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DEPARTMENT OF LAND AND NATURAL RESOURCES
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OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Ms. Salmonson:

Subject: Final Environmental Assessment and Finding of No Significant Impact (FONSI) Determination for Establishing a Differential Global Positioning System (DGPS) Site, Puna, Island of Hawaii, Tax Map Key: (3) 1-5-10:por. of 03

The Department of Land and Natural Resources, Land Division has reviewed the final environmental assessment for the Proposed Action and has issued a Finding of No Significant Impact (FONSI) determination. Please publish notice of availability for this Proposed Action in the October 8, 2000 OEQC Environmental Notice.

We have enclosed a completed OEQC Publication Form, and four (4) copies of the final environmental assessment. Should you or your staff have any questions, please feel free to call Harry Yada, District Land Agent at (808) 974-6203.

Very truly yours,


TIMOTHY E. JOHNS
Chairperson

Enclosures

OCT 8 2000

FILE COPY

FINAL ENVIRONMENTAL ASSESSMENT

2000-10-08-HI-FEA-U.S. Coast Guard

ESTABLISHING A (DIFFERENTIAL GLOBAL POSITIONING SYSTEM (DGPS) SITE)

PAHOA, HAWAII

SEPTEMBER 2000

Prepared for: DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE OF HAWAII
75 AUPUNI STREET
HILO, HAWAII 96720

Prepared by: U.S. COAST GUARD
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ENVIRONMENTAL ASSESSMENT

TABLE OF CONTENTS

SECTION I	SUMMARY INFORMATION
SECTION II	PURPOSE AND NEED FOR THE PROPOSED ACTION.....
	A. PURPOSE.....
	B. NEED.....
	C. BACKGROUND.....
	D. DGPS TECHNOLOGY.....
	E. DGPS BENEFITS TO NAVIGATION.....
SECTION III	PROPOSED ACTION AND ALTERNATIVES.....
	A. PROPOSED FEATURES.....
	B. PROCESS USED TO EVALUATE ALTERNATIVE DGPS SITES.....
	C. ALTERNATIVE SITES EVALUATED.....
	D. ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY.....
	E. NO ACTION.....
SECTION IV	ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATING MEASURES.....
	A. PROJECT SETTING.....
	B. REGIONAL OVERVIEW.....
SECTION V	EXPECTED DETERMINATION.....
SECTION VI	DETERMINATION OF SIGNIFICANCE.....
SECTION VII	LIST OF NECESSARY APPROVALS.....
SECTION VIII	INDIVIDUALS/AGENCIES CONSULTED.....
SECTION IX	REFERENCES.....
SECTION X	APPENDICES

FIGURES

1. MAP OF THE ISLAND OF HAWAII
2. ISLAND OF HAWAII DGPS COVERAGE
3. LOCATION MAP OF PROPOSED SITE
4. KAHAKAI BOULEVARD SITE TAX MAP KEY
5. FORMER AIR STRIP SITE PLOT PLAN AND ELEVATIONS
6. USGS TOPOGRAPHICAL MAP OF FORMER AIR STRIP AREA
7. FORMER AIR STRIP SITE TAX MAP KEY
8. AERIAL PHOTOGRAPH OF FORMER AIR STRIP SITE
9. PROPOSED SITE LAYOUT
10. PROPOSED SITE ELEVATIONS

TABLES

1. PREDOMINANT FLORA FOUND IN THE OPEN AREA SURROUNDING PAHOA
2. SAFETY STANDARDS FOR HUMAN EXPOSURE TO RADIOFREQUENCY RADIATION (RFR) AT AN OPERATING FREQUENCY OF 300 KHZ
3. GROUND LEVEL ELECTRIC AND MAGNETIC FIELDS AT KOKOLE POINT DGPS STATION

SECTION II PURPOSE AND NEED FOR THE PROPOSED ACTION

This environmental assessment (EA) assesses the impact of leasing State-owned property to the U. S. Coast Guard, in order to implement (site, construct, and operate) a Differential Global Positioning System (DGPS) facility on the island of Hawaii (the "Big Island"). Implementation of this system has been mandated by Congress through specific DGPS funding in the Coast Guard budget. DGPS is the only available technology that meets the required navigational accuracies of 8-20 meters for harbor approach and harbor navigation as described in the U.S. Department of Defense's Federal Radionavigation Plan (FRP). For the purposes of navigation safety, sites have been proposed to ensure coverage of major ports and vessel navigation routes.

A. PURPOSE

The purpose of the proposed action is to improve current navigation systems by implementing the best system capable of improving the condition of nationwide navigational safety, environmental security, and economic efficiency. Congress has mandated specific funding for the navigation system known as DGPS in the Coast Guard budget. DGPS provides the enabling technology to meet the rapidly increasing demands on our ports and waterways.

B. NEED

Our nation's waterways support the transportation of vast amounts of commercial products and resources vital to the support of our economy. Our ports and harbors serve as gateways to the rest of the world for increasing our trade. The safe and efficient transport of these materials is critical to our nation's well-being. The most reliable all-weather navigation system is needed to: increase navigation safety and efficiency through environmentally sensitive areas, position aids to navigation, track properly equipped vessels, perform more precise charting activities, and more efficiently maintain dredged channels, etc. As a result, Congress legislated the implementation of the Coast Guard's DGPS service

The Coast Guard currently operates a DGPS site at Upolu Point, located approximately 20 miles northwest of Kamuela, in the northwest corner of the Big Island (Figure 1). While this site provides coverage for much of the Big Island, there are some critical gaps in coverage. The result is that most of the navigable waterways in the southeast portion of the island do not receive adequate DGPS coverage. Figure 2 shows the gaps in coverage: the areas shaded in green have adequate coverage, while the areas in black do not.

C. BACKGROUND

In order to aid navigation and to prevent collisions and wrecks of vessels and aircraft, the Coast Guard is charged under 14 USC 81 with establishing, maintaining, and operating electronic aids to navigation to serve the needs of U.S. armed forces, maritime commerce, and air commerce (as requested by the Federal Aviation Administrator). Starting in 1921 with the introduction of radiobeacons, the first electronic aid to navigation, and continuing through the development of Loran-A, Loran-C, and Omega,

those responsibilities have been met to the extent that technology would allow. With the introduction of each new system, navigators were able to improve their efficiency while increasing the safety of navigation.

Now technological advances have provided a new method of meeting navigational requirements through the satellite based Global Positioning System (GPS). Developed and operated by the U.S. Department of Defense, GPS provides two levels of service: Standard Positioning Service (SPS) and Precise Positioning Service (PPS). While SPS accuracy can be better than 54 meters (95% probability), with the activation of Selective Availability (SA) that accuracy is degraded to 100 meters (95% probability) for civil users. Nevertheless, GPS provides all-weather global coverage, 24 hours/day at unprecedented accuracies. SPS is available to all users worldwide. PPS would provide 21 meter (95% probability) accuracy to military and approved civil users. Yet even GPS, with its remarkable accuracies, still does not meet the needs of harbor and harbor approach navigation. But by applying differential techniques, as used with LORAN systems, navigational accuracies of better than 10 meters can be achieved.

D. DGPS TECHNOLOGY

Differential GPS is based upon knowledge of the accurate geographic location of a reference station, which is used to compute corrections to GPS parameters. A DGPS reference station is fixed at a geodetically surveyed position. From this position, the reference station tracks all satellites in view and computes corrections based on its measurements and geodetic position. These differential corrections are then transmitted to GPS users, who apply the corrections to their received GPS signals. Coast Guard DGPS Prototype Sites are achieving accuracies on the order of one (1) meter.

E. DGPS BENEFITS TO NAVIGATION

Implementation of the DGPS service is expected to reduce the number of navigation-related vessel groundings, collisions, personal injuries, fatalities, and potential hazardous cargo spills resulting from such incidents by 50 percent over existing navigation methods. This 50 percent reduction is based on accuracy, availability, and integrity requirements derived from a risk allocation model, which used historical data from a busy waterway with a history of groundings and collisions. The reduction would equate to yearly savings of approximately \$21 million nationwide in commercial vessel/cargo damages alone and prevent approximately 400 fatal injuries. It would also provide cost avoidance to the U.S. of responding to such incidents (cleanup, restoration, investigation, etc.) and avoid the resulting environmental damage.

Coast Guard maritime safety activities would be more efficient through the use of DGPS, improving service to the public. Buoy tenders and Aid to Navigation Teams would be able to position navigation aids in a more expedient and precise manner and allow all-weather, 24-hour a day operations. This is a significant improvement over current visual positioning methods that are easily hindered by fog, clouds or darkness. Any vessel can be quickly configured with a DGPS system to perform buoy positioning checks after a major storm or hurricane to ensure the waterway is safe to resume navigation as soon as possible. Rescue aircraft and vessels would be able to execute search patterns more effectively. Cutters and aircraft conducting law enforcement operations could more accurately and more reliably fix their positions to determine law enforcement jurisdiction

and the geographic limits of areas requiring special enforcement, such as closed fishery areas.

Additionally, other government agencies with maritime safety responsibilities would improve service to the public through the use of the Coast Guard's DGPS service. These agencies are already using the Coast Guard's prototype DGPS sites and intend to expand their use of DGPS as the rest of the Coast Guard's service is implemented. Dredging operations and other waterway maintenance activities are being carried out more efficiently by the U.S. Army Corps of Engineers, without the need to set up temporary positioning systems. Hydrographic surveys conducted by the Coast and Geodetic Survey are being done faster and more accurately. DGPS also improves important terrestrial functions. For example, the Biological Research Division of the U. S. Geological Survey (USGS) is already using the DGPS site at Upolu Point to pinpoint the location of rare plants, and needs the proposed site to cover the rest of the Big Island.

SECTION III PROPOSED ACTION AND ALTERNATIVES

The proposed action is the leasing of State-owned property to the U. S. Coast Guard, for the purposes of siting, constructing, and operating a DGPS facility on the Big Island. The Coast Guard's existing DGPS site at Upolu Point provides coverage for much of the Big Island, but there are some critical gaps in coverage.

To provide DGPS service for the rest of the Big Island, DGPS reference station and integrity monitoring equipment (including backup equipment) would need to be installed. Existing infrastructure would be used wherever possible. The equipment would need to be supplied with electrical power and a telephone line for connection of the site into a DGPS control network. The sites operate automatically, with no technicians or watchstanders needed at the site, but they are monitored remotely by a control station. Personnel would occasionally visit the site to correct anomalies and/or perform preventive/corrective maintenance. Such maintenance may include any of the following:

- renovate/replace the antenna ground plane system
- replace/repair the antenna
- repair/replace the electronic equipment
- repair/replace/renovate the equipment room or shelter

A. PROPOSED FEATURES

Radiobeacon Antenna. A 150' tall, guyed antenna would be mounted to a poured concrete foundation measuring 4' square and 4 ½' deep. Approximately 6" of the foundation would be above ground level. A 27" tall concrete pedestal would support the antenna.

Three sets of four guy wires each would support the tower. The guy anchors would be located approximately 120' feet from the base of the tower and would consist of reinforced concrete blocks measuring 7' x 6' x 3' tall. The anchors would be buried approximately 3' underground.

Ground Plane. A ground plane consisting of 120 copper radials (6-gauge copper wire) would radiate out from the radiobeacon antenna at every 3° to a distance of 500'. The radials would be laid on top of the ground and anchored at their outer limits. Installation of the ground plane would require clearing of trees and shrubs.

DGPS Antennas. The site would require the installation of two 10' to 30' reference masts to support six small receiving antennas. Each mast would be installed on a concrete foundation measuring 3' x 3' x 15" deep. The antennas would support the primary and backup reference receivers and integrity monitors. The two masts would be erected in the vicinity of the equipment shelter.

Equipment Shelter. A 10' x 16' (x 8' high), white, fiberglass equipment shelter would house the radiobeacon transmitter and DGPS equipment. The shelter would rest on a 3" thick concrete slab.

B. PROCESS USED TO EVALUATE ALTERNATIVE DGPS SITES

The Coast Guard surveyed the southeast portion of the Big Island in 1998-1999 and identified sites in that area that could provide the necessary operational coverage. The Coast Guard then applied the following selection criteria to those sites to determine which one(s) would provide optimal coverage while having no or minimal environmental impacts.

- 1) Complete coastal coverage from the town of Weloka in the northeast, to the southern point of Ka Lae (South Point), Hawaii.
- 2) Level terrain
- 3) Clear horizon view from 350 degrees true clockwise to 270 degrees true.
- 4) Close proximity of existing infrastructure (power, roads, telephone)
- 5) Available land within 15 miles of the ocean, to facilitate optimal signal propagation.
- 6) Minimal vegetation for ease of installation and low environmental impact
- 7) Approximately 20 acre site with minimal ground slope
- 8) Government-owned land that could be leased at little or no cost.

C. ALTERNATIVE SITES EVALUATED

1. Cape Kumukahi. The Coast Guard evaluated a parcel owned by the State of Hawaii adjacent to the Coast Guard's aid to navigation at Cape Kumukahi, located at the southeast tip of the Big Island. The University of Hawaii currently holds a special use permit for educational purposes at this site. The State was unable to lease this property to the Coast Guard after determining that a DGPS site did not meet the special use permit conditions for the property.

2. Kahakai Boulevard, Pahoehoe. This State-owned site is bounded on the south by Kahakai Boulevard, on the west by an agricultural subdivision, and the north by Auina Street. (Figures 3, 4)

3. Former Pahoehoe Airstrip (preferred site). Located approximately 1.5 miles northwest of the Kahakai Boulevard site, the Airstrip site is situated on Keeau-Pahoehoe Road (Highway 130) [Figure 5]. This site is described in the next section, "Environmental Setting, Impacts, and Mitigating Measures".

D. ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

Other radionavigation systems were considered but eliminated from detailed discussion because they do not meet the accuracy and integrity requirements for harbor and harbor approach navigation. These other systems include GPS and LORAN-C; the latter was discontinued in the Hawaiian Island chain in 1992.

E. NO ACTION

Under the No Action alternative, the Coast Guard would not establish a DGPS site in the southeast portion of the Big Island. The area, therefore, would remain outside of the coverage area of the Coast Guard's DGPS system, and mariners would continue to rely on less competent navigational aids, such as visual aids.

Implementation of the DGPS service is expected to reduce the number of navigation-related vessel groundings, collisions, personal injuries, fatalities, and potential hazardous cargo spills resulting from such incidents. It would also provide cost avoidance to the country of responding to such incidents (cleanup, restoration, investigation, etc.) and avoid the resulting environmental damage. If no action is taken, the potential savings described above cannot occur. The Coast Guard could be found negligent if it did not implement the DGPS system and a serious collision or grounding resulted in a spill of hazardous cargo that caused environmental damage, loss of life, or property damage, which could possibly have been avoided if DGPS coverage had been available.

The "No Action" alternative, therefore, does not meet the Coast Guard's operational requirements. It will, however, be evaluated in this document in accordance with the National Environmental Policy Act of 1969 (P.L. 91-190), the Council of Environmental Quality Regulations (40 CFR Parts 1500-1508), Chapter 343 of the Hawaii Revised Statutes and its implementing regulations, Title 11, Chapter 200, of the Hawaii Administrative Rules.

SECTION IV ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATING MEASURES

A. PROJECT SETTING

The Former Pahoia Airstrip (TMK: 1-5-10: por. 3; latitude 19 degrees 32 minutes N; longitude 154 degrees 58 minutes W). Located approximately 1.5 miles northwest of the Kahakai Boulevard site, the Airstrip site is situated on Keeau-Pahoia Road (Highway 130), at an elevation of about 580 feet above mean sea level. The airstrip runs from Highway 130 to its terminus, approximately 3000 feet to the west (Figures 5, 6, 7). Located on State-owned land, this 19-acre site is undeveloped and is overgrown with trees, shrubs and grasses. (Figure 8). Keonepoko Homesteads lands which, support existing agricultural operations, are located approximately 1,500 feet south of the site.

This site was first leased in 1929 from the then-Territory of Hawaii by the Puna Sugar company. The company used the airstrip for spraying its crops with ripeners, pesticides, and/or fertilizers. The company had a 300-gallon mixing tank for the chemicals, which were piped onto the airplane. (Wriston, 1999; Whelan, 1999). The tank was removed from the site in March 1984, when the company terminated its lease. No other features, other than the airstrip and the tank, were installed or constructed on the property.

The DGPS site layout would be as follows: the antenna would be constructed at about midpoint along and 500 feet north of the runway. The equipment shelter would be located next to the runway. Access roads would run from the equipment shelter to the base of the antenna and to each anchor point. The ground plane would radiate out from the antenna at every 3° to a distance of 500'. (Figures 9, 10).

B. REGIONAL OVERVIEW

Hawaii County, coextensive with the Island of Hawaii, is the largest county in the State, encompassing an area of 4,034 square miles. Hawaii County's principal industries are tourism, agriculture, cattle ranching, and astronomy. The only coffee industry in the United States, and the largest orchid growing enterprise in the world are also located on the Island of Hawaii. The export of macadamia nuts, papayas, tropical flowers and foliage are expanding industries. There are no separate municipal governments within Hawaii County, and like Hawaii's other neighbor island counties, the County is governed by a mayor-county council form of government. The City of Hilo is the seat of the county government, as well as the fourth largest city in the State. Kailua, Captain Cook, Honokaa and Pahala are major population centers on the Island of Hawaii.

The chief towns within the Puna District of the Island of Hawaii are Pahoia and Keaau. Puna's population has increased very rapidly since 1970, due to in-migration and high birth rates. In-migration has been largely driven by the availability of affordable housing, which has won out over disincentives such as high unemployment rates, lack of infrastructure, and natural hazards. (County of Hawaii Planning Department, 1995).

1. Land Use. Existing land uses in the Pahoia area are representative of land uses typically found in a rural community dependent on agriculture, including tree crops,

nursery production, papaya groves, anthurium and orchid farms. Commercial uses are found in Pahoa with residential uses situated nearby.

2. Climate. The climate of the Island of Hawaii is characterized by wide variations in temperature and rainfall as a result of the range of elevation and location found on the island. Located on the windward side of the island, the Pahoa area receives a relatively large amount of rainfall annually, averaging between 150 to 175 inches. The annual temperature varies between 75^o to 80^o F. Tradewinds, which blow from the northeast, are predominant.

3. Flora. Flora at the Airstrip site consists of scattered ohia-lehua, and a dense understory of false staghorn fern. Flora characteristic of the undeveloped Pahoa area are closed guava forests with shrubs. Flora found within the area include guava, Boston fern, Hilo grass, basket grass, false staghorn fern, kukui and hala. Vegetation in the Pahoa area includes agricultural crops. Flora predominant of the open areas surrounding Pahoa town are identified in Table 1.

