

CARLSMITH BALL LLP

STEVEN S. C. LIM 2505
JENNIFER A. BENCK 8357
ASB TOWER
1001 Bishop Street, Suite 2100
Honolulu, Hawaii 96813
Tel No. 808.523.2500
Fax No. 808.523.0842

Attorneys for Successor Petitioner
KAMEHAMEHA SCHOOLS

LAND USE COMMISSION
STATE OF HAWAII

2014 JUN 20 P 2: 20

BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAII

In the Matter of the Petition of

TOM GENTRY AND GENTRY-PACIFIC,
LTD.

To Amend the Agricultural Land Use District
Boundary into the Urban Land Use District for
Approximately 1,395 Acres of Land at
Waiawa, Ewa, O'ahu, City and County of
Honolulu, State of Hawai'i, Tax Map Key Nos.
9-4-06: portion of 26; 9-6-04: portion of 1 and
portion of 16; and 9-6-05: portion of 1, portion
of 7 and portion of 14

DOCKET NO. A87-610

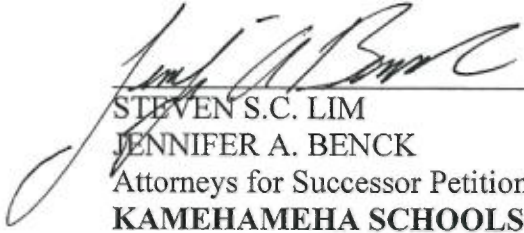
SUCCESSOR PETITIONER'S FIRST
LIST OF EXHIBITS; KS EXHIBIT 8
(ERRATA); KS EXHIBITS 19 - 34;
SUCCESSOR PETITIONER'S FIRST LIST
OF REBUTTAL WITNESSES;
CERTIFICATE OF SERVICE

**SUCCESSOR PETITIONER'S FIRST LIST OF EXHIBITS; KS EXHIBIT 8 (ERRATA);
KS EXHIBITS 19 - 34; SUCCESSOR PETITIONER'S FIRST LIST OF REBUTTAL
WITNESSES; CERTIFICATE OF SERVICE**

Successor Petitioner JANEEN-ANN AHULANI OLDS, LANCE KEAWE WILHELM,
ROBERT K.W.H. NOBRIGA, CORBETT AARON KAMOHAIKIOKALANI KALAMA, and
MICAH A. KANE, as TRUSTEES OF THE ESTATE OF BERNICE PAUAHI BISHOP, dba
KAMEHAMEHA SCHOOLS, by and through its legal counsel, CARLSMITH BALL LLP,

hereby respectfully submits to the Land Use Commission of the State of Hawaii, *Successor Petitioner's First List of Exhibits; KS Exhibit 8 (Errata), KS Exhibits 19-34; Successor Petitioner's First List of Rebuttal Witnesses; Certificate of Service.*

DATED: Honolulu, Hawaii, June 20, 2014.



STEVEN S.C. LIM
JENNIFER A. BENCK
Attorneys for Successor Petitioner
KAMEHAMEHA SCHOOLS

LAND USE COMMISSION DOCKET NO. A87-610
SUCCESSOR PETITIONER KAMEHAMEHA SCHOOLS FIRST LIST OF EXHIBITS

| KS EX. NO. | DESCRIPTION | PARTY OBJECTIONS | ADMIT |
|---|---|-------------------------|-------------------------|
| <p>KS Exhibits 1 - 18 were filed on May 13, 2014 with the Motion for Order Amending the Findings of Fact, Conclusions of Law and Decision and Order dated May 17, 1998 in Docket No. A87-610.</p> <p>Successor Petitioner's KS Exhibit 8 (Errata), and KS Exhibits 19 - 34 in Docket No. A87-610 were filed with the Land Use Commission and copies served on all parties on June 20, 2014.</p> | | | |
| 1. | Survey map outlining the 1,395 acre KS Property reclassified to the State Land Use Urban District in LUC Docket No. A87-610 | | |
| 2. | Graphic showing the State Land Use Districts | | |
| 3. | Portions of title reports for the KS Property | | |
| 4. | Graphic showing City and County zoning districts | | |
| 5. | Map showing locations of the proposed rail transit stations located with 1- and 2-mile radii of the KS Property | | |
| 6. | Description of the SunEdison project team | | |
| 7. | Curriculum Verite of Nicola Doss, SunEdison Hawai'i | | |
| 8. | Map showing the approximate locations of solar project (Phase 1 and Phase 2) on the KS Property. | WITHDRAWN/ CORRECTED | WITHDRAWN/ CORRECTED |

