AN ARCHAEOLOGICAL RECONNAISSANCE SURVEY IN THE GEOTHERMAL RESOURCE SUBZONE OF UPPER KAMAILI, KEHENA AND KIKALA, PUNA, HAWAII

by

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prepared for

HAWAII NATURAL ENERGY INSTITUTE

UNIVERSITY OF HAWAII AT MANOA

Hilo, Hawaii

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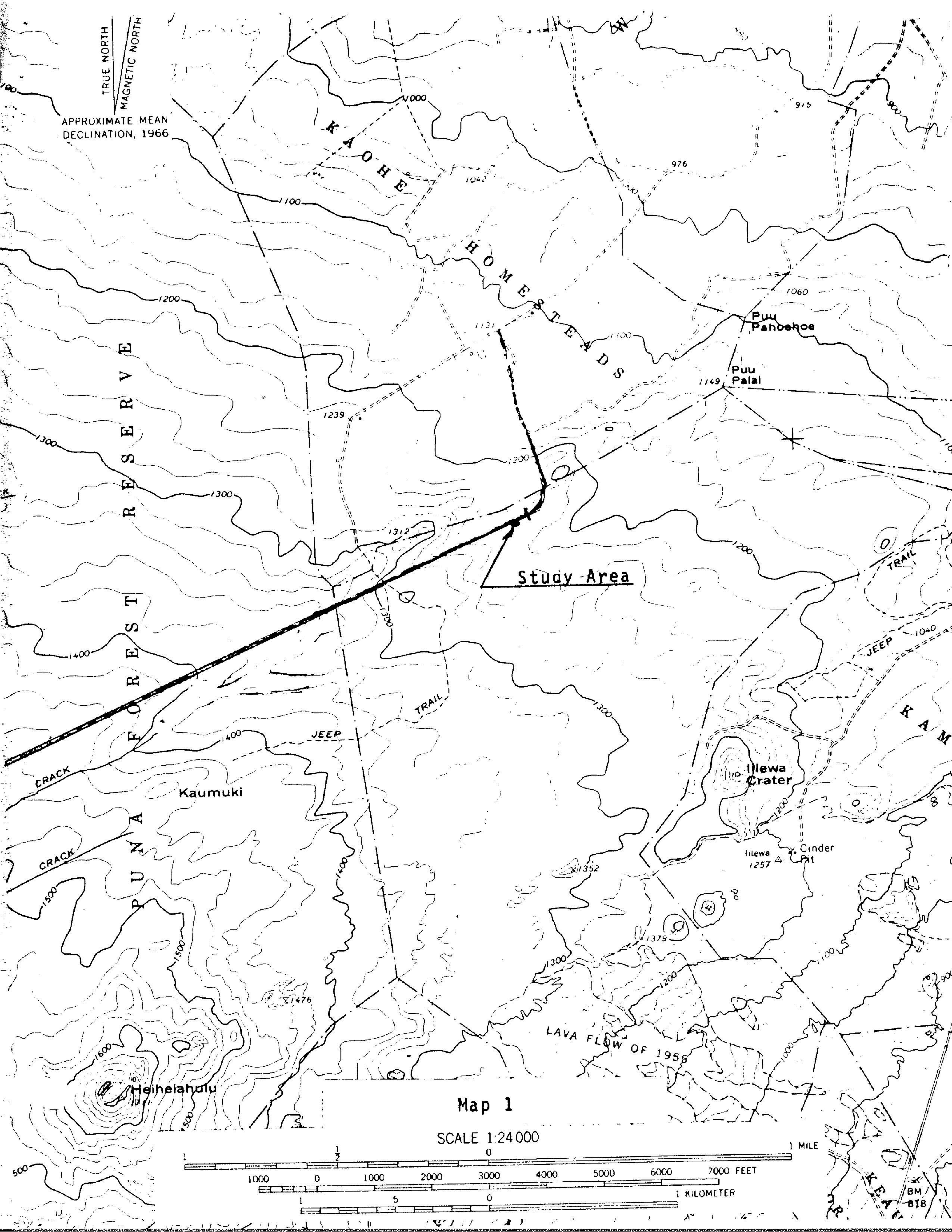
INTRODUCTION