TABLE 1

PREDOMINANT FLORA FOUND IN THE OPEN AREA SURROUNDING PAHOA

Common Name	Scientific Name
1. Koa Haole	<u>Leucaena latisiliqua</u>
2. Lantana	<u>Lantana camara</u>
3. Guava	<u>Psidium quajava</u>
4. Strawberry Guava	<u>Psidium cattleianum</u>
5. Ironwood	<u>Casuarina spp.</u>
6. Christmas Berry Tree	<u>Schinus terebinthifolius</u>
7. Jamaica Vervain (Oi)	<u>Stachytarpheta spp.</u>
8. Wiliwili	<u>Erythrina spp.</u>
9. Morning Glory	<u>Ipomoea spp.</u>
10. Philippine or Wild Orchid	<u>Spathoglottis plicata</u>
11. Passion Fruit, Lilikoi	<u>Passiflora spp.</u>
12. Glory-Bush	<u>Tibouchina semidecandra</u>
13. Ti Plant	<u>Cordyline terminalis</u>
14. Ohia Lehua	<u>Metrosideros collina</u>
15. Hawaiian Tree Fern	<u>Cibotium spp.</u>
16. False Staghorn Fern	<u>Gleicheniaceae Dicranopteris sp.</u>
17. Small Tree Fern	<u>Sadleria cyatheoides</u>
18. White Ginger	<u>Hedychium coronarium</u>
19. Yellow Ginger	<u>Hedychium flavescens</u>

Source: State of Hawaii, Department of Accounting and General Services. Site Selection Report and Final Environmental Impact Statement for the New Pahoa Elementary School, Pahoa, Hawaii. Prepared by Wilson Okamoto & Associates, Inc. September 1988.

4. Fauna. Fauna found in the Pahoa area include mongoose, house mice, Norway rats, roof rats and Polynesian rats. Domesticated dogs and cats are likely to be found in Pahoa. Feral dogs and cats may also inhabit the area. Birds found in the vicinity include the cardinal, barred dove, spotted dove, i'iwi, mockingbird, mynah, golden plover, pueo, ricebird, house sparrow and white-eye.

5. Wetlands. There are no wetlands present at the site.

6. Soils and Agricultural Potential. The terrain at the Airstrip site consists of undulating pahoehoe. The U.S. Department of Agriculture, Soil Conservation Service soil survey identifies the soils as Pahoehoe lava flow (rLW) which has limited agricultural potential in its natural state. The site is located within the State Agricultural District but is not used for any agricultural purposes.

7. Natural Hazards. The Pahoa area, located about 5 miles north of the Kilauea East Rift Zone, is considered to be within a relatively high volcanic hazard area. Rift zones are described as "long, narrow belts of structural weakness that include cracks, fissures, craters, spatter cones and cinder cones" in the U.S. Department of the Interior, Geological Survey's 1976 publication entitled Natural Hazards on the Island of Hawaii. Pahoa town is within the "E" designation with respect to volcanic hazards. The "E" designation describes an area within which 0.5 to 3.0 percent of the land has been buried by lava during various 20-year intervals (since 1800), leaving 97.0 to 99.5 percent of the land unaffected. The Hawaii County General Plan Facilities Map also indicates Kilauea and Mauna Loa rift zones, and fault zones.

8. Scenic Characteristics. The gentle slopes of the Pahoa area afford little or no scenic views. On a clear day, however, Mauna Kea and Mauna Loa may be seen, although not from the Airstrip site. In general, the undeveloped nature and agricultural use of the surrounding area contribute to the open space and scenic natural resources of Pahoa. Keaau-Pahoa Road (Highway 130 - adjacent to and mauka of the Airstrip site) is a utility corridor for overhead telephone and electrical systems. The Airstrip site area is not included in the Hawaii County General Plan's list of sites of natural beauty in the Puna district.

9. Archaeological/Historic Sites. The Airstrip vicinity contains no sites listed on the State or National Register of Historic Places. The area immediately north of the airstrip, which is where the DGPS installation is currently planned, was the subject of an archaeological reconnaissance survey in 1988 for a proposed school. The site was reported to be extremely overgrown, and in a pristine, unmodified state. The survey concluded that no further archaeological investigation was necessary. (State of Hawaii, 1988).

10. Geology/Hydrology. The Island of Hawaii is the youngest island in the Hawaiian group. The island was formed by five volcanoes: 1) Kohala, 2) Mauna Kea, 3) Hualalai, 4) Mauna Loa, and 5) Kilauea. The Kilauea volcano, which formed the Pahoa area, originated on the southern slopes of Mauna Loa. Lava flows from Kilauea are primarily olivine basalt. Volcanic activity continues at Kilauea, forming new landmass in the Kalapana-Kapoho region south of Pahoa. The basalts which compose the Airstrip area are extremely permeable and there is no surface water available, even during periods of precipitation. The water table within the area is located near sea level. Normally, the filtration of rainfall and surface runoff through the ground purifies the water prior to

subterranean transport to the shoreline areas. There are no perennial streams within the Pahoa area.

11. Topography. The topography of the Island of Hawaii reflects its relatively recent volcanic origin. In general, the Pahoa area can be described as gently sloping. Pahoa town is situated about 20 miles south of Hilo at an elevation of approximately 600 feet above sea level. Located about six miles west of the shoreline, Pahoa is situated about 22 miles northeast of Kilauea Volcano, which formed the area. Lands with slopes of 20 percent or more are found south of Pahoa town.

12. Water quality. There are 123 perennial streams on the Island of Hawaii, none of which are within the Pahoa area. The coastal waters offshore of the Pahoa area are designated Class AA by the State of Hawaii Department of Health.

VII.

PROBABLE IMPACTS AND MITIGATIVE MEASURES

A. SHORT-TERM SITE IMPACTS

This section describes anticipated short-term impacts on proposed DGPS sites as a result of the site development. Short-term impacts are those associated with construction activities such as vegetation clearing, utility installation, and construction of structures.

1. Noise. Noise levels would increase during construction. Noise would be generated by construction equipment, including heavy vehicles required to excavate and remove spoil material and import construction materials, and other power equipment. Residences near this site may be affected by noise during construction, but homes are sparse in this area (the nearest residence is more than 500 feet away), and the noise would be attenuated by the surrounding vegetation.

Construction would last about six weeks, although not always eight hours per day, five days per week. It would be the contractor's responsibility to minimize construction noise impacts through compliance with all applicable regulations, and by properly maintaining all construction equipment to minimize noise during construction operations. Construction activities would be limited to daylight hours.

2. Air quality. Ambient air quality is expected to temporarily decrease as a result of dust generated during construction activities, particularly during vegetation clearing operations. In keeping with State Department of Health and County rules and ordinances, the contractor would be required to implement measures minimizing airborne particulates. Adherence to approved erosion control plans and use of methods such as water sprinkling would reduce the potential for adverse air quality impacts during site work. Emissions from construction equipment could also degrade ambient air quality. With proper maintenance by the contractor, however, the adverse impacts of emissions from equipment can be minimized.

3. Water quality. Construction of the proposed DGPS facility should not adversely affect the water quality of the area. There are no streams or coastal waters near any of the alternative sites.

4. Traffic. During construction, trucks, heavy equipment and other construction-related vehicles would use existing roads to haul away and import materials. Traffic along local roadways may occasionally encounter very minor delays. Of short duration, such delays would be primarily limited to periods of vehicle ingress and egress to and from the project site.

5. Public Health and Safety. Necessary measures to assure public health and safety would be provided throughout all phases of construction. During non-work hours (nights, weekends, holidays), construction areas would be secured by adequate safety signs and other safety devices as required by State and County regulations.

6. Economy. The short-term economic impacts resulting from construction would include expansion of job opportunities to local construction personnel. Local material suppliers and retail businesses may also benefit from the increased construction activities. These positive impacts are expected to be minor.

7. Flora/Fauna. There are no known rare or endangered species of flora or fauna within or in the immediate vicinity of the alternative sites.

B. LONG-TERM IMPACTS

1. Noise. The generation and transmission of DGPS signals under normal operations do not produce noise, therefore no impact is anticipated.
2. Air quality. The generation and transmission of DGPS signals under normal operations do not produce emissions or by-products, therefore no impact is anticipated.
3. Water quality. The generation and transmission of DGPS signals under normal operations do not produce emissions or by-products, therefore no impact is anticipated.
4. Radiofrequency radiation.

DGPS stations include two receiving antennas for GPS signals and an antenna transmitting the DGPS correction signal. The receiving antennas are mounted on masts at heights of 10 to 30 feet above ground level. The transmit antenna typically consists of a 90 or 150 foot-tall steel lattice tower, similar to amplitude modulated (AM) broadcast towers commonly found throughout the U.S. The receiving antennas only receive the existing GPS signals emitted by satellites in earth orbit; they do not generate any new radiofrequency (RF) emissions or add to the existing RF environment.

With regard to the possible health effects of human exposure to RF radiation, only the transmit antenna is of concern. The DGPS station typically transmits a signal at an effective radiated power less than 1000 watts. The signal generates electric and magnetic fields in the vicinity of the transmit antenna that generally decrease in field strength with increasing distance from the antenna.

A number of national and international standard-setting bodies, including the American National Standards Institute (ANSI)/Institute of Electrical and Electronic Engineers (IEEE), International Radiation Protection Association (IRPA) of the World Health Organization, and the U.S. Federal Communications Commission (FCC), have developed or adopted frequency-specific standards for occupational and general public exposure to electromagnetic fields, such as those generated by DGPS transmissions. These standards are designed to ensure that transmitters do not expose the public or workers to levels of RF radiation that are considered to be potentially harmful. It is important to note that these standards constitute *exposure* limits, and not *emission* limits. Areas where the exposure limits are exceeded can be restricted by such means as fences and warning signs.

In the DGPS operating band of 285 to 315 kHz, the safety standards listed in Table 2 define maximum permissible exposure (MPE) for both electric and magnetic fields. MPE limits are defined in terms of electric field strength (volts per meter: V/m) and magnetic field strength (amperes per meter: A/m). Table 3 lists the ground-level electric and magnetic fields generated by a 150 foot-high DGPS antenna at Kokole Point, Kauai, Hawaii.

Table 2

Safety Standards for Human Exposure to RFR at an Operating Frequency of 300 kHz

Organization	Maximum permissible exposure (MPE) Level	
	Electric Field (V/m)	Magnetic Field (A/m)
ANSI/IEEE		
Occupational	614	54.33
General Public	614	54.33
IRPA		
Occupational	614	5.3
General Public	87	2.5
FCC		
Occupational	614	1.63
General Public	614	1.63

Table 3

Ground Level Electric and Magnetic Fields at Kokole Point DGPS Station

Distance from base of tower (ft)	Electric Field (V/m)	Magnetic Field (A/m)
5	2000	1.04
10	988	0.568
15	670	0.353
17	614	unmeasured
20	411	0.230
25	unmeasured	0.180

As shown in Table 3, the DGPS electric field at Kokole Point exceeds the national and international occupational safety standards only within the inner 17 feet around the transmit antenna. The magnetic field strength is below the maximum permissible exposure level up to and including the area within five feet of the base of the tower. The Coast Guard also modeled the emissions from a hypothetical 150 foot-high DGPS antenna at Pahoia, and found very similar results (US Coast Guard, 1999). The MININEC model, which is the same one used by the FCC in developing their standards, found that the magnetic field standard would not be exceeded; and that the electric field standard would be exceeded only within the inner 20 feet around the transmit antenna.

It is expected that the height of the 40-foot perimeter security fence around the antenna and the barbed wire atop the fence would effectively discourage trespassing. Signs would be posted warning the public to stay out of this area. Authorized maintenance personnel would be instructed to make sure the station is not transmitting when they enter this area.

The DGPS electric and magnetic field would not exceed the national and international safety standards for exposure of the general public at any place outside the security fence.

5. Land Use. The Airstrip site is currently regulated as follows:

State Land Use Designation:	Agricultural
County of Hawaii General Plan:	Orchard
County of Hawaii Zoning:	Agricultural (A-20a)
Special Management Area:	Outside Special Management Area

Although the area is zoned agricultural, the County of Hawaii Zoning Code would permit the construction and operation of a DGPS facility. Section 25-4-11(c) states that "Public uses, structures and buildings and community buildings are permitted uses in any district, provided that the director has issued plan approval for such use." 'Public use', 'public building' and 'public structure' mean a use conducted by or a structure or building owned or managed by the federal government, the state of Hawaii or the County to fulfill a governmental function, activity or service for public benefit and in accordance with public policy. (Appendix C).

6. Traffic. DGPS sites operate automatically, with no technicians or watchstanders needed at the site. Personnel would occasionally visit the site to correct anomalies and/or perform preventive/corrective maintenance. Traffic impacts would therefore be minimal.

7. Public Health and Safety. The Airstrip and adjacent sites are free of flood, tsunami, erosion and landslide hazards. They are located within an area designated Zone X (areas determined to be outside of the 500-year flood plain) on the Federal Flood Insurance Rate Map (FIRM).

DGPS provides the enabling technology to modernize the existing infrastructure to meet the rapidly increasing demands on our ports and waterways. It would increase navigation safety, environmental security, and economic efficiency resulting in major long-term benefits of significant reductions in the number of navigation-related vessel

groundings and collisions, reduced personal injuries, fatalities, and potentially hazardous cargo spills.

8. Displacement. All of the alternative sites are undeveloped. Therefore, no homes or other facilities would be displaced to develop the facility on these sites.

9. Agriculture. All alternative sites are within the State Agricultural District but are not used for any agricultural purpose. The U.S. Department of Agriculture, Soil Conservation Service soil survey for these sites identifies the soil as Pahoehoe lava flow (rLW), which has limited agricultural potential in its natural state. The Land Survey Bureau Overall Productivity Rating for the sites is E306, indicating poor agricultural productivity potential. Construction of a DGPS facility at any of these sites would have little or no impact on agricultural resources in the area.

10. Off-Site Infrastructure. None of the alternative sites require off-site drainage improvements. Runoff can be accommodated by percolation into the ground. Since the site would be unmanned, no other off-site infrastructure systems such as potable water or sewerage systems would be needed.

11. Historic/archaeological resources. The Airstrip vicinity contains no sites listed on the State or National Register of Historic Places. An archaeological reconnaissance survey was conducted in 1988 for a proposed school project, and no archaeological resources were found. However, if previously unidentified subsurface cultural features or deposits of significance are encountered in the course of facility construction, archaeological consultation would be sought immediately in accordance with State Department of Land and Natural Resources guidelines.

A "Finding of No Effect" letter was sent to the State Historic Preservation Officer (SHPO). [Appendix D]. The SHPO replied, essentially agreeing with the Finding of No Effect; however, they also said that, absent any information to the contrary, the Airstrip itself may be historic [Appendix E]. The Coast Guard responded, stating that (a) the Airstrip does not appear to meet the National Register of Historic Places' criteria for listing; and (b) that the DGPS installation would not involve altering the Airstrip, or placing any structures on it. [Appendix F]. No response from the SHPO has been received as of this writing.

12. Visual quality. At its elevation of about 580 feet above mean sea level, the proposed new site is not situated in a position of visual prominence. The site is not an aesthetic asset to the community and development of the site would not obstruct scenic vistas or viewplanes. Pahoia is approximately six miles inland from the shoreline, and so the site would not be visible from the water, nor would it obstruct views of the water. The 150' antenna would be set back at least 500 feet from Keaau-Pahoia Road; since the Airstrip site is surrounded by trees of 30 to 50 feet in height, the antenna should not be visible to drivers along Keaau-Pahoia Road. The triangular shaped antenna, which measures 18 inches on each side and has an open, latticework design, is not expected to impair views of Mauna Kea and Mauna Loa from anywhere in the Pahoia area. The DGPS site would therefore have minor visual impacts.

13. Coastal zone management. The Coast Guard has determined that DGPS implementation would not affect the coastal zone of Hawaii and consequently would be

consistent with the State of Hawaii's coastal zone management plan. Coordination with the State of Hawaii is ongoing.

14. **Flora.** No rare or endangered species of flora are known to exist at any of the alternative sites. To minimize vegetation disturbance, clearing would be limited to the area required to install and maintain the ground plane and antenna. The ground plane would then be covered by soil, and the cleared vegetation would be mulched and also placed on top of the ground plane. Mulching the cleared vegetation would also eliminate the impacts of disposal at a county solid waste facility. Loss of vegetation due to clearing and grubbing would be short-term in nature, as the surrounding vegetation would eventually repopulate the area cleared for the ground plane.

15. **Fauna.** No rare or endangered species of fauna are known to inhabit any of the alternative sites. Impact to existing fauna is anticipated to be minimal and unavoidable. Re-vegetation of the ground plane area should provide an adequate nesting and feeding environment for the birds that are commonly found within the area. Displacement of mammals such as mice and rats is not regarded as an adverse impact.

No floodlights or bright directional lights would be used with the antennas. The transmit signal for DGPS radiobeacons in the authorized band (285 to 325 KHz) and power levels have not been found to be harmful to wildlife. Since the prominent frequency range for echolocation by bats is 12 KHz to 150 KHz, the DGPS transmit signals pose no interference with their echolocation abilities.

Newell's shearwater. Public scoping for this project has turned up one rare/endangered species issue, which is the potential presence of Newell's shearwaters. This issue is discussed below.

In recent years, Newell's shearwaters or `A`o (*Puffinus newelli*) have been observed nesting approximately five miles from the proposed site. These seabirds are listed as a threatened species under the Endangered Species Act. During the April-November breeding season, adults and subadults forage offshore for fish, squid and plankton. Parents feed young after sunset and return to the sea before dawn. Newell's typically nest colonially, digging burrows in sloped terrain between 500-2300 feet above mean sea level.

Bright lights are known to cause fledglings and some adult birds to become disoriented while flying to and from the ocean and nest sites. Another significant threat is their collision with utility structures such as powerlines. Juveniles on their way to the sea for the first time are particularly prone to "fallout" (attraction to and consequent collision, exhaustion, or disorientation that brings them down – they "fall out" of the sky). The birds are killed by injuries sustained in the collision, or by being struck by automobiles or eaten by predators after the collision.

Fallout of Newell's has been extensively studied on Kauai, which has a far larger population of these birds than the Big Island. Findings relevant to the Pahoia site are as follows:

- a. Most fallout occurs in the morning at utility structures within 300 feet of the coast. During morning hours, the birds are flying lower than during the evening inland flight, and apparently do not see the utility structures until it is too late. Fallout

occurs near the coast because the birds drop down in elevation as they get close to the sea.

- b. Guy wires or powerlines appear to be a problem only when they are located in conjunction with bright lights, and/or heavily used flight routes. On Kauai, heavily used flight routes are typically valley bottoms and rivers mouths. The birds apparently have fairly good night vision, and they keep a safe distance from structures unless disoriented by bright lights.

The proposed DGPS site is located approximately six miles inland from the shoreline, at an elevation of about 580 feet above mean sea level. The area is rural and undeveloped, with no bright lights for several miles. The area is gently sloping, with no valley bottoms or rivers mouths to serve as a main flight route.

Even if Newell's were nesting upslope of the site (and no Newell's have ever been reported in this area), they would typically be flying at an elevation substantially higher than the proposed 150 foot tower. If the Newell's were for some reason flying lower than 150 feet, it would not be less than 50 feet above the ground, which is the height of the surrounding trees. (Newell's would unquestionably see tree canopies, even at night). Therefore, the potential impact area is between 50 to 150 feet, and in this range, the guy wires would taper fairly close to the tower itself, further minimizing the potential for impact.