| | | | |
|-----|---|--|--|
| 8. | KS Exhibit 8 filed with the Motion on May 13, 2014, is to be replaced with the exhibit marked KS Exhibit 8 (Errata), filed on June 20, 2014 | | |
| 9. | Visual simulations of Phase 1 and Phase 2 of the proposed solar project on KS property | | |
| 10. | Portions of title policy No. 5011415-3549 | | |
| 11. | Portions of the City and County of Honolulu Land Use Ordinances Master Use Table 21-3 | | |
| 12. | Pearl City Neighborhood Board resolution, dated April 22, 2014 | | |
| 13. | Mililani/Waipio/Melemanu Neighborhood Board resolution, dated March 26, 2014 | | |
| 14. | Letter from George I. Atta, Director, Department of Planning and Permitting, City and County of Honolulu, to Keith Chang, Kamehameha Schools, dated April 29, 2014 | | |
| 15. | Letter from State of Hawai'i, Department of Health to the State Office of Planning, dated January 2, 1991, re zone of contribution. Letter from Department of the Navy to State Department of Health, dated December 17, 1990 re zone of contribution. | | |
| 16. | Central O'ahu Sustainable Communities Plan land use map | | |
| 17. | SunEdison sample curriculum for middle school students; SunEdison sample teacher's guide for high school students | | |
| 18. | Letter from State Department of Land and Natural Resources to Tosh Hosoda, Senior Vice President, Gentry Homes, Ltd., dated June 21, 2000 | | |

| | | | |
|-----|---|--|--|
| 19. | Letter from Don Hibbard, Administrator, SHPD to Patrice Tottori Liu, Vice President, Gentry Hawaii, Ltd., dated July 7, 1992, accepting archaeological inventory survey report. | | |
| 20. | Cultural Impact Assessment for 3,600 Acres in Waiawa and Waipi'o Ahupua'a, Oahu (June 2003) | | |
| 21. | Cultural Resources Preservation Plan (September 2005) | | |
| 22. | Letter from Melanie Chinen, Administrator, SHPD to Patrice Tottori Liu, Waiawa Ridge Development, dated October 25, 2007 re approval of Cultural Resources Preservation Plan | | |
| 23. | Letter from Susan A. Lebo, PhD, SHPD to Chris Monahan, PhD, Principal Archaeologist, TCP Hawai'i LLC, dated April 21, 2014 | | |
| 24. | Graphic showing zone of contribution and location of utility improvements | | |
| 25. | Letter from J.W. James, Captain, US Navy Commander, to Keith K.A. Chang, KS regarding zone of contribution, dated May 28, 2014 | | |
| 26. | Email exchange between M. Hickey, Senior Paralegal, AT&T Services, Inc. and J. Benck, Esq., May 29 - 30, 2014 | | |
| 27. | Portions of the City and County of Honolulu Land Use Ordinances Master Use Table 21-3 related to livestock grazing | | |
| 28. | Letter dated April 9, 2014, from Keith K.A. Chang to Joanna L. Seto, Department of Health, describing proposed solar project and enclosing graphic with zone of contribution and locations of Phase 1 and Phase 2 | | |
| 29. | Resume of Thomas S. Witten, ASLA, Chairman, PBR Hawaii & Associates, Inc. | | |

| | | | |
|-----|--|--|--|
| 30. | Resume of Paul T. Matsuda, P.E., Director of Civil Engineering, Group 70 International | | |
| 31. | Resume of Jason Alapaki Jeremiah, Cultural Resources, Senior Manager, Kamehameha Schools | | |
| 32. | Resume of Sohrab Rashid, TE, Principal, Fehr & Peers | | |
| 33. | Resume of Chris Monahan, Ph.D., Principal Archaeologist, TCP Hawaii LLC | | |
| 34. | Preliminary assessment re solar glare (Sandia Solar Glare Hazard Analysis Tool Report) | | |