In August of 1989 Mr. Mr. Art Seki from the Hawaii Natural Energy Institute, University of hawaii at Manoa, contacted the writer of this report with a request for an archaeological reconnaissance survey of a geothermal well site adjacent to land I had already surveyed in 1987 (Bonk, 1988). At the time of the request I had just agreed to take on further investigation along the roadway and at the terminus and therefore was willing to examine this fairly small additional area, for I knew I would be in the region. As with the previously examined roadway this plot is on property of the Estate of James Campbell in the Puna District, on the island of Hawaii. Specifically, the area investigated is on the north-east rift of Kilauea, south of Kaohe Homesteads (See Map 1) and is in the uplands of Kamaili, Kehena and Kikala, Puna.

Through the office of Mr. Nobuchika Santo of Island Survey, Inc., I received pertinent information and copies of a plan showing the location of the project area. On September 9th I carried out the field work for this report with the able assistance of my son, Ken.

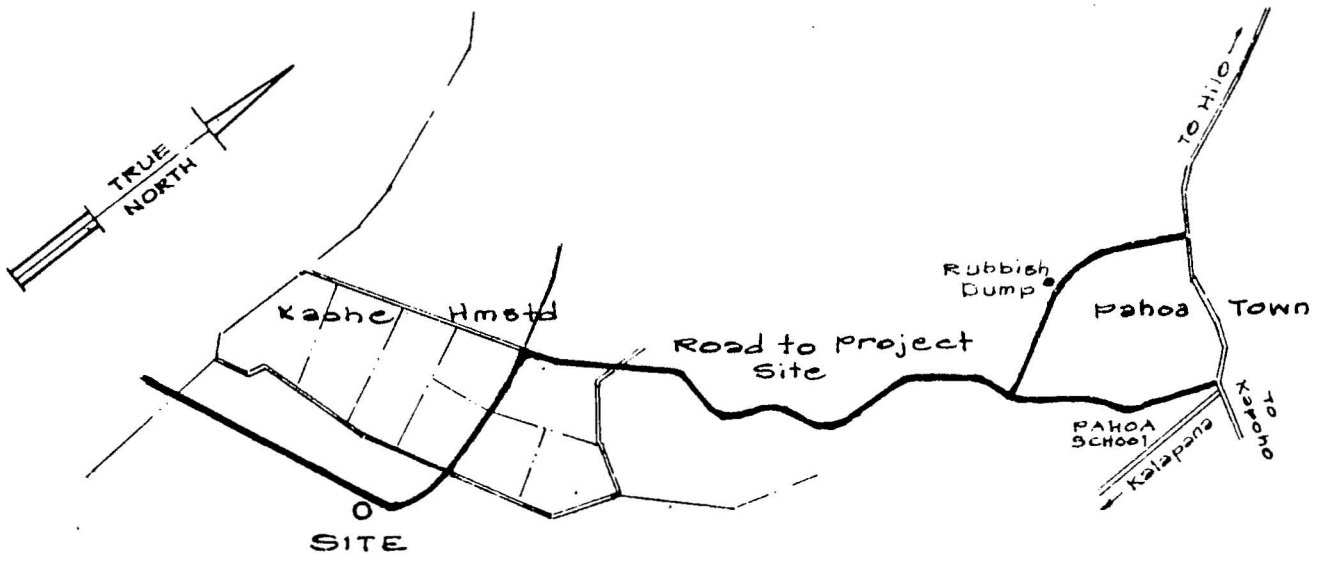

TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 1966
KAOHE HOMESTEADS
PUNA FOREST RESERVE
Puu Pahoehoe
Puu Palai
Study Area
TRAIL
JEEP
CRACK
Kaumuki
Ilewa Crater
Ilewa 1257
Cinder Pit
LAVA FLOW OF 1955
Heiheiahulu
SCALE 1:24 000
1 MILE
7000 FEET
1 KILOMETER
BM 818
Map 1

