the County's General Plan, Development Plans, and Zoning and Subdivision Ordinances.

d. Evaluation of the proposed development relative to the objectives and policies as contained in Chapter 205-A, HRS, and Section 3.0 of the Special Management Area (SMA) Rules and Regulations: (Please complete attached questionnaire)

Puu Alanakau

5/18/92

RESPONSE TO KAUAI COUNTY PLANNING DEPARTMENT QUESTIONNAIRE (PART"B")

Part B:

1. Project Description

This project will add a new station to the Kauai County communications network as part of the overall upgrade of the Kauai County communication network that serves the Police, Fire, and Public Works Departments - shares also with State and Federal agencies.

a. A new 12'Wx18'Lx10'H communication building will be installed as well as a 120' steel self-supported tower. The building will include a compartment with an emergency generator. The communications equipment will include a 5-channel trunked radio station, a conventional 800 MHz base station and digital microwave terminals. The microwave stations will also relay the microwave signals to Kilauea Crater Hill via a microwave repeater station to be located at Puu Auau.

b. The existing Hawaii Public Television 150' guyed tower will be removed and all the television equipment and antennas relocated to the new Kauai County building and tower.

2. Shoreline

The Puu Alanakau water tank site does not abut the shoreline.

3. Plot Plan

See IHCO Drawing 90001-03-01-1 and 90001-03-01-2.

4. Other Plans and Information

None required.

5. Project Assessment

a. Area Description

This site is located within the confines of the domestic water facilities supplying Anahola and the Hawaiian Home Lands area.

b. Land Uses

The water tank area is used for domestic water supply production and treatment and for various communication facilities. Other users are the CYBERTEL Cellular Telephone System, Hawaii Public Television and Cable TV microwave relay.

c. Project Effect

This project will have a small visual impact adding a new communication building and tower and removing the old Hawaii Public Television building and tower.

c.1. This project will not result in the loss or destruction of any natural or cultural resources.

c.2. This project will not curtail the range of beneficial uses of the environment.

c.3. This project does not conflict with County or State long-term environmental policies or goals.

c.4. This project will substantially improve the County and State Public Safety and Administrative communications functions and indirectly have a positive beneficial effect on the economic and social activities of the County and State.

c.5. This project will increase the Kauai County Police, Fire, and Public Works radio coverage and significantly improve radio communications in the Anahola area.

This project will not increase the population.

c.6. This project will have no adverse or cumulative effect on the environment, nor does it involve a commitment for larger actions.

c.7. This project does not affect a rare, threatened, or endangered species of animal or plant, or its habitat.

c.8. This project will have no effect on the quality of water, air, or ambient noise levels.

c.9. This project will have no effect on any environmentally sensitive area, such as flood plain, shoreline, Tsunami zone, erosion prone area, geologically hazardous land, estuary, fresh water or coastal water.

c.10. This project will not have a major effect on the economic and social welfare of the area.

c.11. This project is not contrary to the policies and guidelines, the County's General Plan, Development Plan, and Zoning and Subdivision ordinances.

d. Recreational Resources

This project does not provide for coastal recreational opportunities. See attached questionnaire for answers to other questions.

Puu Alanakau

RECREATIONAL RESOURCES:

Objective: Provide coastal recreational opportunities accessible to the public.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes" please elaborate or provide comments in "Discussion" section below.

		Yes	No
1.	Will the proposed action involve or be near a dedicated public right-of-way to the beach?	___	X
2.	Does the project site abut the shoreline?	___	X
3.	Is the project site near a State or County Park?	___	X
4.	Will the proposed action occur in or affect a surf site?	___	X
5.	Will the proposed action occur in or affect a fishing area?	___	X
6.	Will the proposed action occur in or affect a recreational or commercial boating area (including boat ramps)?	___	X
7.	Is the project site near a sandy beach?	___	X
8.	Are there swimming or other near shore recreational uses in the area?	___	X

Discussion:

Puu Alanakau

HISTORICAL RESOURCES:

Objective: Protect, preserve, and where desirable, restore those natural and man-made historic and pre-Historic resources in the Special Management Area that are significant in Hawaiian and American history and culture.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

	Yes	No
1. Is the project site within a Federal, State, and/or County designated historic/cultural district?	___	X
2. Is the project site listed on or nominated to the Hawaii or National Register of Historic Places?	___	X
3. Does the project site include land(s) which has not been previously surveyed by an archaeologist?	___	X
4. Has any site survey revealed any information on historic or archaeological resources? (Please provide copy or reference of survey)	___	X
5. Is the project site within or near a Hawaiian fishpond?	___	X
6. Is the project located within or near a historic settlement area? (cemeteries, burials, heiaus, etc.)	___	X

Discussion:

SCENIC AND OPEN SPACE RESOURCES:

Objective: Protect, preserve and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

		Yes	No
1.	Does the project site abut a scenic landmark?	___	X
2.	Does the proposed action involve the construction of a multi-story structure or structures?	___	X
3.	Is the project site adjacent to vacant parcels?	X	___
4.	Does the proposed action involve the construction of structures visible between the nearest coastal roadway and the shoreline?	___	X
5.	Is the project site within the Shoreline Setback Area (20 or 40 feet inland from the shoreline)?	___	X

Discussion:

3. All adjacent parcels are sugar cane production.

COASTAL ECOSYSTEMS:

Objective: Protect valuable coastal ecosystems from disruption and minimize adverse impacts on all coastal ecosystems.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

	Yes	No
1. Does the proposed development involve dredge or fill activities within or abutting any type of of waterway?	___	X
2. Will the proposed development require some form of effluent discharge into a body of water?	___	X
3. Will the proposed development require earthwork beyond clearing and grubbing?	___	X
4. Will the proposed development include the construction of special waste treatment facilities, such as injection wells, discharge pipes, septic tank systems or cesspools?	___	X
6. Is an intermittent or perennial stream or estuary located on or near the project site?	___	X
7. Does the project site provide habitat for endangered species of plants, birds, or mammals?	___	X
8. Is any such habitat located nearby?	___	X
9. Is there a wetland on the project site?	___	X
10. Is the project site situated in or abutting a Natural Area Reserve or Wildlife Refuge or Sanctuary?	___	X

Discussion:

ECONOMIC USES:

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

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments within the "Discussion" section below.

		Yes	No
1.	Does the project involve a harbor or port?	___	X
2.	Is the proposed development related to or near to an existing major hotel, multi-family, or condominium project?	___	X
3.	Does the project site include agricultural lands designated for such use?	___	X
4.	Does the proposed development relate to commercial fishing or seafood production?	___	X
5.	Does the proposed development relate to energy production?	___	X

Discussion:

Puu Alanakau

COASTAL HAZARDS:

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

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments within the "Discussion" section below.

	Yes	No
1. Is the project site within a potential tsunami inundation area as depicted on the National Flood Insurance Rate maps (FIRM)?	___	X
2. Is the project site within a potential flood inundation area according to a FIRM?	___	X
3. Has the project site or nearby shoreline areas experienced shoreline erosion?	___	X
4. Have any seawalls/revetments/etc. been constructed or exist in the immediate vicinity?	___	X

Discussion:

Puu Alanakau

EXHIBIT "1"

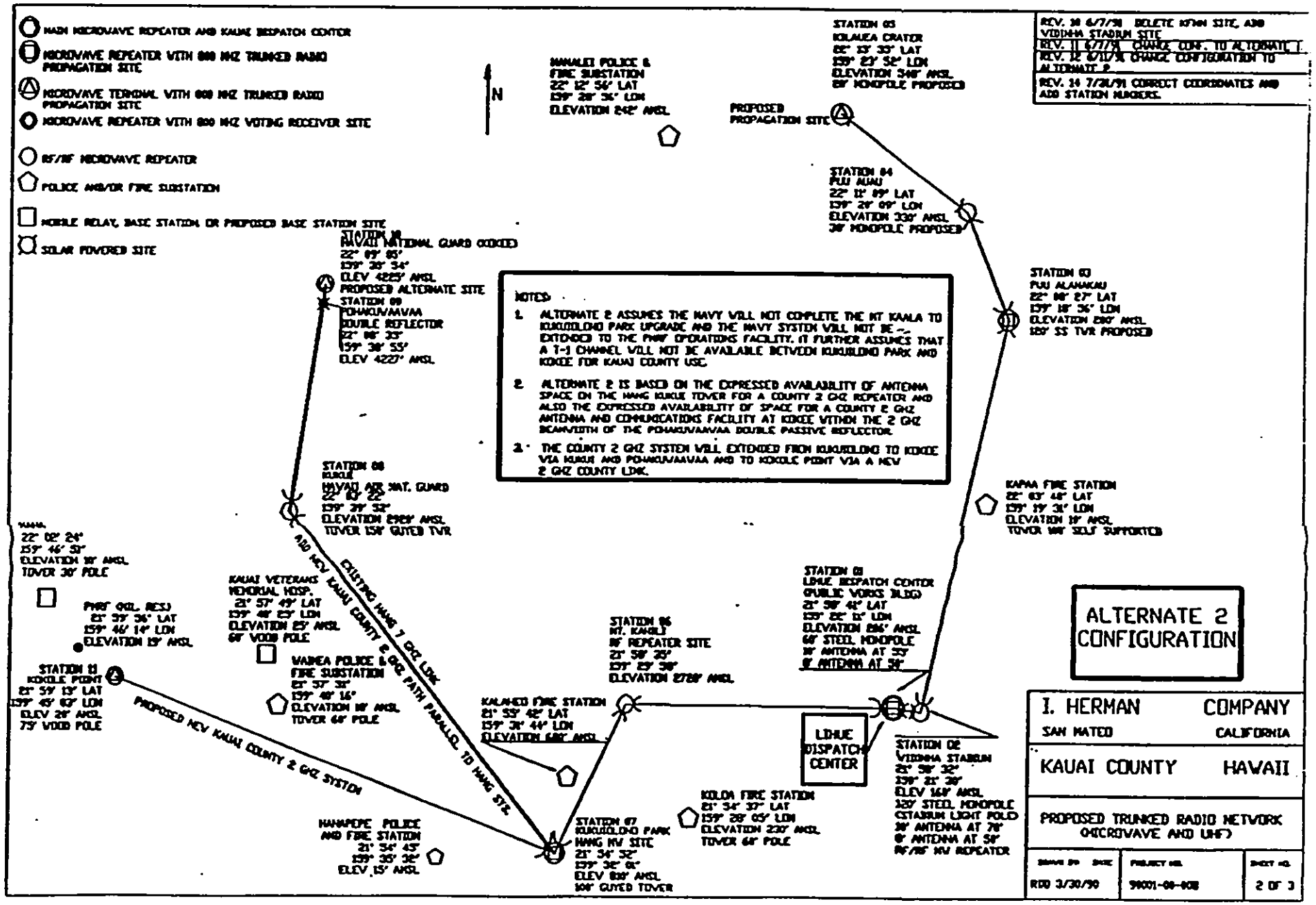
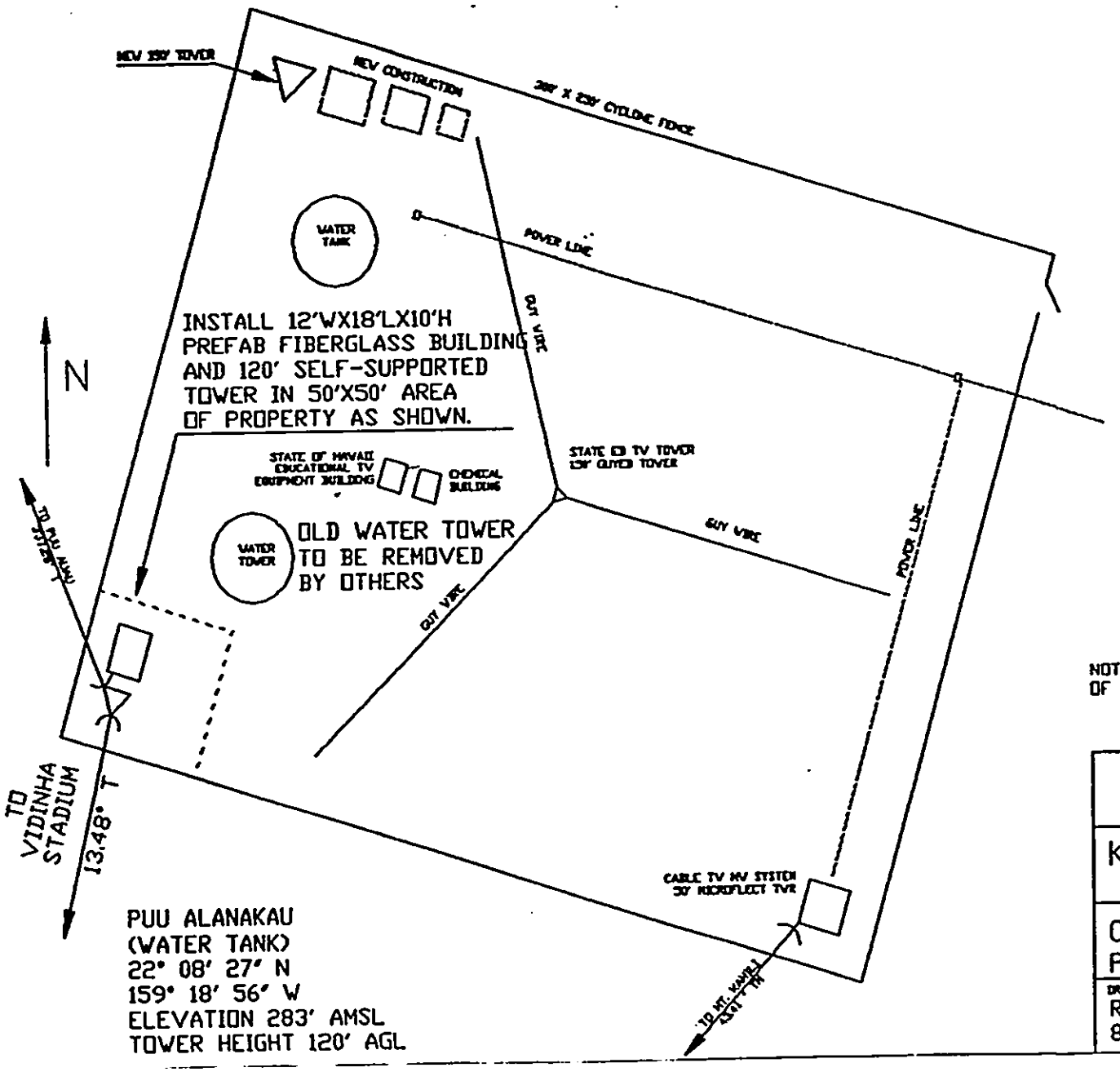


EXHIBIT "2"

REV 1: 2/27/91 REL E SITE AND ADD NOTE FOR BUILDING.
REV. 2 9/11/91 CHANGE TOWER AND ANTENNA CONFIGURATIONS.
REV. 3 10/22/91 CHANGE BLDG TYPE AND SIZE.



PUU ALANAKAU
(WATER TANK)
22° 08' 27" N
159° 18' 56" W
ELEVATION 283' AMSL
TOWER HEIGHT 120' AGL

NOT TO SCALE, DIMENSIONS AND LOCATION OF FEATURES ARE APPROXIMATE.

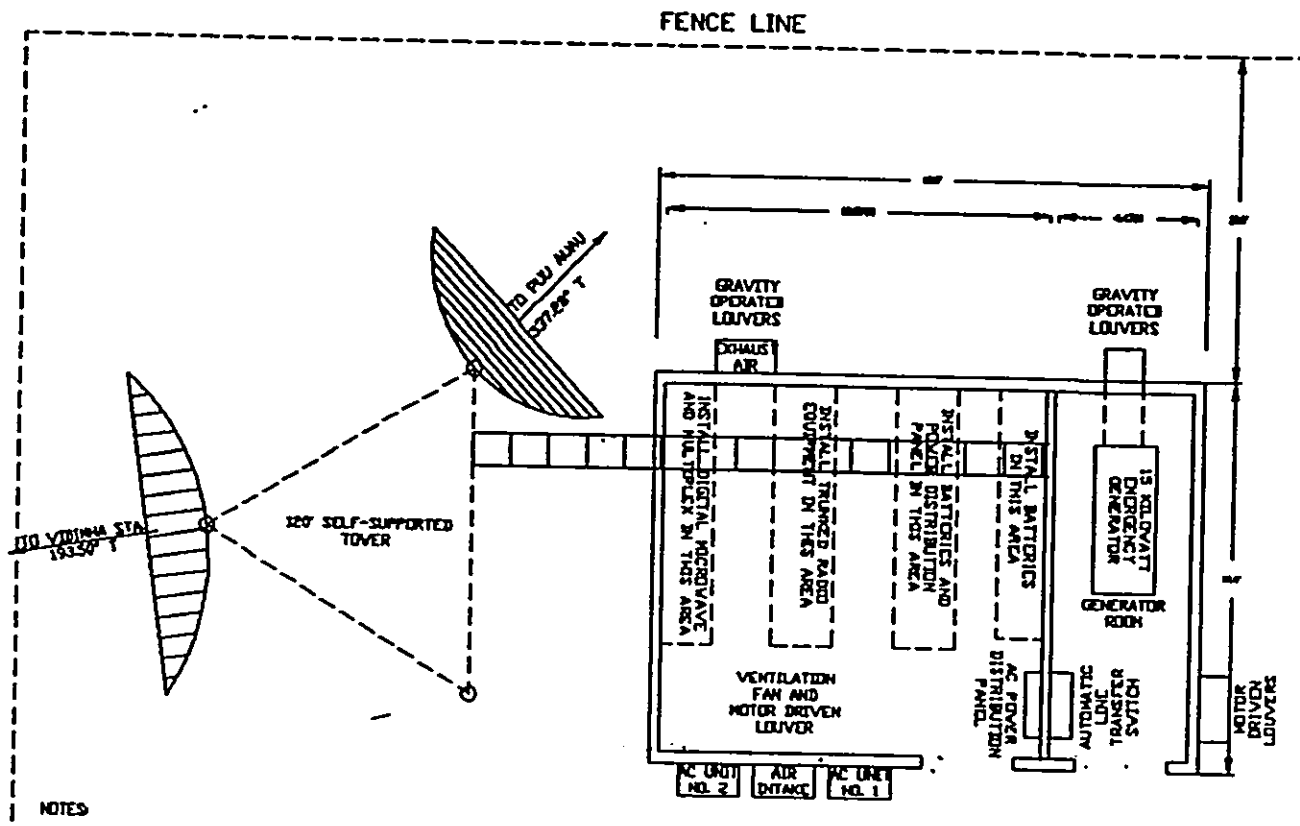
I. HERMAN COMPANY
TELECOMMUNICATION ENGINEERS SAN MATEO, CALIFORNIA

KAUAI COUNTY, HAWAII

COMMUNICATIONS SYSTEM
PUU ALANAKAU SITE

DRAWN BY	DRAWING NO.	SHEET NO.
RDD 8/3/90	90001-03-00	1 OF 2

EXHIBIT "3"



NOTES

1. INSTALL 12'WX18'LX10'H PREFAB FIBERGLASS BUILDING IN THE SOUTHWEST CORNER OF WATER TANK AREA.
2. INSTAL 120' SELF-SUPPORTED TOWER ADJACENT TO BUILDING AS SHOWN.
3. INSTALL A PERIPHERAL GROUND SYSTEM FOR BUILDING AS PER SPECIFICATION. A SEPARATE GROUND SYSTEM IS REQUIRED FOR THE TOWER WITH BOTH GROUND SYSTEMS TIED TOGETHER OUTSIDE OF BUILDING.
4. INSTALL 14' 1.9 GHZ GRID ANTENNA ON THE SOUTH TOWER LEG AT THE 115' LEVEL ORIENTED TOWARD VIDIHA STADIUM.
5. INSTALL 8' 1.9 GHZ GRID ANTENNA ON THE NORTHWEST TOWER LEG AT THE 20' LEVEL ORIENTED TOWARD PUU ALANU.
6. INSTALL ONE 800 MHZ 7.5 DB GAIN OMNI-DIRECTIONAL RECEIVING ANTENNA ON THE SOUTH TOWER LEG AT THE TOP OF THE TOWER ABOVE THE 10' GRID ANTENNA. INSTALL AN 800 MHZ 7.5 DB GAIN OMNI-DIRECTIONAL ANTENNA ON THE SOUTH TOWER LEG AT THE 100' LEVEL BENEATH THE 10' GRID ANTENNA.

REV. 4 10/22/91 REVISED DRAWING TO RECONFIGURE BUILDING SIZE AND BUILDING LAYOUT.

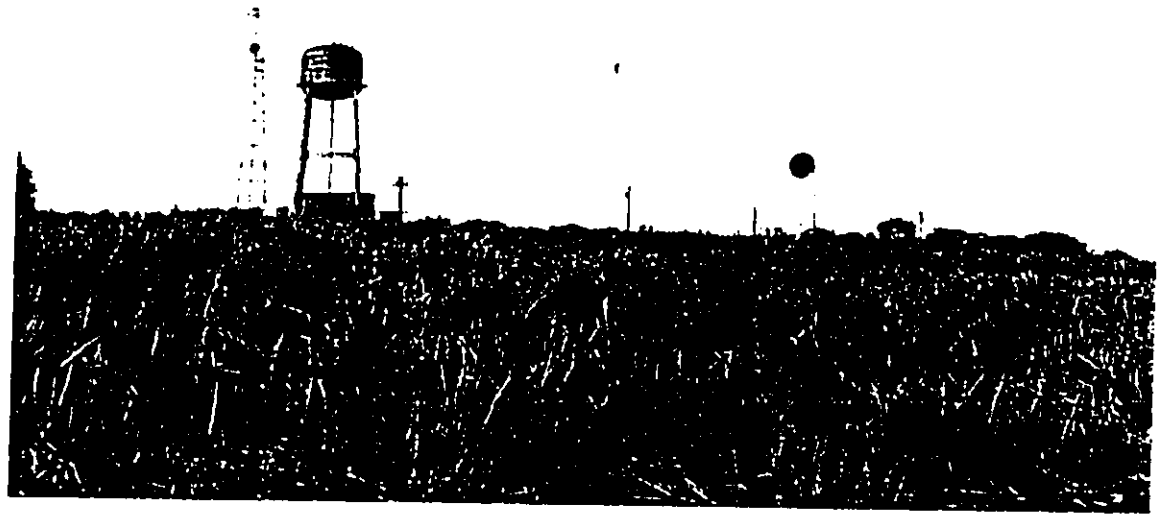
I. HERMAN COMPANY
COMMUNICATION ENGINEERS
SAN MATEO CALIFORNIA

KAUA'I COUNTY HAWAII
COMMUNICATION SYSTEM

PUU ALANAKAU SITE
BUILDING & TOWER PLOT

DRAWN BY	PROJECT NO.	SHEET NO.
RDD 10/22/91	90001-03-00	2 OF 2

EXHIBIT "4"



Pnoto 1

Puu Alanakau Communication Facility

As viewed from field west of site, this site is the location of the Hawaiian Home Public Water Supply with water wells located near the center. The 195' radio tower at left of photo belongs to CYBERTEL and is used for cellular telephone.