The Coast Guard determined that the best way to assess and if necessary mitigate any potential problems is to enter into the "formal consultation" process of the Endangered Species Act regulations [50 CFR 402.14] with the U.S. Fish and Wildlife Service (USFWS). The most recent correspondence on this process is contained in Appendices A and B.

USFWS, in its biological opinion (Appendix B), has agreed with USCG that the proposed action is not likely to jeopardize the continued existence of the Newell's shearwaters. Additionally, no critical habitat has been designated for this species, therefore none will be affected. Nevertheless, USFWS is requiring USCG to do the following:

- a. Attach "bird flight diverters" such as colored (e.g., yellow, orange) marker balls to the guy wires, to make them more visible.
- b. Personnel qualified to accurately identify `A`o must be present every other morning during the months of June, July, October, and November to monitor for the presence of dead or injured shearwaters.
- c. Predator control must be performed at the project site and an additional 50-meter buffer area during the months of June, July, October, and November.
- d. Monitoring for `A`o injured or mortally wounded must be performed for the duration of the proposed action and as long as the main DGPS antenna, guy wires, and associated structures are in place.

Other, discretionary "Conservation Recommendations" listed in the biological opinion would be carried out if a need is demonstrated and if funding remained after the facility was constructed. These include:

- a. The planting of native forest trees around the perimeter of the DGPS site (to enhance avoidance of the antenna by birds in flight); and
- b. Conducting night monitoring of the area to determine seabird presence.

C. IMPACTS FROM ALTERNATIVES

1. Kahakai Boulevard, Paho.

This State-owned site is bounded on the south by Kahakai Boulevard, on the west by an agricultural subdivision and the north by Auina Street. (Figure 4). This site has features similar to the Airstrip site in terms of flora/fauna, soil, natural hazards, geology/hydrology, topography, cultural/historic resources, land use, and scenic characteristics. Development of this site would thus result in minor impacts similar to those of the Airstrip site.

There are two exceptions to this, which make the Kahakai Boulevard site less preferable than the Airstrip site:

a. Ease of construction. Developing the DGPS site would involve about six weeks of construction. Typical equipment involved include a backhoe for trenching, a front-loading tractor, a large forklift to unload shelters, a crane to erect the antenna, and various equipment delivery trucks and private commute vehicles for construction workers. A gravel road, approximately 550' long and 10' wide, would have to be constructed from an existing road to the base of the new antenna, to provide access between the equipment shelter and the antenna. A staging area would be also needed for this equipment.

The Kahakai Boulevard site can be developed from either Kahakai Boulevard to the south, or Auina Street to the east. (Figure 4). The eastern end of Auina Street has little in the way of through-traffic; however, there is nothing in the way of a staging area to keep the equipment from interfering with the commercial agricultural operations at this site. Development from Kahakai Boulevard, which also has no suitable staging area, would cause substantially more interference with traffic. The Airstrip site, however, is isolated from traffic, and has more than adequate room for staging equipment. It would therefore be expected to have little or no impact on traffic flow or other activities.

b. Visual impacts. The Airstrip site has a greater density of trees than the Kahakai Boulevard site, especially along their respective main thoroughfares (Highway 130, and Kahakai Boulevard). A 150 foot-high DGPS antenna would thus be more visible at the Kahakai Boulevard site than the Airstrip site.

2. No Action Alternative.

Under this alternative, the Coast Guard would not establish a new DGPS site in the southeast portion of the island of Hawaii. The proposed site would remain undeveloped, and existing land uses would not change. There would be no potential impact on previously unidentified cultural or archaeological resources; no vegetation or habitats would be impacted; no impact on species or their habitats; no change in air or noise quality; and no new visual elements. While this alternative would have no direct impact on the environment, it would have potential negative impacts on both short-term and long-term life safety in the Big Island area, which would remain outside of the coverage

of the existing DGPS systems. Mariners would not have the advantage of this state-of-the-art navigational system, and would therefore be at greater risk for marine accidents.

By taking no action, and not establishing a DGPS site in this area, navigators would continue to rely on increasingly outdated and imprecise navigational aids. The risk of grounding, collision, or other marine accident would remain high. Such a marine accident could cause loss of life, loss of property, and a release of hazardous materials into the environment with resulting environmental damage.

SECTION V**EXPECTED DETERMINATION**

The proposed project would not significantly alter the environment and impacts would be minimal. Therefore, it is anticipated that a Finding of No Significant Impact (FONSI) will be filed and that the preparation of an Environmental Impact Statement is not warranted.

SECTION VI DETERMINATION OF SIGNIFICANCE

Section 11-200-12, Chapter 200 (Environmental Impact Statement Rules) of Title 11, Administrative Rules of the State Department of Health, establishes criteria for determining whether an action may have significant effects on the environment. The relationship of the proposed project to these criteria is discussed below.

1. *Involves an irrevocable commitment to loss or destruction of any natural or cultural resource.*

No valuable natural or cultural resource would be involved, committed or lost.

2. *Curtails the range of beneficial uses of the environment.*

No restriction of beneficial uses would occur, other than in the immediate area of the DGPS structures. No other governmental, commercial or private plans exist for this site.

3) *Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in Chapter 344, Hawaii Revised Statutes, and any revisions thereof and amendments thereto, court decisions or executive orders.*

The broad goals of these policies are to conserve natural resources and enhance the quality of life. No aspect of the proposed project conflicts with these guidelines. In summary, the project is environmentally benign and is consistent with all elements of the State's long-term environmental policies as expressed in Chapter 344, HRS.

4. *Substantially affects the economic or social welfare of the community or State.*

A DGPS installation would have direct positive impacts on the economic or social welfare of the community. It would increase navigational safety, environmental security, and economic efficiency. This would result in the major long-term benefits of significant reductions in the number of navigation-related vessel groundings and collisions, reduced personal injuries, fatalities, and potentially hazardous cargo spills.

5) *Substantially affects public health.*

Public health would benefit and would not be affected in any adverse way.

6) *Involves substantial secondary impacts, such as population changes or effects on public facilities.*

The project would not result in substantial secondary impacts such as population changes or adverse impacts on public facilities.

7) *Involves a substantial degradation of environmental quality.*

Environmental quality would not be degraded as a result of this project. Construction would be confined to a small area, and would be short-term in duration.

8) *Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions.*

The proposed project does not involve a commitment for a larger action. The project is not related to other activities in the region in such a way as to produce adverse cumulative effects or involve a commitment for larger actions. All cumulative impacts associated with the project are beneficial.

9) *Substantially affects a rare, threatened or endangered species, or its habitat.*

The project would not substantially affect a rare, threatened or endangered species of flora or fauna, or its habitat.

10) *Detrimentially affects air or water quality or ambient noise level.*

No substantial effects to air, water, or ambient noise would occur. Very minor, temporary effects would occur during construction. All construction activities would comply with air quality and noise pollution regulations of the State Department of Health. Best Management Practice plans would be prepared to minimize construction runoff.

11) *Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters.*

The proposed action is not located in a flood hazard area, tsunami zone, beach, erosion prone area, or adjacent to fresh and coastal water bodies. There is potential for exposure to earthquake and volcanic hazards. However, there are no reasonable alternatives that would avoid such exposure.

12) *Substantially affects scenic vistas and viewplanes identified in county or state plans or studies.*

The proposed improvements would not substantially affect scenic vistas and viewplanes identified in the Hawaii County General Plan or other plans.

13) *Requires substantial energy consumption.*

Construction of a new antenna and ground plane at each site would result in the minor short-term use of energy. The radiobeacon transmitter and DGPS electronic equipment to be installed at each site would result in the minor long-term use of energy.

Based on the above criteria, the proposed DGPS installation at Pahoia would not result in significant adverse environmental impacts and an environmental impact statement should not be required.

SECTION VII

LIST OF NECESSARY APPROVALS

Development of the DGPS facility would be subject to varying governmental permits and approvals, depending upon the underlying State Land Use, County General Plan and Zoning designations. In this case, the proposed DGPS site will require Final Subdivision approval from the County of Hawaii, which is normally issued by the Planning Department director.

Since the alternative sites are within the State Land Use Agricultural District, the county Planning Department director must issue plan approval for such use.

None of the sites are within the County Special Management Area.

The proposed project must comply with the State's Historic Preservation Law.

SECTION VIII

INDIVIDUALS/AGENCIES CONSULTED

U.S. Federal Aviation Administration

U.S. Fish and Wildlife Service

Hawaii State Department of Land and Natural Resources

Hawaii State Office of Environmental Quality Control

County of Hawaii Planning Department

County of Hawaii Department of Finance

County of Hawaii County Council

Puna Outdoor Circle

Puna Community Council

Friends of the Red Road

Maku'u Farmers Association Community Development Committee

SECTION IX

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SECTION X**APPENDICES**

- A. Letter from U.S. Coast Guard to U.S. Fish and Wildlife Service dated 6 June 2000.
- B. Letter from U.S. Fish and Wildlife Service to U.S. Coast Guard dated 19 June 2000
- C. Letter to U.S. Coast Guard from County of Hawaii Planning Department dated 2 December 1998
- D. Letter from U.S. Coast Guard to State Historic Preservation Officer dated 19 August 1999
- E. Letter from State Historic Preservation Officer to U.S. Coast Guard dated 15 September 1999
- F. Letter from U.S. Coast Guard to State Historic Preservation Officer dated 22 October 1999

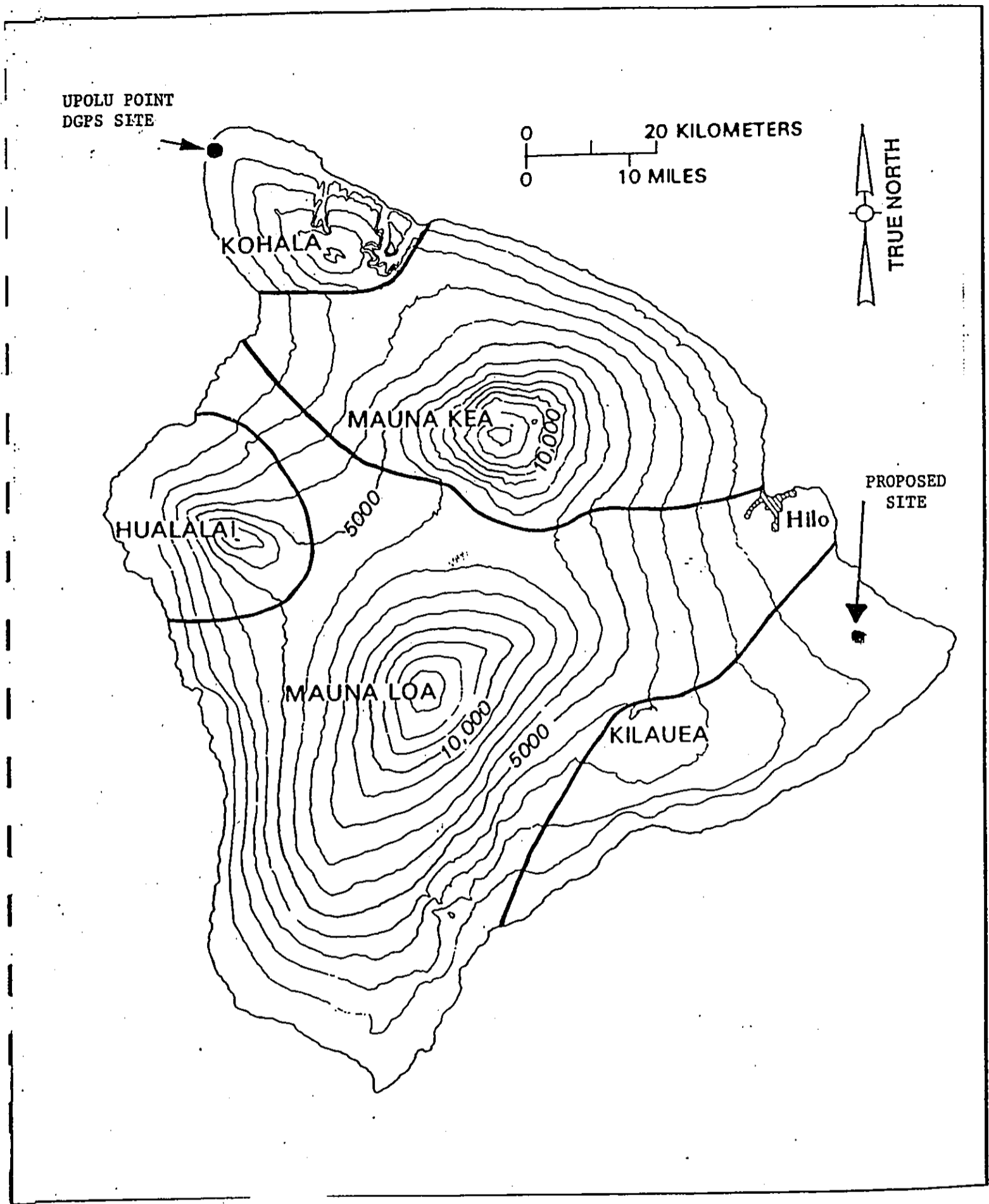


FIGURE 1

THE ISLAND OF HAWAII

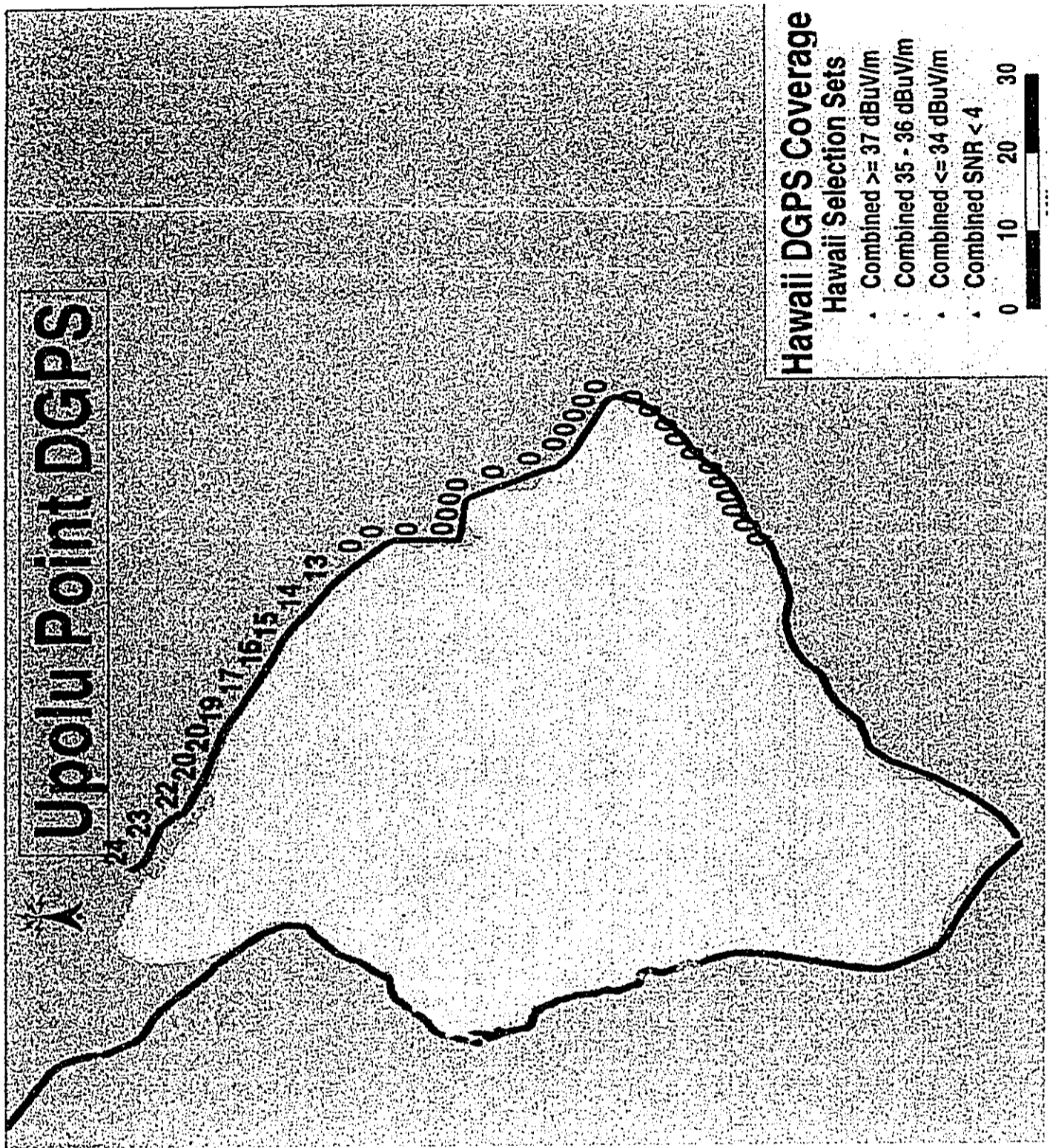


FIGURE 2

Coverage currently provided by Upolu Point DGPS site. Green line along coast indicates adequate coverage; black line indicates adequate coverage.