AREA

The area examined is on the *makai* or south side of the road that links Kaohe Homesteads with the Mid-Pacific Geothermal, Inc. well and reservoir sites at the road terminal, and about 2.4 miles westward (See Maps 1,2, and 3.) A gate on the road is just beyond a turn in the roadway as it comes out of the homesteads, enters the forest and straightens to run almost 2½ miles to the Mid-Pacific well site. About 200 feet *mauka* of the gate, and on the left or south side of the road, is the surveyor's pin that designates the northeast corner of the 0.516 acre project site. The proposed well site is a square plot, 150 feet on all sides, and with the north side abutting the roadway (See Map 4.)

As already stated, this is Campbell Estate land, Tax May Key: 1-2-10: par. 1.

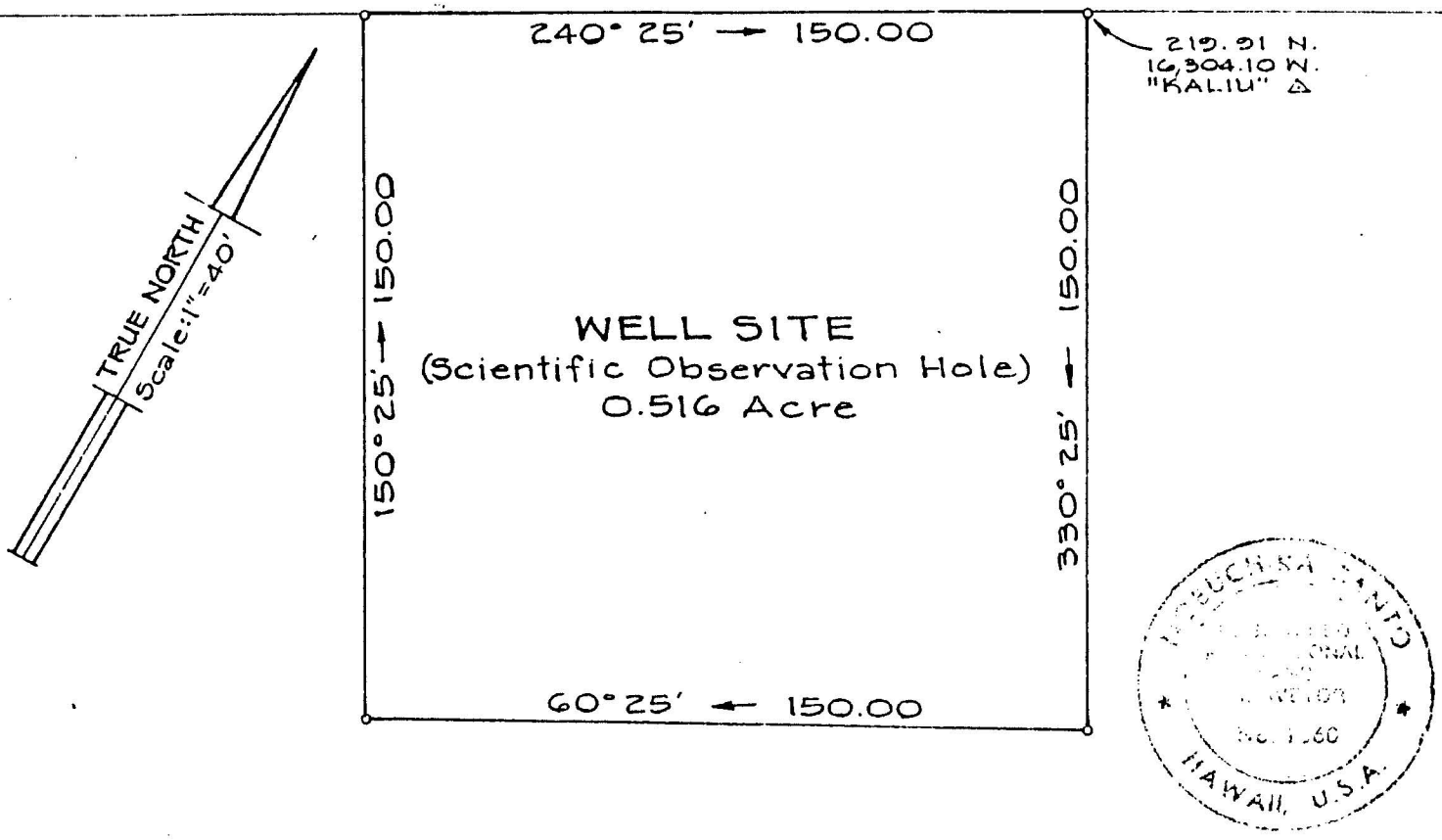
The parcel was already surveyed and staked prior to our arrival. In so doing, the surveyors had cut narrow lines of sight through the rainforest. The perimeter was staked at all four corners (See Figure 1.) However, in