The 120' elevated water tank is no longer in use and will be removed by others prior to installation of the new Kauai County tower and building. A 30' high concrete water tank is directly behind the elevated water tank.

The 150' tower in the photo center belongs to Hawaii Public Broadcasting Authority and is used for Educational Television relay. This tower will be removed and the antennas relocated to the new Kauai County tower. The television relay equipment will be relocated to the new Kauai County building.

The 40' tower at the right side is used for cable television. The new Kauai County communication building and 120' tower will be located to the left of the elevated water tank in the corner of the property.

POWER DENSITY CALCULATIONS

Site: PUU ALANAKAU
Path: Vertical Polarized, Omni-directional
Frequency: 860 MHz (nominal) λ = 0.3488M, 1.1445 Ft.
Power: 75 Watts per Transmitter, 5 Transmitters = 375 W Max.
(+48.75 dBm/Transmitter, +55.75 dBm for 5 Transmitters)

Losses: Combiners + Line Losses assumed to be 4.7 dB Max.

Power at Antenna: 25.4 Watts per Transm., 127.07 Watts Max.
(+44.05 dBm/Transmitter, +51.04 dBm Max.)

Antenna: 800 MHz, 7.5 dB Gain, Omni-directional
Antenna Height: 100' AGL to Center of Antenna

1. Far Field Power Density at 100'

$$W = \frac{GP}{4\pi r^2} = \frac{5.62 \times 127.07}{4\pi(30.48)^2} = 0.0061 \text{ W/M}^2 = 0.000605 \text{ mW/cM}^2$$

2. Power Density at Base of Tower
Coupling factor = -20 dB = 0.01

$$W = 0.000605 \times 0.01 = 6.05 \times 10^{-6} \text{ mW/cM}^2$$

3. ANSI C95.1-1982 RF Protection Guide limits for
300 - 1500 MHz = $\frac{f}{300} = \frac{860}{300} = 2.87 \text{ mW/cM}^2$

R. D. Detwiler PE
11/26/91

POWER DENSITY CALCULATIONS

Site: PUU ALANAKAU
Path: Puu Alanakau - Puu Auau
Frequency: 1.92 GHz, λ = 0.1563M, or 0.5126Ft.
Power: 0.5 Watts = 500 MW = +27.0 dBm
Transmission Line Loss: -1.68 dB
Power at Antenna: 0.3404 Watts, 340.4 MW, +25.32 dBm
Antenna: 8' 2 GHz Grid at 30' AGL, 31.20 dB Gain

1. Far Field Distance from Antenna

$$r = \frac{2D^2}{\lambda} = \frac{2(2.4384)^2}{0.1563} = \underline{76.08M} = \underline{249.6'}$$

2. Far Field Power Density

$$W = \frac{GP}{4\pi r^2} = \frac{1318.26 \times 0.3404}{4\pi(76.08)^2} = 0.0062\ W/M^2 = \underline{0.000617\ mW/cM^2}$$

3. Normalized "On Axis" Distance equal to Antenna Height (30' or 9.14M)

$$X = \frac{r\lambda}{2D^2} = \frac{9.14 \times 0.1563}{2(2.4384)^2} = \underline{0.1202M}$$

4. Normalized "On Axis" Power Density Factor at 30' = 42 (From Table 2 and Graph A6, ANSI C95.3)

5. Near Field Power Density at 30'

$$W_{nf} = 42 \times 0.000617 = \underline{0.0259\ mW/cM^2}$$

6. Near Field Power Density at Ground Level Beneath Antenna

$$W_{nf} = 0.0259 \times 0.00079 = \underline{2.06 \times 10^{-5}\ mW/cM^2}$$

ANSI C95.1 RF Protection Guide, Table 1 limit is 5.0 mW/cM^2 for the 1500-100,000 MHz range.

R. D. Detwiler PE
11/26/91

POWER DENSITY CALCULATIONS

Site: PUU ALANAKAU
Path: Puu Alanakau - Vidinha Stadium
Frequency: 1.92 GHz, λ = 0.1563M, or 0.5126Ft.
Power: 0.5 Watts = 100 mW = +27.0 dBm
Transmission Line Loss: -3.2 dB
Power at Antenna: 0.2399 Watts = 239.9 MW = +23.8 dBm
Antenna: 10' 2 GHz Grid at 120' AGL, +33.1 dB gain

1. Far Field Distance from Antenna

$$r = \frac{2D^2}{\lambda} = \frac{2x(3.048)^2}{0.1563} = 118.9M = 390'$$

2. Far Field Power Density

$$W = \frac{GP}{4\pi r^2} = \frac{2089.3x0.2399}{4\pi(118.9)^2} = 0.0028\ W/M^2 = 0.000282\ mW/cM^2$$

3. Normalized "On Axis" Distance equal to Antenna Height (120' or 36.576M)

$$X = \frac{r\lambda}{2D^2} = \frac{36.576x0.1563}{2(3.048)^2} = 0.3077$$

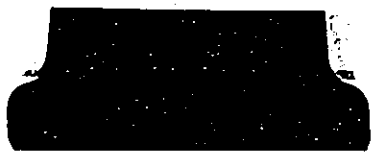
4. Normalized "On Axis" Power Density Factor at 120' = 10
(From Table 2 and Graph A6, ANSI 95.3)

5. Near Field Power Density at 120'

$$W_{nf} = 10x0.000282 = 0.00282\ mW/cM^2$$

ANSI C95.1 RF Protection Guide, Table 1 limit is 5.0 mW/cM^2 for the 1500 to 100,000 MHz range.

R. D. Detwiler PE
11/25/91



PUU AUAU
(Moloaa)

SPECIAL MANAGEMENT AREA PERMIT ASSESSMENT APPLICATION
COUNTY OF KAUAI
DEPARTMENT OF PLANNING

PART A:

Puu Auau (Moloaa)

OWNER: Lihue Land Company

APPLICANT: County of Kauai, Hawaii

APPLICANT'S STATUS IF NOT OWNER: Tenant

ADDRESS: 3021 Umi Street, Lihue, Kauai, HI 96766

Attn: Ed Renaud PHONE: 808-245-3318

FAX NO.: 808-245-9029

TMK: #4-9-09-22 ZONING: Agriculture SLUD: _____

GENERAL PLAN: _____ CURRENT LAND USE: Agriculture

NATURE OF DEVELOPMENT: This project will implement a 2 GHz microwave repeater station to link the Puu Alanakau and Kilauea Crater Hill communication facilities. The new station will be a 30' self-supported tower with 2 grid antennas and a solar panel for solar power.

*NOTE: An Environmental Assessment in accordance with HRS Chapter 343 is required for actions requiring a Shoreline Setback Variance. Please contact the Planning Department for further information.

VALUATION OF DEVELOPMENT: $81,618
(attached contractor's estimate)

DATE OF APPLICATION: _____

PART B:

THE PETITIONER SHALL BE RESPONSIBLE FOR FILING THE FOLLOWING WITH THE DEPARTMENT BEFORE AN APPLICATION IS CONSIDERED COMPLETE:

1. A written description of the proposed project, location and a statement of reasons/justification for project.

2. If property abuts the shoreline, a certified shoreline survey conducted by a registered land surveyor within 6 months of an application shall be submitted, except as may be waived by the Planning Director.

3. A plot plan of the property, drawn to scale, with all proposed and existing structures and other pertinent information. Also, preliminary building sketch plans are be submitted.

4. Any other plans or information required by the Director.

   Note: An Environmental Assessment or Environmental Impact Statement that has been declared adequate under the National Environmental Policy Act (NEPA) or under Chapter 343, HRS, may constitute a valid filing under this section.

5. Project assessment:

   a. Description of the area and environment involved including flora and fauna, and other features;

   b. Description of the existing land uses of the project site and surrounding areas;

   c. Description of how the proposed project will affect the area involved and surrounding areas. Specifically the assessment should evaluate if the proposal:

      1. involves an irrevocable commitment to loss or destruction of any natural or cultural resources, including but not limited to; historic sites, Special Treatment Districts as established by the County of Kauai Comprehensive Zoning Ordinance, viewplanes or scenic corridors as outlined in the Development Plans, and recreation areas and resources;

      2. curtails the range of beneficial uses of the environment;

3. conflicts with the County's or the State's long-term environmental policies or goals;

4. substantially affects the economic or social welfare and activities or the community, County or State;

5. involves substantial secondary impacts, such as population changes and effects on public facilities;

6. in itself has no significant adverse effect but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

7. substantially affect a rare, threatened, or endangered species of animal or plant, or its habitat;

8. detrimentally affects air or water quality or ambient noise levels; or

9. affects an environmentally sensitive area, such as flood plain, shoreline, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water or coastal water;

10. may have a major effect on the quality of the environment or affect the economic or social welfare of the area; and

11. would possibly be contrary to the policies and guidelines of the Rules and Regulations, the County's General Plan, Development Plans, and Zoning and Subdivision Ordinances.

d. Evaluation of the proposed development relative to the objectives and policies as contained in Chapter 205-A, HRS, and Section 3.0 of the Special Management Area (SMA) Rules and Regulations: (Please complete attached questionnaire)

RESPONSE TO KAUAI PLANNING DEPARTMENT QUESTIONNAIRE

(PART "B")

Puu Auau (Moloaa)

PART "B"

1. This project to install a low power microwave repeater system at Puu Auau (Moloaa Farmers Water Tank) is part of the overall upgrade of the Kauai County communication network that serves the Police, Fire, and Public Works Departments - shared also with State and Federal agencies.

   The following facilities will be installed at Puu Auau:

   a. A 30' steel latice self-supported tower will be installed adjacent to the existing water tank.

   b. Two 8' grid antennas will be installed at the top of the tower, and a solar power panel will be installed at mid-level on the south side of the tower.

   c. Electronic equipment, including a solar battery/ charger system, will be installed in two weather-proof cabinets at the base of the tower.

   d. This site will be solar powered.

2. Shoreline

   Puu Auau does not abut the shoreline.

3. Plot Plan

   See IHCO Drawing 90001-04-00.

4. Other Plans and Information

   None required.

5. Project Assessment

   a. Area Description

      This site is located adjacent to the Moloaa Farmers Water Tank located in the center of a papaya orchard. The site is developed as an irrigation water storage and distribution facility.

   b. Land Uses

      The water tank and water distribution system are used for agricultural purposes.

c. Project Effect

This project will have no discernable effect on the surrounding area.

c.1. This project will not result in the loss or destruction of any natural or cultural resources.

c.2. This project will not curtail the range of beneficial uses of the environment.

c.3. This project does not conflict with County or State long-term environmental policies or goals.

c.4. This project will substantially improve the County and State Public Safety and Administrative communications functions and indirectly have a positive beneficial effect on the economic and social activities of the County and State.

c.5. This project will add one small facility to the Kauai County communication network. This project will have no effect on the population growth.

c.6. This project will have no significant adverse or cumulative effect on the environment, nor does it involve a commitment for larger actions.

c.7. This project does not affect a rare, threatened or endangered species of animal or plant, or its habitat.

c.8. This project will have no effect on the quality of water, air, or ambient noise levels.

c.9. This project will have no effect on any environmentally sensitive area, such as flood plane, shoreline, Tsunami Zone, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal water.

c.10. This project will not have a major effect on the economic and social welfare of the area.

c.11. This project is not contrary to the policies and guidelines of the Rules and Regulations, the County's General Plan, and Zoning and Subdivision ordinances.

d. Recreational Resources

This project does not provide for coastal recreational opportunities. See attached Questionnaire for answers to other questions.

HISTORICAL RESOURCES:

Objective: Protect, preserve, and where desirable, restore those natural and man-made historic and pre-historic resources in the Special Management Area that are significant in Hawaiian and American history and culture.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

	Yes	No
1. Is the project site within a Federal, State, and/or County designated historic/cultural district?	___	X
2. Is the project site listed on or nominated to the Hawaii or National Register of Historic Places?	___	X
3. Does the project site include land(s) which has not been previously surveyed by an archaeologist?	___	X
4. Has any site survey revealed any information on historic or archaeological resources? (Please provide copy or reference of survey)	___	X
5. Is the project site within or near a Hawaiian fishpond?	___	X
6. Is the project located within or near a historic settlement area? (cemeteries, burials, heiaus, etc.)	___	X

Discussion:

RECREATIONAL RESOURCES:

Objective: Provide coastal recreational opportunities accessible to the public.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes" please elaborate or provide comments in "Discussion" section below.

	Yes	No
1. Will the proposed action involve or be near a dedicated public right-of-way to the beach?	___	X
2. Does the project site abut the shoreline?	___	X
3. Is the project site near a State or County Park?	___	X
4. Will the proposed action occur in or affect a surf site?	___	X
5. Will the proposed action occur in or affect a fishing area?	___	X
6. Will the proposed action occur in or affect a recreational or commercial boating area (including boat ramps)?	___	X
7. Is the project site near a sandy beach?	___	X
8. Are there swimming or other near shore recreational uses in the area?	___	X

Discussion:

COASTAL HAZARDS:

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

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments within the "Discussion" section below.

	Yes	No
1. Is the project site within a potential tsunami inundation area as depicted on the National Flood Insurance Rate maps (FIRM)?	___	X
2. Is the project site within a potential flood inundation area according to a FIRM?	___	X
3. Has the project site or nearby shoreline areas experienced shoreline erosion?	___	X
4. Have any seawalls/revetments/etc. been constructed or exist in the immediate vicinity?	___	X

Discussion:

SCENIC AND OPEN SPACE RESOURCES:

Objective: Protect, preserve and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

		Yes	No
1.	Does the project site abut a scenic landmark?	___	X
2.	Does the proposed action involve the construction of a multi-story structure or structures?	___	X
3.	Is the project site adjacent to vacant parcels?	___	X
4.	Does the proposed action involve the construction of structures visible between the nearest coastal roadway and the shoreline?	___	X
5.	Is the project site within the Shoreline Setback Area (20 or 40 feet inland from the shoreline)?	___	X

Discussion:

Puu Auau (Moloaa)

ECONOMIC USES:

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

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments within the "Discussion" section below.

	Yes	No
1. Does the project involve a harbor or port?	___	X
2. Is the proposed development related to or near to an existing major hotel, multi-family, or condominium project?	___	X
3. Does the project site include agricultural lands designated for such use?	___	X
4. Does the proposed development relate to commercial fishing or seafood production?	___	X
5. Does the proposed development relate to energy production?	___	X

Discussion:

Puu Auau (Moloaa)

COASTAL ECOSYSTEMS:

Objective: Protect valuable coastal ecosystems from disruption and minimize adverse impacts on all coastal ecosystems.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

		Yes	No
1.	Does the proposed development involve dredge or fill activities within or abutting any type of of waterway?	___	X
2.	Will the proposed development require some form of effluent discharge into a body of water?	___	X
3.	Will the proposed development require earthwork beyond clearing and grubbing?	___	X
4.	Will the proposed development include the construction of special waste treatment facilities, such as injection wells, discharge pipes, septic tank systems or cesspools?	___	X
6.	Is an intermittent or perennial stream or estuary located on or near the project site?	___	X
7.	Does the project site provide habitat for endangered species of plants, birds, or mammals?	___	X
8.	Is any such habitat located nearby?	___	X
9.	Is there a wetland on the project site?	___	X
10.	Is the project site situated in or abutting a Natural Area Reserve or Wildlife Refuge or Sanctuary?	___	X

Discussion:

PROJECT ASSESSMENT cont'd:

e. Evaluation of impacts which cannot be avoided and mitigating measures proposed to minimize that impact;

f. Evaluation of the proposed development relative to Section 4.0 of the SMA Rules and Regulations in accordance with the following aspects:

1. Substantial adverse environmental or ecological effects;

2. Consistency or compliance of the proposed development relative to the goals and objectives of Chapter 205A, HRS and Section 3.0 of the SMA Rules and Regulations;

3. Consistency or compliance of the proposed development relative to the County General Plan, Development Plan, and zoning ordinances.

e. Impacts

This project has no known impacts of significance.

f. Development Evaluation

1. This project has no substantial adverse environmental or ecological effects.

2a. This project complies with goals and objectives of Chapter 205A of the Hawaii Revised Statutes.

2b. This site is not located within a Special Management Area.

3. This project is in compliance with the County General Plan, Development Plan, and zoning ordinances.

SIGNATURE OF APPLICANT/REPRESENTATIVE
(Print name of applicant/representative)

DATE

EXHIBIT "1"

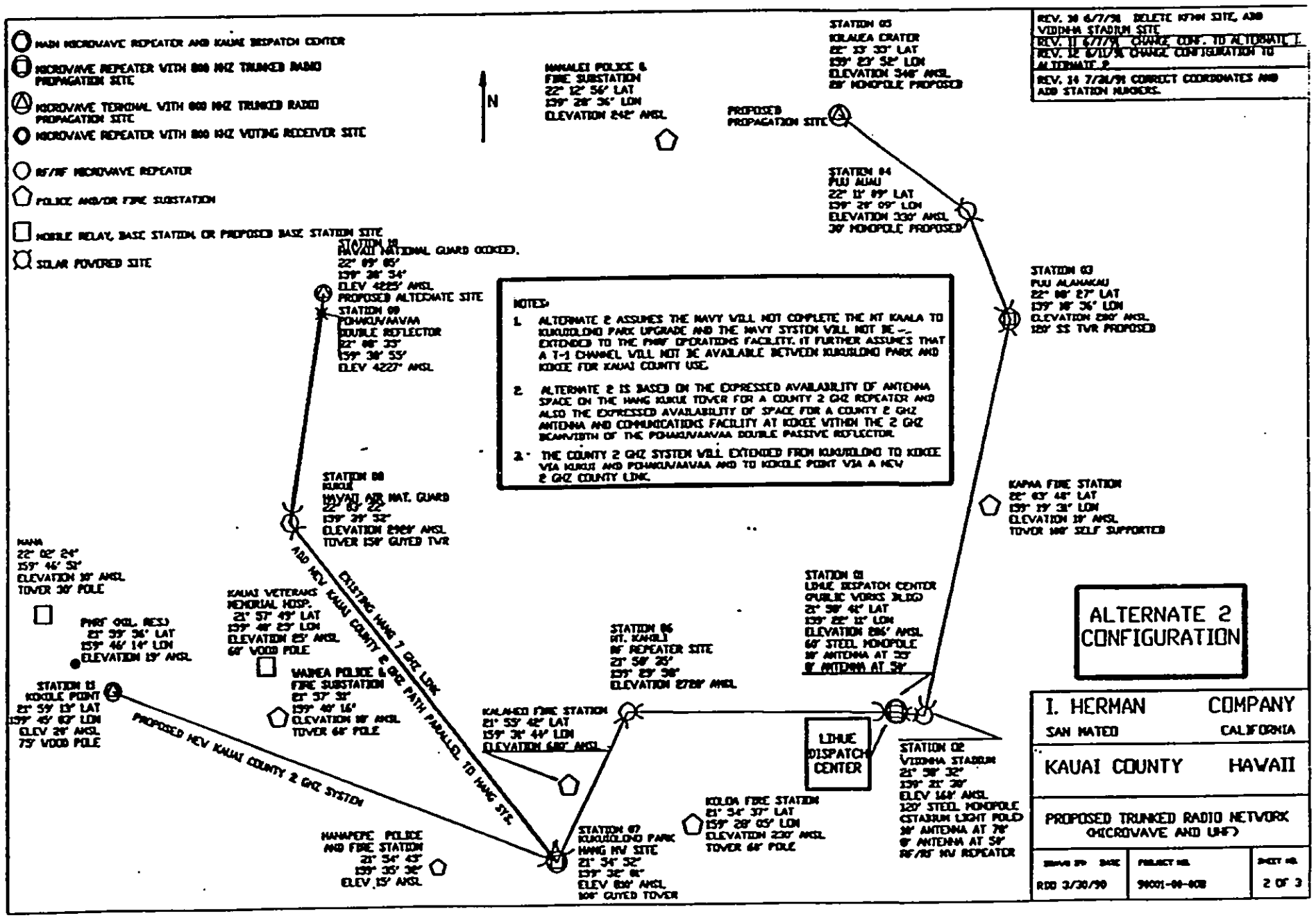
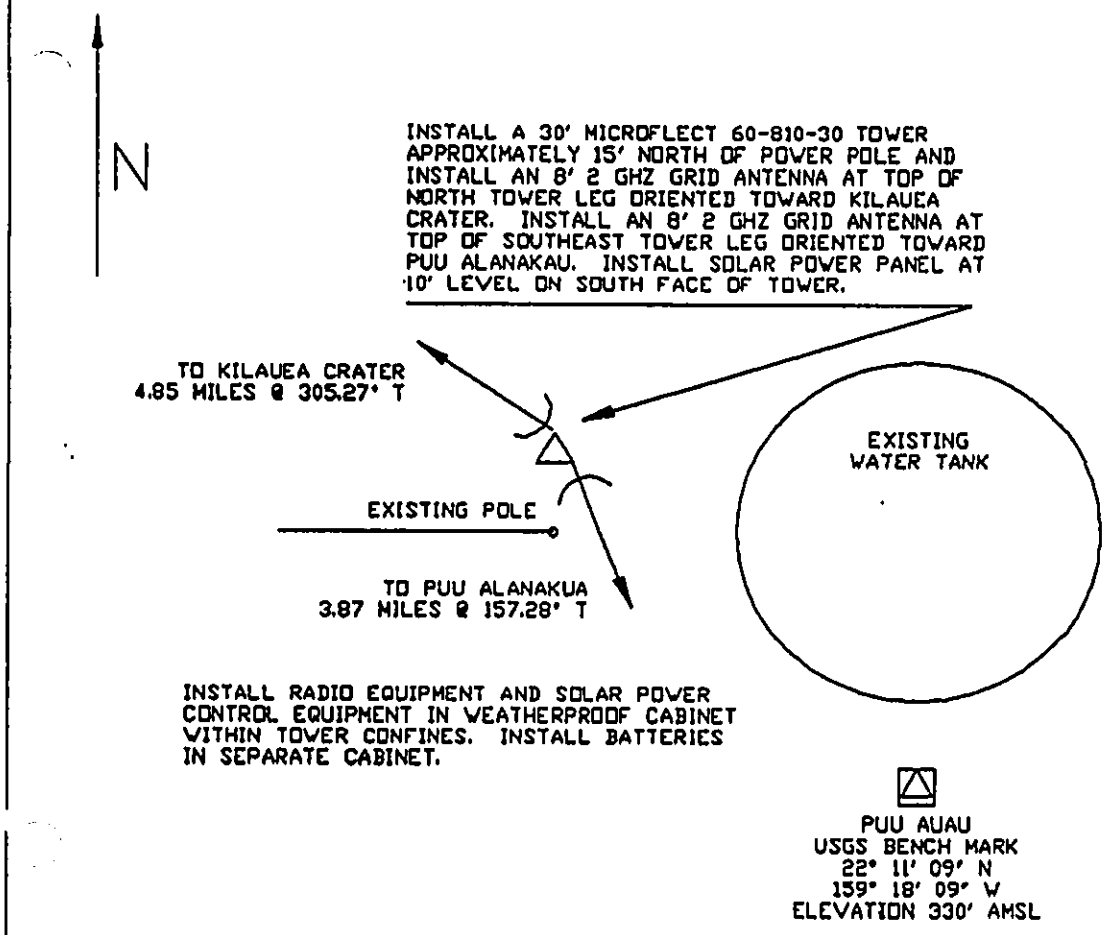