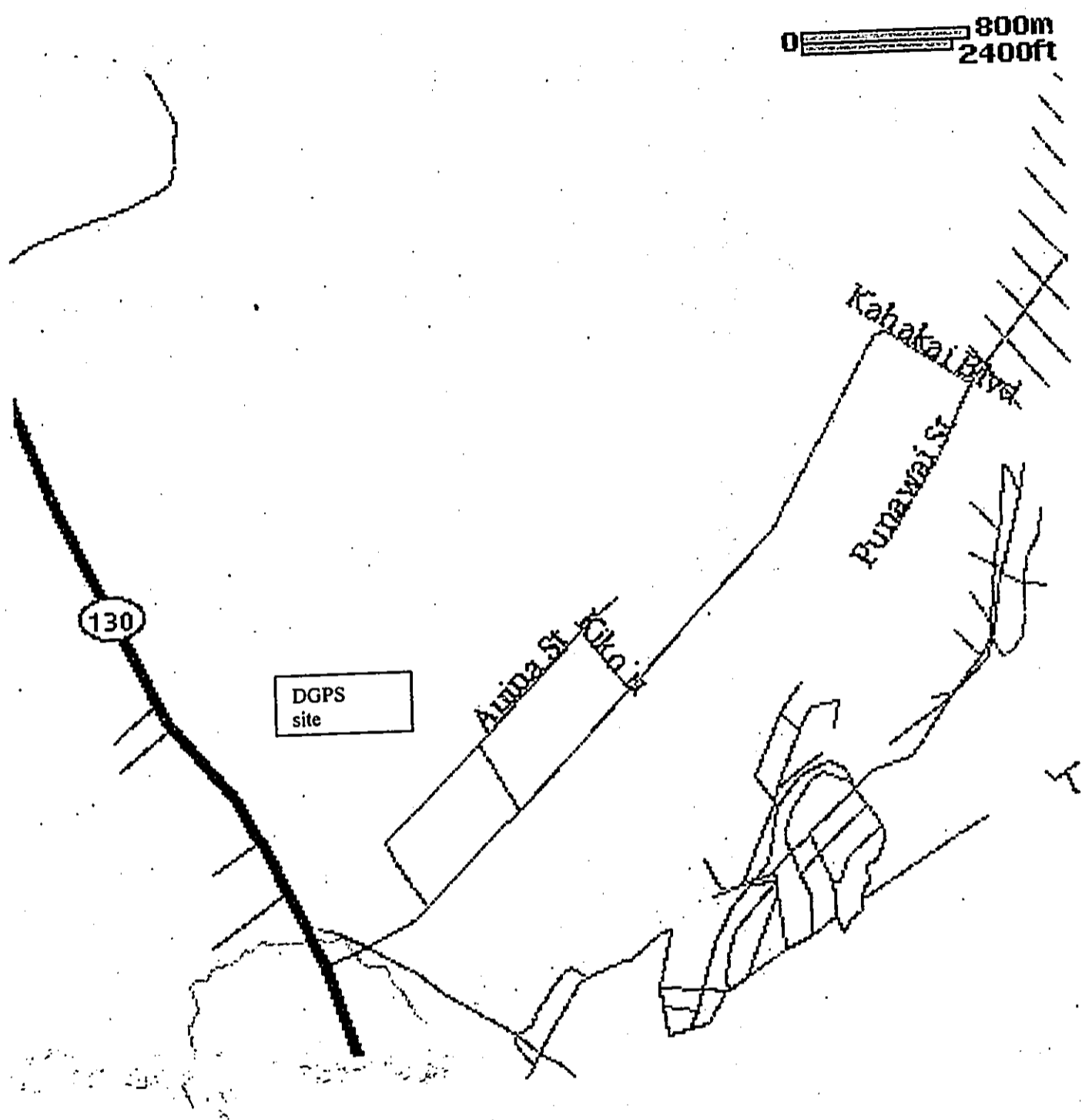


FIGURE 3

LOCATION MAP OF PROPOSED SITE
(airstrip within site)

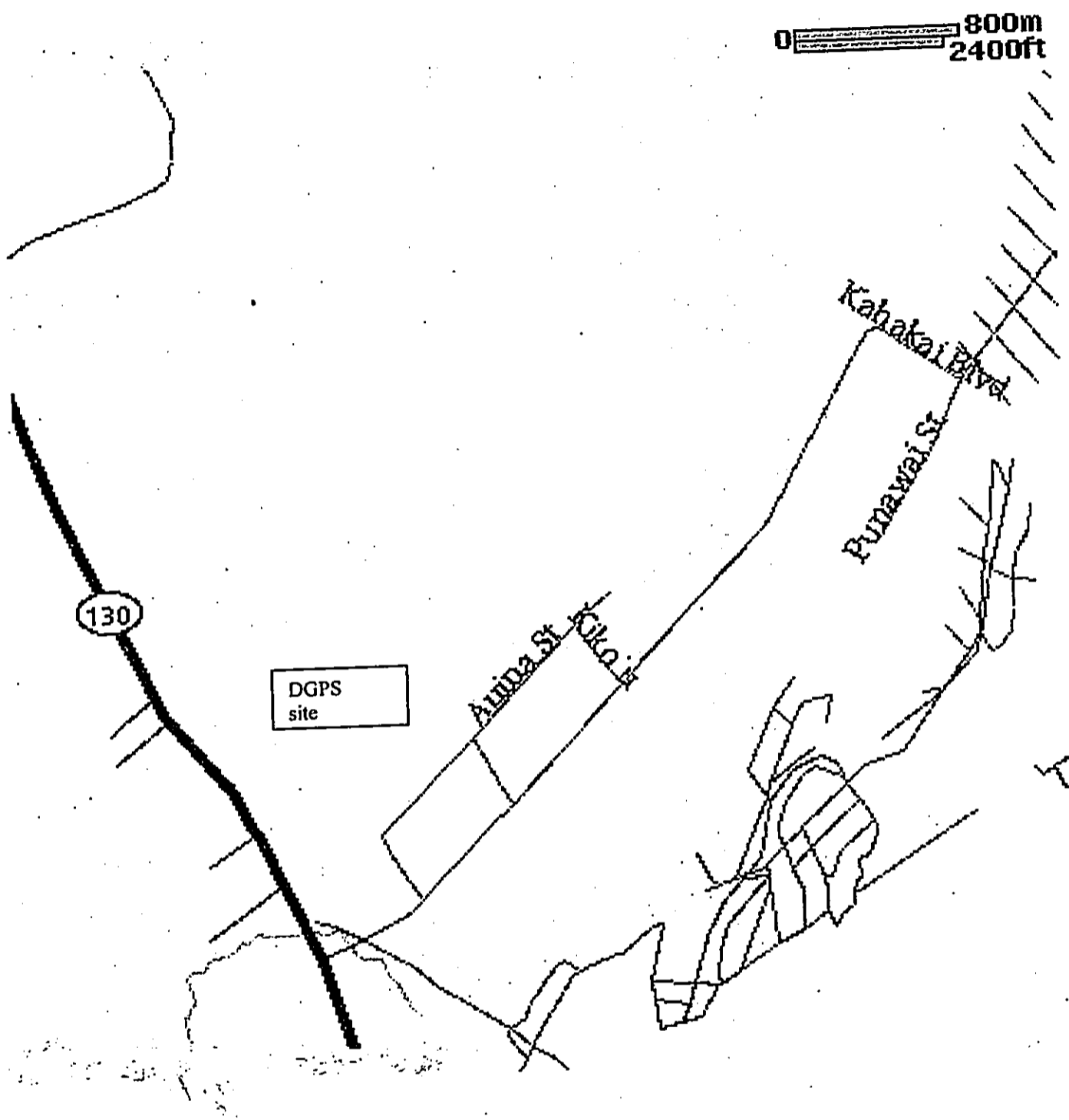


FIGURE 3

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(airstrip within site)

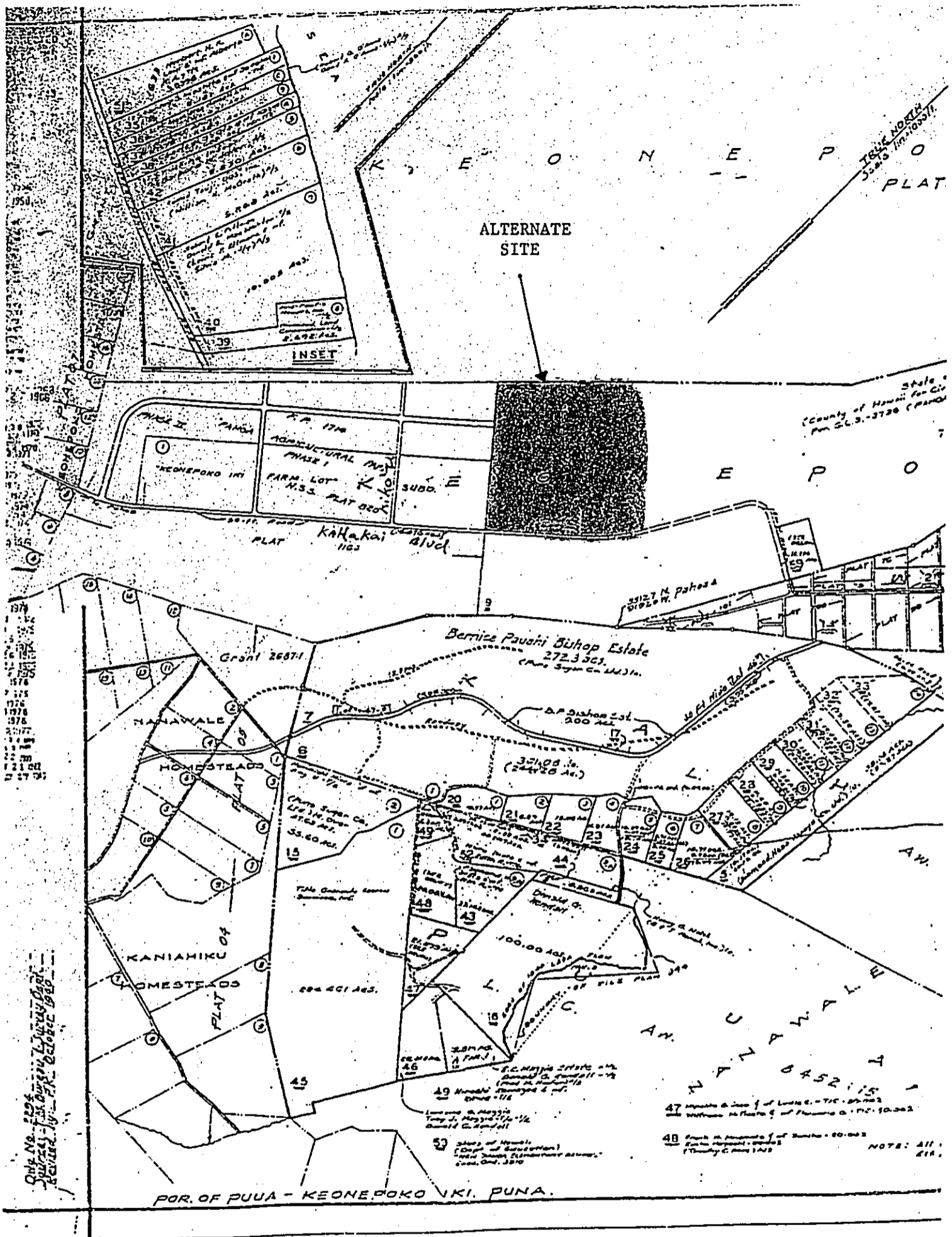
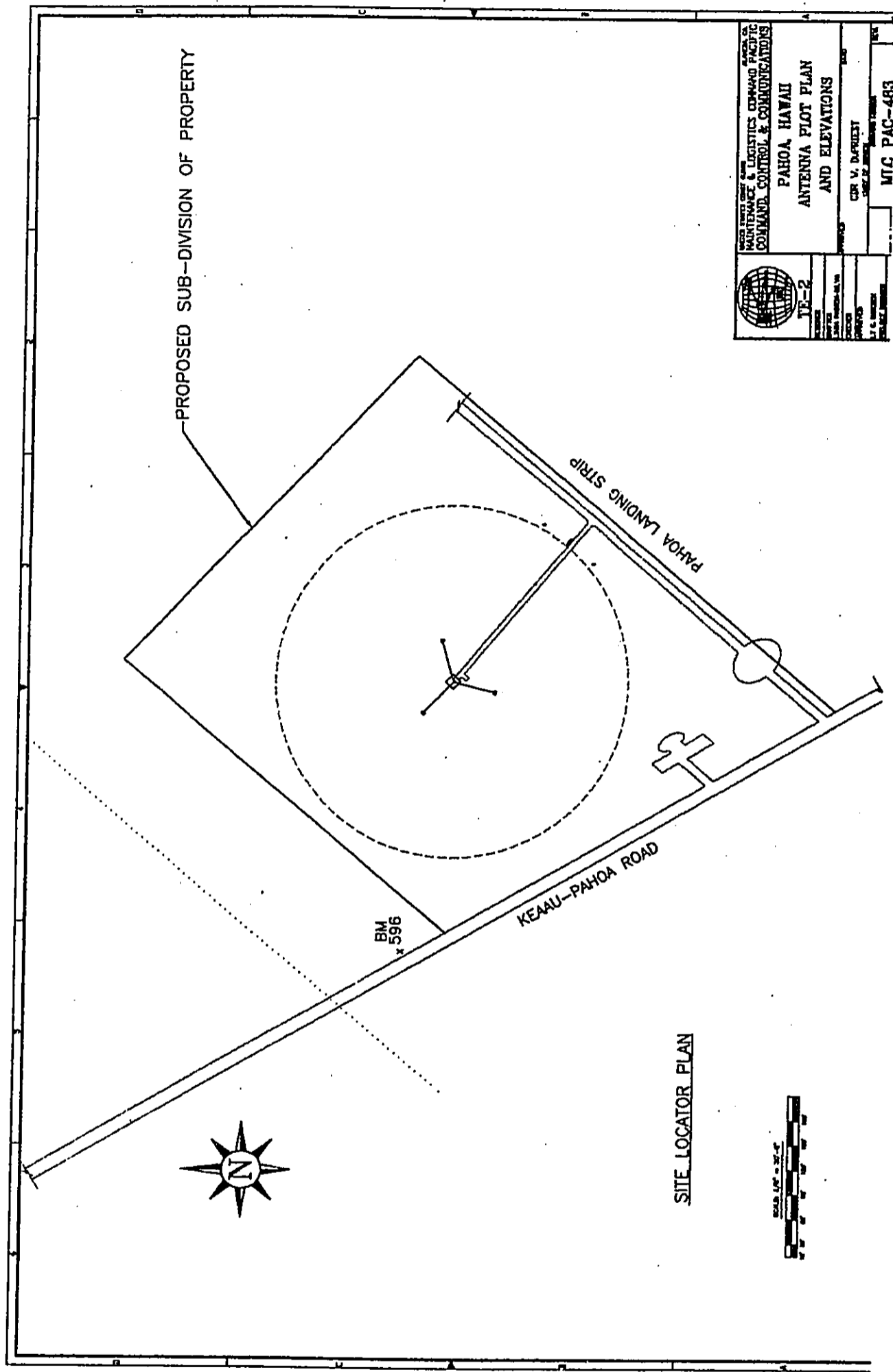


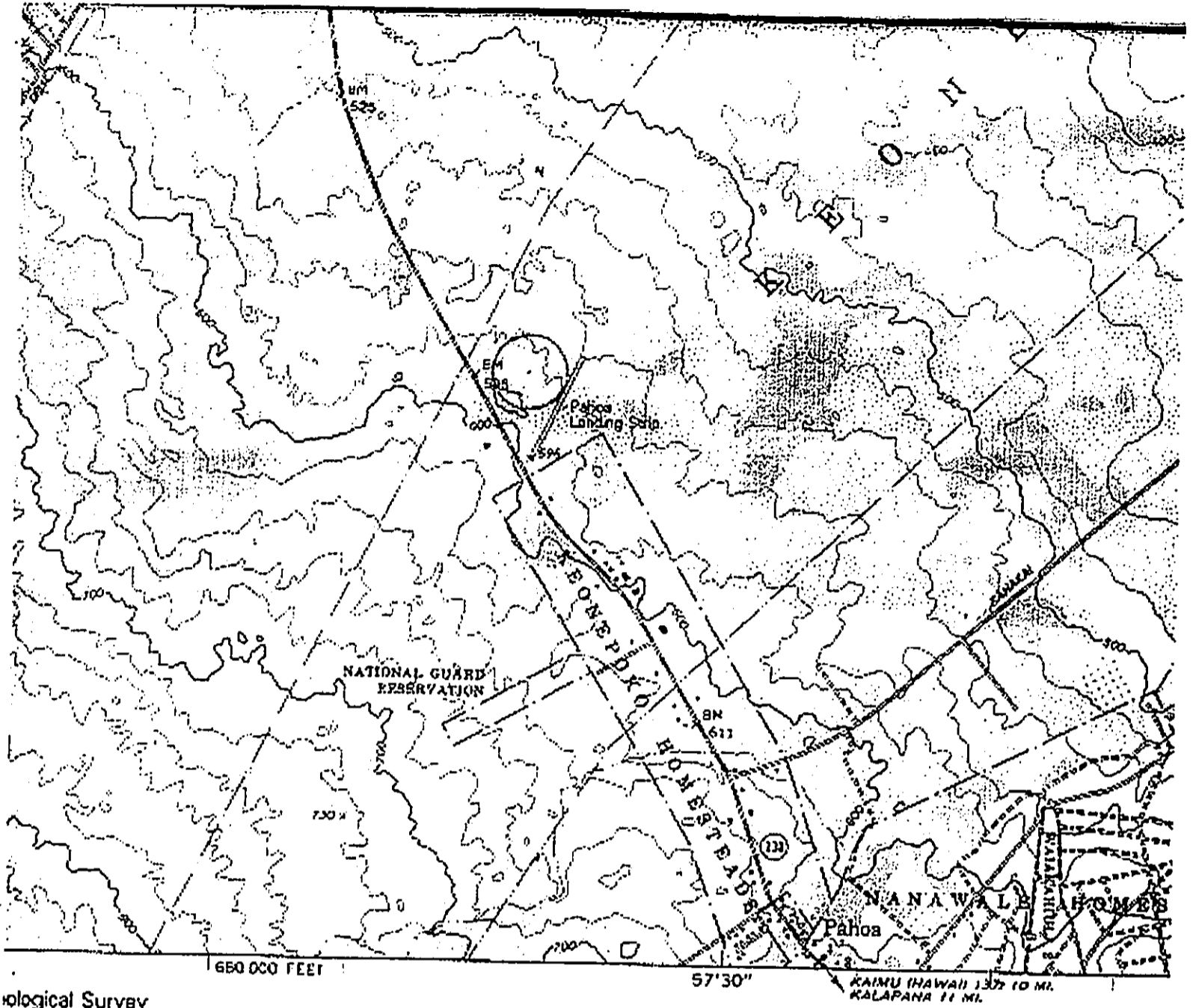
FIGURE 4

KAHAKAI BOULEVARD SITE TAX MAP KEY

FIGURE 5

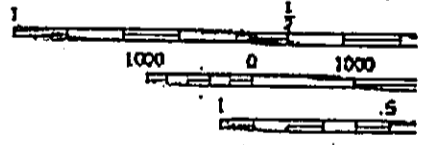
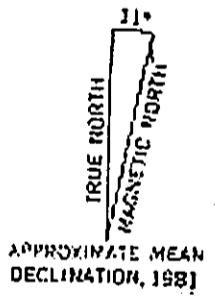
FORMER AIR STRIP PLOT PLAN AND ELEVATIONS