LAND USE COMMISSION DOCKET NO. A87-610
SUCCESSOR PETITIONER KAMEHAMEHA SCHOOLS FIRST LIST OF WITNESSES¹

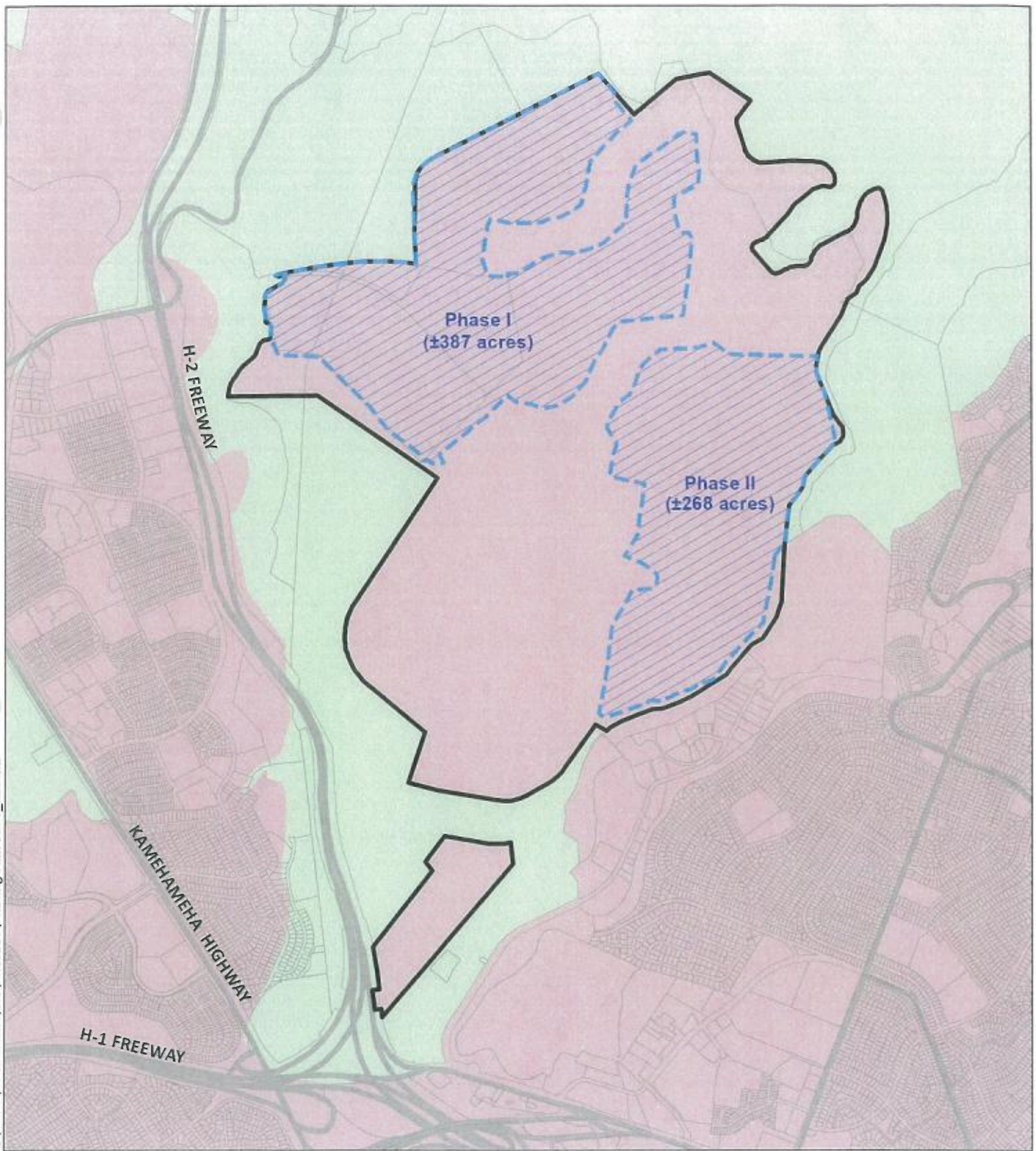
| NAME/ORGANIZATION/POSITION (list in order of appearance) | TO BE QUALIFIED AS A WITNESS IN: | SUBJECT MATTER | EXHIBIT NUMBER(S) | WRITTEN TESTIMONY | LENGTH OF DIRECT |
|---|---|--|------------------------------------|------------------------------------|---|
| Thomas S. Witten, ASLA / PBR Hawaii & Associates, Inc. / Chairman | Land use planning; environmental review | Land use and environmental planning | TBD | No | 30 |
| Giorgio Caldarone / Kamehameha Schools / Regional Asset Manager | N/A | Project development and renewable energy sector lead | TBD | No | 20 |
| Nicola Doss / SunEdison Hawai'i / Senior Manager | Utility scale solar development projects | Overall project analysis | TBD | No | 30 |
| Paul T. Matsuda, P.E. /Group 70 International / Director of Civil Engineering | Civil engineering | Civil engineering | TBD | No | 15 |
| Sohrab Rashid T.E. / Fehr & Peers / Principal | Traffic engineering | Traffic management | TBD | Yes | N/A |
| Catherine Camp / Kamehameha Schools / Director of Development | N/A | Project development; community relations; future plans for Waiawa property | TBD | No | 20 |