MAIN MICROWAVE REPEATER AND KAUAI DISPATCH CENTER
MICROWAVE REPEATER WITH 800 MHZ TRUNKED RADIO PROPAGATION SITE
MICROWAVE TERMINAL WITH 800 MHZ TRUNKED RADIO PROPAGATION SITE
MICROWAVE REPEATER WITH 800 MHZ VOTING RECEIVER SITE
RF/IF MICROWAVE REPEATER
POLICE AND/OR FIRE SUBSTATION
MOBILE RELAY, BASE STATION, OR PROPOSED BASE STATION SITE
SOLAR POWERED SITE
N
NAWILIWILI POLICE & FIRE SUBSTATION
22° 12' 56" LAT
159° 28' 36" LON
ELEVATION 242' AMSL
STATION 05
KILAUEA CRATER
22° 13' 33" LAT
159° 23' 52" LON
ELEVATION 348' AMSL
89' MONOPOLE PROPOSED
PROPOSED PROPAGATION SITE
STATION 04
PUU ALAKI
22° 11' 09" LAT
159° 28' 09" LON
ELEVATION 330' AMSL
30' MONOPOLE PROPOSED
STATION 03
PUU ALAHAKAU
22° 08' 27" LAT
159° 18' 36" LON
ELEVATION 280' AMSL
120' SS TWR PROPOSED
KAPAA FIRE STATION
22° 03' 48" LAT
159° 19' 31" LON
ELEVATION 19' AMSL
TOWER 100' SELF SUPPORTED
STATION 01
LIHUE DISPATCH CENTER
PUBLIC WORKS BLDG
21° 58' 41" LAT
159° 22' 11" LON
ELEVATION 88K' AMSL
60' STEEL MONOPOLE
10' ANTENNA AT 25'
8' ANTENNA AT 50'
LIHUE DISPATCH CENTER
STATION 02
VIDINHA STADIUM
21° 58' 32"
159° 21' 20"
ELEV 168' AMSL
120' STEEL MONOPOLE
(STADIUM LIGHT POLE)
10' ANTENNA AT 70'
8' ANTENNA AT 50'
RF/IF MW REPEATER
KOLOA FIRE STATION
21° 54' 37" LAT
159° 28' 05" LON
ELEVATION 230' AMSL
TOWER 60' POLE
STATION 06
MT. KAHILI
RF REPEATER SITE
21° 58' 25"
159° 23' 38"
ELEVATION 2720' AMSL
KALAHEO FIRE STATION
21° 53' 42" LAT
159° 30' 44" LON
ELEVATION 680' AMSL
STATION 07
KUKUIOLONO PARK
HANG MW SITE
21° 34' 32"
159° 32' 8"
ELEV 830' AMSL
100' GUYED TOWER
ADD NEW KAUAI COUNTY 2 GHZ PATH PARALLEL TO HANG SITE
EXISTING HANG 7 GHZ LINK
PROPOSED NEW KAUAI COUNTY 2 GHZ SYSTEM
HANAPEPE POLICE AND FIRE STATION
21° 54' 43"
159° 35' 36"
ELEV 15' AMSL
STATION 08
KUKUI
HAWAII AIR NAT. GUARD
22° 03' 22"
159° 29' 32"
ELEVATION 2969' AMSL
TOWER 150' GUYED TWR
KAUAI VETERANS MEMORIAL HOSP.
21° 57' 49" LAT
159° 48' 25" LON
ELEVATION 25' AMSL
60' WOOD POLE
WAIMEA POLICE & FIRE SUBSTATION
21° 57' 31"
159° 40' 16"
ELEVATION 18' AMSL
TOWER 60' POLE
KEKAHA
22° 02' 24"
159° 46' 53"
ELEVATION 30' AMSL
TOWER 30' POLE
PMRF (OGL, RES)
21° 59' 36" LAT
159° 46' 14" LON
ELEVATION 19' AMSL
STATION 15
KOKOLE POINT
21° 59' 13" LAT
159° 45' 03" LON
ELEV 29' AMSL
75' WOOD POLE
STATION 08
HAWAII NATIONAL GUARD (COKEE)
22° 09' 05"
159° 28' 34"
ELEV 4225' AMSL
PROPOSED ALTERNATE SITE
STATION 09
POHAKUNAAVAA
DOUBLE REFLECTOR
22° 08' 35"
159° 38' 55"
ELEV 4227' AMSL
NOTES:
1. ALTERNATE 2 ASSUMES THE NAVY WILL NOT COMPLETE THE KT KAALA TO KUKUIOLONO PARK UPGRADE AND THE NAVY SYSTEM WILL NOT BE EXTENDED TO THE PMRF OPERATIONS FACILITY. IT FURTHER ASSUMES THAT A T-1 CHANNEL WILL NOT BE AVAILABLE BETWEEN KUKUIOLONO PARK AND KOKEE FOR KAUAI COUNTY USE.
2. ALTERNATE 2 IS BASED ON THE EXPRESSED AVAILABILITY OF ANTENNA SPACE ON THE HANG KUKUI TOWER FOR A COUNTY 2 GHZ REPEATER AND ALSO THE EXPRESSED AVAILABILITY OF SPACE FOR A COUNTY 2 GHZ ANTENNA AND COMMUNICATIONS FACILITY AT KOKEE WITHIN THE 2 GHZ BEAMWIDTH OF THE POHAKUNAAVAA DOUBLE PASSIVE REFLECTOR.
3. THE COUNTY 2 GHZ SYSTEM WILL EXTENDED FROM KUKUIOLONO TO KOKEE VIA KUKUI AND POHAKUNAAVAA AND TO KOKOLE POINT VIA A NEW 2 GHZ COUNTY LINK.
REV. 10 6/7/91 DELETE KAUAI SITE, ADD VIDINHA STADIUM SITE
REV. 11 6/7/91 CHANGE CONF. TO ALTERNATE 1
REV. 12 6/11/91 CHANGE CONFIGURATION TO ALTERNATE 2
REV. 14 7/26/91 CORRECT COORDINATES AND ADD STATION NUMBERS.
ALTERNATE 2 CONFIGURATION
I. HERMAN COMPANY
SAN MATEO CALIFORNIA
KAUAI COUNTY HAWAII
PROPOSED TRUNKED RADIO NETWORK (MICROWAVE AND UHF)
DRAWN BY: RDD DATE: 3/30/90
PROJECT NO. 90001-00-008
SHEET NO. 2 OF 3

EXHIBIT "2"

REV. 1 9/11/91 CHANGE TOWER CONFIGURATION.
REV. 2 10/23/91 CHANGE TOWER MODEL NO.

Puu Auau



I. HERMAN COMPANY TELECOMMUNICATION ENGINEERS		
KAUAI COUNTY, HAWAII		
COMMUNICATIONS SYSTEM PUU AUAU SITE		
DRAWN BY:	PROJECT NO.	SHEET NO.
RDD 7/26/90	90001-04-00	1 OF 1

EXHIBIT "3"

Puu Auau

Photo 1

Puu Auau (Moloaa Farmers Water Tank)

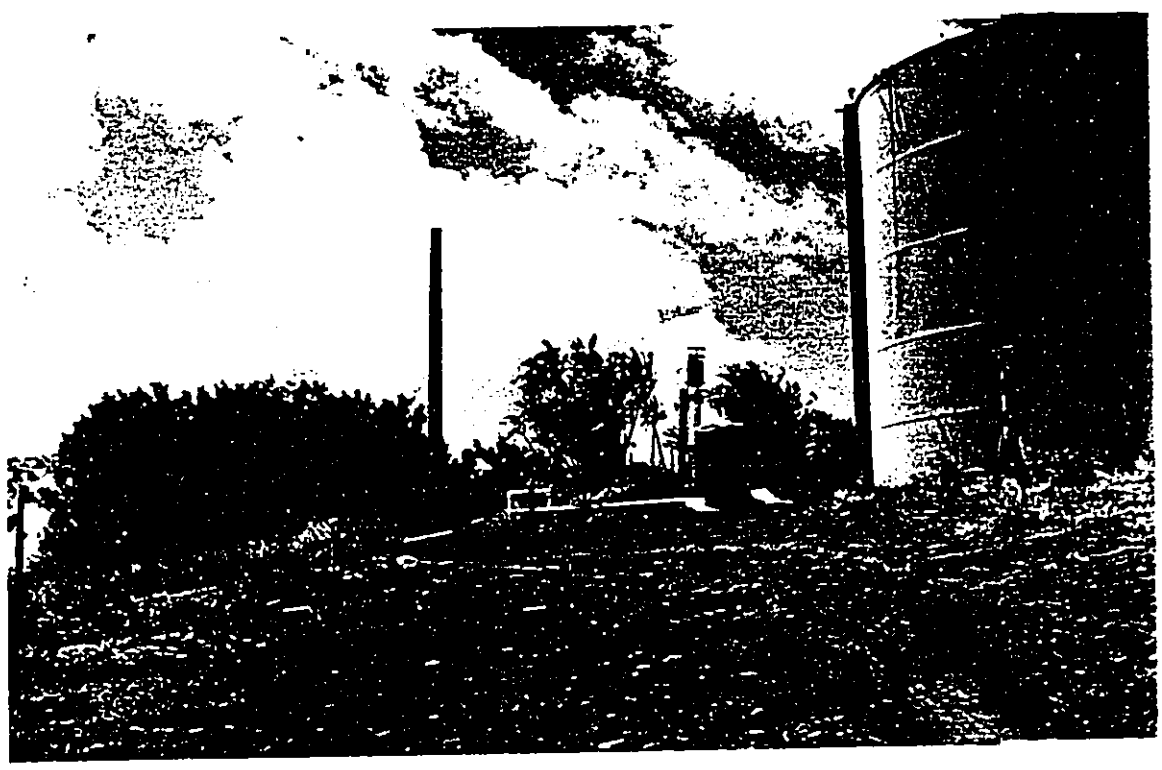


Photo 2

Kauai County 30' self-supported tower to be installed in area to left side of tank.

POWER DENSITY CALCULATIONS

Site: PUU AUAU
Path: Puu Auau - Puu Alanakau
Frequency: 1.92 GHz, λ = 0.1563M = 0.5126Ft.
Power: 0.100 Watts = 100 MW = +20 dBm
Transmission Line Loss: -1.58 dB
Power at Antenna: +18.42 dBm = 0.0695 Watts = **69.5 MW**
Antenna: 8' 2 GHz Grid at 30' AGL, 31.2 dB Gain

1. Far Field Distance from Antenna

$$r = \frac{2D^2}{\lambda} = \frac{2(2.4384)^2}{0.1563} = \mathbf{76.08M} = \mathbf{249.6'}$$

2. Far Field Power Density

$$W = \frac{GP}{4\pi r^2} = \frac{(1318.25)(0.0695)}{4\pi(76.08)^2} = 0.0013\ W/M^2 = \mathbf{0.000126\ mW/cM^2}$$

3. Normalized "On Axis" Distance equal to Antenna Height (30' or 9.144M)

$$X = \frac{r\lambda}{2D^2} = \frac{9.144 \times 0.1563}{2(2.4384)} = \mathbf{0.1202M}$$

4. Normalized "On Axis" Power Density Factor at 30' = 40
(From Table 2 and Graph A6, ANSI C95.3)

5. Near Field Power Density at 30'

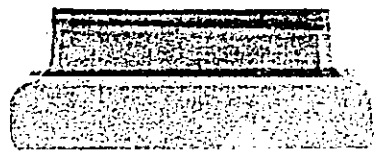
$$W_{nf} = 40 \times 0.000126 = \mathbf{0.00504\ mW/cM^2}$$

6. Near Field Power Density at Ground Level Beneath Antenna

$$W_{nf} = 0.00504 \times 0.000759 = 3.8 \times 10^{-6}\ mW/cM^2$$

NOTE: These calculations apply to antennas on both microwave paths at this station.

R. D. Detwiler PE
11/26/91



KILAUEA
CRATER HILL

SPECIAL MANAGEMENT AREA PERMIT ASSESSMENT APPLICATION
COUNTY OF KAUAI
DEPARTMENT OF PLANNING

PART A: Kilauea Crater Hill

OWNER: United States of America

APPLICANT: County of Kauai, Hawaii

APPLICANT'S STATUS IF NOT OWNER: Tenant at Kilauea Crater Hill

ADDRESS: 3021 Umi Street, Lihue, Kauai, HI 96766

PHONE: 808-245-3318

FAX NO.: 808-245-9029

TMK: 5-2-04-103 ZONING: SLUD:

GENERAL PLAN: CURRENT LAND USE: Wildlife Preserve

NATURE OF DEVELOPMENT: This project replaces an existing communication facility located inside the Wildlife Preserve. The communication facility contains Police, Fire, Public Works, and Emergency Medical Service radio stations as well as Hawaii State Educational television facilities. This Public Safety communications facility predates the Wildlife Preserve by many years.

*NOTE: An Environmental Assessment in accordance with HRS Chapter 343 is required for actions requiring a Shoreline Setback Variance. Please contact the Planning Department for further information.

VALUATION OF DEVELOPMENT: $521,559
(attached contractor's estimate)

DATE OF APPLICATION:

PART B:

THE PETITIONER SHALL BE RESPONSIBLE FOR FILING THE FOLLOWING WITH THE DEPARTMENT BEFORE AN APPLICATION IS CONSIDERED COMPLETE:

1. A written description of the proposed project, location and a statement of reasons/justification for project.

2. If property abuts the shoreline, a certified shoreline survey conducted by a registered land surveyor within 6 months of an application shall be submitted, except as may be waived by the Planning Director.

3. A plot plan of the property, drawn to scale, with all proposed and existing structures and other pertinent information. Also, preliminary building sketch plans are be submitted.

4. Any other plans or information required by the Director.

   Note: An Environmental Assessment or Environmental Impact Statement that has been declared adequate under the National Environmental Policy Act (NEPA) or under Chapter 343, HRS, may constitute a valid filing under this section.

5. Project assessment:

   a. Description of the area and environment involved including flora and fauna, and other features;

   b. Description of the existing land uses of the project site and surrounding areas;

   c. Description of how the proposed project will affect the area involved and surrounding areas. Specifically the assessment should evaluate if the proposal:

      1. involves an irrevocable commitment to loss or destruction of any natural or cultural resources, including but not limited to; historic sites, Special Treatment Districts as established by the County of Kauai Comprehensive Zoning Ordinance, viewplanes or scenic corridors as outlined in the Development Plans, and recreation areas and resources;

      2. curtails the range of beneficial uses of the environment;

3. conflicts with the County's or the State's long-term environmental policies or goals;

4. substantially affects the economic or social welfare and activities or the community, County or State;

5. involves substantial secondary impacts, such as population changes and effects on public facilities;

6. in itself has no significant adverse effect but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

7. substantially affect a rare, threatened, or endangered species of animal or plant, or its habitat;

8. detrimentally affects air or water quality or ambient noise levels; or

9. affects an environmentally sensitive area, such as flood plain, shoreline, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water or coastal water;

10. may have a major effect on the quality of the environment or affect the economic or social welfare of the area; and

11. would possibly be contrary to the policies and guidelines of the Rules and Regulations, the County's General Plan, Development Plans, and Zoning and Subdivision Ordinances.

d. Evaluation of the proposed development relative to the objectives and policies as contained in Chapter 205-A, HRS, and Section 3.0 of the Special Management Area (SMA) Rules and Regulations: (Please complete attached questionnaire)

5/15/92

RESPONSE TO KAUAI PLANNING DEPARTMENT QUESTIONNAIRE (PART"B")

PART B: Kilauea Crater Hill

1. Project Description

This project to upgrade the existing Kilauea Crater Hill communication facility is part of an overall upgrade of the Kauai County communication network that serves the Police, Fire, and Public Works Departments - shared also with State and Federal agencies.

The following facilities will be replaced.

a. The existing 8'Wx20'Lx16'H wood building will be replaced with a slightly larger but lower profile 12'Wx24'Lx10'H prefabricated fiberglass building with an exterior layer of exposed aggregate.

b. The existing and inoperative standby generator and pad will be removed and replaced with a new generator installed inside the new building. The miscellaneous propane tanks will be replaced with a single 250 gallon propane tank installed adjacent to the building and concealed within a 3-sided concrete block enclosure painted to blend in with the surrounding area.

c. The existing 60' wooden pole will be replaced with a 30' steel monopole installed adjacent to the new building. New antennas will be smaller, less conspicuous antennas mounted on the new monopole. Antennas made obsolete by the new 800 MHz trunked radio system will be removed.

2. Shoreline

This Kilauea Crater site does not abut the shoreline. The site is located at 548' above sea level below the crest of the extinct Kilauea Crater on the side opposite to the shoreline. The site was developed as a military RADAR site in 1940. After World War II the RADAR equipment was removed and the site developed as a public safety and commercial two-way radio communications site. Kauai County's presence predates the "Wildlife Preserve" designation by more than 35 years.

3. Plot Plan

See Photo No. 1 and IHCO Drawing #900001-05-00-2 attached hereto.

4. Other Plans and Information

None required.

5. Project Assessment

a. Area Description

This site is located within the Kilauea Wildlife Preserve administered by the U.S. Fish and Wildlife Service. The surrounding area has had most of the non-native plants removed and replanted with native vegetation indigenous to the area. Native sea birds and Nēnē Hawaii Goose (Branta sandvicensis) have been re-established in the area.

b. Land Uses

This area is used as a Wildlife Preserve for native flora and fauna.

An observation deck has been constructed by the Fish & Wildlife Service on the seaward side of the Crater Rim overlooking the cliff and surf area. This observation deck is used by hikers and Wildlife Preserve visitors to observe the surf and nesting birds.

c. Project Effect

This project will reduce the visual impact of the existing facility and remove deteriorating infrastructure that is not part of the historical RADAR site.

c.1. This project will not result in the loss or destruction of any natural or cultural resources.

c.2. This project will not curtail the range of beneficial uses of the environment.

c.3. This project does not conflict with County or State long-term environmental policies or goals.

c.4. This project will substantially improve the County and State Public Safety and administrative communications functions and indirectly have a positive beneficial effect on the economic and social activities of the County and State.

c.5. This project will have no secondary impact on population increase or public facilities.

c.6. This project has no significant adverse or cumulative effect on the environment, nor does it involve a commitment for larger actions.

c.7. This project does not affect a rare, threatened, or endangered species of animal or plant, or its habitat.

c.8. This project will have no effect on the quality of water, air, or ambient noise levels.

c.9. This project will have no effect on any environmentally sensitive area, such as flood plain, shoreline, Tsunami zone, erosion prone area, geologically hazardous land, estuary, fresh water or coastal water.

c.10. This project will not have a major effect on the quality of the environment and will not affect the economic and social welfare of the area.

c.11. This project is not contrary to the policies and guidelines of the Rules and Regulations, the County's General Plan, Development Plan, and Zoning and Subdivision ordinances.

d. Recreational Resources

This project does not provide for coastal recreational opportunities. See attached questionnaire for answers to other questions.

RECREATIONAL RESOURCES:

Objective: Provide coastal recreational opportunities accessible to the public.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes" please elaborate or provide comments in "Discussion" section below.

	Yes	No
1. Will the proposed action involve or be near a dedicated public right-of-way to the beach?	___	X
2. Does the project site abut the shoreline?	___	X
3. Is the project site near a State or County Park?	___	X
4. Will the proposed action occur in or affect a surf site?	___	X
5. Will the proposed action occur in or affect a fishing area?	___	X
6. Will the proposed action occur in or affect a recreational or commercial boating area (including boat ramps)?	___	X
7. Is the project site near a sandy beach?	___	X
8. Are there swimming or other near shore recreational uses in the area?	___	X

Discussion:

HISTORICAL RESOURCES:

Objective: Protect, preserve, and where desirable, restore those natural and man-made historic and pre-Historic resources in the Special Management Area that are significant in Hawaiian and American history and culture.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

	Yes	No
1. Is the project site within a Federal, State, and/or County designated historic/cultural district?	X	___
2. Is the project site listed on or nominated to the Hawaii or National Register of Historic Places?	X	___
3. Does the project site include land(s) which has not been previously surveyed by an archaeologist?	___	X
4. Has any site survey revealed any information on historic or archaeological resources? (Please provide copy or reference of survey)	X	___
5. Is the project site within or near a Hawaiian fishpond?	___	X
6. Is the project located within or near a historic settlement area? (cemeteries, burials, heiaus, etc.)	___	X

Discussion:

1. The project site lies within the Kilauea Wildlife Reserve administered by the U.S. Fish and Wildlife Service.

2. The Kilauea Crater Hill RADAR site has been recommended to be placed on the National Registry of Historic Places, State #30-4-1810, RADAR INSTALLATION.