LOCATION MAP
Scale : 1" = 4000'
Map 2

ROADWAY TO WELL SITE

← To Well



PLAN SHOWING
WELL SITE
(Scientific Observation Hole)
BEING A PORTION OF PARCEL C
PORTION OF GRANT 15,666 TO TRUSTEES
UNDER THE WILL OF THE ESTATE
OF JAMES CAMPBELL, DECEASED

KAMAILI, KEHENA AND KIKALA,
PUNA, ISLAND OF HAWAII, HAWAII

Owner:
Estate of James Campbell

Survey and Plan by:
Island Survey, Inc.
P.O. Box 337, Hilo, Hawaii

Tax Map Key: 1-2-10: por. 1

September 7, 1989

Map 4

Figure 1

Looking south along the western border of the site.

Figure 2

Looking south along one of the surveyor's cuts through the center of the site.

to twenty feet limitation is a more reasonable barrier.

The study area is approximately 1240 feet above sea level, with a fairly high amount of rainfall. Throughout the many days in the field during the three separate investigations, we did not encounter a moisture-free day. Sometimes rain falls constantly, at times heavily, and at other times periods of light rain and even a mist are interspaced with periods of sunshine. This, of course, is what results in the rain forest.

Some pockets of soil are seen here and there, sometimes in low-lying bowls overlaying *pahoehoe*. This quite often produces very muddy ponds at times of heavy rain and wet-spongy mud during dry periods. These are favorite wallows for the many wild pigs that frequent this region. We were forever on the alert for the surprise encounter that might occur with a rooting pig, and expecially a boar.

Figure 3

Looking south at the southeast corner of the study area.

Figure 4

'awa plant near southern border.

METHODOLOGY AND FINDINGS

While in the field we followed basic reconnaissance survey procedure. Visual observation and recording while following transect lines through the area to be investigated is normally part of the field methodology.

In this case my son, assisted me with the field examination. After locating the pins and survey lines along the east and west borders, we followed the lines cut by the survey crew until we located the southeast and southwest pins marking the southern corners of the area. Next we followed the four north-south transect lines already cut through the vegetation in the interior of the study area. As these lines were approximately 30 feet apart we were easily able to see the necessary 15 feet on either side of the transect. In addition we followed a transect outside and to the west and east of the border line. Finally, we examined an area of between 25 to 30 feet south of the well site. In carrying out this work we covered a land area of slightly over one acre during a period of one day or 16 person-hours in the field.