¹ Originally filed on June 16, 2014

LAND USE COMMISSION DOCKET NO. A87-610
SUCCESSOR PETITIONER KAMEHAMEHA SCHOOLS FIRST LIST OF REBUTTAL WITNESSES







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|--|---------------------------------|---|-----|----|----|
| Chris Monahan, Ph.D. / TCP Hawaii LLC / Principal Archaeologist, | Archaeology | Archaeological and historic resources | TBD | No | 10 |
| Jason Alapaki Jeremiah / Kamehameha Schools / Cultural Resources, Senior Manager | Historic and cultural resources | Archaeological, historic and cultural resources | TBD | No | 10 |

Q:\Oahu\KS WAIAWA\GIS\PROJECT\Phasing Plan 2014_06.mxd



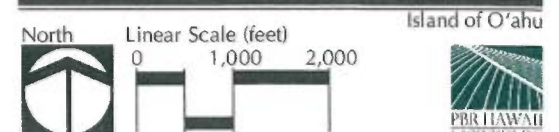
DATE: 6/18/2014

LEGEND

-  KS Waiawa Property (SLU Urban, Docket A87-610)
-  Photovoltaic Locations
-  Agricultural District
-  Conservation District
-  Rural District
-  Urban District

KS Exhibit 8 Errata (filed 6/20/14) Phasing Plan

KAMEHAMEHA SCHOOLS WAIAWA MOTION TO AMEND



Source: SunEdison (2014), State Land Use Commission (2014)
Disclaimer: This Graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

JOHN WAIHEE
GOVERNOR OF HAWAII



WILLIAM W. PATY, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES

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STATE PARKS

WATER AND LAND DEVELOPMENT

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

July 7, 1992

Ms. Patrice Tottori Liu
Vice President - Waiawa
Gentry Hawaii, Ltd.
560 N. Nimitz Highway
Honolulu, HI 96817

LOG NO: 5699
DOC NO: 0820t

Dear Ms. Liu:

SUBJECT: Archaeological Reconnaissance and Inventory
Survey of 3,600 Acres (Goodman and Nees)
Waiawa, 'Ewa, O'ahu
TMK: 9-4-6: 11 & 26; 9-6-4: por. 1, 4, 16; 9-6-5:
por. 1, 2-10, 13, 14

RECEIVED

JUL 10 1992

GENTRY HAWAII, INC.

Thank you for this revised document, which responds adequately to our comments of April 28, 1992. We now believe that this is an acceptable inventory survey report.

Survey techniques were sufficient to locate all historic sites. Seventeen sites were found and sufficient information was collected to determine site significance.

We do not completely agree with the significance evaluations, however. We believe that eleven sites (50-80-09-1469, -1470, -1472, -2261, -2264, -2267, -2268, -2269, -2270, -2272, and -2273) have yielded the information on Hawaiian history and prehistory that they contain and are "no longer significant". We believe six significant historic sites are still present in the survey area. We believe that four sites (50-80-09-1471, -2262, -2265, and -2266) are likely to yield information on Hawaiian history and prehistory (criterion D); site 1471 was not so identified in the report, yet on page 137 it is clearly being stated that more information needs to be collected. We believe that site 2271 is significant for its information content on Hawaiian history (D) and for traditional cultural significance that it has for an ethnic group (E) because it includes an historic cemetery. We believe that site 2263, a site with large numbers of petroglyphs, is an excellent example of a traditional Hawaiian petroglyph site (criterion C), is likely to yield information on Hawaiian prehistory (D), and has traditional cultural significance for Hawaiians (E). We note that these significance determinations differ from the determinations in the report, but they are consonant with the recommendations for future work at each of the sites.