4. An archaeological inventory survey of Crater Hill was prepared for the U.S. Government Fish and Wildlife Service February 1989 by Demaris L. Fredericksen and Walter M. Fredericksen, of XAMANEK RESEARCHES, P. O. Box 131, Pukulani, Maui, Hawaii 96788.

Kilauea Crater Hill

COASTAL HAZARDS:

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

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments within the "Discussion" section below.

	Yes	No
1. Is the project site within a potential tsunami inundation area as depicted on the National Flood Insurance Rate maps (FIRM)?	___	X
2. Is the project site within a potential flood inundation area according to a FIRM?	___	X
3. Has the project site or nearby shoreline areas experienced shoreline erosion?	___	X
4. Have any seawalls/revetments/etc. been constructed or exist in the immediate vicinity?	___	X

Discussion:

ECONOMIC USES:

Kilauea Crater Hill

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

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments within the "Discussion" section below.

		Yes	No
1.	Does the project involve a harbor or port?	___	X
2.	Is the proposed development related to or near to an existing major hotel, multi-family, or condominium project?	___	X
3.	Does the project site include agricultural lands designated for such use?	___	X
4.	Does the proposed development relate to commercial fishing or seafood production?	___	X
5.	Does the proposed development relate to energy production?	___	X

Discussion:

COASTAL ECOSYSTEMS:

Objective: Protect valuable coastal ecosystems from disruption and minimize adverse impacts on all coastal ecosystems.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

		Yes	No
1.	Does the proposed development involve dredge or fill activities within or abutting any type of of waterway?	___	X
2.	Will the proposed development require some form of effluent discharge into a body of water?	___	X
3.	Will the proposed development require earthwork beyond clearing and grubbing?	___	X
4.	Will the proposed development include the construction of special waste treatment facilities, such as injection wells, discharge pipes, septic tank systems or cesspools?	___	X
6.	Is an intermittent or perennial stream or estuary located on or near the project site?	___	X
7.	Does the project site provide habitat for endangered species of plants, birds, or mammals?	___	X
8.	Is any such habitat located nearby?	X	___
9.	Is there a wetland on the project site?	___	X
10.	Is the project site situated in or abutting a Natural Area Reserve or Wildlife Refuge or Sanctuary?	X	___

Discussion:

Items 8, 10

This communication site lies within the Kilauea Wildlife Reserve Habitat, and provides for a large number of native plants, birds and other animals. The Kilauea Crater Hill communications site predates area designation as a Wildlife Preserve by many years. This project will materially enhance the existing radio communications facility in every way with respect to the surrounding area.

SCENIC AND OPEN SPACE RESOURCES:

Objective: Protect, preserve and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

		Yes	No
1.	Does the project site abut a scenic landmark?	___	X
2.	Does the proposed action involve the construction of a multi-story structure or structures?	___	X
3.	Is the project site adjacent to vacant parcels?	___	X
4.	Does the proposed action involve the construction of structures visible between the nearest coastal roadway and the shoreline?	___	X
5.	Is the project site within the Shoreline Setback Area (20 or 40 feet inland from the shoreline)?	___	X

Discussion:

PROJECT ASSESSMENT cont'd:

e. Evaluation of impacts which cannot be avoided and mitigating measures proposed to minimize that impact;

f. Evaluation of the proposed development relative to Section 4.0 of the SMA Rules and Regulations in accordance with the following aspects:

1. Substantial adverse environmental or ecological effects;

2. Consistency or compliance of the proposed development relative to the goals and objectives of Chapter 205A, HRS and Section 3.0 of the SMA Rules and Regulations;

3. Consistency or compliance of the proposed development relative to the County General Plan, Development Plan, and zoning ordinances.

e. Impacts

This project has no known impacts of significance.

f. Development Evaluation

1. This project has no substantial adverse environmental or ecological effects.

2a. This project complies with goals and objectives of Chapter 205A of the Hawaii Revised Statutes.

2b. This site is not located within a Special Management Area.

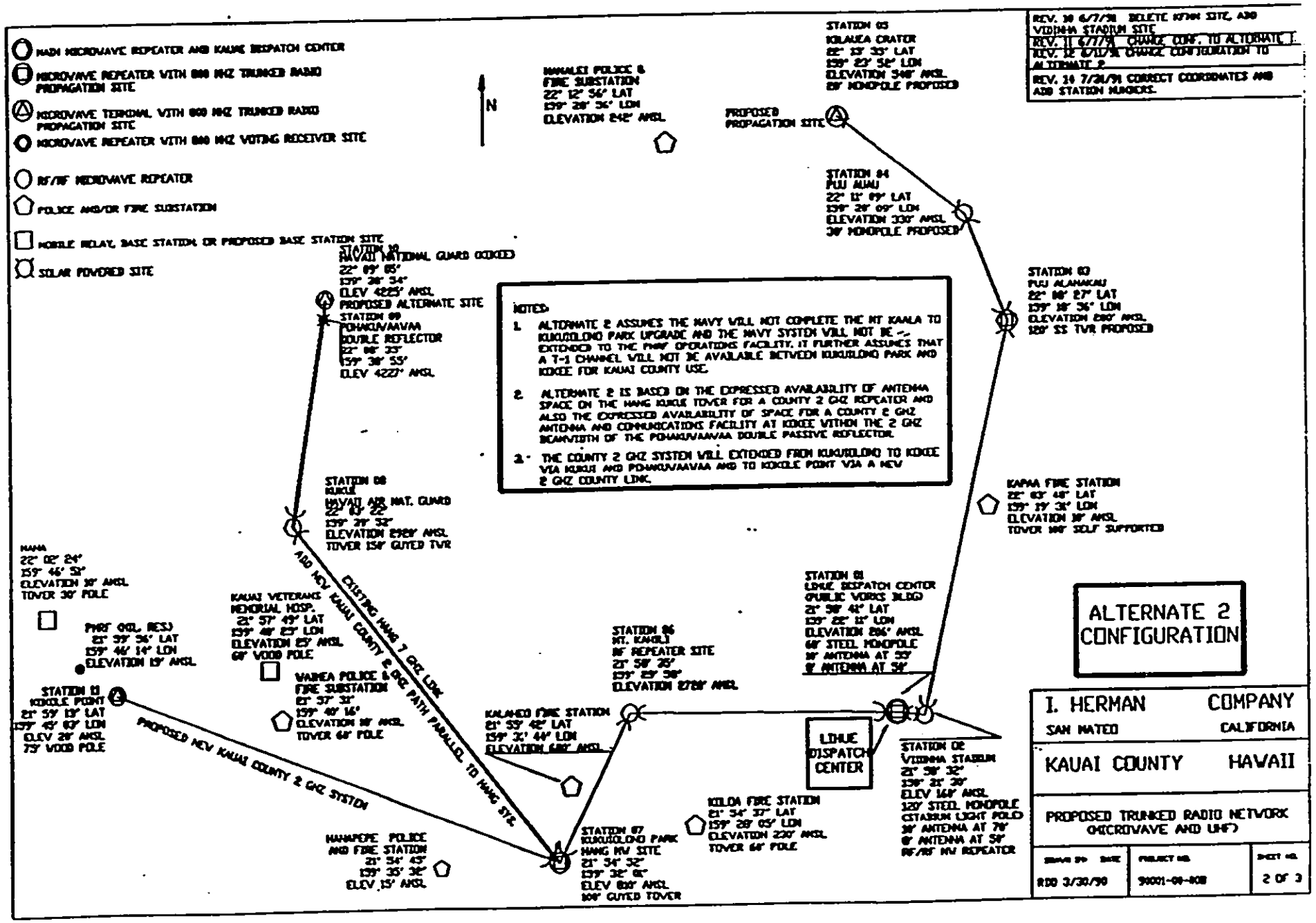
3. This project is in compliance with the County General Plan, Development Plan, and zoning ordinances.

SIGNATURE OF APPLICANT/REPRESENTATIVE
(Print name of applicant/representative)

DATE

EXHIBIT "1"

Kilauea Crater Hill



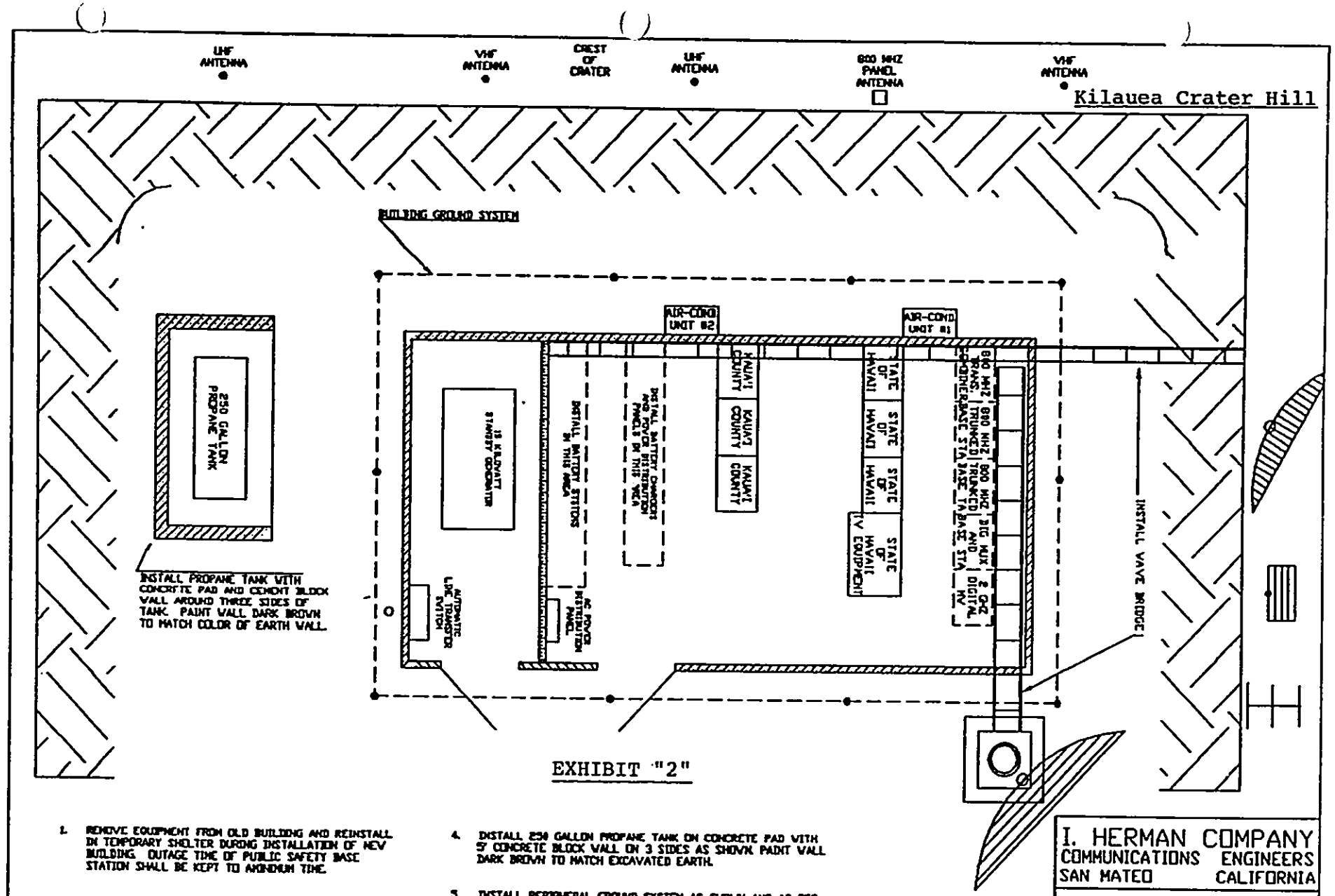


EXHIBIT "2"

1. REMOVE EQUIPMENT FROM OLD BUILDING AND REINSTALL IN TEMPORARY SHELTER DURING INSTALLATION OF NEW BUILDING. OUTAGE TIME OF PUBLIC SAFETY BASE STATION SHALL BE KEPT TO MINIMUM TIME.

2. INSTALL NEW 12'W X24'L X9'H PREFAB CONCRETE BUILDING AS SHOWN. CONCRETE WALL FINISH TO BE FLUTED CONCRETE, DARK BROWN IN COLOR TO MATCH THE COLOR OF EXCAVATED PAD.

3. INSTALL 20' MONOPOLE TOWER AT SOUTHEAST CORNER OF BUILDING. VERIFY TOWER LOCATION WILL PERMIT INSTALLATION OF 8' 2 GHZ GRID ANTENNA AT 25' LEVEL ON TOWER WITH ADEQUATE PATH CLEARANCE. TOWER TO BE PAINTED DARK BROWN COLOR TO MATCH COLOR OF EXCAVATED EARTH.

4. INSTALL 250 GALLON PROPANE TANK ON CONCRETE PAD WITH 5' CONCRETE BLOCK WALL ON 3 SIDES AS SHOWN. PAINT WALL DARK BROWN TO MATCH EXCAVATED EARTH.

5. INSTALL PERIPHERAL GROUND SYSTEM AS SHOWN AND AS PER SPECIFICATION. CONNECT GROUND SYSTEM TO PROPANE TANK, TOWER, INSIDE GROUND PLATE, AND INSIDE HALO GROUND.

6. MAKE UNDERGROUND ELECTRIC SERVICE CONNECTION TO MAIN CIRCUIT BREAKER AND AUTOMATIC LINE TRANSFER SWITCH INSIDE GENERATOR ROOM.

7. RUN WAVEGUIDE BRIDGE TO TOWER AND TO TOP OF EXCAVATION FOR ANTENNAS ABOVE PAD.

8. ALL TRANSMISSION LINES TO BE CONNECTED TO GROUND SYSTEM AT OUTSIDE OF BUILDING ENTRY.

I. HERMAN COMPANY
COMMUNICATIONS ENGINEERS
SAN MATEO CALIFORNIA

KAUA'I COUNTY, HAWAII
COMMUNICATION SYSTEM

KILAUEA CRATER HILL
NEW BLDG PLOT PLAN

DRAWN BY:	PROJECT NO.	SHEET NO.
RDD 7/31/91	90001-05-00	2 OF 2

Kilauea Crater Hill

EXHIBIT "3"

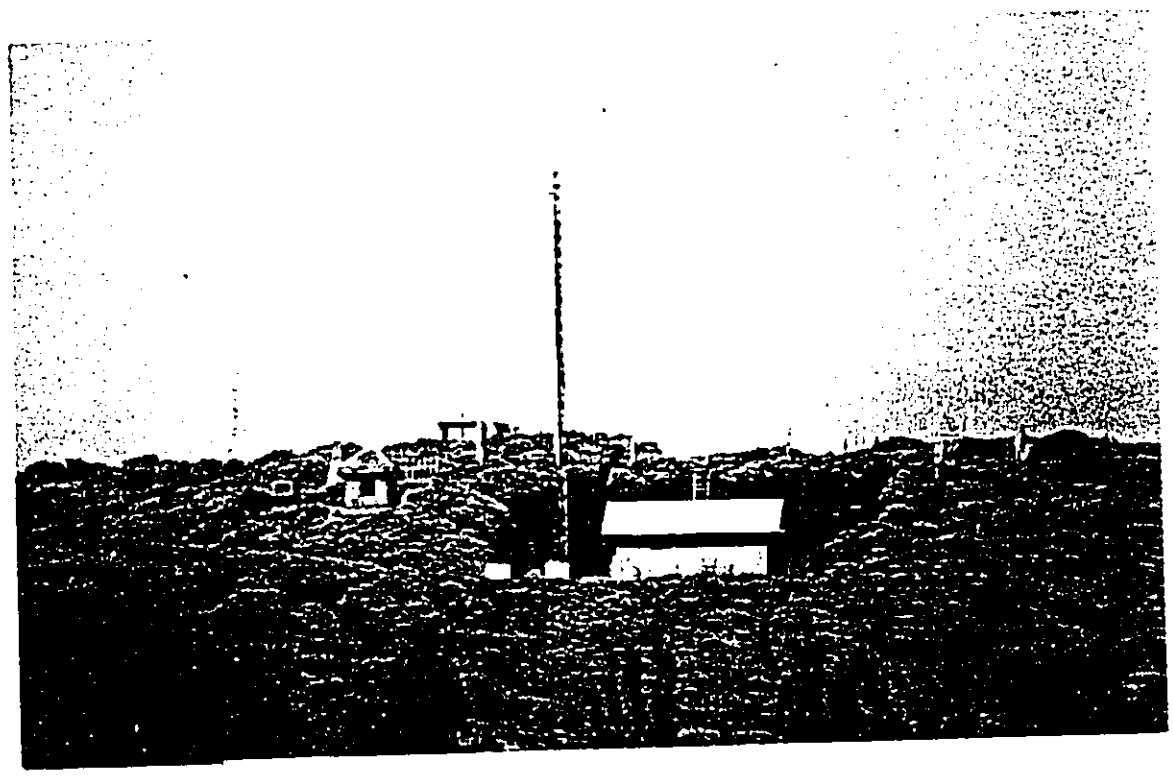


Photo 1

Kilauea Crater Hill Communication Facility

The two small concrete structures shown on the left are air shafts to an underground chamber constructed in 1940 as part of the first RADAR installations in Hawaii. This site was also a part of the Territory-wide military radio communication network. Kauai County and commercial radio facilities were installed shortly after World War II - after the removal of the military RADAR and radio communication equipment. The equipment building in the center will be replaced with a low profile aesthetic prefab building. The 60' wood pole in front will be removed and replaced with a 30' steel monopole adjacent to the right side of the new building.

39

Kilauea Crater Hill

EXHIBIT "4"

AN ARCHAEOLOGICAL INVENTORY SURVEY OF CRATER HILL AND MOKOLEA POINT EXTENTION OF KILAUEA POINT NATIONAL WILDLIFE REFUGE, KILAUEA, KAUAI, HAWAII

State H
Kipapa Heiau 30-4-
Kilauea Light House
Mokolea Point Sugar C
Complex 30-4-14
Radar Installation
30-4-D

Rail Road Bed
30-4-15

Blue Stone Quar
30-04-11

Prepared for:

U.S. Government
Fish and Wildlife Service

Prepared by:
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Walter M. Fredericksen

February, 1989

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INTRODUCTION

In August of 1988, we were contacted by Dan Moriarty, Park Ranger and Manager, regarding our undertaking an archaeological and historical inventory survey on two parcels of land, the Crater Hill parcel (Tax map 5-2-04, parcel #9, consisting of ca. 96 acres) and the Mokolea Point parcel (parcel #19, ca. 38 acres) [Map 1]. These newly acquired parcels are adjacent to, and now part of, Kilauea Point National Wildlife Refuge at Kilauea, Kauai, Hawaii. The Refuge is a haven for a number of species of oceanic birds, including wedge-tailed shearwater, red-footed booby, Laysan albatross, the great frigatebird, and the red-tailed tropicbird.

Under both Federal and Hawaii State Statutes (Chapter 6, Hawaii Statutes, Historic Sites Section, Rules and Regulations 1-10), archaeological/historical inventory surveys are required on lands that have potential historical and/or archaeological sites or material cultural remains of significance. "Historical significance" includes any structures and/or artifacts of more than 50 years of age, or in some cases, structures and or artifacts of lesser age that are deemed significant for other reasons. "Archaeological significance" alludes to a somewhat broader range of features and/or artifacts, but in any case these data must have archaeological importance in terms of either

prehistoric or historic cultural interpretations. In Hawaiian archaeological research work, the terms "precontact" and "postcontact" are often used in place of "prehistoric" and "historic".

Once the determination has been made by either Federal, State or County agencies that an archaeological/historical inventory survey is required, a research team performs the survey and provides a report on the findings, which may then be used by governmental agencies involved for making determinations regarding land use, and mitigation procedures for protecting existing sites of significance and considerations for SMA (Special Management Area) permit issuance.

The basic elements of an archaeological inventory survey include:

1. Background historical and archaeological research which provides historical and/or archaeological data regarding historical land use and the probability of the existence of structures and/or artifacts of historical or archaeological significance.
2. The archaeological field survey, which includes a surface "walk-over"study in order to discover if there are any surface features and/or artifacts of historical or archaeological significance; mapping, photography and other means of recording the potential nature of a site if findings deem it to be significant; and possible exploratory excavation to determine site content and

subsurface stratigraphy.

3. The archaeological inventory survey report which summarizes the findings of the survey effort and suggests recommendations for site mitigation (i.e., measures for minimizing the impact on the site, if deemed to be culturally significant).

The inventory survey report becomes a document of record for the surveyed site, and presents a summary of historical and archaeological data useful for future development plans of whatever type. Often, the Survey Report is the only extant document summarizing these data for a given site and as such, presents an important summary for future reference by researchers.

The on-site "walk-over" survey was conducted on October 29 and 30, 1988. The field party consisted of Walter M. Fredericksen (Ph.d. cand.), Demaris L. Fredericksen (Ph.d. cand.), and Erik M. Fredericksen (M.A.). Dan Moriarty was extremely helpful and considerate. His knowledge of the Refuge, its history and wildlife, and his admirable involvement of community volunteers in activities associated with the Wildlife Refuge have all created a positive environment for the area. He transported our party to all areas included in the survey in his 4-wheel drive vehicle. Without his assistance, we could not have achieved the level of observation necessary to conduct a survey in that terrain. The efforts made by him to prevent marauding animals from preying on the Refuge wildlife are apparent throughout the area, and his obvious enthusiasm and dedication to the well-being of the Refuge

was apparent to us.

SITE DATA

The existing refuge consists of 33 acres located on the northernmost point of Kauai, which also happens to be the northernmost point in the chain of inhabited Hawaiian islands. An impressive physical location, the refuge is the home of the Kilauea Lighthouse, which overlooks tiny, Mokuaeae Island from an elevation of 216 feet above sea level. Kalihiwai Bay at the mouth of the Kalihiwai River, lies to the west of the lighthouse and Kilauea Bay at the mouth of Kilauea River lies to the east. One of the newly acquired parcels, Mokolea Point (38 acres) forms the western horn of Kilauea Bay. Makapili Rock (elevation 156 feet) is included in the newly acquired land as well, and lies to the north of the Crater Hill Parcel (maximum elevation, 570 feet). Crater Hill consists of 96 acres, and is a semi-circular property that is geologically part of an ancient volcanic cone. The seaward side of the crater has long since eroded away due to the constant onslaught of waves and wind characteristic of this coast.