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FIGURE 6

USGS TOPOGRAPHICAL MAP OF FORMER AIR STRIP

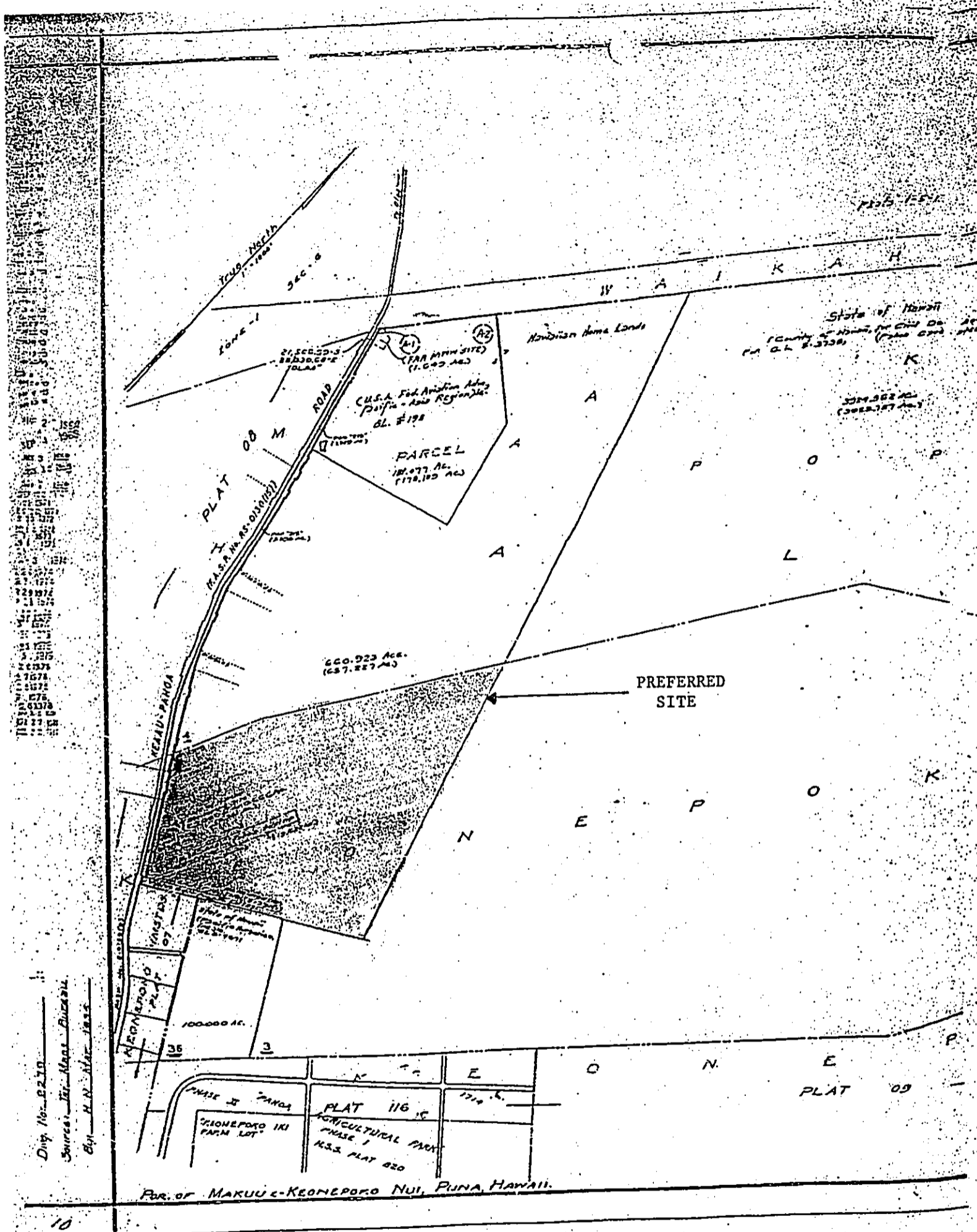


FIGURE 7 FORMER AIRSTRIP SITE TAX MAP KEY

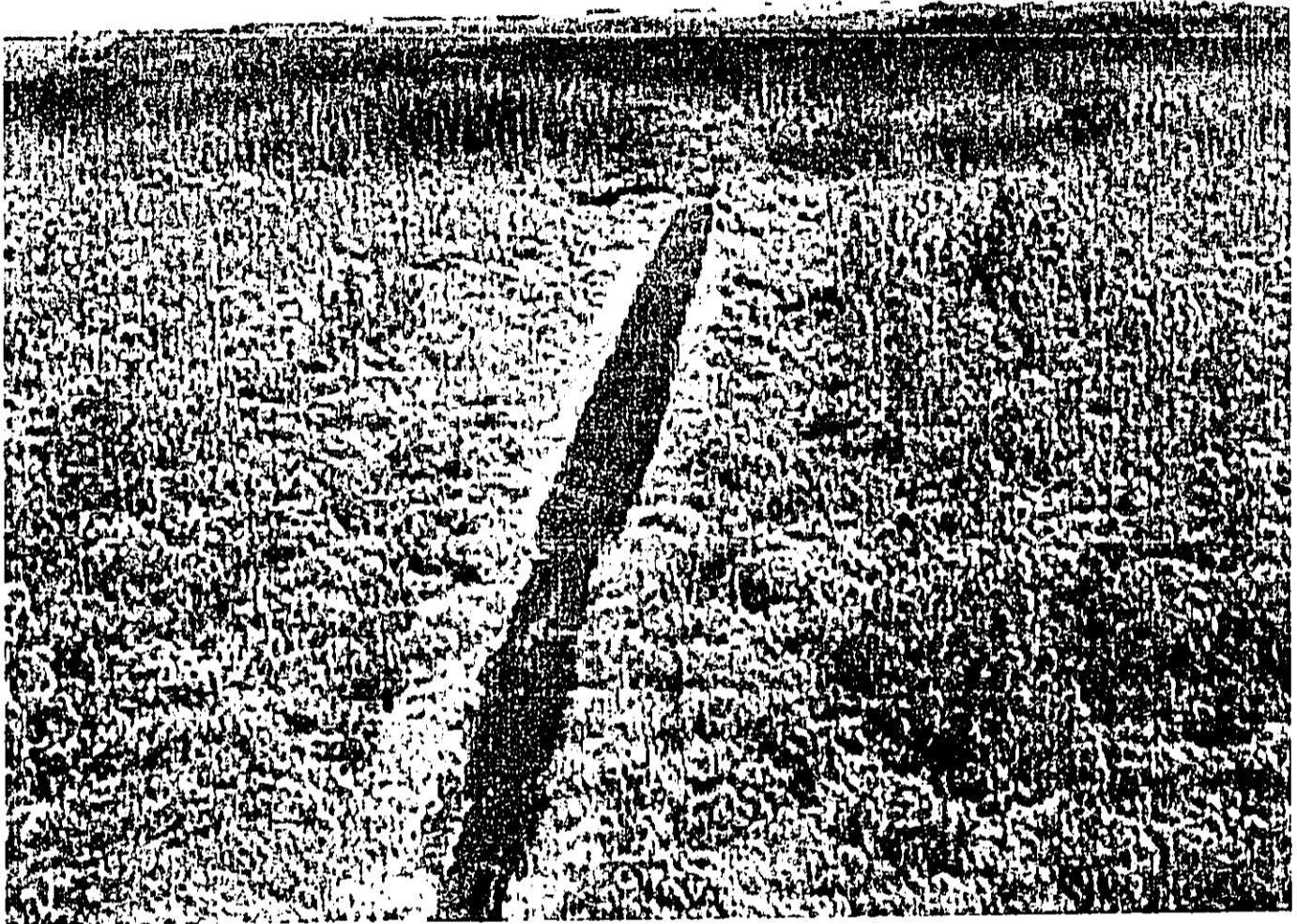
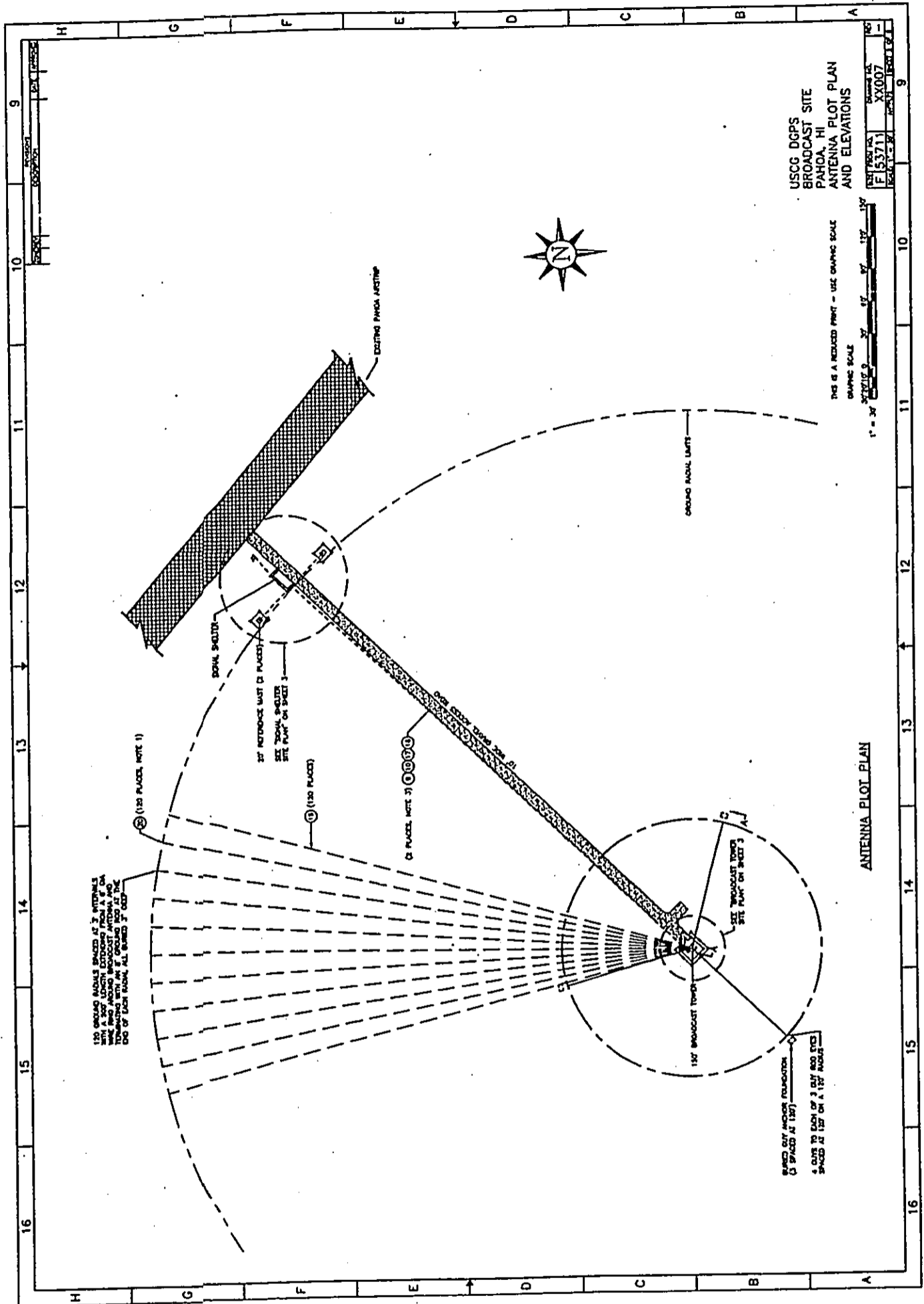
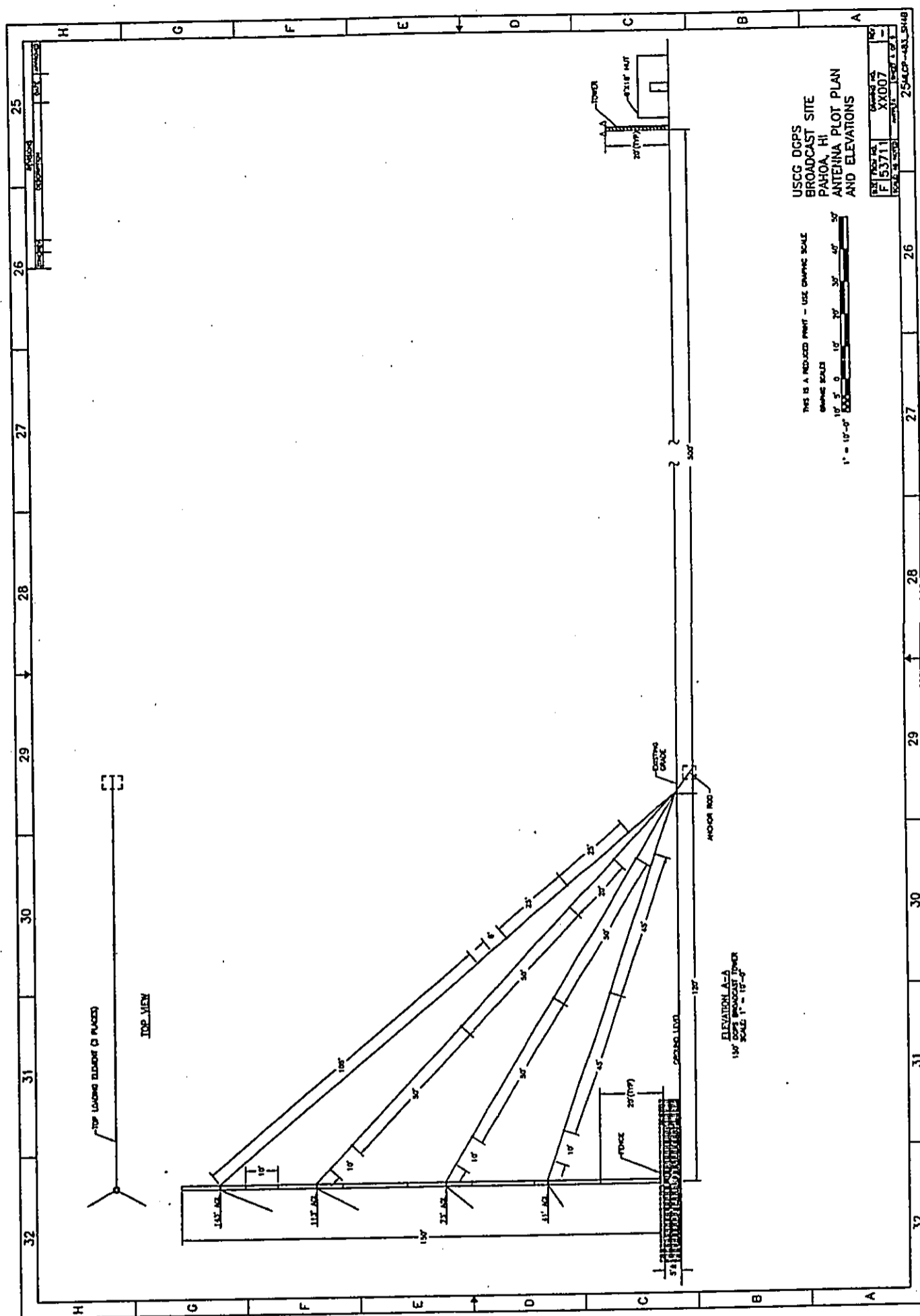


FIGURE 8

AERIAL PHOTOGRAPH OF FORMER AIR STRIP SITE

FIGURE 9
PROPOSED SITE LAYOUT





PROPOSED SITE ELEVATIONS

FIGURE 10

U.S. Department
of Transportation

United States
Coast Guard



Commanding Officer
United States Coast Guard
Civil Engineering Unit Honolulu

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Paul Henson
Field Supervisor, Ecological Services
U.S. Fish and Wildlife Service
300 Ala Moana Blvd, Room 3-122
Honolulu, HI 96850

Dear Mr. Henson:

I am responding to your 13 April letter, which forwarded your Second Draft Biological Opinion, U. S. Coast Guard Differential Global Positioning System (DGPS), Pahoa, Hawaii Island, Hawaii. I accept your finding of "not likely to jeopardize", but have the following questions/concerns about the "Reasonable and Prudent Measures" listed therein:

Measures 1(A) and 1 (B) [bird flight diverters and native forest trees]. Marilet Zablan of your staff and Jay Silberman of my staff discussed these after receipt of your letter. These non-discretionary "Reasonable and Prudent Measures" were not discussed during their 31 March 2000 meeting. Nevertheless, we will install the diverters during construction of the tower. As discussed between Mr. Silberman and Ms. Zablan on 21 April, the native forest trees and the discretionary "Conservation Recommendations" listed in the subject document will be carried out only if a need is demonstrated and if funding remains after the facility is constructed.

Measure 2(C). "An area to include...the portion of Keaau-Pahoa Road (Highway 130) adjacent to the project site will be searched..." Please bear in mind in evaluating the results that there are already power lines along this highway, and that collisions/injuries could result from them and not the DGPS tower.

Measure 2(E). "Monitoring for Ao...is to be performed for the duration of the proposed action...After two years, the Service may reevaluate the need for monitoring and its frequency." Given that annual monitoring (which now includes predator control) is projected to cost approximately \$20,000, I would appreciate it if the Service would commit to this reevaluation; and change "may reevaluate" to "will reevaluate".

Should you have any further questions or concerns, feel free to contact Mr. Jay Silberman at 541-2077.

Sincerely,

A handwritten signature in black ink that reads "M. E. CUTTS".

M. E. CUTTS
Commander, U. S. Coast Guard

Copy: MLCP (te)

APPENDIX A



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Ecoregion
300 Ala Moana Boulevard, Room 3-122
Box 50088
Honolulu, Hawaii 96850

JUN 19 2000

In Reply Refer To: 1-2-00-F-01; JAK

Jay Silberman
U.S. Coast Guard
300 Ala Moana Boulevard, Room 8-134
Honolulu, Hawaii 96850

Subject: Section 7 Consultation on U.S. Coast Guard Differential Global Positioning System (DGPS), Pahoia, Hawaii Island, Hawaii. Biological Opinion (Log Number 1-2-00-F-01)

Dear Mr. Silberman:

This document transmits the Fish and Wildlife Service's (Service) biological opinion based on our review of the proposed U.S. Coast Guard (USCG) Differential Global Positioning System (DGPS), Pahoia, Hawaii Island, Hawaii and its effects on the threatened Newell's shearwater or Ao (*Puffinus auricularis* (= *Puffinus newelli*)) in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531-1544 et seq.). Your request for formal consultation was received on November 16, 1999.

This biological opinion is based upon: 1) the Biological Evaluation Form and letter requesting consultation, dated November 12, 1999; 2) the Draft Environmental Assessment (DEA), "Establishing a DGPS Site, Pahoia, Hawaii, November, 1999"; 3) information provided in the Service's Hawaiian Dark-Rumped Petrel and Newell's Manx Shearwater Recovery Plan; 4) other biological literature (see References at the end of the document); and 4) information contained in our files. Our log number for this consultation is 1-2-00-F-01. Copies of pertinent materials and documentation are maintained in an administrative record in the Service's office in Honolulu, Hawaii.

Consultation History

On August 23, 1999, the Service received the USCG letter of August 19, 1999, notifying the Service of the proposed DGPS project and forthcoming environmental assessment. The Service responded in a letter dated September 28, 1999, identifying a potential collision and mortality risk for the federally threatened shearwater created by the main antenna tower and guy wires. We also recommended that radar and night-vision optical surveys be conducted to get a better understanding of shearwater use of the area in order to adequately assess potential impacts and to assist in the development of appropriate measures to minimize impacts to shearwaters.

On November 16, 1999, the Service received the DEA, "Establishing a Differential Global Positioning System (DGPS) Site, Pahoia, Hawaii" prepared by the USCG, and a letter dated November 12, 1999, requesting formal consultation.

APPENDIX B

On March 13, 2000, the Service submitted an initial draft biological opinion to the USCG, and on March 23, 2000 the USCG submitted written comments on that draft. The Service and USCG met on March 31, 2000 to discuss the initial draft biological opinion. By agreement, on April 13, 2000, the Service submitted a second draft biological opinion to the USCG, as a result of those earlier discussions. On June 6, 2000, the USCG submitted written comments on that draft. This biological opinion addresses those comments and agreement reached during telephone conversations between the Service and the USCG.