Throughout the field investigation we found no artifacts or other cultural indicators with two exceptions. One *kī* plant and an *'awa* shrub were found in the southern portion of the study area within ten to twenty feet from the southern border. We carefully examined the area around these traditionally useful plants but found nothing else of cultural significance.

SUMMARY, CONCLUSIONS AND RECOMMENDATION

No archaeological sites or features were found within the study area. However, the presence of *kī* and *'awa*, even though singular plants in both cases, gives some support to the belief that we should find additional cultural use indicators within the Geothermal Resource Subzone and most likely in the lower elevations and toward the south. The present research was carried out toward the lower elevations of the roadway and the prevously examined drill and reservoir sites. If I am right in my summary and concluding statements in previous reports for the area (Bonk, 1988,1989) than we now have some additional cultural evidence to support forest use in the area. Both *kī* and *'awa* had multiple uses and were culturally important plants in the past and therefore their presence may well provide the beginning of cumulative evidence that will help us in furthering knowledge of prehistoric forest usage.

Finally, and in conclusion, let me again state that no artifactual material was found during our survey of this drill site. However, the presence of non-artifactual cultural indicators may well prove useful as we have an opportunity to gain quantitative data for a larger area. I therefore recommend that a buffer zone of rainforest be preserved along the southern boundary. This should include the location of the *'awa* plant.

Finally, as I see no additional benefit derived from further examination of the project area, I therefore recommend that ground surface alteration be allowed to proceed but with the one restriction mentioned above.

BIBLIOGRAPHY

Bonk, William J.

1988 An Archaeological Reconnaissance Survey in the Geothermal Resource Subzone of Upper Kaimu and Makena, Puna, Hawaii. Report prepared for Mid-Pacific Geothermal, Inc.

1989 An Archaeological Monitoring and Additional Reconnaissance Survey in the Geothermal Resource Subzone of Upper Kaimu, Makuu, Kaohe, Kehena, Kaapahu and Kamaili, Puna, Hawaii. Report prepared for Mid-Pacific Geothermal, Inc.

GLOSSARY OF HAWAIIAN WORDS

'ā'a	Lava, stony, rough clinker type.
'awa	A shrub four to twelve feet tall with green jointed stems and heart-shaped leaves, native in Pacific lands, the root being the source of a narcotic drink used for ceremonies. (Piper methysticum)
hapu'u	An endemic tree fern (Cibotium Sp.) common in many forests of Hawaii.
'ie'ie	An endemic woody, branching climber (Freycinetia arborea) growing luxuriantly in forests at altitudes of about 1500 feet.
kī	Ti, a woody plant, (Cordyline terminalis)
maile	A native twining shrub (Alyxia olvine-formix) with shiny fragrant leaves used for decoration and leis.
makai	Lowland, toward the ocean.
mauka	Inland, upland, towards the mountain, uplands.
'ohi'a	A tree (Metrosideros macropus, M. Collins)
pahoehoe	Smooth, unbroken, type of Lava. As contrasted with *'a'a*.
uluhe	All Hawaiian species of false staghorn fern (Dicranopteris linearis).

Box 1648
Kamuela, Hawaii 96743

November 9, 1989

Mr. Duane Kanuha
Planning Director
County of Hawaii
Hilo, Hawaii

Attention Mr. Rodney Nakano

Dear Mr. Kanuha:

In response to a question put to me by one of your staff regarding the presence of maile at the UH-Manoa test drill site in Puna, Hawaii, I would like to elaborate with the following.

On page 7 of my report I state: "In this area we also encountered (Sic) a much heavier amount of maile than was present in the adjacent roadway survey." This was generally the case for the roadway, however it most likely is fairly typical for the general area. In looking about the Mid-Pac drill site region, beyond the area covered by my report, I found a similar degree of presence. This does not mean, however, that I am suggesting cultivation of maile for the region. It means only somewhat more in one area than another. I view the presence of maile as fairly typical for the general area.

Sincerely,

William J. Bonk