Crater Hill is adjacent to the existing Kilauea Point Kilauea Pt Light House 30-4-JC Wildlife Refuge, and the property was turned over to the Fish and Wildlife Service on March 8, 1988. Since that time the Service has worked diligently to secure it from trespassers who had become accustomed to traveling with ATV's and dirtbikes on the slopes without restraint. These activities presented a danger to

wildlife, especially nesting birds such as the wedge-tailed shearwater.

The developer of the 53 dwelling sites below the parcel has erected a fence which greatly aids in preventing access to the new refuge parcels. Also the fence helps to keep out dogs which prey on nesting birds on the refuge. There is an access road for Park personnel use from the development area, which is closed to the public. The Service has constructed an additional access road from the existing refuge, which makes it easier to patrol the property. There is a section along the summit ridge at the Pali with an extremely steep grade which has been paved. It is slab on grade, leaving the underlying surface undisturbed. If any archaeological features have been covered by the pavement, they are still intact.

The measures taken to secure the property, described above, are significant since the adjacent housing development is imminent. There are 24 lots below the Refuge, on which 53 houses are to be built. The rural character of the land is changing rapidly, and Kilauea is reportedly the fastest growing community in the State, according to State records. There will soon be large population increases in these developments which are contiguous to the Refuge. It is hoped that the measures taken will keep access under control of Park personnel.

The Crater Hill parcel is bordered on the sea side by a steep cliff face which is the nesting place of several bird species. It is the natural extension of the pre-existing Refuge. The

remainder of the land slopes to mauka at about 30 degrees to the southeast. It is currently in grass, and the Service has been engaged in a program to eradicate the exotic plants on the higher slopes, replanting them with native vegetation. Conscious effort is being made to replant areas where serious erosion has been caused by such things as dirtbike activity, and heavier vehicular use. A foot trail is planned by the Service as the only kind of access for public use.

The property, when owned by the Kilauea Plantation, was not in sugar cultivation because it was too steep. It was the site of a dairy in the 1920's, and later was leased by the Robinson family for use as a pasture, which was its use until recent times.

The highest point on Crater Hill was the site of a Radar station during World War II, and it is now the location for 3 radio antennas, the police and emergency frequency, and two others. The building which houses the radio equipment is placed on the concrete pedestals that supported the original radar installation. To the west of this structure is a vent which is part of the tunnel system below.

Background Historical Research

History of Ownership

The chain of post-contact ownership of the property begins with a Yankee named Charles Titcomb, a seaman aboard a whaler

which dropped anchor off Lahaina. When the ship departed Titcomb was no longer on board, being determined to find his fortune as an entrepreneur in the islands. He eventually found his way from Lahaina to the isalnd of Kauai. There he managed to purchase the entire ahupua'a o Kilauea, which extended from the sea inland to the mountains, about 3016 acres total. The title was signed by King Kamehameha IV, and the price was $2500 (Grant 2896). With this land under his control, he founded the original Kilauea Plantation. He acquired more land to the west, enlarging the sugar operation (Aikin, 1988, pp.16-19). The Plantation became a sugar estate in 1877 when Captain John Ross and E.P. Adams purchased a good portion of the land. They not only grew sugar cane, but processed it as well (Conde and Best, 1973, p. 150). In 1879, Robert A. Macfie, Jr. bought out John Ross, and became the new manager. He remained in the position until 1890, having somewhat dubious success during his tenure. A number of incidents ranging from the refusal of a group of Portuguese workers to work under his management in 1881, to an opium raid by police on the barracks of Chinese workers which ended in a rock and bottle throwing riot in late 1889, led to his departure. Finally, his father (the source of his money) had had enough and called him back to England (Joesting, 1984, pp. 220, 246).

The Kilauea Sugar Plantation Company continued to operate, however, until 1971, when operations were discontinued. From 1910 onward, it had been managed, at least partially, by C. Brewer and Company, Ltd., who eventually acquired controlling interest in

1948.

The lighthouse property was bought from the plantation in December of 1909 for one U.S. dollar. The deed was signed by A.B. Spreckles, the vice-president of the Kilauea Sugar Plantation Company at the time, and descendant of the infamous "Sugar King", Claus Spreckles who operated his business empire out of San Francisco. Construction of the lighthouse was begun in July of 1912 and completed in May of 1913. Supplies for the lighthouse were brought in from the sea. The stones for the three buildings on the property came from the quarry on Mokolea penninsula, at the mouth of the Kilauea River. The quarry was located along a narrow gauge railroad that ran from Kilauea Plantation to the Point, where raw sugar was loaded onto ships by a cable. This is the only such site in Hawaii, on government land, where structural remains of a cable operated sugar-loading complex are located. 30-4-1611

The quarry was also the source of gravel for the road system throughout the Plantation (Photos 20,21,13). The Grove Farm Company ran the quarry operation for a few more years after the plantation was closed in 1971. The Kilauea Plantation railroad, which had been used for transporting sugar to the Mokolea Point cable-loading complex and hauling gravel from the quarry, was phased out between 1928 to 1934, during which time trucks had begun to replace the railroad for hauling sugar and gravel. Prior to this, the area was isolated and sugar had to go out by the cable landing.

A hui, identified as Seacliffe Plantation, headed by Mr. Dorn

Schmidt bought a section of land containing the Crater Hill parcel about 10 years ago. It was agreed that the 96 acre Crater Hill parcel would be turned over to the government to be managed by the Fish and Wildlife Service as an extention of the Refuge. This was negotiated by the Trust for Public Land. Mokolea Point was originally part of the ahupua'a of Kahili (LCA # 8559-B:38 to William Lunalilo and later acquired by Kilauea Plantation). Negotiated separately, it was eventually purchased from Oceanic Vistas Consortium by the government for $1.6 million. On March 8, 1988, the land transactions were completed, and the Service took over the management responsibilities.

Land Use

One of the important uses of the land is in connection with the railway operations. As mentioned earlier, the Crater Hill portion of the study site was too steep to be cultivated in sugar cane, and served mainly as pasture land. A line of the Kilauea Plantation Railroad crossed over the Mokolea Point portion, and ended in the complex of buildings which made up the cable loading facility for the plantation.

A note in the Gazette of September 21, 1881, reports on this railroad:

"The new tramway for Kilauea Plantation is expected shortly and it is hoped will be in running order by the first week in October." (Conde and Best, 1973, p. 150).

This was the first railroad to be built on Kauai, and the first spike was driven by Princess Regent, Lydia Kamakaeka, who later became Queen Liliuikalani. She was in regency for her brother, King Kalakaua, who was traveling abroad at the time. An article in the Pacific Commercial Advertiser, October 8, 1881 reports on the activities (Ibid., p.151):

"Preceeding to the plantation, the road on either side was tastefully decorated with ever-green boughs and an arch across the plantation gates, surmounted by two small Hawaiian flags, on either side.

Riding hastily to the mill and beyond the cutting, the road was arrived at and a large crowd had collected, the Royal Standard having been hoisted on a temporary staff. Her Royal Highness alighted from her carriage and was met by Mr. Macfie, who introduced Mr. C.V. Houseman, engineer of the road. The details of the line as to its length and rolling stock were explained to Her Royal Highness, who took great interest in all these particulars, and expressed her great satisfaction at being able to be present at the laying of the first railway on the island of Kauai, and trusted it might soon gird the whole island and so develop its resources and promote the industry of its people.

The Hon. J.M. Kapena, then stood up on the bank of the cutting and made the following address in native and English.....Mr. Macfie then advanced to Her Royal Highness and expressed his gratification and pleasure at this Royal favor; and he regretted owing to the shortness of time, a silver hammer, more fitted for the occasion, had not been produced. Her Royal Highness then advanced and hit the spike twice on the head. It having been declared home by the engineer. Three cheers were called for, which were heartily responded to.

Captain Grant, a planter for the Kilauea Sugar Company, was then presented to Her Royal Highness and the natives advanced one by one, and paid their respects, by kissing the hand of the Princess. After a little general conversation, Her Royal Highness prepared to enter her carriage when the native girls formed in choir and sang the Hawaiian National Anthem, which was most effective and appropriate.

On passing out, the Hawaiian, English and American flags were hoisted at the mill, and the Chinese hoisted their flag in the Chinatown of the plantation. The visit occupied but an hour and a quarter, and was most enjoyable, and one long to be remembered."

A note on the problems encountered in the operation of the railroad was published in the Gazette on March 1, 1882. It reads:

"The new wire rope tramway has been started at Kealia. (Makee Sugar Company). It is hoped it will prove more successful than the Kilauea railway. The great difficulty with the latter has been to keep the engine cars on the track. The ground becomes so soft and unctuous after frequent rains as to defy all skill and science in laying track that will stand." (Ibid., p. 152)

Another commentary from the San Francisco Chronical, in the July 18, 1910 issue, on the Kilauea railroad:

"Transportation system consists of 12 and a half miles of permanent track, five miles of portable track, 200 cane cars, six sugar cars and four locomotives. Kilauea is situated three miles from the landing at Kahili, with which it is connected by the railway system. Sugar is delivered to the steamers by means of a cable device at the rate of from 600 to 800 bags an hour....." (Ibid.)

More information is given about the process of loading sugar onto ship, using a cable. Richard Nelson was a captain on inter-island steamers during the period when these kinds of landings were common. His daughter, Frances Frazier, has put together notes on wire landings which he made.

"The water was deep close to shore all along this coast [Hamakua], and we were never very far off the rocks; sometimes we could hear the surf on the rocks even when we could not see them. Most of the places we went to had wire landings, but there were a few derrick landings, which were mostly disliked by the Captain and crews of the steamers as they were more dangerous in rough weather than the wire landings, which could be worked in most any kind of weather....All the plantations were on the top of the bluff, and the reason for the wire landings was that the shore line was so rough and dangerous for boat work most of the time that some means had to be found to enable the loading to be carried on in all kinds of weather. The idea of loading by wire was imported from the Pacific Coast when lumber from the redwood forests had been shipped that way for many years.

As the trade winds blow almost constantly from the east north east all the landings and moorings were laid out so that the steamer would lay head to the wind and sea. There were four (4) mooring buoys with heavy anchors and chains to them at all wire landings, and a small buoy with a light chain only a few feet longer than the depth of water was fastened to the end of the sea wire, which lay on the sea bottom all the time when there was no steamer using it. There was a permanent wire from the top of the bluff leading down to an anchor not very far from the shore. This

wire was used when first getting the hauling rope from shore. A weight was slid down this wire with the end of the hauling rope attached to it. The ship's boat would go in to this wire and pick up the end of the hauling rope that came down from the top of the bluff. This end they took back to the ship, and this way the connection with the landing was established." (Nelson, 1974, pp.139-140)

The article continues to tell about maneuvering the ship in between the buoys, and securing it to the anchor and buoy system so that the shore wire could be attached. Once the running wire was hove tight enough and the two ends secured to the carriage the system was ready to work. The diagrams illustrate the process (Fig. 1). The carriage was loaded with bags of raw sugar on shore and sent down the wire to the ship, where the bags were unloaded and put in the hold. As Captain Nelson says, "This was a very nice system and it worked very well at places where it would be impossible to handle freight otherwise." (Ibid., p.141)

By the spring of 1942, the little two foot narrow gaugers of the Kilauea Plantation, and their 25 pound rails were all put out to permanent pasture (Conde and Best, p. 153). A road system linked Kilauea with the rest of Kauai, and the railroad and the cable landing faded into history.

The other activity or use of the property under study was the Radar Station, 30-4-1810 built during the Second World War. It was constructed on the highest point of the Crater Hill parcel (elevation about 560 feet). The installation was considered to be Top Secret, and therefore little is known about its operation by the community. Local residents were not allowed in the area during the war. The light at Kilauea Point was turned off on

December 7, 1941. No records of the war years are in the Coast Guard archives (1941-47). In August of 1987, Dan Moriarty interviewed an individual who was stationed there during the war, Mr. Joe Sarkis. A synopsis of this interview follows:

Mr. Sarkis was with Company B, 581st Signal, Aircraft Warning Battalion, U.S. Army Signal Corps attached to the Air Force, 1st platoon. The Crater Hill installation was one of three located on Kauai, another being at Kokee, and an additional location that is unknown [to Sarkis]. Each day there was a one-hour maintenance shut down, at which time another station would cover. The Army Corps of Engineers dug the tunnel situated below the tower which was 200 feet tall, and secured to a concrete base. There were 28 men in his group, who lived in wooden barracks located at Kilauea Point. They arrived after the construction of the tunnels and tower were completed. The crews drove to the top, and worked in 4 shifts, 6 hours each, 4 men to a shift. There were 2 tunnels, one for radio, and one for radar. The radar had a range of 160 miles, and picked up planes and submarines, which our planes scrambled to intercept. He reckoned there were 150 sightings in 8 hours. Planes were asked [?] IFF - Identification, Friend or Foe. Planes would send coded messages as friend. The codes were changed daily for security reasons. The planes knew the radar was screening them and would respond. A note which told of activities other than those associated with the radar installation mentioned that one could eat a large steak and banana cream pie at the Dew Drop Inn, all for $1.00.

It is hoped that more details on the construction and use of this facility can be obtained should the site be placed on the National Registry of Historic Places.

Archaeological Background Research

A perusal of the archaeological literature reveals that this area has not received extensive study. An inventory survey was conducted in 1987 by William K. Kikuchi, at the Kilauea Point Wildlife Refuge. His survey was done to determine the impact of the construction of a new visitors' center, but he apparently

surveyed the area of Mokolea Point as well (Kikuchi, 1987, p.4, Fig. 3). Unfortunately, he does not include the survey of these areas in his report. The lack of mention of anything of archaeological significance leads us to believe that he did not locate sites.

Several sources speak generally about the habit of the Hawaiians of hunting sea birds for their flesh and feathers. It is very possible that the area could have been used temporarily for these purposes. Also the areas at the base of the cliffs might have been used temporarily as canoe landings. Such an area (pae waa) is identified at Puu Poa to the west of Kilauea (Aikin, p. 10).

Bennett located Kipapa heiau 30-4-13-2 on the penninsula to the east of the Kilauea River and the old quarry on Mokolea Point. His brief description (1931, p. 133) follows: "Site 132, Kipapa heiau, on the end of the first bluff east of the Kilauea River in Kahili section. Described by Thrum as 'A large heiau of some 300 by over 100 feet in size, paved, walls 5 feet high, standing in a cane field in partial ruins'. Since that time the stones have been removed." (The Thrum reference is to the Hawaiian Annual for 1907, "Tales from the Temples", pp. 49-69). It is the only recorded archaeological feature located near the survey parcels.

Archaeological Field Survey

The field survey party was composed of three archaeological

personnel and Park Ranger Moriarty, who provided us with use of his four-wheel drive vehicle and his intimate knowledge of the Park. Ranger Moriarty accompanied, and guided the survey team during the two days of the field survey. His detailed knowledge enabled field party members to ask questions regarding the parcels, their geographical-environmental condition and their particular historical significances, while still in the field, saving considerable time for the survey. The terrain is quite rugged and would have been difficult to access without the use of his four-wheel drive vehicle and his driving skill on the parcels.

Initially, the Crater Hill parcel was observed along the areas near the summit bordered by the sheer sea-cliffs. As a portion of the parcel was driven to, field party members would walk the immediate area, noting any features of interest. Photographic records were also made, where appropriate. The actual cliff face was not explored because of the obvious hazards involved in attempting to explore a 550' high sheer cliff. It is possible that the cliff face may have been utilized by Hawaiians for purposes of gathering seabird eggs, and hunting the birds themselves. In an interview of a local resident, Kwai Chew Lung (Chow), made by Charlene Dyer in 1984, he recalls that the Hawaiians used to pick up baby chicks on Mokuaeae Rock in September and October to eat. He also remembers going fishing there and hunting for eggs to eat. Incidently, he said that he did not remember when the radio [radar] towers were put in or

taken out--he only remembers the old days.

However, to survey this cliff-face area (Photo 18) would require sophisticated equipment and personnel well-versed in climbing techniques and archaeology. It is doubtful that such an effort would be necessary or justified, since there are no plans on part of the U. S. Fish and Wildlife Service to underetake any type of project that would disturb the cliff faces in the Park area.

Following the survey of the high-ground on the Crater Hill parcel, the survey party moved to Mokolea Point (Photo 19). Mokolea Point provided immediate, visible features of historic and archaeological interest in the form of the ruins of the sugar- 30-4-1811 loading complex (Photos 1 & 2). Foundation stones remain <u>in situ</u>, outlining the perimeters of the complex, and oxidized iron and steel remnants of the cable-loading equipment are apparent throughout the site area (Fig. 1, Photos 3,4,5,7,8,12,17). One of the foundation structures was made of brick some of which were imprinted with the letters "CALAEN". The track bed for the narrow guage railroad engine and hauling cars is still visible (Photo 6). It was strewn with pieces of what appears to be anthracite coal. Numerous pieces of pulley wheels, sling cable, levers, bolts and nuts, a boiler box, a wire-loading carriage, intermixed with recent human litter are scattered over the site area. While considerably oxidized, the boiler box and a wire-loading carriage are preserveable and restorable (Photo 9). The cliff-side concrete base for one of the support stanchions guiding the cable to offshore-lying vessels is also still present and in good

condition (Photo 10). According to Ranger Moriarty, at least one of the mooring anchors is still in place on the bottom of Kilauea Bay. It may be possible to locate additional mooring anchors as part of a continuing archaeological inventory effort for the Park. These offshore moorings usually consisted of 4 anchors placed in a pattern forming a rectangle (Fig. 2). A marine archaeological survey could determine whether or not the additional anchors are still present.

The remains of at least 6 seabirds were observed by the field party just in the immediate area around the loading-complex ruins. More were found in the area near the shore below the point. Numerous other bird remains were observed elsewhere on the parcels but were not counted. Ranger Moriarty indicated that marauding dogs were responsible for killing the birds but that the recently erected fences had dramatically reduced this predation. His observations seem to be corroborated by the fact that no recent remains were noted by the field party.

Mokolea Point with its sugar-loading complex ruins presents an historically and archaeololgically unique site in the State of Hawaii on U.S. Government protected land.

Returning to the lower slopes of the Crater Hill parcel, Ranger Moriarty took us to an additional, important historical site, the Radar station 30-4-1410 dating from the early years of World War II. This site presents an impressive complex to the observer. Two ventilation shafts terminate near the summit of Crater Hill ridge (Photo 16). The present building which houses radio

equipment is built on the original foundation used during World War II (Photo 15). Some 50 or more feet below the vent structures lies the entrance to a tunnel which was part of the radar complex. The tunnel is approximately 130 feet in length, running back into the hillside at about 55 degrees magnetic. The chamber below the vent is about 15 to 20 feet wide and 45 feet long, and the "chimney" under the vent is about 30 to 35 feet high. A considerable quantity of material in the form of cast-off items, appears to have been thrown down the vent, and has collected on the chamber floor below. A detailed survey of the tunnel and chamber should be made at some point in the future. The tunnel was used as a storage area for explosives by Kilauea Plantation after the war. The entry tunnel measures about 8 feet wide and 8 feet high. It had originally been shored up with wooden beams, and the wall surface had been plasterd. Originally, the entryway had been secured by a metal door which presently lies to one side of the tunnel (Photo 14). At some time in the past, a fire was built in the entryway which burned out many of the wooden beams near the entrance. The present stability of the tunnel walls is uncertain and they should be inspected and analyzed.

About 20 feet to the west of the tunnel entrance lie the remains of the former radar complex generator enclosure. The chamber measures about 8 by 12 feet, with the remnants of two mounting platforms for generators still identifiable. At the rear of the enclosure (the north wall) there are two ventilation shafts, or perhaps, more appropriately, exhaust shafts. Both are

rectangular in shape and measure ca. 2 feet square. Presently, both of them are filled with detritus and seem to be totally sealed-off from their outlet near the summit of the ridge. Whether or not this is the second tunnel spoken of by Mr. Sarkis is unclear. Our investigation was limited because of inadequate lighting equipment.

Throughout the tenure of the survey no Hawaiian artifacts from either the historic or prehistoric periods were discovered on the surface, nor were there any indications of features or structures from these eras. Since no projects are proposed or planned by the Park entailing significant disturbance of the land habitat, any possible subsurface archaeological remains will remain undisturbed. If any significant disturbance on the parcels should ever be planned, archaeological monitoring would be advised. In the event such subsurface features should be present, archaeological data recovery could be implemented as deemed necessary at that time.

SUMMARY

On the Crater Hill parcel, the World War II secret Radar Installation has historical significance by virtue of its age (nearly 50 years) and because it is a nearly intact feature from that historically important period. Also, the sugar-loading complex ruins on the Mokolea Point parcel present unique historical structures (with some remaining artifacts) that are

located on protected, U.S. Government land. Both of these features deserve further historical and archaeological research. Preservation and/or restoration is possible in each case.

As described in this report, there were no features or artifacts discovered during the course of the survey from either the Hawaiian Prehistoric or Historic periods. The proximity of 20-04-1 Kipapa heiau on the east bank of the Kilauea River indicates a general importance for the area, and as speculated earlier in this report, the cliffs and bird landing/nesting areas on the parcels were undoubtedly exploited by Hawaiians for food and feathers, although direct archaeological evidence was not discovered.

If future Park plans include any significant ground disturbance or any excavation for construction of buildings, our recommendation is that archaeological monitoring be undertaken during such projects. Archaeological data recovery could then be carried out as deemed necessary at that time.

Neither the Crater Hill radar complex nor the Mokolea Point sugar-loading complex should be disturbed as a result of Park development plans. Both of these sites could be preserved and/or restored and would enhance the Park's historic importance.

A marine archaeological survey could establish the presence or absence of the underwater remains of the ship mooring anchors used during sugar-loading operations. If the mooring anchors are intact, their study would contribute important data towards understanding the complexity of this unique sugar-loading operation.

It is our feeling that both the radar installation site, and the Mokolea Point Sugar-loading complex site be placed on the Registry of Historic Places. Each site represents a unique land usage during different periods in Hawaiian history, and they are conveniently located on federal government land.