BIOLOGICAL OPINION

Description of the Proposed Action

The USCG proposes to construct and operate a DGPS facility at a site in Pahoia, Hawaii, located near one terminus of the Former Pahoia Airstrip adjacent to Keaau-Pahoia Road (Highway 130). The proposed action involves construction of a 46-meter (m) (150-foot) guyed antenna, two smaller masts, a small building, and a ground plane of radial cables. The 8-hectare (ha) (20-acre) site is located on State-owned land and is undeveloped. No floodlights or bright directional lights would be used with the antennas. Minor ground disturbance is anticipated as a result of vegetation clearing for proposed structures. The purpose of the DGPS facility is to provide a reliable all-weather technology that will ensure adequate navigational coverage for the island of Hawaii and its surrounding waters.

The proposed DGPS site is located approximately six miles inland from the shoreline in an area that is gently sloping with no valley bottoms or river mouths and therefore lacks topographical features that tend to concentrate birds into established flightways. Radar detections for seabirds in the Puna area indicate directional movements and higher densities of birds in breeding areas. Insufficient data on preferred flight paths and proximity to documented nesting sites and suitable nesting habitat in the area create the potential for collisions. Therefore, the action area is defined as the Puna District, Hawaii. Ao utilizing the Puna District could potentially collide with the DGPS antenna.

Biology and Population Status of the Species

Three federally protected species are known from the project area: the endangered Hawaiian hawk or Io (*Buteo solitarius*), the endangered Hawaiian hoary bat or opeapea (*Lasiurus cinereus semotus*), and the threatened Newell's (Townsend's) shearwater or Ao. The hawk and the bat are unlikely to be affected by the proposed action, as they easily avoid obstacles in flight. However, the Ao, which has recently been observed nesting within 8 kilometers (km) (5 miles) of the proposed site, flies to and from its nesting locations at night, and is prone to collision with low visibility obstacles (Reynolds and Ritchotte 1997, Reynolds *et al.* 1997).

Unless otherwise referenced, the following information on the status and habitat requirements of the shearwater is taken from the Service's Recovery Plan for Hawaiian Dark-Rumped Petrel and Newell's Manx Shearwater dated April 25, 1983. And hereafter, the Newell's shearwater will be referred to by its Hawaiian name, Ao.

Historically, the Ao is believed to have had well-established breeding populations on all of the major Hawaiian islands (Berger 1972, Munro 1944, Banko 1980). The Ao was considered

extinct after 1894, but in 1954, a specimen was collected on Oahu (King and Gould 1967) and a breeding colony was found on Kauai (Sincock and Swedberg 1969). Today, breeding colonies are known only on the islands of Kauai (Ainley *et al.* 1995, Cooper and Day 1998) and Hawaii (Kepler *et al.* 1979, Reynolds *et al.* 1997, Reynolds and Ritchotte 1997). Recent population estimates for the Ao are on the order of 84,000 birds (Spear *et al.* 1995). Estimates on the number of breeding birds on Kauai vary between "the low thousands" (King and Gould 1967) and ~15,000 pairs (Ainley *et al.* 1997). Most recently, Day and Cooper (1999) reported a 60% decline in birds detected by radar and night-vision sampling.

Each year, Ao first appear in April and court until June, when they lay their eggs. Chicks hatch in late July, and leave the islands in October and early November following which they remain mostly oceanic until the next breeding season (King and Gould 1967). During the April-November breeding season, adults and subadults forage offshore for fish, plankton, and squid (Harrison 1990). Parents feed their young after sunset and return to sea before dawn (Day and Cooper 1995). The Ao typically nest colonially in sloped terrain between 150-700 m (500-2,300 feet) elevation, and dig burrows in areas dominated by uluhe fern (*Dicranopteris linearis*). Degradation or loss of habitat caused by the invasion of exotic vegetation, cinder mining, and urbanization has rendered many former colony sites unsuitable for nesting. The second type of habitat critical to the Ao are the flight corridors traversed by adults and fledglings between their nesting grounds and the ocean. Although limited time is spent here, reproductive effort could be lost if these flight corridors are not available.

The single greatest limiting factor for the Ao is predation. King and Gould (1967) considered the mongoose (*Herpestes auropunctatus*) the most destructive predator on those islands where it exists, but also listed feral cats (*Felis catus*), dogs (*Canis familiaris*), and rats (*Rattus spp.*) as likely predators. Byrd and Telfer (1980) also documented the barn owl (*Tyto alba*) and pigs (*Sus scrofa*) as predators of Ao on Kauai. Historically, the Hawaiians were also known to have hunted Ao for food (Munro 1944).

A second serious limiting factor of the Ao is increasing urbanization and the accompanying increase in man-made lighting and utility structures. Bright lights are known to cause fledgling and some adult birds to become disoriented while flying to or from the ocean and nest sites. Collision with utility structures is considered by many to be the second most significant cause of seabird mortality in Hawaii (Reed *et al.* 1995, Ainley *et al.* 1995, Cooper and Day 1998, Podolsky *et al.* 1998). Many birds die of injuries received in the collision or are struck by automobiles or killed by feral or domestic animals following the collision.

Based on the very limited distribution and the marginal status of known breeding populations, the Ao was listed as a threatened species on September 25, 1975, by the Service (40 FR 44151) and in 1973 by the State of Hawaii. The recovery plan recommends conservation and recovery efforts be focused on reducing numbers of annual fallout, providing long-term protection for known breeding colonies, and developing efficient predator control methods and techniques (USFWS 1983). Also, additional information is required on the presence and distribution, productivity, and survival rates of Ao.

Recent Past and Ongoing Studies Describing Flight Behavior and Mortality of Ao on Kauai

1. In 1992 thru 1994, marine radar and night vision optics were used to study the intensity,

altitude, direction, behavior, and ground speed of Ao and dark-rumped petrels (*Pterodroma phaeopygia sandwichensis*) on Kauai (Cooper and Day 1995, Day and Cooper 1995).

2. **Diels Variation in Movement.** The movement of birds inland peaked just after sunset, and was followed by steady low-level movements in all directions during the middle of the night, and then by a large seaward exodus just before dawn. Most Ao fledge 1-4 hours after sunset (Telfer *et al.* 1987) and most fallout on Kauai occurs during that same period (Reed *et al.* 1985).
3. **Geographic and Topographic Variation in Movement.** Intensity of movements was most strongly influenced by proximity and amount of nesting habitat. Topographical features, such as valleys, may focus movements during periods of low visibility, but specific flight corridors were not always used within a night. It is unclear how consistently birds use flight corridors when flying to and from colonies.
4. **Flight altitude.** Most procelariid species on Kauai flew between 26 and 275 m above ground level. Similar surveys found lower flight altitudes in the morning than in the evening.
5. **Seasonal and Annual Variation in Movement.** There is an increase in movement during summer resulting from increasing numbers of breeders returning to lay eggs, or more likely from numbers of non-breeding birds visiting colonies. There is a decrease in movement during the fall resulting from pre-fledgling exodus of breeding adults and fledged juveniles (Warham 1990).

Recent Past and Ongoing Studies That Describe Distribution of Ao on the island of Hawaii:

1. Historically, on the island of Hawaii, Ao were reportedly taken by native Hawaiians for food around the turn of the century in Waipio Valley (Munro 1944), then assumed to be extirpated by introduced predators until two occurrences were reported from Kau and Volcanoes in 1970 and 1972, respectively (Banko 1980). Low densities of Ao were also recorded along the Hamakua Coast, in the Kohala mountains, and at Kalapana (Hall 1978, Kepler *et al.* 1979, Conant 1980).
2. From June through September 1993, Reynolds and Ritchotte (1997) recorded 260 Ao vocalizations in 275 survey hours at Heiheiiahulu, Puulena Crater, and Puu Kaliu in the Puna district, island of Hawaii. Two road-killed birds collected in June 1993, and four burrows located in Puulena Crater after the 1994 breeding season, provided additional evidence of breeding.
3. In June 1994, Reynolds *et al.* (1997) recorded 527 radar "targets" characteristic of seabirds at seven sites on windward Hawaii. Presence of Ao in the Puna district previously documented by nocturnal calling, were confirmed with radar and visual observations at Puulena Crater. The study found that as many as 85 Ao occur in the vicinity of this crater during breeding season.
4. The vegetation structure and composition of colony sites in Puna is similar to that favored

by Ao nesting on Kauai; however, the topography is different. On Kauai, Ao nest on razorback ridges and cliffs (Telfer *et al.* 1987), whereas in the Puna District puus (hills) and craters appear to be the important habitat (Reynolds *et al.* 1994). Scattered ohia (*Metrosideros polymorpha*) cover with a dense uluhe understory was typical of colony sites on both islands.

Environmental Baseline

The environmental baseline describes the status of the species and factors affecting the environment of the species or critical habitat in the proposed action area contemporaneous with the consultation in process. The baseline includes State, local, and private actions affecting a species at the time the consultation begins. Unrelated Federal actions that have already undergone formal or informal consultation are also a part of the environmental baseline. Federal actions within the action area that may benefit listed species or critical habitat are also included in the environmental baseline.

There are no known State, local, or private actions affecting Ao in the action area at this time. Presently, information is inadequate to determine what percentage of Ao are believed to occur in the action area. Baseline information on the distribution, abundance, and flight behavior (i.e., flight altitude and direction of flight) of Ao at the proposed project site and at one off-site location need to be gathered.

Effects of the Action on Listed Species

The Service has reviewed available information regarding the Ao in the project area and information provided in the Draft Environmental Assessment for the proposed project. The Ao was recently observed nesting within 8 km (5 mi) of the proposed site. The Ao flies to and from its nesting locations at night, and is prone to collision with low visibility structures. Although no studies have been conducted at the proposed site to determine the presence of Ao in the immediate project area, collisions are likely within the lifespan of the proposed project. The following is a discussion of the most probable effects that Ao may experience at the proposed DGPS site.

Direct death or physical injury to Ao could occur as a result of collision with the main DGPS antenna, guy wires, or associated structures. Death of Ao could also occur as a result of predation by feral or domestic animals after collision.

The vegetation structure and composition of colony sites in Puna is similar to that favored by Ao nesting on Kauai; however, the topography is different. On Kauai, Ao nest on razorback ridges and cliffs (Telfer *et al.* 1987), whereas in the Puna District puus (hills) and craters appear to be the important habitat (Reynolds *et al.* 1994). On Kauai, topographical features, such as valleys, focus movements of Ao during periods of low visibility. However, it remains unclear how consistently birds use flight corridors when flying to and from colonies. Insufficient data on population estimates of Ao, preferred flight paths, and the gently sloping topography of Pahoia coupled with the proximity to documented nesting sites and suitable nesting habitat in the area, create the potential for collisions.

The presence of feral and domestic animals in the Pahoia area increase vulnerability to predation

of Ao injured as a result of collision with proposed DGPS structures. Predators known to consume Ao and found in the Pahoia area include mongoose, Norway rats, roof rats, Polynesian rats, and both feral and domesticated cats and dogs. The proximity of the proposed project to the Keaau-Pahoia Road (Highway 130) also creates the potential for collisions with automobiles for Ao injured as a result of collision with proposed DGPS structures.

Cumulative Effects

Cumulative effects include the effects of future State, local, or private actions which are reasonably certain to occur in the area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. The Service was unable to identify cumulative effects in the project area that may impact the Ao.

Conclusion

After reviewing the current status of the Ao, the environmental baseline for the action area, the effects of the proposed project, and the cumulative effects, it is the Service's biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the Ao. No critical habitat has been designated for this species, therefore none will be affected. Our rationale is as follows:

- 1) Ao are exposed to a potential collision and mortality risk due to the proposed action.
- 2) Based on current knowledge, Ao exist in low numbers and population density in Pahoia with the primary population center of Ao located on Kauai.
- 3) Ao are expected to continue through all known behaviors including breeding, nesting, and flying to and from nesting sites within the vicinity of the proposed action.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered or threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the USCG for

the exemption in section 7(o)(2) to apply. The USCG has a continuing duty to regulate the activity covered by this incidental take statement. If the USCG fails to assume and implement the terms and conditions, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the USCG must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR S402.14(i)(3)].

Amount or Extent of Take Anticipated

The Service anticipates that two (2) Ao could be taken annually as a result of this proposed action. The incidental take is expected to be in the form of physical injury or death from impact of collision with the main DGPS antenna, guy wires, or associated structures. Take of Ao may also occur in the form of predation by feral or domestic animals after collision.

Effect of the Take

In the accompanying biological opinion, the Service determined this level of anticipated take is not likely to jeopardize the continued existence of the Ao.

Reasonable and Prudent Measures

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take:

- 1) Minimize potential for Ao collisions and number of birds mortally wounded due to collision with the main DGPS antenna, guy wires, or associated structures.
- 2) Minimize predation of Ao and minimize injury and mortality of Ao due to automobiles.
- 3) The USCG as part of their action will provide a means to determine the level of incidental take that actually results from the project.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the USCG must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary. To implement Reasonable and Prudent Measure Number 1:

- 1) Appropriate bird flight diverter devices will be attached to the guy wires associated with the main antenna of the DGPS to make them more visible.

To implement Reasonable and Prudent measure number 2:

- 2(A). Personnel qualified to accurately identify Ao must be present every other morning during the months of June, July, October, and November to monitor for the presence of dead or injured Ao.

2(B). Predator control will be performed at the proposed project site and an additional 50-meter buffer area during the months of June, July, October, and November. Methods used will be bait boxes filled with diphacinone rodenticide bait placed on a 50-m grid throughout the proposed project site for control of rodents and live traps placed in a circle outside the 150-m radius of the main antenna and associated guy wires for control of mongoose and feral cats. Live traps must be checked every day when open.

2(C). An area to include the proposed project site and the area encompassed by a 150-meter radius of the main antenna and associated guy wires will be searched to document the presence and physical condition of any Ao.

2(D). The number of predators (feral or domestic cats and dogs, mongoose, rats) will be noted.

2(E). Monitoring for Ao injured or mortally wounded, as described above, is to be performed for the duration of the proposed action and as long as the main DGPS antenna, guy wires, or associated structures are in place. After two years, the Service may reevaluate the need for monitoring and its frequency.

To implement Reasonable and Prudent measure number 3:

3) A report of all monitoring efforts, including complete and accurate records of all incidental take that occurred during the course of the actions described herein, will be submitted to the Service on a yearly basis unless where otherwise directed. This report will also describe how the terms and conditions of all Reasonable and Prudent measures were implemented

The Service believes no more than two (2) Ao will be incidentally taken annually as a result of the proposed action. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Federal agency must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

Disposition of Dead, Injured, or Sick Individuals

If a dead, injured, or sick Ao is found in the vicinity of the proposed action, initial notification must be made to Service Law Enforcement, 300 Ala Moana Blvd., Room 7-235, Honolulu, HI 96850, (808/541-2681) within 3 working days of the finding. Written notification must be made within five calendar days and include the date, time, and location of the finding, a photograph of the animal, and any other pertinent information. The notification shall be sent to Law Enforcement with a copy to the Honolulu Ecological Services Field Office. Care must be taken in handling sick or injured animals to insure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state. Dead Ao shall be properly salvaged and sent to Dr. Thierry Work of the National Wildlife Health Research Center (808/541-3445) for necropsy and analysis. Any specimens available following necropsy and scientific analysis shall be deposited with the B.P. Bishop Museum, 1525 Bernice St., Honolulu,

HI 96817 (808/547-3511). If the B.P. Bishop Museum does not wish to accession the specimens, the USCG should contact the Service's Division of Law Enforcement for instructions on disposition.

CONSERVATION RECOMMENDATIONS

Section 7(a) (1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

- 1) The Service recommends surveys using ornithological radar and night-vision (visual) equipment to determine environmental baseline information on the distribution, abundance, and flight behavior (i.e., flight altitude and direction of flight) of Ao at the proposed project site and at one off-site location for a minimum of five nights during the nesting season (late May to early July) and for a minimum of five nights during the fledging season (September to early November) for a minimum of two years. The Service can provide assistance in contacting qualified survey contractors, if desired.
- 2) The Service recommends that native forest trees be grown around the perimeter of the DGPS site to enhance avoidance of the antenna by birds in flight.
- 3) The Service recommends that the USCG pursue efforts to conduct predator control in known breeding colonies in close proximity to the proposed action.
- 4) The Service recommends that the USCG conduct surveys to determine the presence of additional breeding colonies within the vicinity of the proposed action.


In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION-CLOSING STATEMENT

This concludes formal section 7 consultation on this action. As required in 50 CFR 402.16, reinitiation of consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: 1) the amount or extent of incidental take is exceeded; 2) new information reveals effects of the agency action that may affect listed species in a manner or to an extent not considered in this opinion; 3) the agency action is subsequently modified in a manner that causes an adverse affect to the listed species that was not considered in this opinion; or 4) a new species is listed or critical habitat designated that may be affected by this action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease, pending reinitiation.

If you have any questions regarding any of the information contained in this biological opinion, please contact either Marilet A. Zablan, Program Leader for Vertebrate Species Listing, Consultation, and Recovery; or James Kwon, Fish and Wildlife Biologist (telephone: 808/541-3441; facsimile: 808/541-3470).

Sincerely,


for Paul Henson
Field Supervisor
Ecological Services

cc: DOFAW, Honolulu
DOFAW, Hilo
Larry Salata, RO-ES, Portland, OR
Law Enforcement, USFWS
Thierry Work, NWHRC

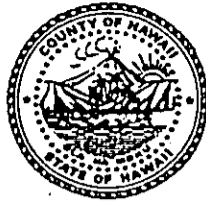
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Stephen K. Yamashiro
Mayor



Virginia Goldstein
Director

Russell Kokubun
Deputy Director

County of Hawaii

PLANNING DEPARTMENT

25 Aupuni Street, Room 109 • Hilo, Hawaii 96720-4252
(808) 961-8288 • Fax (808) 961-8742

December 2, 1998

Alexandria Apprentice- Ramsden
Realty Specialist, US Coast Guard
U. S. Department of Transportation
U. S. Coast Guard
Coast Guard Island, Bldg. 54D
Alameda, CA 94501-5100

Dear Ms. Apprentice-Ramsden:

Proposed Differential Global Positioning System
Puna, Hawaii
TMK: (3) 1-5-010:portion of 3 & 1-5-009:portion of 9

We have received your letter of November 17, 1998 requesting our review of the proposed Differential Global Positioning System (DGPS) on these two sites located in Puna, Hawaii. We have the following comments:

1. The State Land Use Commission has included both sites in the Agricultural District. The County of Hawaii has zoned this lot as Agricultural (A-20a).
2. Our Zoning Code would permit the construction of the DGPS on either of these two sites. Section 25-4-11(c) states that "Public uses, structures and buildings and community buildings are permitted uses in any district, provided that the director has issued plan approval for such use." "Public use", "public building" and "public structure" means a use conducted by or a structure or building owned or managed by the federal government, the state of Hawaii or the County to fulfill a governmental function, activity or service for public benefit and in accordance with public policy. Excluded are uses which are not purely a function, activity or service of government and structures leased by government to private entrepreneurs or to non-profit organizations.