KS Exhibit 19

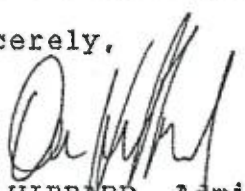
Patrice Tottori Liu
Page 2

Because agreements on significance evaluations must come first, before mitigation commitments are reviewed, please review these determinations carefully and respond in writing with your concurrence or disagreement. If disagreements still exist, then a consultation meeting is needed to try to resolve these disagreements.

The next step in the historic preservation review process is to determine the impact (effect) of the proposed project on each of the significant historic sites. Then mitigation plans need to be proposed.

Please note that significance is determined for sites, not features within sites, so our determination for site 50-80-09-2271 covers all of the features in this site. We expect that the mitigation plan for this site will set aside the historic cemetery for preservation and deal with the other site features independently. We see no need to preserve the other remnants of historic period agriculture documented in this report. Because site 50-80-09-2263 is significant for multiple criteria and is an excellent example of a petroglyph site in the 'Ewa area of O'ahu, we strongly recommend that this site be planned for interpretive display. Access to the site is presently difficult, but as development of the area proceeds we expect to work closely with you to ensure that this outstanding historic site is open for the public's education, inspiration, enrichment, and pleasure. If you have any questions please call Tom Dye at 587-0014.

Sincerely,



DON HIEBARD, Administrator
State Historic Preservation Division

TD:amk

**A Cultural Impact Assessment
for 3,600 acres in
Waiawa and Waipi'o *Ahupua`a*, O`ahu
(TMK 9-4-06:11, 9-6-04:4 and 9-6-5:3)**

by

K. W. Bushnell, B.A.,
David W. Shideler, M.A.
and
Hallett H. Hammatt, Ph.D.

Prepared for

Gentry Homes Ltd.

Cultural Surveys Hawai'i, Inc.

June 2003



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I. INTRODUCTION

A. Project Background

Cultural Surveys Hawai'i, Inc. was contracted by Gentry Investment Properties (Gentry) to conduct a Cultural Impact Assessment for the proposed development of approximately 3,600 acres of Kamehameha Schools (estate of Bernice Pauahi Bishop) and Gentry lands within portions of Waiawa and Waipi'o *Ahupua'a*, O'ahu (TMK 9-4-06:11, 9-6-04:4 and 9-6-5:3; Figures 1 and 2). In 1998, 874 acres within the proposed development were re-zoned (Phase I). A 175 acre expansion area (Phase II) was re-zoned in 2003. This report addresses the entire 3,600 acres proposed for development including the Phase I and Phase II areas.

The purpose of this Cultural Impact Assessment is to consider the effects the proposed development may have on native Hawaiians or any other concerned ethnic group in terms of their culture and their right to practice traditional customs. The State Constitution, state laws and state courts "require government agencies to promote and preserve cultural beliefs, practices, and resources of native Hawaiians and other ethnic groups" (in Office of Environmental Quality Control, Guidelines for Assessing Cultural Impacts, Adopted by the Environmental Council, State of Hawaii, November 19, 1997).

Under Act 50, Chapter 343, Hawai'i Revised Statutes, 2000, the following protocol are encouraged when preparing a cultural impact assessment (*Ibid*):

- 1) identify and consult with individuals and organizations with expertise concerning the types of cultural resources, practices and beliefs found within the broad geographical area, e.g., district or *ahupua'a*;
- 2) identify and consult with individuals and organizations with knowledge of the area potentially affected by the proposed action;
- 3) receive information from or conduct ethnographic interviews and oral histories with persons having knowledge of the potentially affected area;
- 4) conduct ethnographic, historical, anthropological, sociological, and other culturally related documentary research;
- 5) identify and describe the cultural resources, practices and beliefs located within the potentially affected area; and
- 6) assess the impact of the proposed action, alternatives to the proposed action, and mitigation measures, on the cultural resources, practices and beliefs identified.