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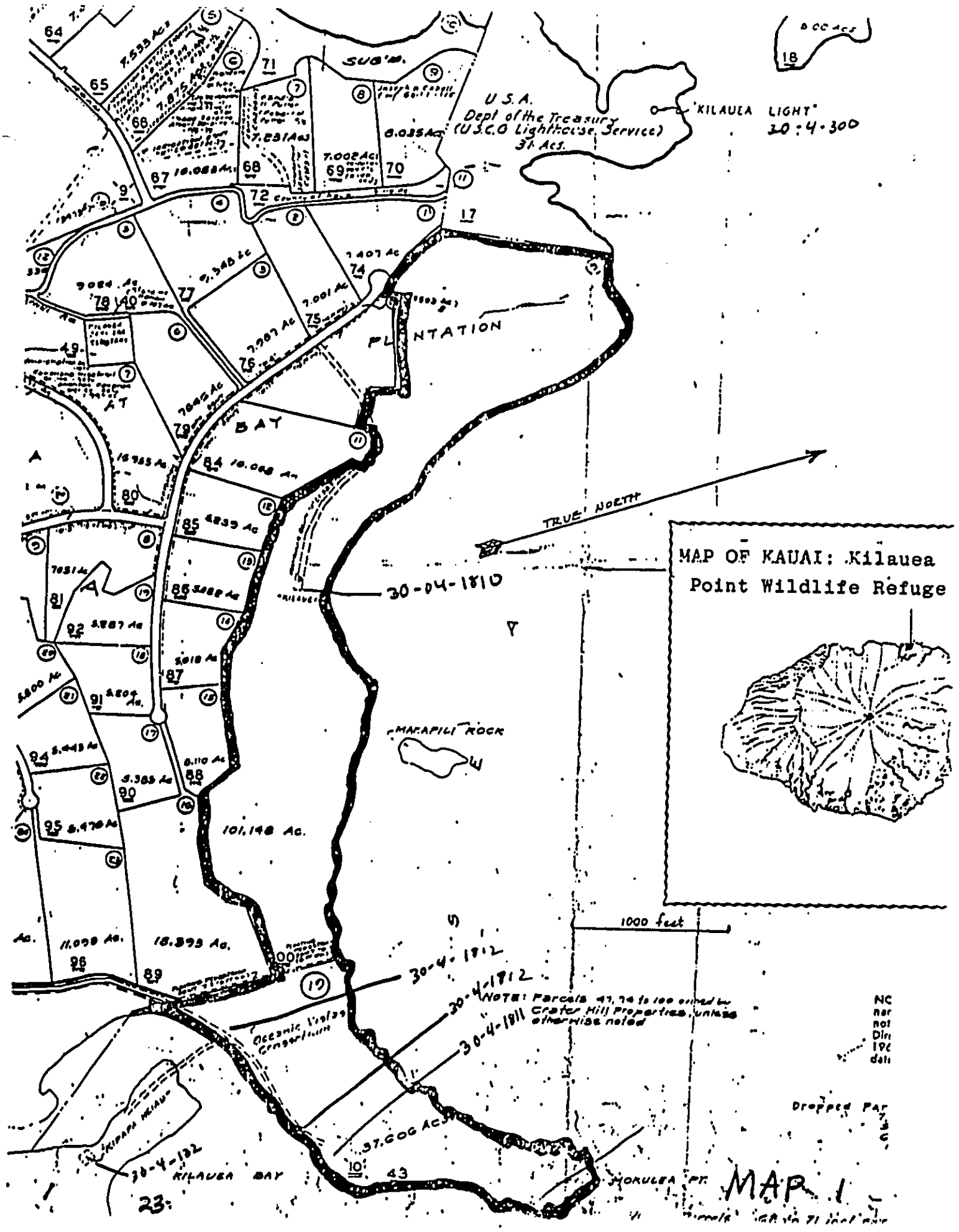
1974 "Notes on Wire Landings Along Hamakua Coast on the Island of Hawaii", THE HAWAIIAN JOURNAL OF HISTORY, Volume VIII, pp. 136-142, Hawaiian Historical Society, Honolulu.

Thrum, Thomas G.

1907 Hawaiian Almanac and Annual for 1907, The Reference Book of Information and Statistics Relating to the Territory of Hawaii, of value to Merchants, Tourists, and others. 33rd year of Publication, copyrighted, Thos. G. Thrum, 1907, Honolulu.



Hawaii (130) Kauai County & Island KILAUEA (C&GS)

Old H.D.

USC&GS, 1910, 1927
HTS, 1930
G. McLaughlin, 1962

Book: PH 856

1153-59-

Station described by Hawaiian Territorial Survey in 1930 as follows:
Found USGS bronze disk set in concrete between lava rock formations.
Built concrete monument over USGS bronze disk set in concrete between lava rock formations. Superstructure Type B-1 (6 x 6 ft.) flush with lava surface.

Note by GMcL, 1962: Found as described in U.S. Coast and Geodetic Survey Special Publication No. 156, page 143 and Hawaiian Territorial Survey in 1930 except as follows:
Located on the N. coast of Kauai, about 1 mi. (airline) NE. of Kilauea village, about 2 mi. E. of Kalihiwai Bay, about 0.5 mi. NW. of Kilauea Bay on a top which is rounded to the SW. side and which has a sheer bluff on the NE. side which drops off into the sea.
To reach from the Post Office in Kilauea, drive NE. on the main rd. (power and telephone lines along rd.) passing mill (on the right) and continuing straight ahead for 0.7 mi. to rd. fork; take right fork and pass above old cemetery bearing NE. on the main rd. to the lower SW. slope of the hill for 0.4 mi. to lane on left which goes up the hill and which is blocked with a locked gate. Pack up lane which runs to top of hill and station. A 10 minute pack. A drive station if key is obtained for gate.

Station mark: USGS tablet set in concrete under an HTS Type B-1 superstructure. Poor visibility made it impossible to read all of the stamping. HAW was noted stamping.

Note: There is a pipe rusted and stuck in superstructure above station mark and it was necessary to center over pipe which is point signal is centered over and should be centered over station mark.

Reference mark No. 1: (1910) Chiseled cross on rock, 44.29 ft. from station mark in azimuth 12°54'31".
Reference mark No. 2: (1927) Shank of tablet set in bedrock, 32.31 ft. from station mark in azimuth 13°10'20".

Signal: HTS Type B-1 metal cross-target centered over station mark.
Signal data: TRXT 9.1 ft.
C/L R/W XT 7.8
BWXT 6.1

Photo No. Paneled.

V.A. Elevation: 568 ft.

HAWAII ZONE 4
*X=534,559.41
Y=142,822.09

*Latitude: 22°13'35.258" Longitude: 159°23'52.181"

5/15/62 lcl

* = Values by C&GS

FILE COPY

HAWAII (130) Kauai County & Island KILAUEA LIGHT (C&GS)

Old H.D.

USC&GS, 1927
E.E. Moe, 1962

Book: PH 856

1153-72

Station found in good condition as described in U.S. Coast and Geodetic Survey Special Publication No. 156, page 154.

Located on the NE. corner of Kauai, on a point called Lea o Kilauea. About 1.5 mi. (airline) N. of Kilauea and about 6.5 mi. NE. of Hanalei.

Station Not occupied.

Station mark: Center of the white concrete lighthouse which is about 50 ft. high.

Signal: Catwalk around the lighthouse.

Signal data: Catwalk 31.9 ft.

Photo No. Identified by 35 mm photos.

HAWAII ZONE 4
*X= 532,212.70
Y= 145,858.27

V.A. Elevation: 181 ft.

*Latitude: 22°14'05.361" Longitude: 159°24'17.137"

* = Values by C&GS

5/11/62 lcl dc

FILE COPY

[redacted]

MT. KAHILI

[redacted]

SPECIAL MANAGEMENT AREA PERMIT ASSESSMENT APPLICATION
COUNTY OF KAUAI
DEPARTMENT OF PLANNING

PART A:

MT. KAHILI

OWNER: County of Kauai, Hawaii

APPLICANT: County of Kauai, Hawaii

APPLICANT'S STATUS IF NOT OWNER: _____

ADDRESS: 3021 Umi Street, Lihue, Kauai, HI 96766

Attn: Ed Renaud PHONE: 808-245-3318

FAX NO.: 808-245-9029

TMK: #2-4-09-6 ZONING: Conservation SLUD: _____

GENERAL PLAN: _____ CURRENT LAND USE: Communications Facility

NATURE OF DEVELOPMENT: A new low power microwave RF repeater will be installed in the existing County owned building. Two 10' microwave grid antennas will be installed on existing poles. After operational status of the new trunked radio network is achieved and all users transferred, the old network equipment will be removed.

*NOTE: An Environmental Assessment in accordance with HRS Chapter 343 is required for actions requiring a Shoreline Setback Variance. Please contact the Planning Department for further information.

VALUATION OF DEVELOPMENT: $60,211
(attached contractor's estimate)

DATE OF APPLICATION: _____

PART B:

THE PETITIONER SHALL BE RESPONSIBLE FOR FILING THE FOLLOWING WITH THE DEPARTMENT BEFORE AN APPLICATION IS CONSIDERED COMPLETE:

1. A written description of the proposed project, location and a statement of reasons/justification for project.

2. If property abuts the shoreline, a certified shoreline survey conducted by a registered land surveyor within 6 months of an application shall be submitted, except as may be waived by the Planning Director.

3. A plot plan of the property, drawn to scale, with all proposed and existing structures and other pertinent information. Also, preliminary building sketch plans are be submitted.

4. Any other plans or information required by the Director.

   Note: An Environmental Assessment or Environmental Impact Statement that has been declared adequate under the National Environmental Policy Act (NEPA) or under Chapter 343, HRS, may constitute a valid filing under this section.

5. Project assessment:

   a. Description of the area and environment involved including flora and fauna, and other features;

   b. Description of the existing land uses of the project site and surrounding areas;

   c. Description of how the proposed project will affect the area involved and surrounding areas. Specifically the assessment should evaluate if the proposal:

      1. involves an irrevocable commitment to loss or destruction of any natural or cultural resources, including but not limited to; historic sites, Special Treatment Districts as established by the County of Kauai Comprehensive Zoning Ordinance, viewplanes or scenic corridors as outlined in the Development Plans, and recreation areas and resources;

      2. curtails the range of beneficial uses of the environment;

3. conflicts with the County's or the State's long-term environmental policies or goals;

4. substantially affects the economic or social welfare and activities or the community, County or State;

5. involves substantial secondary impacts, such as population changes and effects on public facilities;

6. in itself has no significant adverse effect but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

7. substantially affect a rare, threatened, or endangered species of animal or plant, or its habitat;

8. detrimentally affects air or water quality or ambient noise levels; or

9. affects an environmentally sensitive area, such as flood plain, shoreline, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water or coastal water;

10. may have a major effect on the quality of the environment or affect the economic or social welfare of the area; and

11. would possibly be contrary to the policies and guidelines of the Rules and Regulations, the County's General Plan, Development Plans, and Zoning and Subdivision Ordinances.

d. Evaluation of the proposed development relative to the objectives and policies as contained in Chapter 205-A, HRS, and Section 3.0 of the Special Management Area (SMA) Rules and Regulations: (Please complete attached questionnaire)

RESPONSE TO KAUAI PLANNING DEPARTMENT QUESTIONNAIRE

(PART "B")

PART "B":

1. Project Description

This project to install a low power 2 GHz microwave relay station at Kauai County's Mt. Kahili communication facility is part of an overall upgrade of the Kauai County communication network that serves the Police, Fire, and Public Works Departments - shared also with State and Federal agencies.

The following station changes will be made:

a. A high reliability, redundant 2 GHz microwave relay repeater will be installed in the existing Kauai building.

b. Two 10' 2 GHz microwave grid antennas will be installed on existing poles adjacent to the building.

c. After implementation of the new communication system and transfer of all users to the new system, all the old radio system and peripherals will be removed. There will be a net reduction of equipment at this station.

2. Shoreline

The Mt. Kahili communication site does not abut the shoreline. The site is located at 2,750' above sea level and well inland from the shoreline.

3. Plot Plan

See Photo No. 1 and IHCO Drawings #90001-06-00-1 & 2.

4. Other Plans and Information

None required.

5. Project Assessment

a. Area Description

This site is located within the Lihue-Koloa Forest Reserve. The surrounding area is steep rugged terrain with basaltic rocks and soil. The dense native vegetation is relatively undisturbed except along hiking trails and the immediate communication site.

b. Land Uses

This area is used as a forest reserve. The communication site is a permitted use.

c. Project Effect

This project will have no effect on the surrounding area.

c.1. This project will not result in the loss or destruction of any natural or cultural resources.

c.2. This project will not curtail the range of beneficial uses of the environment.

c.3. This project will not conflict with County or State long term environmental policies or goals.

c.4. This project will substantially improve the County and State Public Safety and Administrative communications functions, and indirectly have a positive beneficial effect on the economic and social activities of the County and State.

c.5. This project will have no secondary impact on population increase or public facilities.

c.6. This project will have no significant adverse or cumulative effect on the environment, nor does it involve a commitment for larger actions.

c.7. This project will not affect a rare, threatened, or endangered species of animal or plant, or its habitat.

c.8. This project will have no effect on the quality of water, air, or ambient noise levels.

c.9. This project will have no effect on any environmentally sensitive area, such as flood plain, shoreline, Tsunami Zone, erosion prone area, geologically hazardous land, estuary, fresh water, or coastal water.

c.10. This project is not contrary to the policies and guidelines of the Rules and Regulations, the County's General Plan, Development Plan, and zoning and subdivision ordinances.

d. Recreational Resources

This project does not provide for coastal recreational opportunities. See attached questionnaire for answers to other questions.

Mt. Kahili

RECREATIONAL RESOURCES:

Objective: Provide coastal recreational opportunities accessible to the public.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes" please elaborate or provide comments in "Discussion" section below.

	Yes	No
1. Will the proposed action involve or be near a dedicated public right-of-way to the beach?	___	X
2. Does the project site abut the shoreline?	___	X
3. Is the project site near a State or County Park?	___	X
4. Will the proposed action occur in or affect a surf site?	___	X
5. Will the proposed action occur in or affect a fishing area?	___	X
6. Will the proposed action occur in or affect a recreational or commercial boating area (including boat ramps)?	___	X
7. Is the project site near a sandy beach?	___	X
8. Are there swimming or other near shore recreational uses in the area?	___	X

Discussion:

Mt. Kahili

HISTORICAL RESOURCES:

Objective: Protect, preserve, and where desirable, restore those natural and man-made historic and pre-historic resources in the Special Management Area that are significant in Hawaiian and American history and culture.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

		Yes	No
1.	Is the project site within a Federal, State, and/or County designated historic/cultural district?	___	X
2.	Is the project site listed on or nominated to the Hawaii or National Register of Historic Places?	___	X
3.	Does the project site include land(s) which has not been previously surveyed by an archaeologist?	X	___
4.	Has any site survey revealed any information on historic or archaeological resources? (Please provide copy or reference of survey)	___	X
5.	Is the project site within or near a Hawaiian fishpond?	___	X
6.	Is the project located within or near a historic settlement area? (cemeteries, burials, heiaus, etc.)	___	X

Discussion:

3. The Mt. Kahili communications site was developed many years before archaeologic surveys were required. Given the difficult access it appears to be unlikely any survey has been performed.

Mt. Kahili

SCENIC AND OPEN SPACE RESOURCES:

Objective: Protect, preserve and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

	Yes	No
1. Does the project site abut a scenic landmark?	___	X
2. Does the *proposed action involve the construction* of a multi-story structure or structures?	___	X
3. Is the project site adjacent to vacant parcels?	___	X
4. Does the proposed action involve the construction of structures visible between the nearest coastal roadway and the shoreline?	___	X
5. Is the project site within the Shoreline Setback Area (20 or 40 feet inland from the shoreline)?	___	X

Discussion:

Mt. Kahili

COASTAL ECOSYSTEMS:

Objective: Protect valuable coastal ecosystems from disruption and minimize adverse impacts on all coastal ecosystems.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

		Yes	No
1.	Does the proposed development involve dredge or fill activities within or abutting any type of of waterway?	___	X
2.	Will the proposed development require some form of effluent discharge into a body of water?	___	X
3.	Will the proposed development require earthwork beyond clearing and grubbing?	___	X
4.	Will the proposed development include the construction of special waste treatment facilities, such as injection wells, discharge pipes, septic tank systems or cesspools?	___	X
6.	Is an intermittent or perennial stream or estuary located on or near the project site?	___	X
7.	Does the project site provide habitat for endangered species of plants, birds, or mammals?	X	___
8.	Is any such habitat located nearby?	X	___
9.	Is there a wetland on the project site?	___	X
10.	Is the project site situated in or abutting a Natural Area Reserve or Wildlife Refuge or Sanctuary?	___	X

Discussion:

7, 8. The Mt. Kahili communications site is surrounded by undisturbed forest land. Plants, birds, and mammals are undisturbed.

Mt. Kahili

ECONOMIC USES:

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

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments within the "Discussion" section below.

		Yes	No
1.	Does the project involve a harbor or port?	___	X
2.	Is the proposed development related to or near to an existing major hotel, multi-family, or condominium project?	___	X
3.	Does the project site include agricultural lands designated for such use?	___	X
4.	Does the proposed development relate to commercial fishing or seafood production?	___	X
5.	Does the proposed development relate to energy production?	___	X

Discussion:

COASTAL HAZARDS:

Mt. Kahili

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

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments within the "Discussion" section below.

	Yes	No
1. Is the project site within a potential tsunami inundation area as depicted on the National Flood Insurance Rate maps (FIRM)?	___	X
2. Is the project site within a potential flood inundation area according to a FIRM?	___	X
3. Has the project site or nearby shoreline areas experienced shoreline erosion?	___	X
4. Have any seawalls/revetments/etc. been constructed or exist in the immediate vicinity?	___	X

Discussion:

PROJECT ASSESSMENT cont'd:

e. Evaluation of impacts which cannot be avoided and mitigating measures proposed to minimize that impact;

f. Evaluation of the proposed development relative to Section 4.0 of the SMA Rules and Regulations in accordance with the following aspects:

1. Substantial adverse environmental or ecological effects;

2. Consistency or compliance of the proposed development relative to the goals and objectives of Chapter 205A, HRS and Section 3.0 of the SMA Rules and Regulations;

3. Consistency or compliance of the proposed development relative to the County General Plan, Development Plan, and zoning ordinances.

e. Impacts

This project has no known impacts of significance.

f. Development Evaluation

1. This project has no substantial adverse environmental or ecological effects.

2a. This project complies with goals and objectives of Chapter 205A of the Hawaii Revised Statutes.

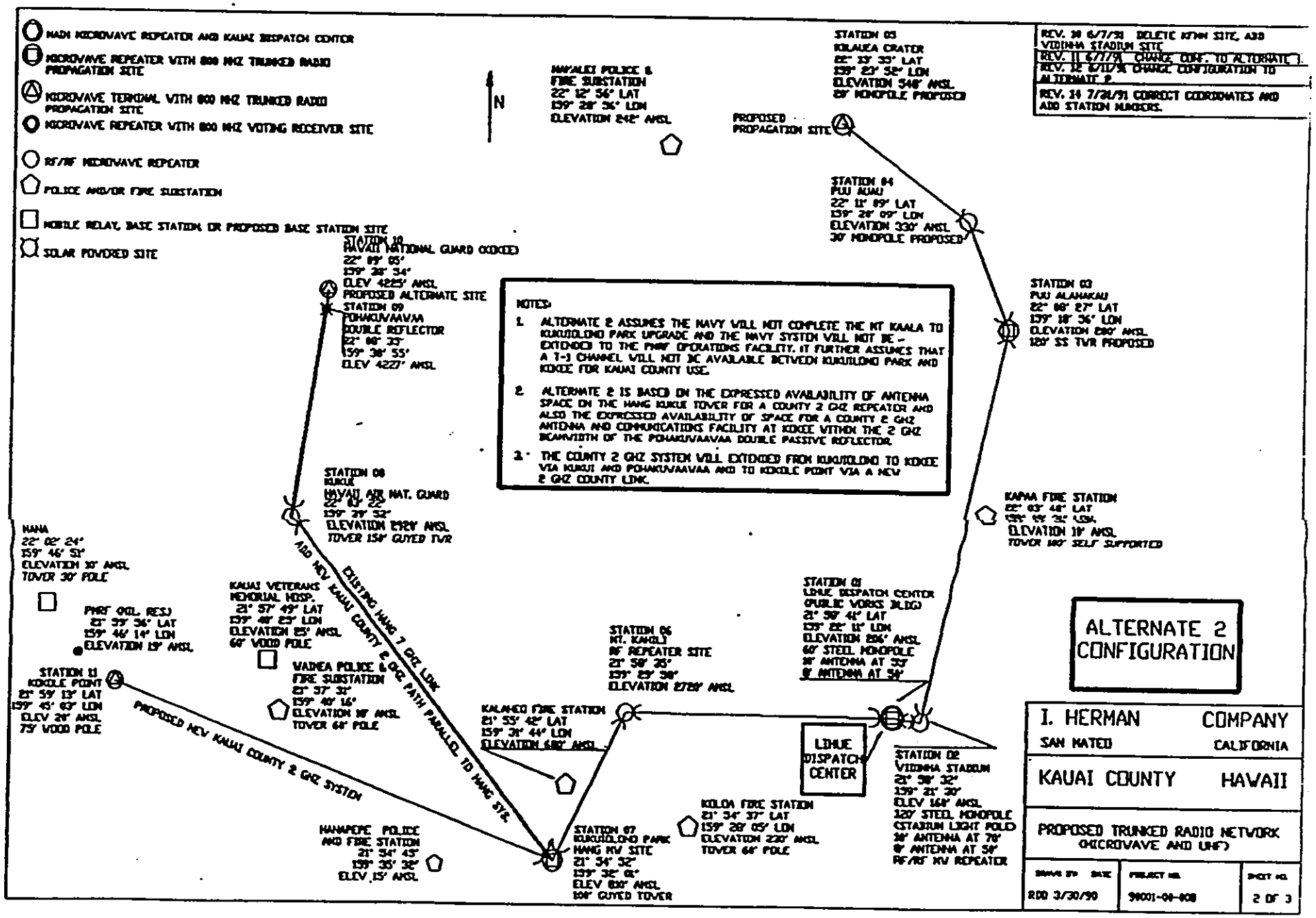
2b. This site is not located within a Special Management Area.