APPENDIX C

Alexandria Apprientice- Ramsden
Realty Specialist
Page 2
December 2, 1998

Should you have any questions, please contact Rodney Nakano of my staff at 961-8288.

Sincerely,



f VIRGINIA GOLDSTEIN
Planning Director

RKN:gp
f:\wp60\Rodney\98-4\LCoastG1.rkn

U.S. Department
of Transportation

United States
Coast Guard



Commanding Officer
USCG Civil Engineering Unit Honolulu

Prince Kalanianaʻole Fed. Bldg.
300 Ala Moana Blvd. Rm. 8122
Honolulu, HI 96850-4982
Phone: (808)541-2077
FAX: (808)541-2203

16475
es-16086
19 August 1999

Don Hibbard
State of Hawaii
Department of Land & Natural Resources
Historic Preservation Division
P.O. Box 621,
Honolulu, HI 96809

Re: Proposed Differential Global Positioning System (DGPS) site, Town of Pahoa, District of Puna, Island of Hawaii.

Dear Dr. Hibbard:

The U.S. Coast Guard is proposing to establish a Differential Global Positioning System (DGPS) site in the Pahoa area of the Island of Hawaii [Enclosure (1)]. The DGPS site is needed to provide navigational aid coverage to the southeast section of the Big Island, which is not currently within the range of any existing DGPS sites.

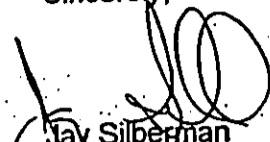
To provide DGPS service, a DGPS reference station and integrity monitoring equipment (including backup equipment) would be installed at the site. The proposed facility would be an unmanned installation, consisting of a 150' antenna, two 10'-30' reference masts, one equipment shelter, and a 500' radius ground plane [Enclosure (2)]. The ground plane, consisting of 120 copper radials, would radiate from the antenna at every 3° to a distance of 500 feet, and would be laid on top of the ground. The equipment would need to be supplied with electrical power, twenty-four (24) hour battery backup, and a telephone line for connection of the site into a DGPS control network.

This area [TMK:1-5-10:Por.03] was examined in 1988 by the Hawaii Department of Accounting and General Services during site selection for an elementary school. Their EIS, which included a 100% coverage ground reconnaissance survey, concluded that the area was pristine and contained no cultural modifications. A review of your current "HAWAII REGISTER OF HISTORIC PLACES" (Pahoa South quadrant) data base found nothing in the area of the proposed site. Accordingly, we have determined that the project as proposed would not have an effect on any historic/archeological sites. If any were discovered during construction, we would stop work and notify your office.

APPENDIX D

Please write or call me at 541-2077 if you have any questions or comments.

Sincerely,



Jay Silberman
Environmental Protection Specialist
U. S. Coast Guard
By direction of the Commanding Officer

Encl: (1) site location map [TMK:1-5-10:Por.03]
(2) site plan

Copy: MLCP(te)



STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Kakuhikewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 98707

TIMOTHY E. JOHNS, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES
JANET E. KAWELO

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND RESOURCES
ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS
WATER RESOURCE MANAGEMENT

September 15, 1999

Mr. Jay Silberman
United States Coast Guard
Prince Kalaniana'ole Fed. Bldg.
300 Ala Moana Blvd. Rm. 8122
Honolulu, Hawaii 96850-4982

LOG NO: 24041 ✓
DOC NO: 9909PM03

Dear Mr. Silberman:

**SUBJECT: Proposed Differential Global Positioning System
(DGPS) site in Pahoa, Keonepoko Nui, Puna, Hawaii Island
TMK: 1-5-10: Por. 3**

Thank you for your letter of August 19, 1999 to Don Hibbard, Administrator of our Historic Preservation Division, and the opportunity to review and comment on the proposed construction of a Differential Global Positioning System at the above referenced location.

As indicated in your letter, an archaeological reconnaissance survey of a portion of the subject parcel was undertaken in 1988 as part of the selection process for a new elementary school site. The report on this survey, "Archaeological Reconnaissance Survey for Environmental Impact Statement (EIS) Pahoa Elementary School Sites" (M. Rosendahl 1988), indicates that no historic sites were found even though the area appeared to have been unmodified. The survey was limited, however, to an area of roughly 8 acres on the north side of the abandoned Pahoa Airstrip.

The map that you enclosed with your letter indicates that the Coast Guard plans to use a much larger area than what was surveyed in 1988. Included within the boundaries of the proposed project area is the old Pahoa Airstrip. We have no information on this airfield, but it is possible that it may qualify as an historic site.

Based on the results of the 1988 archaeological survey we believe that the proposed project will have "no effect" on significant historic sites, with the possible exception of the abandoned airstrip. If the Coast Guard plans to use the airstrip then we will need additional information on its history to evaluate its possible significance.

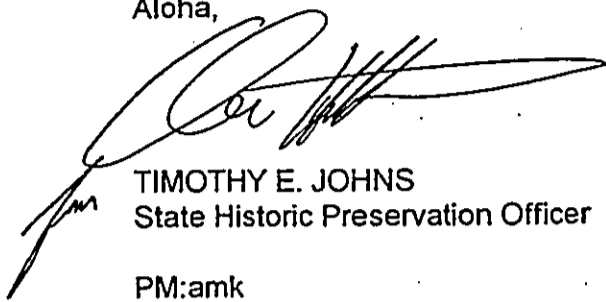
Finally, while there is no evidence of surface archaeological sites, there is a possibility that a lava tube containing cultural materials might be found in the project area. If such a site should be found the Historic Preservation Division should be notified.

APPENDIX E

J. Silberman
2

If you should have any questions please contact our Hawaii Island archaeologist, Patrick McCoy (692-8029).

Aloha,



TIMOTHY E. JOHNS
State Historic Preservation Officer

PM:amk

U.S. Department
of Transportation

United States
Coast Guard



Commanding Officer
USCG Civil Engineering Unit Honolulu

Prince Kalaniana'ole Fed. Bldg.
300 Ala Moana Blvd. Rm. 8122
Honolulu, HI 96850-4982
Phone: (808)541-2077
FAX: (808)541-2203

16475
es-16095
22 October 1999

Timothy E. Johns
State Historic Preservation Officer
State of Hawaii
Department of Land & Natural Resources
Historic Preservation Division
601 Kamokila Boulevard, room 555
Kapolei, HI 96707

Re: Proposed Differential Global Positioning System (DGPS) site, Paho, Island of Hawaii

Dear Dr. Johns:

Thank you for your letter of 15 September concerning the subject site. Although agreeing with our Finding of No Effect, you expressed concern that the Airstrip itself may be historic (absent information to the contrary).

First of all, we do not intend to alter the Airstrip, or place any structures on it. Secondly, the Airstrip does not appear to meet the National Register of Historic Places' criteria for listing.

The airstrip site was first leased in 1929 from the Territory of Hawaii by the Puna Sugar company. The company used the airstrip for spraying its crops with ripeners, pesticides, and/or fertilizers. The company had a 300 gallon mixing tank for the chemicals, which were piped onto the airplane. The tank was removed from the site in March 1984, when the company terminated its lease. No other features, other than the airstrip and the tank, were installed or constructed on the property.

Accordingly, we have concluded that the airstrip and its surrounding property are not associated with significant historical events or significant persons; and do not embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master.

Finally, if any lava tubes containing cultural materials are found in the project area during construction, we will stop work and notify you immediately.

I hope this will alleviate your concerns. Please write or call Mr. Jay Silberman of my staff at 541-2077 if you have any questions or comments.

Sincerely,

A handwritten signature in black ink, appearing to read "M.E. CUTTS".

M.E. CUTTS
Commander, U. S. Coast Guard

Copy: MLCP(te)

APPENDIX F

APPENDIX G

Comments on the Draft EA, and responses back from the U.S. Coast Guard



U.S. Department
of Transportation
Federal Aviation
Administration

Western-Pacific Region
Honolulu Flight Standards District Office

135 Nakolo Place
Honolulu HI 96819-1845 USA

Phone: (808)837-8300
FAX: (808)837-8399

August 16, 2000

Commanding Officer
United States Coast Guard
Attn: Lieutenant Commander Poling
300 Ala Moana Blvd., Rm. 8122
Honolulu, HI 96850-4982

16129

Dear Sir:

I have completed a review of the Coast Guard's draft Environmental Assessment (EA) to establish a Differential Global Positioning System (DGPS) site in Pahoa, Hawaii. The site is in an area of frequent tour aircraft use, and although the tour aircraft should not normally be at that altitude, it would be prudent to publish a Notice to Airmen (NOTAM) warning pilots of the location, altitude, and EMF dangers of the site.

A NOTAM can be filed by contacting the Honolulu Flight Service Station at (808) 833-8440 prior to construction. Additionally, if your personnel could contact the following companies prior to construction, it would greatly aid in the information dissemination:

Above It All:	808) 935-8799
Alii Helicopters:	(808) 969-9319
Big Island Air:	(808) 329-0991
Blue Hawaiian Helicopters:	(808) 961-5600
Civil Air Patrol:	(808) 836-3417
DEA:	(808) 935-8266
Hawaii County Fire Dept.:	(808) 961-8336
Hawaii Helicopters:	(808) 877-3900
Maui Air:	(808) 8171-8152
Mauna Kea Helicopters:	(808) 885-6400
Mauna Loa Helicopters:	(808) 334-0234
Mokulele Flight Service:	(808) 326-7070
Murray Air:	(808) 961-6601
Paragon Air:	(808) 244-3356
Safari Aviation:	(808) 969-1259
Sunshine Helicopter:	(808) 882-1851
Tropical Helicopters:	(808) 961-6810
Volcano Heli Tours:	(808) 961-3355



Additionally, for long term notification, please have your personnel contact the NOAA at (301) 713-3074 or (800) 638-9872 in order that they may update the sectional aeronautical chart reflecting the antenna, its height and associated hazards. This will allow visiting pilots to be aware of the hazard. Thank you for your notice and if you have any questions please feel free to call me at (808) 837-8352.

Sincerely,


David S. Ryon
Aviation Safety Inspector

U.S. Department
of Transportation

United States
Coast Guard



Commanding Officer
United States Coast Guard
Civil Engineering Unit Honolulu

Prince Kalaniana'ole Fed. Bldg.
300 Ala Moana Blvd. Rm. 8122
Honolulu, HI 96850-4982
Phone: (808)541-2077
FAX: (808)541-2203

16475
es-16129
AUG 25 2000

Mr. David S. Ryon
Federal Aviation Administration
Honolulu Flight Standards District Office
135 Nakolo Place
Honolulu HI 96819

Dear Mr. Ryon:

Thank you for your 16 August letter on our draft environmental assessment (EA) to establish a Differential Global Positioning System (DGPS) site in Pahoa, Hawaii. Please be assured that we will contact both the Honolulu Flight Service Station and the other agencies/companies listed in your letter.

Should you have any questions or concerns, feel free to contact Mr. Jay Silberman at 541-2077.

Sincerely,

A handwritten signature in cursive script, appearing to read "J. P. Poling".

J. P. POLING
Lieutenant Commander, U. S. Coast Guard
Executive Officer
By direction of the Commanding Officer

Copy: MLCP (te)



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
P.O. BOX 4849
HILO, HAWAII 96720
(808) 974-4221
FAX (808) 974-4226

August 15, 2000

16130

J.P. Poling, Lieutenant Commander
United States Coast Guard
Prince Kalaniana'ole Fed. Bldg.
300 Ala Moana Blvd., Rm. 8122
Honolulu, HI. 96850-4982

Dear Lieutenant Commander Poling:

We are responding to your letter of July 27, 2000, and your request for review of the Coast Guard's draft environmental assessment (DEA) to establish a Differential Global Positioning System (DGPS) site in Pahoa, Hawaii. The EA assesses the impact of leasing State-owned property to the Coast Guard in order to implement (construct and operate) a DGPS facility on the Island of Hawaii.

The Division of Forestry and Wildlife (DOFAW), Hawaii Branch, has reviewed the DEA. We believe the DEA adequately describes the scope of the proposed project and identifies the existing plant and animal resources at the proposed project site. Conservation recommendations outlined by the U.S. Fish and Wildlife Service (p. 9 of Section 7 Consultation) provide the necessary protection for the threatened Newell's shearwater or Ao (*Puffinus newelli*). However, we are recommending that the 150' tall Radio beacon antenna be fitted with a strobe or other non-glare light at the top to warn off birds in flight after dark.

The existing airstrip was previously used for fire fighting operations involving water drops. The airstrip is easily accessible to vehicles and is a safe landing site for helicopters. It is recommended that a section of the airfield be maintained for future fire fighting operations.

It is our opinion that the proposed project will not pose any significant impact to threatened or endangered species provided that all avoidance and minimization measures proposed in the DEA are followed.

Thank you for the opportunity to comment on the draft environmental assessment. Please contact me at 974-4221 if you have any questions about these comments

Sincerely,

JON G. GIFFIN
Hawaii Branch Manager

cc: Timothy Johns, DLNR Chairperson
Michael Buck, DOFAW Administrator



U.S. Department
of Transportation

United States
Coast Guard



Commanding Officer
United States Coast Guard
Civil Engineering Unit Honolulu

Prince Kalaniana'ole Fed. Bldg.
300 Ala Moana Blvd. Rm. 8122
Honolulu, HI 96850-4982
Phone: (808)541-2077
FAX: (808)541-2203

16475
es-16130
AUG 25 2000

Jon G. Giffin
District Manager
Division of Forestry and Wildlife
Department of Land and Natural Resources
State of Hawaii
19 East Kawili Street
Hilo, HI 96720

Dear Mr. Giffin:

Thank you for your 15 August letter on our draft environmental assessment (EA) to establish a Differential Global Positioning System (DGPS) site in Pahoehoe, Hawaii.

As stated in the EA, no floodlights or bright directional lights would be used with the antenna. We will study your recommendation to outfit the antenna with a strobe or other non-glare light.

With respect to keeping the airstrip open for fire fighting operations, our plans do not involve construction on any part of the airstrip.

Should you have any questions or concerns, feel free to contact Mr. Jay Silberman at 541-2077.

Sincerely,

A handwritten signature in black ink, appearing to read "J. P. Poling".

J. P. POLING
Lieutenant Commander, U. S. Coast Guard
Executive Officer
By direction of the Commanding Officer

Encl: (1) Draft environmental assessment

Copy: MLCP (te)



Ua Mau Ke Ea O Ka 'Aina I Ka Pono
LIFE OF THE LAND

Hawai'i's Own Environmental & Community Action Group
Protecting Our Fragile Natural & Cultural Resources
Through Research, Education, Advocacy, & Litigation

Ua Mau Ke Ea O Ka 'Aina I Ka Pono

August 22, 2000

Jay Silberman
United States Coast Guard
300 Ala Moana Blvd., Room 8-122
Honolulu, HI 96850

Harry Yada
DLNR Land Division
P. O. Box 936
Hilo, Hawaii 96721

re: US Coast Guard (USCG) Differential Global Positioning System (DGPS) Draft Environmental Assessment

Has the applicant met with the community? What are the community concerns? Please elaborate. How close will the antennae be to the nearest house and to the nearest community? What will the visual impact look like from the near-by residential communities? What will be the visual impact of brightly-colored "bird flight diverters" attached to the guy wires?

What mixed-use operations will be allowed on the site? Could a windpower generator co-occupy the site? Can aquaculture facilities co-occupy the site?

Newell's shearwater: "Most fallout occurs in the morning at utility structures within 300 feet of the coast. During morning hours, the birds are flying lower than during the evening inland flight, and apparently do not see the utility structures until it is too late." (please include page numbers to allow for easier referencing) How many Newell's shearwater die each year on the Big island due to "fallout"? How many deaths are related to utility structures? How many deaths are related to radio towers? How many deaths are related to guy wires?

What type of pesticides will be used on site?

Henry Curtis
Henry Curtis
Executive Director

* 76 North King Street * Suite 203 * Honolulu, Hawai'i 96817 *
phone * fax * e-mail: 533-3454 * 533-0993 * lifeoftheland@hotmail.com

U.S. Department
of Transportation

United States
Coast Guard



Commanding Officer
United States Coast Guard
Civil Engineering Unit Honolulu

Prince Kalaniana'ole Fed. Bldg.
300 Ala Moana Blvd. Rm. 8122
Honolulu, HI 96850-4982
Phone: (808)541-2077
FAX: (808)541-2203

16475
es-16131
AUG 25 2000

Henry Curtis
Executive Director
Life of the Land
76 North King Street, Suite 203
Honolulu HI 96817

Dear Mr. Curtis:

Thank you for your 22 August letter on our draft environmental assessment (EA) to establish a Differential Global Positioning System (DGPS) site in Pahoia, Hawaii. The following comments will hopefully address your questions.

We have not met with the community per se. During the scoping period, we met with Councilman Al Smith's office, as well as the state Department of Land and Natural Resources, and the county Planning Department. We also sent letters requesting comments to various community groups (Friends of the Red Road, Maku'u Farmers Association Community Development Committee, Puna Community Council, Puna Outdoor Circle), and published the EA in the OEQC *Environmental Notice*. No scoping comments were received. Comments on the draft EA will be addressed and published in the final EA.

The antenna as currently planned would be several hundred feet from the nearest home. Population density is very low in this area. Keonepoko Homesteads lands, which support existing agricultural operations, are located approximately 1,500 feet south of the site. With respect to your concerns on visual impacts, the following is excerpted from the draft EA:

"At its elevation of about 580 feet above mean sea level, the proposed new site is not situated in a position of visual prominence. The site is not an aesthetic asset to the community and development of the site would not obstruct scenic vistas or viewplanes. Pahoia is approximately six miles inland from the shoreline, and so the site would not be visible from the water, nor would it obstruct views of the water. The 150' antenna would be set back at least 500 feet from Keaau-Pahoia Road; since the Airstrip site is surrounded by trees of 30 to 50 feet in height, the antenna should not be visible to drivers along Keaau-Pahoia Road. The triangular shaped antenna, which measures 18 inches on each side and has an open, latticework design, is not expected to impair views of Mauna Kea and Mauna Loa from anywhere in the Pahoia area. The DGPS site would therefore have minor visual impacts."

You asked whether mixed-use operations would be allowed on the site, such as a windpower generator, or aquaculture facilities. The answer is that almost all of the lot would be occupied by the antenna ground plane, which is sensitive to disturbance. So there would probably not be room for aquaculture facilities outside the ground plane footprint, but the windpower generator may be possible, depending on its configuration.

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es-16133
AUG 25 2000

Concerning Newell's shearwater collision rates with various structures on the Big Island: we are consulting with the U.S. Fish and Wildlife Service to answer your questions. From what we understand, confirmed mortalities are likely to be very low (if any) with towers, and that there may be a few from utility wires.

With respect to herbicide usage, small amounts may be used to keep the base of the antenna and the twelve guy anchors clear of vegetation. If so, the use and handling of these materials would be performed according to applicable regulations and manufacturer's recommendations. At this point, however, we do not plan to use herbicides – other methods would be used, such as plastic sheeting topped by gravel.

Should you have any questions or concerns, feel free to contact Mr. Jay Silberman at 541-2077.