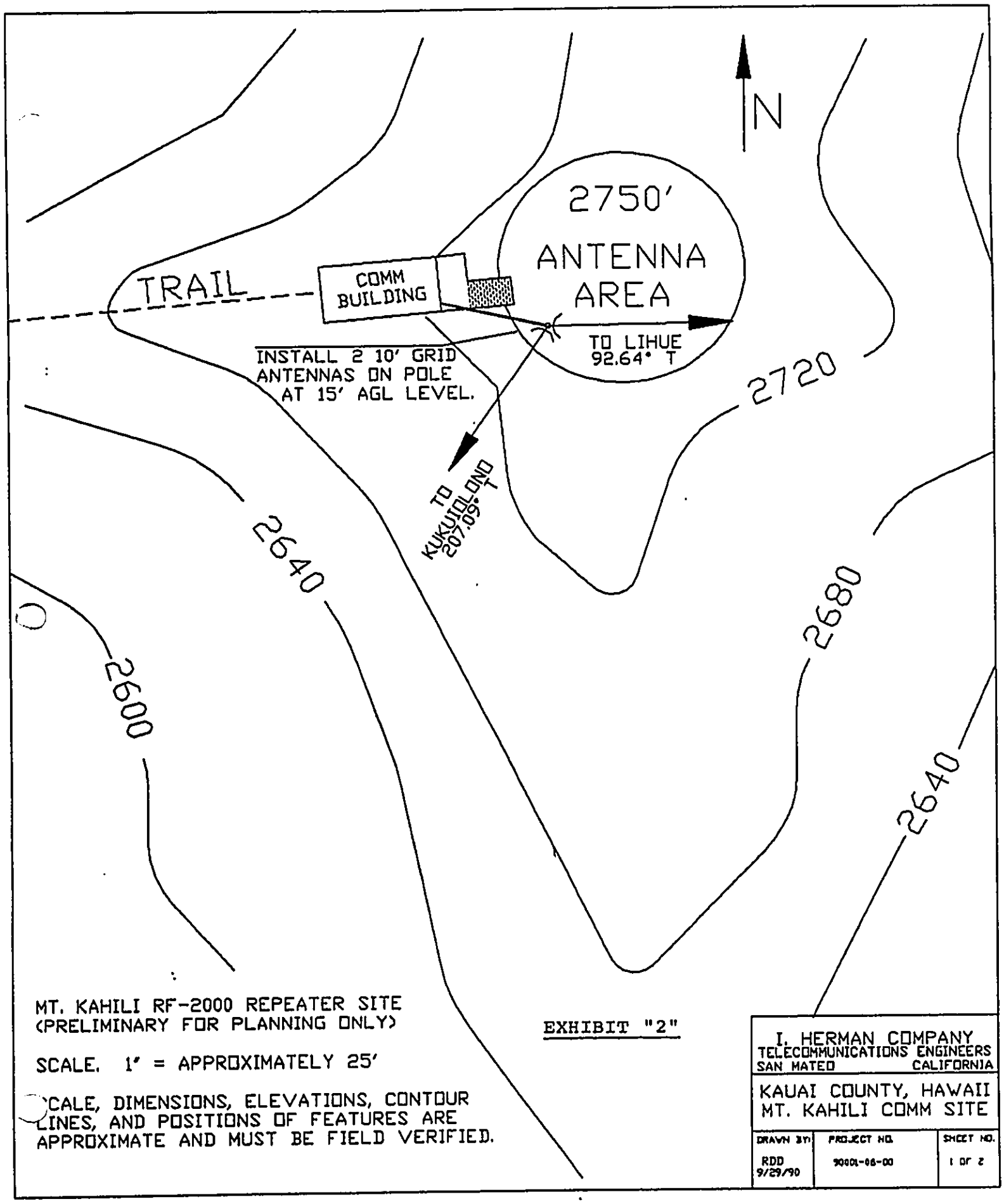
3. This project is in compliance with the County General Plan, Development Plan, and zoning ordinances.

SIGNATURE OF APPLICANT/REPRESENTATIVE
(Print name of applicant/representative)

DATE

EXHIBIT "1"


MAIN MICROWAVE REPEATER AND KAUAI DISPATCH CENTER
MICROWAVE REPEATER WITH 800 MHZ TRUNKED RADIO PROPAGATION SITE
MICROWAVE TERMINAL WITH 800 MHZ TRUNKED RADIO PROPAGATION SITE
MICROWAVE REPEATER WITH 800 MHZ VOTING RECEIVER SITE
RF/IF MICROWAVE REPEATER
POLICE AND/OR FIRE SUBSTATION
MOBILE RELAY, BASE STATION OR PROPOSED BASE STATION SITE
SOLAR POWERED SITE
N
HANALEI POLICE & FIRE SUBSTATION 22° 12' 54" LAT 159° 28' 36" LON ELEVATION 242' AMSL
STATION 05 KILAUEA CRATER 22° 23' 33" LAT 159° 23' 52" LON ELEVATION 548' AMSL 69' MONOPOLE PROPOSED
PROPOSED PROPAGATION SITE
STATION 04 PUU AUAU 22° 11' 09" LAT 159° 28' 09" LON ELEVATION 330' AMSL 30' MONOPOLE PROPOSED
STATION 10 HAWAII NATIONAL GUARD (KOKEE) 22° 09' 05" 159° 38' 54" ELEV 4225' AMSL PROPOSED ALTERNATE SITE
STATION 09 POHAKUV/AAVAA DOUBLE REFLECTOR 22° 08' 23" 159° 38' 55" ELEV 4227' AMSL
NOTES:
1. ALTERNATE 2 ASSUMES THE NAVY WILL NOT COMPLETE THE MT KAALA TO KUKUILOLOMO PARK UPGRADE AND THE NAVY SYSTEM WILL NOT BE EXTENDED TO THE PMRF OPERATIONS FACILITY. IT FURTHER ASSUMES THAT A 7-1 CHANNEL WILL NOT BE AVAILABLE BETWEEN KUKUILOLOMO PARK AND KOKEE FOR KAUAI COUNTY USE.
2. ALTERNATE 2 IS BASED ON THE EXPRESSED AVAILABILITY OF ANTENNA SPACE ON THE HANG KUKUI TOWER FOR A COUNTY 2 GHZ REPEATER AND ALSO THE EXPRESSED AVAILABILITY OF SPACE FOR A COUNTY 2 GHZ ANTENNA AND COMMUNICATIONS FACILITY AT KOKEE WITHIN THE 2 GHZ BEAMWIDTH OF THE POHAKUV/AAVAA DOUBLE PASSIVE REFLECTOR.
3. THE COUNTY 2 GHZ SYSTEN WILL EXTENDED FROM KUKUILOLOMO TO KOKEE VIA KUKUI AND POHAKUV/AAVAA AND TO KOKOLE POINT VIA A NEW 2 GHZ COUNTY LINK.
REV. 30 6/7/91 DELETE KAUAI SITE, ADD VIDINHA STADIUM SITE
REV. 11 6/7/91 CHANGE CONF. TO ALTERNATE 1.
REV. 12 6/17/91 CHANGE CONFIGURATION TO ALTERNATE 2
REV. 14 7/31/91 CORRECT COORDINATES AND ADD STATION NUMBERS.
STATION 08 KUKUI HAWAII AIR NAT. GUARD 22° 07' 22" 159° 29' 32" ELEVATION 5929' AMSL TOWER 150' GUYED TVR
ADD NEW KAUAI COUNTY 2 GHZ PATH PARALLEL TO HANG SITE
EXISTING HANG 7 GHZ LINK
PROPOSED NEW KAUAI COUNTY 2 GHZ SYSTEN
HANA 22° 02' 24" 159° 46' 51" ELEVATION 30' AMSL TOWER 30' POLE
PMRF (KOL. RES.) 21° 59' 36" LAT 159° 46' 14" LON ELEVATION 19' AMSL
KAUAI VETERANS MEMORIAL HOSP. 21° 57' 49" LAT 159° 48' 25" LON ELEVATION 85' AMSL 60' WOOD POLE
WAIMEA POLICE & FIRE SUBSTATION 21° 57' 31" 159° 40' 16" ELEVATION 18' AMSL TOWER 60' POLE
STATION 11 KOKOLE POINT 21° 59' 13" LAT 159° 45' 03" LON ELEV 26' AMSL 75' WOOD POLE
STATION 06 MT. KAHILI 18' REPEATER SITE 21° 58' 25" 159° 29' 38" ELEVATION 2780' AMSL
KALAHEO FIRE STATION 21° 53' 42" LAT 159° 31' 44" LON ELEVATION 680' AMSL
STATION 01 LIHUE DISPATCH CENTER (PUBLIC WORKS BLDG) 21° 59' 41" LAT 159° 22' 11" LON ELEVATION 286' AMSL 60' STEEL MONOPOLE 18' ANTENNA AT 55' 8' ANTENNA AT 50'
LIHUE DISPATCH CENTER
STATION 02 VIDINHA STADIUM 21° 58' 32" 159° 21' 30" ELEV 168' AMSL 120' STEEL MONOPOLE (STADIUM LIGHT POLE) 18' ANTENNA AT 78' 8' ANTENNA AT 58' RF/IF MW REPEATER
KAPAA FIRE STATION 22° 03' 48" LAT 159° 19' 32" LON ELEVATION 19' AMSL TOWER 140' SELF SUPPORTED
KOLOA FIRE STATION 21° 54' 37" LAT 159° 28' 05" LON ELEVATION 220' AMSL TOWER 60' POLE
HANAPEPE POLICE AND FIRE STATION 21° 54' 45" 159° 35' 32" ELEV 15' AMSL
STATION 07 KUKUILOLOMO PARK HANG MW SITE 21° 54' 32" 159° 32' 01" ELEV 830' AMSL 100' GUYED TOWER
ALTERNATE 2 CONFIGURATION
I. HERMAN COMPANY
SAN MATEO CALIFORNIA
KAUAI COUNTY HAWAII
PROPOSED TRUNKED RADIO NETWORK (MICROWAVE AND UHF)
RDD 3/30/90
99001-04-808
2 OF 3



MT. KAHILI RF-2000 REPEATER SITE
(PRELIMINARY FOR PLANNING ONLY)

SCALE. 1" = APPROXIMATELY 25'

SCALE, DIMENSIONS, ELEVATIONS, CONTOUR LINES, AND POSITIONS OF FEATURES ARE APPROXIMATE AND MUST BE FIELD VERIFIED.

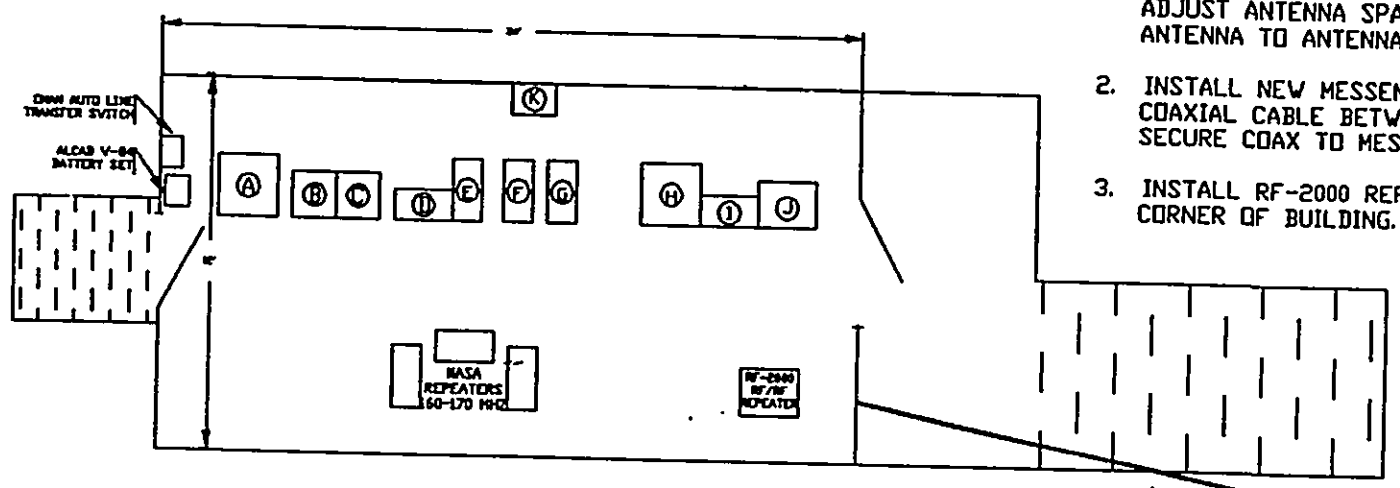
EXHIBIT "2"

I. HERMAN COMPANY
TELECOMMUNICATIONS ENGINEERS
SAN MATEO CALIFORNIA

KAUAI COUNTY, HAWAII
MT. KAHILI COMM SITE

DRAWN BY:	PROJECT NO.	SHEET NO.
RDD 9/29/90	90001-06-00	1 OF 2

EXHIBIT "3"



NOTES:

1. INSTALL ANTENNAS ON EXISTING COUNTY OWNED POLE AT APPROXIMATELY 15' AGL. ADJUST ANTENNA SPACING FOR REQUIRED ANTENNA TO ANTENNA ISOLATION.
2. INSTALL NEW MESSENGER CABLE TO SUPPORT COAXIAL CABLE BETWEEN BUILDING AND POLE. SECURE COAX TO MESSENGER AT 2' SPACING.
3. INSTALL RF-2000 REPEATER INSIDE S. E. CORNER OF BUILDING.

MESSENGER CABLE AND COAXIAL CABLE.

TO LIHUE 92.64° T

TO KUKUIOLONO 207.09° T

EQUIPMENT NOTES: #

A. KAUAI COUNTY EQUIPMENT
155.895 TX, 158.775 RX
INCLUDES 4 CAVITY DIPLEXER
AND 1/2" FOAM COA.

B. 155.850 TX, 154.755 RX
INCLUDES 4 CAVITY DIPLEXER.

C. CIVIL DEFENSE EQUIPMENT
155.760 TX, 155.100 RX
INCLUDES 4 CAVITY DIPLEXER

D. ALCAD LP11 BATTERY, NOT IN SERVICE
AND 12 VOLT 70 AH BATTERY FOR C.

E. HALE KAUAI BASE STATION.

F. 450 MHZ REPEATER STATION.

G. 72.980 TX, 75.880 MHZ RX TERMINAL.

H. SINCLAIR DIPLEXER FOR 'G'.

I. UNUSED VHF CAVITY FILTER.

J. UNUSED EQUIPMENT.

K. 450 MHZ CAVITY DIPLEXER FOR 'F'.

I. HERMAN COMPANY
COMMUNICATION ENGINEERS
SAN MATEO CALIFORNIA

KAUAI COUNTY, HAWAII
COMMUNICATION SYSTEM

MOUNT KAHILI
BUILDING FLOOR PLAN

DRAWN BY	PROJECT NO.	SHEET NO.
RDD 3/13/91	90001-06-00	2 OF 2

EXHIBIT "4"

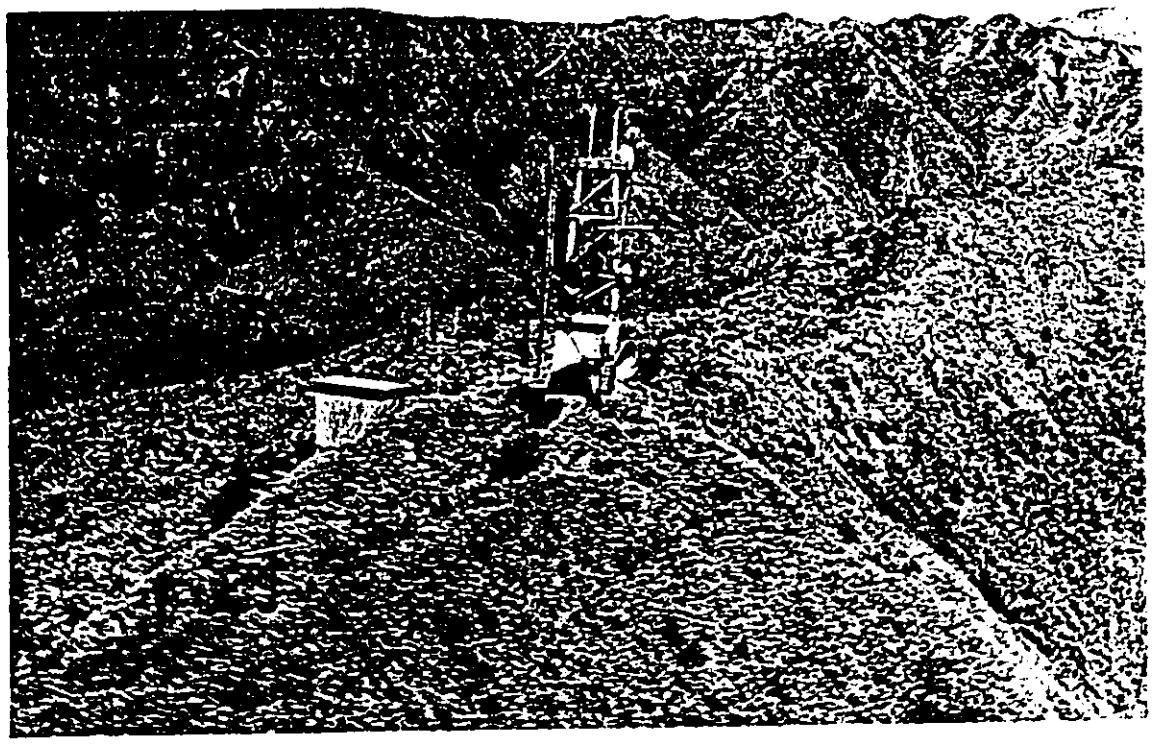
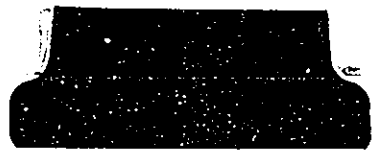


Photo 1

Helicopter view of Mt. Kahili communication site from south side. Two-level wood building at left belongs to Kauai County. Hawaii Public Broadcasting's television relay equipment is located in top of building. Kauai County, NASA, and other users' equipment is located in lower level of building. KAUI 720 building and equipment is built into wood pole tripod. Equipment replacement and 2 new microwave antennas are proposed to be installed on wood pole adjacent to tripod.



KUKUIOLONO PARK

SPECIAL MANAGEMENT AREA PERMIT ASSESSMENT APPLICATION
COUNTY OF KAUAI
DEPARTMENT OF PLANNING

PART A: Kukuiolono Park

OWNER: McBryde Trust

APPLICANT: Kauai County, Hawaii

APPLICANT'S STATUS IF NOT OWNER: Tenant

ADDRESS: 3021 Umi Street, Lihue, Kauai, HI 96766

Attn: Ed Renaud PHONE: 808-245-3318

FAX NO.: 808-245-9029

TMK: #2-3-05-6 ZONING: Agriculture SLUD: _____

GENERAL PLAN: _____ CURRENT LAND USE: Communication Facility

NATURE OF DEVELOPMENT: This project will add a microwave relay station and Public Safety trunked radio station for Police, Fire, and Public Work radio communications. The changes will include an additional communications building adjacent to the existing Hawaii Air National Guard building, and 3 additional grid microwave antennas on the existing tower.

*NOTE: An Environmental Assessment in accordance with HRS Chapter 343 is required for actions requiring a Shoreline Setback Variance. Please contact the Planning Department for further information.

VALUATION OF DEVELOPMENT: $527,013
(attached contractor's estimate)

DATE OF APPLICATION: _____

PART B:

THE PETITIONER SHALL BE RESPONSIBLE FOR FILING THE FOLLOWING WITH THE DEPARTMENT BEFORE AN APPLICATION IS CONSIDERED COMPLETE:

1. A written description of the proposed project, location and a statement of reasons/justification for project.

2. If property abuts the shoreline, a certified shoreline survey conducted by a registered land surveyor within 6 months of an application shall be submitted, except as may be waived by the Planning Director.

3. A plot plan of the property, drawn to scale, with all proposed and existing structures and other pertinent information. Also, preliminary building sketch plans are be submitted.

4. Any other plans or information required by the Director.

   Note: An Environmental Assessment or Environmental Impact Statement that has been declared adequate under the National Environmental Policy Act (NEPA) or under Chapter 343, HRS, may constitute a valid filing under this section.

5. Project assessment:

   a. Description of the area and environment involved including flora and fauna, and other features;

   b. Description of the existing land uses of the project site and surrounding areas;

   c. Description of how the proposed project will affect the area involved and surrounding areas. Specifically the assessment should evaluate if the proposal:

      1. involves an irrevocable commitment to loss or destruction of any natural or cultural resources, including but not limited to; historic sites, Special Treatment Districts as established by the County of Kauai Comprehensive Zoning Ordinance, viewplanes or scenic corridors as outlined in the Development Plans, and recreation areas and resources;

      2. curtails the range of beneficial uses of the environment;

3. conflicts with the County's or the State's long-term environmental policies or goals;

4. substantially affects the economic or social welfare and activities or the community, County or State;

5. involves substantial secondary impacts, such as population changes and effects on public facilities;

6. in itself has no significant adverse effect but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

7. substantially affect a rare, threatened, or endangered species of animal or plant, or its habitat;

8. detrimentally affects air or water quality or ambient noise levels; or

9. affects an environmentally sensitive area, such as flood plain, shoreline, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water or coastal water;

10. may have a major effect on the quality of the environment or affect the economic or social welfare of the area; and

11. would possibly be contrary to the policies and guidelines of the Rules and Regulations, the County's General Plan, Development Plans, and Zoning and Subdivision Ordinances.

d. Evaluation of the proposed development relative to the objectives and policies as contained in Chapter 205-A, HRS, and Section 3.0 of the Special Management Area (SMA) Rules and Regulations: (Please complete attached questionnaire)

RESPONSE TO KAUAI COUNTY PLANNING DEPARTMENT QUESTIONNAIRE
(Part "B")

PART "B":

Kukuiolono Park

Project Description

This project is part of the overall upgrade of the Kauai County communication network that serves the Police, Fire, and Public Works Departments - shares also with State and Federal agencies. This new station will share an existing site adjacent to the Kukuiolono Golf Course that is now occupied by a Hawaii Air National Guard (HIANG) microwave station.

a. A new 12'Wx32'Lx10'H communication building will be installed adjacent to the existing HANG facility. The building will include a compartment with a 45 KW propane powered emergency generator. The communications equipment will include a 5-channel trunked radio station, a conventional 800 MHz base station, and digital microwave terminals. The microwave stations will relay microwave signals to the Lihue Dispatch Center - via Mt. Kahili, to Kokee Air Force Station - via Kukui, and to the Kokole Point station inside the PMRF facility at Barking Sands. The new antennas will be installed on the existing HANG 100' tower. See IHCO drawings.

b. An existing Kauai County UHF radio relay station located at the water tank on the south side of the golf course will be removed. This UHF radio relay station is antiquated, in poor condition, and will not be reused in the new communication network.

2. Shoreline

The Kukuiolono Park station does not abut the shoreline.

3. Plot Plan

See IHCO Drawing #90001-07-01B.

4. Other Plans and Information

None required.

5. Project Assessment

a. Area Description

This site is located within the Kukuiolono Park adjacent to the north side of the Kukuiolono Golf Course.

b. Land Uses

This area of Kukuiolono Park is used for Hawaii Air National Guard radio communication facilities.

c. Project Effect

This project will add antennas to an existing tower and additional building designed for minimal visual impact. The building will be visible only from the edge of the golf course adjacent to the facility. See photos 1 and 2.

c.1. This project will not result in the loss or destruction of any natural or cultural resources.

c.2. This project will not curtail the range of beneficial uses of the environment.

c.3. This project does not conflict with County or State long-term environmental policies or goals.

c.4. This project will substantially improve the County and State Public Safety and Administrative communications functions, and indirectly have a positive beneficial effect on the economic and social activities of the County and State.

c.5. This project will significantly improve the Kauai County Public Safety radio communications network. This project will not increase the population.

c.6. This project will have no significant adverse or cumulative effect on the environment, nor does it involve a commitment for larger actions.

c.7. This project does not affect a rare, threatened, or endangered species of animal or plant, or its habitat.

c.8. This project will have no effect on the quality of water, air, or ambient noise levels.

c.9. This project will have no effect on any environmentally sensitive area, such as flood plain, shoreline, Tsunami Zone, erosion prone area, geologically hazardous land, estuary, fresh water, or coastal water.

c.10. This project is not contrary to the policies and guidelines of the Rules and Regulations, the County's General Plan, Development Plan, and zoning and subdivision ordinances.

d. Recreational Resources

This project does not provide for coastal recreational opportunities.

See attached questionnaire for answers to other questions.

RECREATIONAL RESOURCES:

Objective: Provide coastal recreational opportunities accessible to the public.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes" please elaborate or provide comments in "Discussion" section below.

		Yes	No
1.	Will the proposed action involve or be near a dedicated public right-of-way to the beach?	___	X
2.	Does the project site abut the shoreline?	___	X
3.	Is the project site near a State or County Park?	X	___
4.	Will the proposed action occur in or affect a surf site?	___	X
5.	Will the proposed action occur in or affect a fishing area?	___	X
6.	Will the proposed action occur in or affect a recreational or commercial boating area (including boat ramps)?	___	X
7.	Is the project site near a sandy beach?	___	X
8.	Are there swimming or other near shore recreational uses in the area?	___	X

Discussion:

3. The Kukuiolono Park site is located within the Kukuiolono Park boundaries adjacent to the north side of the Kukuiolono Golf Course.

HISTORICAL RESOURCES: Kukuiolono Park

Objective: Protect, preserve, and where desirable, restore those natural and man-made historic and pre-Historic resources in the Special Management Area that are significant in Hawaiian and American history and culture.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

	Yes	No
1. Is the project site within a Federal, State, and/or County designated historic/cultural district?	___	X
2. Is the project site listed on or nominated to the Hawaii or National Register of Historic Places?	___	X
3. Does the project site include land(s) which has not been previously surveyed by an archaeologist?	___	X
4. Has any site survey revealed any information on historic or archaeological resources? (Please provide copy or reference of survey)	___	X
5. Is the project site within or near a Hawaiian fishpond?	___	X
6. Is the project located within or near a historic settlement area? (cemeteries, burials, heiaus, etc.)	___	X

Discussion:

SCENIC AND OPEN SPACE RESOURCES:

Objective: Protect, preserve and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

		Yes	No
1.	Does the project site abut a scenic landmark?	___	X
2.	Does the proposed action involve the construction of a multi-story structure or structures?	___	X
3.	Is the project site adjacent to vacant parcels?	___	X
4.	Does the proposed action involve the construction of structures visible between the nearest coastal roadway and the shoreline?	___	X
5.	Is the project site within the Shoreline Setback Area (20 or 40 feet inland from the shoreline)?	___	X

Discussion:

COASTAL ECOSYSTEMS:

Objective: Protect valuable coastal ecosystems from disruption and minimize adverse impacts on all coastal ecosystems.

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments in the "Discussion" section below.

	Yes	No
1. Does the proposed development involve dredge or fill activities within or abutting any type of of waterway?	___	X
2. Will the proposed development require some form of effluent discharge into a body of water?	___	X
3. Will the proposed development require earthwork beyond clearing and grubbing?	___	X
4. Will the proposed development include the construction of special waste treatment facilities, such as injection wells, discharge pipes, septic tank systems or cesspools?	___	X
6. Is an intermittent or perennial stream or estuary located on or near the project site?	___	X
7. Does the project site provide habitat for endangered species of plants, birds, or mammals?	___	X
8. Is any such habitat located nearby?	___	X
9. Is there a wetland on the project site?	___	X
10. Is the project site situated in or abutting a Natural Area Reserve or Wildlife Refuge or Sanctuary?	___	X

Discussion:

Kukuiolono Park

ECONOMIC USES:

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

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments within the "Discussion" section below.

	Yes	No
1. Does the project involve a harbor or port?	___	X
2. Is the proposed development related to or near to an existing major hotel, multi-family, or condominium project?	___	X
3. Does the project site include agricultural lands designated for such use?	___	X
4. Does the proposed development relate to commercial fishing or seafood production?	___	X
5. Does the proposed development relate to energy production?	___	X

Discussion:

COASTAL HAZARDS: Kukuiolono Park

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

Check either "Yes" or "No" for each of the following questions. If your answer is "Yes", please elaborate or provide comments within the "Discussion" section below.

	Yes	No
1. Is the project site within a potential tsunami inundation area as depicted on the National Flood Insurance Rate maps (FIRM)?	___	X
2. Is the project site within a potential flood inundation area according to a FIRM?	___	X
3. Has the project site or nearby shoreline areas experienced shoreline erosion?	___	X
4. Have any seawalls/revetments/etc. been constructed or exist in the immediate vicinity?	___	X

Discussion:

PROJECT ASSESSMENT cont'd:

e. Evaluation of impacts which cannot be avoided and mitigating measures proposed to minimize that impact;

f. Evaluation of the proposed development relative to Section 4.0 of the SMA Rules and Regulations in accordance with the following aspects:

1. Substantial adverse environmental or ecological effects;

2. Consistency or compliance of the proposed development relative to the goals and objectives of Chapter 205A, HRS and Section 3.0 of the SMA Rules and Regulations;

3. Consistency or compliance of the proposed development relative to the County General Plan, Development Plan, and zoning ordinances.

e. Impacts

This project has no known impacts of significance.

f. Development Evaluation

1. This project has no substantial adverse environmental or ecological effects.

2a. This project complies with goals and objectives of Chapter 205A of the Hawaii Revised Statutes.

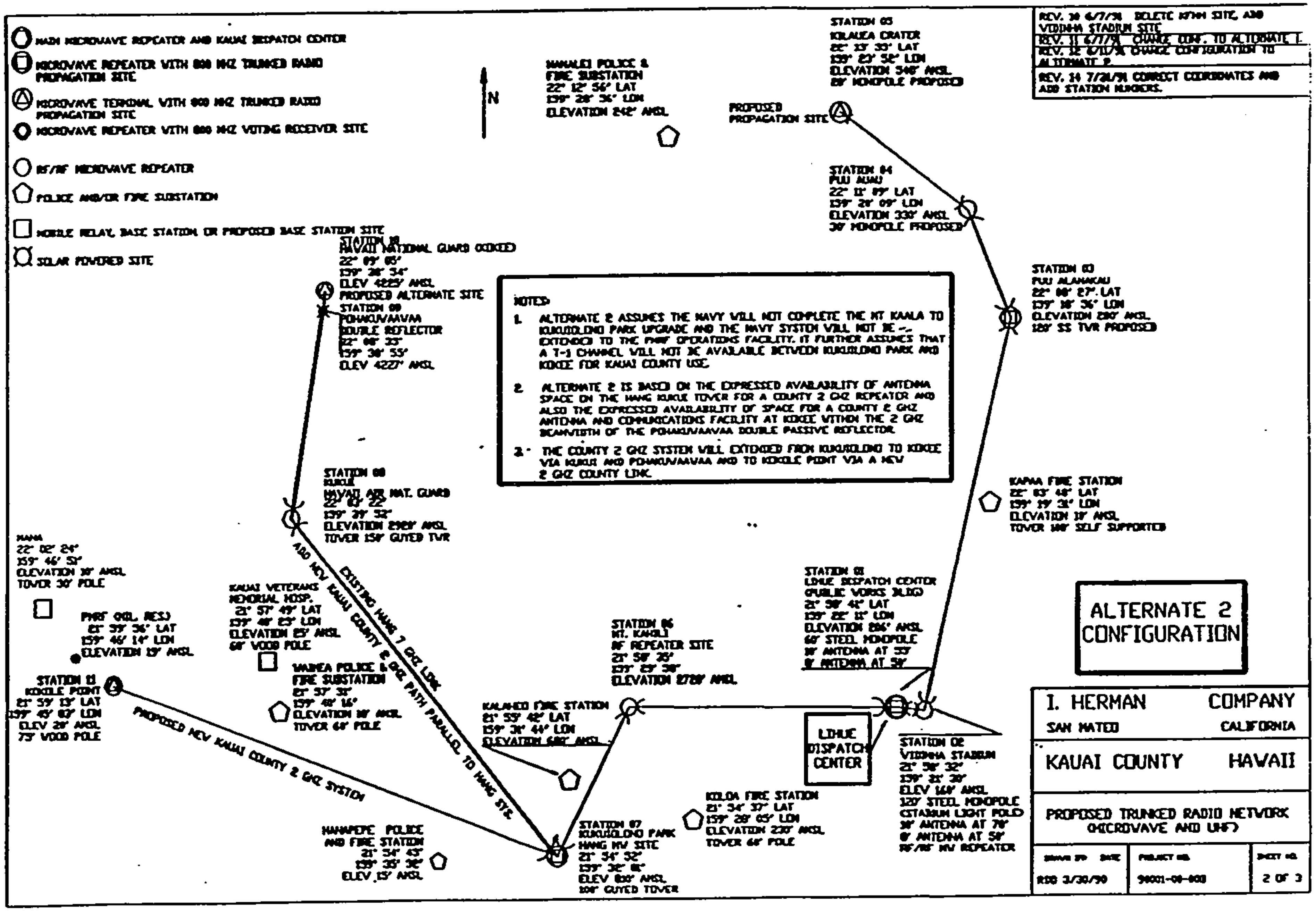
2b. This site is not located within a Special Management Area.

3. This project is in compliance with the County General Plan, Development Plan, and zoning ordinances.

SIGNATURE OF APPLICANT/REPRESENTATIVE
(Print name of applicant/representative)

DATE

EXHIBIT "1"



MAIN MICROWAVE REPEATER AND KAUAI DISPATCH CENTER
MICROWAVE REPEATER WITH 800 MHZ TRUNKED RADIO PROPAGATION SITE
MICROWAVE TERMINAL WITH 800 MHZ TRUNKED RADIO PROPAGATION SITE
MICROWAVE REPEATER WITH 800 MHZ VOTING RECEIVER SITE
RF/RF MICROWAVE REPEATER
POLICE AND/OR FIRE SUBSTATION
MOBILE RELAY, BASE STATION OR PROPOSED BASE STATION SITE
SOLAR POWERED SITE
N
HANALEI POLICE & FIRE SUBSTATION
STATION 05
KILAUEA CRATER
PROPOSED PROPAGATION SITE
STATION 04
PUU AUAU
STATION 03
PUU ALAHAKAU
REV. 14 7/31/91 CORRECT COORDINATES AND ADD STATION NUMBERS.
NOTES:
1. ALTERNATE 2 ASSUMES THE NAVY WILL NOT COMPLETE THE MT KAALA TO KUKUIOLONO PARK UPGRADE AND THE NAVY SYSTEM WILL NOT BE EXTENDED TO THE PMRF OPERATIONS FACILITY. IT FURTHER ASSUMES THAT A T-1 CHANNEL WILL NOT BE AVAILABLE BETWEEN KUKUIOLONO PARK AND KOKEE FOR KAUAI COUNTY USE.
2. ALTERNATE 2 IS BASED ON THE EXPRESSED AVAILABILITY OF ANTENNA SPACE ON THE HANG KUKUI TOWER FOR A COUNTY 2 GHZ REPEATER AND ALSO THE EXPRESSED AVAILABILITY OF SPACE FOR A COUNTY 2 GHZ ANTENNA AND COMMUNICATIONS FACILITY AT KOKEE WITHIN THE 2 GHZ BEAMWIDTH OF THE POHAKUVAAVAA DOUBLE PASSIVE REFLECTOR.
3. THE COUNTY 2 GHZ SYSTEM WILL EXTENDED FROM KUKUIOLONO TO KOKEE VIA KUKUI AND POHAKUVAAVAA AND TO KOKOLE POINT VIA A NEW 2 GHZ COUNTY LINK.
STATION 08
KAUAI AIR NAT. GUARD
KAPAA FIRE STATION
KAUAI VETERANS MEMORIAL HOSP.
PMRF (KOL RES)
WAIMEA POLICE & FIRE SUBSTATION
STATION 11
KOKOLE POINT
EXISTING HANG 7 GHZ LINK
ADD NEW KAUAI COUNTY 2 GHZ PATH PARALLEL TO HANG SYS.
PROPOSED NEW KAUAI COUNTY 2 GHZ SYSTEM
STATION 06
MT. KAHILI
RF REPEATER SITE
STATION 01
LIHUE DISPATCH CENTER
(PUBLIC WORKS BLDG)
KALAHEO FIRE STATION
LIHUE DISPATCH CENTER
STATION 02
VIDINHA STADIUM
KOLOA FIRE STATION
STATION 07
KUKUIOLONO PARK
HANAPEPE POLICE AND FIRE STATION
ALTERNATE 2 CONFIGURATION
I. HERMAN COMPANY
SAN MATEO CALIFORNIA
KAUAI COUNTY HAWAII
PROPOSED TRUNKED RADIO NETWORK (MICROWAVE AND UHF)
2 OF 3

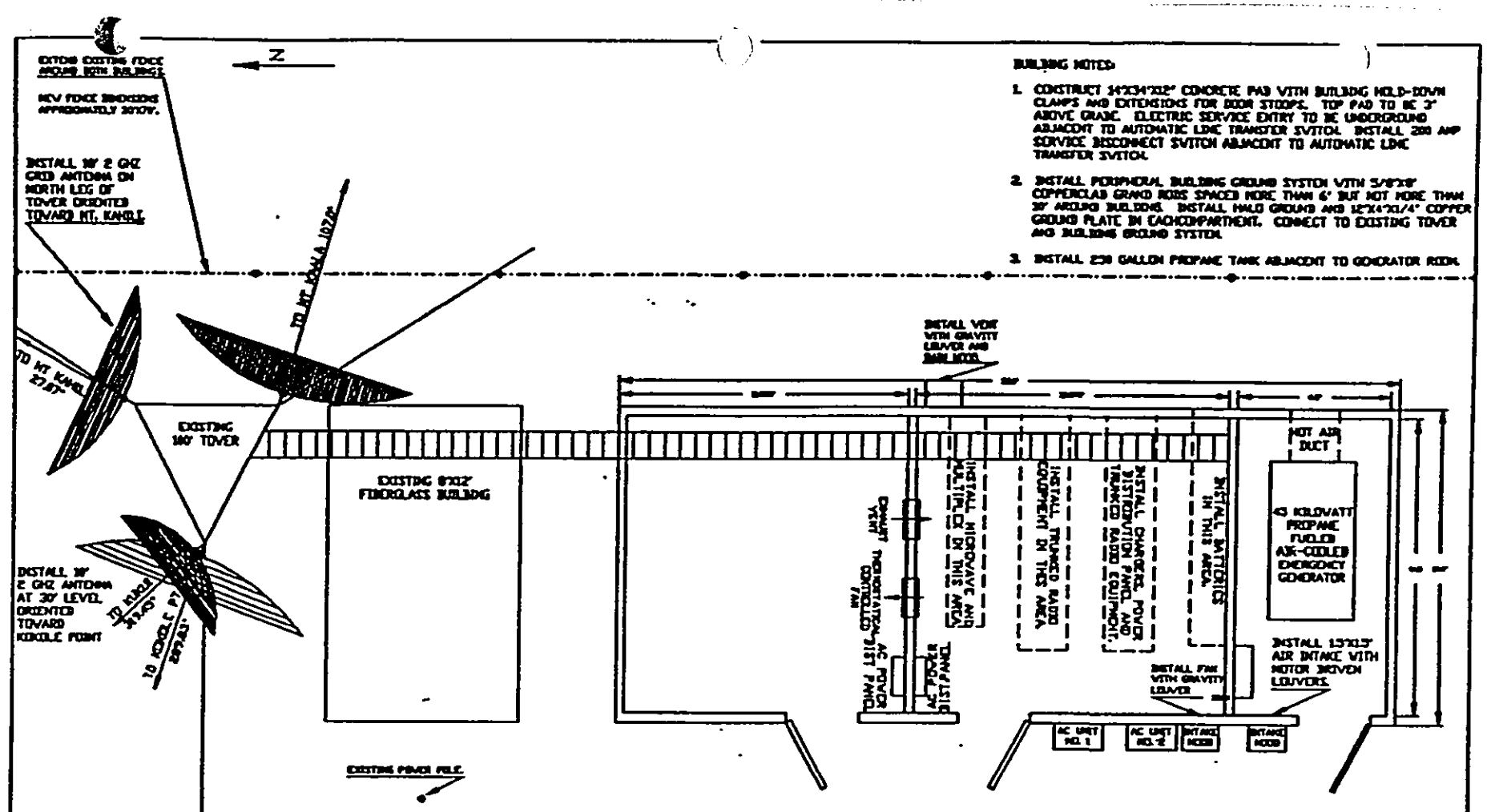


EXHIBIT "2"

I. HERMAN COMPANY COMMUNICATION ENGINEERS SAN MATEO · CALIFORNIA		
KAUA'I COUNTY, HAWAII COMMUNICATION SYSTEM		
KUKUIOLONO PARK MICROWAVE STATION FLOOR PLAN		
DRAWN BY: KEB 10/16/91	PROJECT NO. 9080-07-013	SHEET NO. 1 OF 1

EXHIBIT "3"

Photo 1

Kukuiolono Park Tower

The Hawaii Air National Guard communication site and 100' microwave tower viewed from across golf course through 50 mm lense. The lower section of the tower and the building is below the golf course level, and it is not visible from the golf course.

EXHIBIT "4"

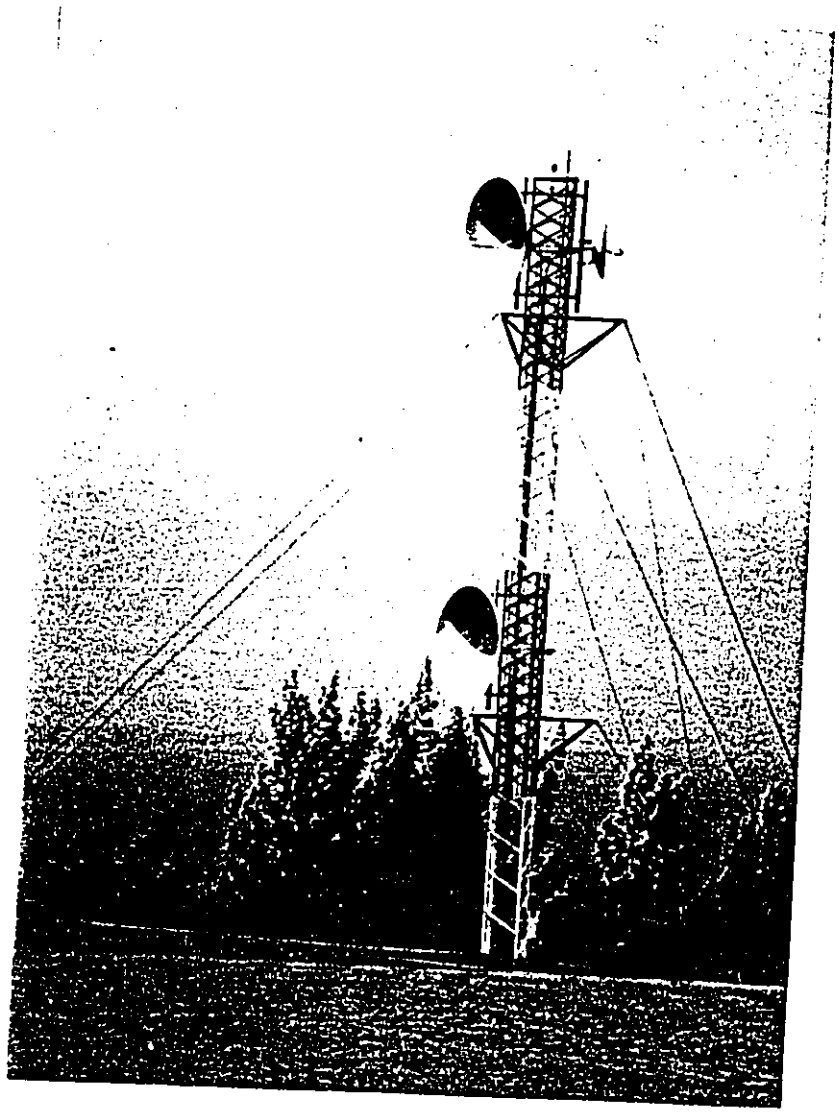


Photo 2

Kukuiolono Park Tower

The Hawaii Air National Guard communication site and 100' microwave tower viewed through a 500 mm lense from the same location as Photo 1, across the golf course. The new Kauai County antennas will be installed on this existing tower.