Sincerely,



J. P. POLING
Lieutenant Commander, U. S. Coast Guard
Executive Officer
By direction of the Commanding Officer

Copy: MLCP (te)

Friends of the Red Road
P. O. Box 181, Pahoā, Hawai'i 96778
(808) 965-8183 athena22@aloha.net

August 14, 2000

16132

United States Coast Guard
300 Ala Moana Blvd., Room 8-122
Honolulu, Hawai'i 96850

Contact: Jay Silberman

Re: Proposed Differential Global Positioning System, Puna Hawai'i
TMK: (3) 1-5-010: portion of 3 & 1-5-009: portion of 9

We have received your letter of July 27, 2000, requesting our review of the proposed Differential Global Positioning System (DGPS) on these two sites located in Puna, Hawai'i. We have the following comments:

1. Section I, 11. Agencies Consulted: There is a distinct absence of review from the traditional guardians of the Hawaiian culture, the Kanaka Maoli elders. To correct this oversight, it is requested that the following members of The Kupuna Council, Moku O Hawai'i, be sent a copy of this draft environmental assessment for review:

Sheila A. Kahalepauole, Kupuna, Puna
The Kupuna Council
Moku O Hawai'i
P. O. Box 1507
Pahoā, Hawai'i 96778

Sam Kaluna, Kupuna, Puna
The Kupuna Council
Moku O Hawai'i
P. O. Box 172
Pahala, Hawai'i 96777

2. Section II. Purpose and Need for the Proposed Action - last line of paragraph: "For the purposes of navigation safety, sites have been proposed to ensure coverage of major ports and vessel navigation routes."

There are no major ports or vessel navigation routes on the south eastern coast of Puna. A small boat-ramp at Pohoiki, which is the second largest fishery in the State, serves local fishermen engaged in traditional style commercial and subsistence fishing. There is no existing major navigational route. The Love Boat cruises this coastline once a week.

Why is there no discussion of the impacts upgrading the existing navigational facilities to accommodate "a major port and vessel navigational route" will have on cultural practices, hunting and gathering, the commercial and subsistence fisheries, and the lifestyles of the marginally agrarian coastal settlement people on the Puna and Ka'u coastline?"

3 Section II, A. Purpose - "The purpose of the proposed action is to improve current navigation systems by implementing the best system capable of improving. . . economic efficiency." (Sentence #1)

A full disclosure identifying those whom economic efficiency will directly benefit is requested. Certainly not the local fishermen who are finding the fish population to be declining steadily. We are told China is engaged in ocean strip mining now in international waters directly east of Puna. Is this the economic benefit referred to? To benefit foreign countries engaged in ocean mining? To benefit local residents with jobs? Please describe those jobs and disclose any future plans for development to enable the ocean mining industry to conduct business in the Pacific ocean; e.x. smelting and processing plants.

4. Section II, C. Background - Military uses of the DGPS are not mentioned beyond a cursory mention of "aids to navigation to serve the needs of the U.S. Armed forces."

There is much discussion in Lower Puna that being outside DGPS area is a blessing in disguise because we thereby avoid being a military target. A full disclosure of how the DGPS will serve military needs is requested and how this service will impact cultural practices, hunting and gathering, the traditional commercial and subsistence fishing and the lifestyles of the marginally agrarian coastal settlement people on the Puna and Ka'u coastline? A full disclosure of how DGPS could serve to provide civilian surveillance is also requested. Civilian surveillance by government authorities is an on-going concern of Puna and Ka'u residents.

5. Section IV - Environmental Setting, Impacts and Mitigating Measures

The draft EA fails to mention that the proposed installation borders Maku'u Hawaiian Homelands. There are residences in Maku'u farmlots with many more Hawaiians clearing land to build homes. Furthermore, the proposed tower with high radio frequency radiation would be in addition to the present high voltage geothermal transmission lines. How will this proposed project impact the Hawaiian family living 150 feet from the DPGS installation; most particularly the health impact on young children in an already comprised environment but also the visual, spiritual, economic and cultural impacts on this neighborhood?

In general, this draft EA fails to disclose exactly why and for whom this project is proposed and the full impact on the cultural and traditional practices of the commercial and subsistence fishermen, the residents of Maku'u Hawaiian Homelands and the coastal settlement people of Puna and Ka'u. On land, when roads are upgraded and carrying capacity is increased, development follows with increased population density and environmental degradation. Navigational passages are the "roads" of the ocean. The traditional lifestyle of Puna and Ka'u may not be suited to this upgrading of the ocean roads for the economic benefit of unidentified entrepreneurs. Puna and Ka'u are well known for cultural and traditional lifestyles closest to old Hawai'i. Every survey conducted on this island has revealed preservation of the natural rural beauty as the most important value to residents.

This document is markedly absent Hawaiian cultural input. The Kupuna Council is the traditional guardian of Hawaiian cultural values, property, land policies and the well being of the people. They must be consulted in this process.

Thank you for the opportunity to bring our views to this proposed project.

At one with the Earth,



Athena Peanut, President
Friends of the Red Road

cc: Harry Yada
DLNR, Land Division
P. O. Box 936
Hilo, Hawai'i 96723

OEQC
230 S. Beretania Street,
Suite 702
Honolulu, Hawai'i 96813

U.S. Department
of Transportation

United States
Coast Guard



Commanding Officer
United States Coast Guard
Civil Engineering Unit Honolulu

Prince Kalaniana'ole Fed. Bldg.
300 Ala Moana Blvd. Rm. 8122
Honolulu, HI 96850-4982
Phone: (808)541-2077
FAX: (808)541-2203

16475
es-16132
AUG 25 2000

Athena Peanut, President
Friends of the Red Road
P.O. Box 181
Pahoa, HI 96778

Dear Ms. Peanut:

Thank you for your 14 August letter on our draft environmental assessment (EA) to establish a Differential Global Positioning System (DGPS) site in Pahoa, Hawaii. The following comments will hopefully address your questions.

With respect to consulting with knowledgeable cultural practitioners to determine whether our proposed action may have an adverse impact on any cultural practices, we have done the following: During the scoping period, we met with Councilman Al Smith's office, as well as the state Department of Land and Natural Resources, and the county Planning Department. We also sent letters requesting comments to various community groups (Friends of the Red Road, Maku'u Farmers Association Community Development Committee, Puna Community Council, Puna Outdoor Circle).

These actions were taken to solicit comments or concerns on all potential aspects of the project, including cultural practices. No scoping comments were received. The EA found no historic or archaeological resources to be present, and the State Historic Preservation Officer (SHPO) concurred with our Finding of No Effect. Notice of availability for the draft EA was published in the 23 July OEQC *Environmental Notice*. Comments on the draft EA will be addressed and published in the final EA.

We have also contacted Mr. Kenneth Salva Cruz of the Office of Hawaiian Affairs, as a further effort to consult with knowledgeable cultural practitioners. No response has been received to date. If any response is received prior to publication of the final EA, we will address it in that document. We will also contact the Kupunu Council, Moku O Hawai'i, as you have requested.

With respect to your question on navigation routes and ports, we have no plans (nor are we aware of any) to upgrade existing navigational facilities to accommodate "major port and vessel navigation routes." This DGPS facility is being proposed because of the identified gap in DGPS coverage along the west and south coasts of the Big Island. It is being proposed to benefit existing commercial and recreational traffic.

The full statement you excerpted from the EA is as follows: "The purpose of the proposed action is to improve current navigation systems by implementing the best system capable of improving the condition of nationwide navigational safety, environmental security, and economic efficiency." DGPS was designed to meet one or more of these goals. In some areas of the country, one goal will be more predominant than others. In the case of the Big Island,

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AUG 25 2000

navigational safety and environmental security are the predominant concerns. These include the following: positioning aids to navigation; dredging operations by the U.S. Army Corps of Engineers; hydrographic surveying by the National Geodetic Survey; vectoring search & rescue units to distressed vessels; assisting with environmental assessments and cleanup efforts; and assisting with environmental studies/surveys of native plants and animals. Possible economic benefits would accrue to anyone who needs precise navigation/positioning in their line of work or recreation (e.g., boat charters, diving companies, surveyors). The DGPS facility is not being proposed to benefit future ocean mining by foreign countries, nor am I aware of any such plans.

DGPS was designed to benefit both civilian and military users; that is, to make their existing activities more accurate. For example, DGPS would better enable the Coast Guard to define boundaries when determining whether foreign vessels are fishing illegally. DGPS is not being proposed for the Big Island to enable some new military purpose, nor would it make the Big Island a more inviting military target. It is not designed nor is it capable of gathering military or civilian intelligence data.

The antenna as currently planned would be several hundred feet from the nearest home. As noted in the EA, electric field standards would be exceeded only within the inner 20 feet around the antenna. A 40-foot perimeter security fence around the antenna is currently being planned.

Should you have any questions or concerns, feel free to contact Mr. Jay Silberman at 541-2077.

Sincerely,



J. P. POLING
Lieutenant Commander, U. S. Coast Guard
Executive Officer
By direction of the Commanding Officer

Encl: (1) Draft environmental assessment

Copy: MLCP (te)

BENJAMIN J. CAYETANO
GOVERNOR



GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

August 22, 2000

Mr. Harry Yada
State of Hawai'i - Department of Land and Natural Resources
Land Division - Hilo
P.O. Box 936
Hilo, Hawai'i 96721

Dear Mr. Yada:

We have reviewed the draft environmental assessment for a Request by the U. S. Coast Guard to Establish a Differential Global Positioning System (DGPS) Site, at Pahoa, District of Puna, Island of Hawai'i, TMK (3) 1-5-10:03, and offer the following comments for your consideration and response.

1. CULTURAL IMPACTS - Act 50, Session Laws of Hawai'i, 2000 (enclosed) amended the definition of "significant effect" to consider actions that may adversely affect "the economic welfare, social welfare, or cultural practices of the community and State." Please consult or ask the applicant to consult with the Office of Hawaiian Affairs and knowledgeable cultural practitioners in the area to determine if the proposed action may have an adverse effect on any cultural practices (gathering, religious rites, etc.) and report the results of your consultations in the final environmental assessment.
2. LEASE CONSIDERATIONS - Please discuss the fate of the tower and related structures at the conclusion of the lease. Who will be responsible for removing structures?

If there are any questions, please call Leslie Segurado at 586-4185. Thank you for the opportunity to comment.

Sincerely,

A handwritten signature in cursive script that reads "Genevieve Salmonson".
GENEVIEVE SALMONSON
Director

c: Mr. Jay Silberman, U.S. Department of Transportation, Coast Guard

UNOFFICIAL VERSION

H.B. NO. 2895 H.D. 1

HOUSE OF REPRESENTATIVES
TWENTIETH LEGISLATURE, 2000
STATE OF HAWAII

A BILL FOR AN ACT

RELATING TO ENVIRONMENTAL IMPACT STATEMENTS.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. The legislature finds that there is a need to clarify that the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawaii's culture, and traditional and customary rights.

The legislature also finds that native Hawaiian culture plays a vital role in preserving and advancing the unique quality of life and the "aloha spirit" in Hawaii. Articles IX and XII of the state constitution, other state laws, and the courts of the State impose on government agencies a duty to promote and protect cultural beliefs, practices, and resources of native Hawaiians as well as other ethnic groups.

Moreover, the past failure to require native Hawaiian cultural impact assessments has resulted in the loss and destruction of many important cultural resources and has interfered with the exercise of native Hawaiian culture. The legislature further finds that due consideration of the effects of human activities on native Hawaiian culture and the exercise thereof is necessary to ensure the continued existence, development, and exercise of native Hawaiian culture.

The purpose of this Act is to: (1) Require that environmental impact statements include the disclosure of the effects of a proposed action on the cultural practices of the community and State; and (2) Amend the definition of "significant effect" to include adverse effects on cultural practices.

SECTION 2. Section 343-2, Hawaii Revised Statutes, is amended by amending the definitions of "environmental impact statement" or "statement" and "significant effect", to read as follows:

"Environmental impact statement" or "statement" means an informational document prepared in compliance with the rules adopted under section 343-6 and which discloses the environmental effects of a proposed action, effects of a proposed action on the economic [and] welfare, social welfare, and cultural practices of the community and State, effects of the economic activities arising out of the proposed action, measures proposed to minimize adverse effects, and alternatives to the action and their environmental effects.

The initial statement filed for public review shall be referred to as the draft statement and shall be distinguished from the final statement which is the document that has incorporated the public's comments and the responses to those comments. The final statement is the document that shall be evaluated for acceptability by the respective accepting authority.

"Significant effect" means the sum of effects on the quality of the environment, including actions that irrevocably commit a natural resource, curtail the range of beneficial uses of the environment, are contrary to the State's environmental policies or long-term environmental goals as established by law, or adversely affect the economic [or] welfare, social welfare[,], or cultural practices of the community and State."

SECTION 3. Statutory material to be repealed is bracketed. New statutory material is underscored.

SECTION 4. This Act shall take effect upon its approval.

Approved by the Governor as Act 50 on April 26, 2000

U.S. Department
of Transportation

United States
Coast Guard



Commanding Officer
United States Coast Guard
Civil Engineering Unit Honolulu

Prince Kalaniana'ole Fed. Bldg.
300 Ala Moana Blvd. Rm. 8122
Honolulu, HI 96850-4982
Phone: (808)541-2077
FAX: (808)541-2203

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AUG 25 2000

Genevieve Salmonson, Director
Office of Environmental Quality Control
State of Hawaii
235 South Beretania Street, Suite 702
Honolulu HI 96813

Dear Ms Salmonson:

Thank you for your 22 August letter on our draft environmental assessment (EA) to establish a Differential Global Positioning System (DGPS) site in Pahoia, Hawaii. The following comments will hopefully address your questions.

With respect to consulting with knowledgeable cultural practitioners to determine whether our proposed action may have an adverse impact on any cultural practices, we have done the following: During the scoping period, we met with Councilman Al Smith's office, as well as the state Department of Land and Natural Resources, and the county Planning Department. We also sent letters requesting comments to various community groups (Friends of the Red Road, Maku'u Farmers Association Community Development Committee, Puna Community Council, Puna Outdoor Circle).

These actions were taken to solicit comments or concerns on all potential aspects of the project, including cultural practices. No scoping comments were received. The EA found no historic or archaeological resources to be present, and the State Historic Preservation Officer (SHPO) concurred with our Finding of No Effect. Notice of availability for the draft EA was published in the 23 July OEQC *Environmental Notice*. Comments on the draft EA will be addressed and published in the final EA.

At your letter's urging, we telephoned Mr. Kenneth Salva Cruz of the Office of Hawaiian Affairs, as a further effort to consult with knowledgeable cultural practitioners. No response has been received to date. We have also sent him an e-mail (on which your office was copied), soliciting his comments. No response to this e-mail has been received to date. If any response is received prior to publication of the final EA, we will address it in that document.

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AUG 25 2000

Should you have any questions or concerns, feel free to contact Mr. Jay Silberman at 541-2077.

Sincerely,



J. P. POLING
Lieutenant Commander, U. S. Coast Guard
Executive Officer
By direction of the Commanding Officer

Copy: MLCP (te)

Stephen K. Yamashiro
Mayor



Wayne G. Carvalho
Police Chief

James S. Correa
Deputy Police Chief

County of Hawaii
POLICE DEPARTMENT

349 Kapiolani Street • Hilo, Hawaii 96720-3998
(808) 935-3311 • Fax (808) 961-2702

August 3, 2000

J. P. Poling
Lieutenant Commander
United States Coast Guard
300 Ala Moana Blvd., Room 8122
Honolulu, HI 96850-4982

Dear Lieutenant Commander Poling:

**SUBJECT : DRAFT ENVIRONMENTAL ASSESSMENT TO ESTABLISH A DIFFERENTIAL
GLOBAL POSITIONING SYSTEM SITE IN PAHOA, HAWAII**

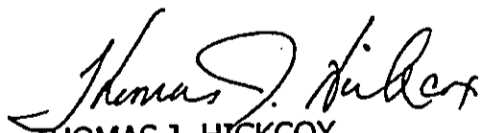
This acknowledges your letter of July 27, 2000, requesting our comments on the proposed project.

Staff has reviewed your request and has no comments or objections to offer at this time.

Thank you for the opportunity to comment.

Sincerely,

WAYNE G. CARVALHO
POLICE CHIEF


THOMAS J. HICKCOX
ASSISTANT POLICE CHIEF
FIELD OPERATIONS BUREAU

EO:lk

U.S. Department
of Transportation

United States
Coast Guard



Commanding Officer
United States Coast Guard
Civil Engineering Unit Honolulu

Prince Kalaniana'ole Fed. Bldg.
300 Ala Moana Blvd. Rm. 8122
Honolulu, HI 96850-4982
Phone: (808)541-2077
FAX: (808)541-2203

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es-16135

Wayne G. Carvalho
Police Chief
Police Department
County of Hawaii
349 Kapiolani Street
Hilo 96720

Dear Chief Carvalho:

Thank you for your review and comments on the Coast Guard's draft environmental assessment (EA) to establish a Differential Global Positioning System (DGPS) site in Pahoa, Hawaii. Your response will be included in the final EA.

Should you have any questions or concerns, feel free to contact Mr. Jay Silberman at 541-2077.

Sincerely,

A handwritten signature in cursive script, appearing to read "J. P. Poling".

J. P. POLING
Lieutenant Commander, U. S. Coast Guard
Executive Officer
By direction of the Commanding Officer

BENJAMIN J. CAYETANO
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

AUG 16 2000



KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MINAAI
GLENN M. OKIMOTO

IN REPLY REFER TO:

HWY-PS
2.9673

Lieutenant Commander J. P. Poling
Executive Officer
United State Coast Guard
U. S. Department of Transportation
Prince Kalaniana'ole Federal Building
300 Ala Moana Boulevard, Room 8122
Honolulu, Hawaii 96850

Attention: Mr. Jay Silberman

Dear Commander Poling:

Subject: Draft Environmental Assessment, Proposed Differential Global Positioning System (DGPS) Site in Pahoia, Keonepoko, Nui, Puna, TMK: 1-5-10: Por. 3

The proposed DGPS station will not impact Keeau-Pahoia Road, our State highway facility.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation



U.S. Department
of Transportation

United States
Coast Guard



Commanding Officer
United States Coast Guard
Civil Engineering Unit Honolulu

Prince Kalaniana'ole Fed. Bldg.
300 Ala Moana Blvd. Rm. 8122
Honolulu, HI 96850-4982
Phone: (808)541-2077
FAX: (808)541-2203

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Kazu Hayashida
Director
State of Hawaii Department of Transportation
869 Punchbowl Street
Honolulu HI 96813

Dear Mr. Hayashida:

Thank you for your review and comments on the Coast Guard's draft environmental assessment (EA) to establish a Differential Global Positioning System (DGPS) site in Pahoehoe, Hawaii. Your response will be included in the final EA.

Should you have any questions or concerns, feel free to contact Mr. Jay Silberman at 541-2077.

Sincerely,

A handwritten signature in black ink, appearing to read "J. P. Poling".

J. P. POLING
Lieutenant Commander, U. S. Coast Guard
Executive Officer
By direction of the Commanding Officer