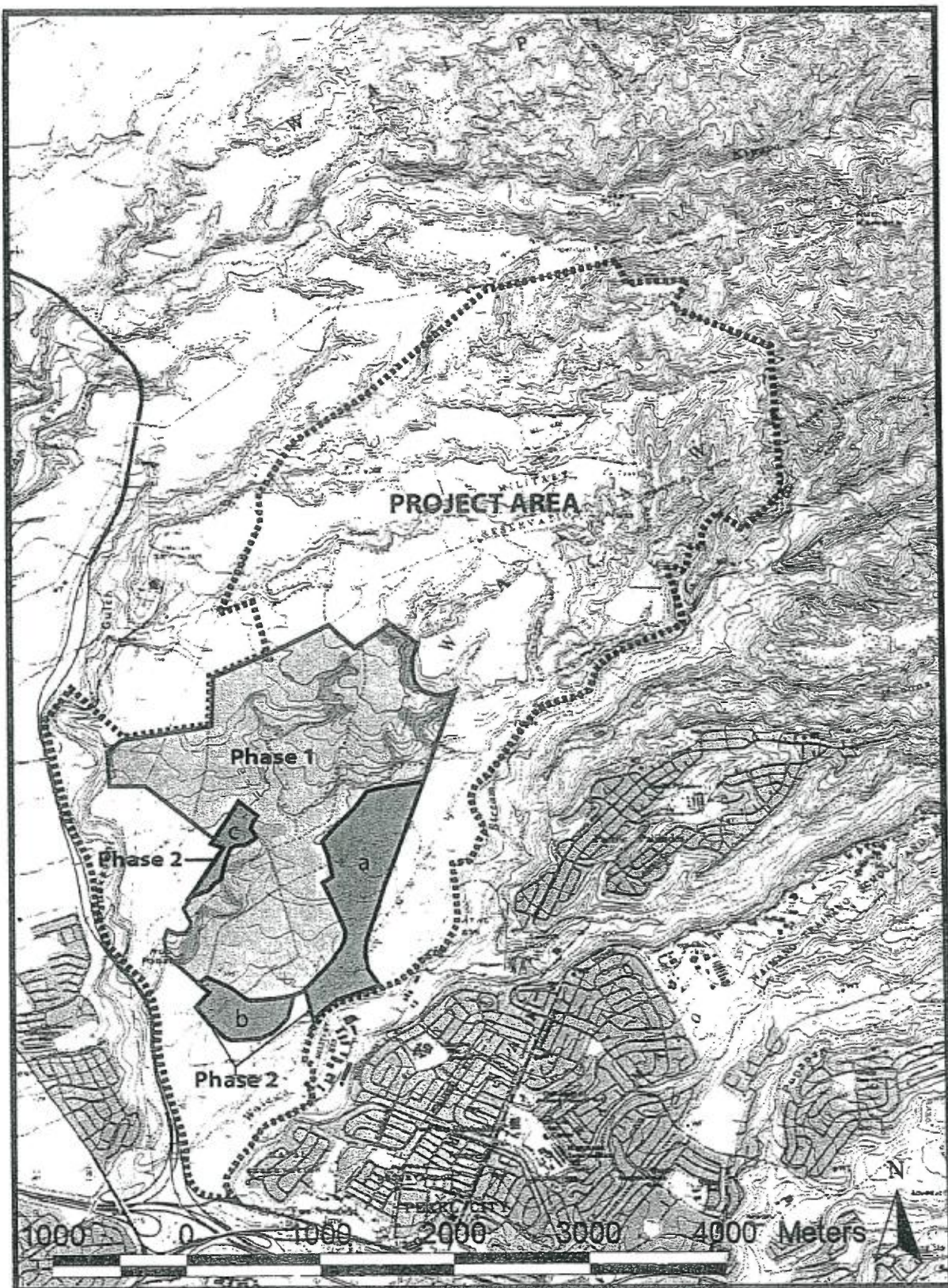


Figure 1 Portion of USGS 7.5 Minute Series, Waipahu Quad, Showing Project Area

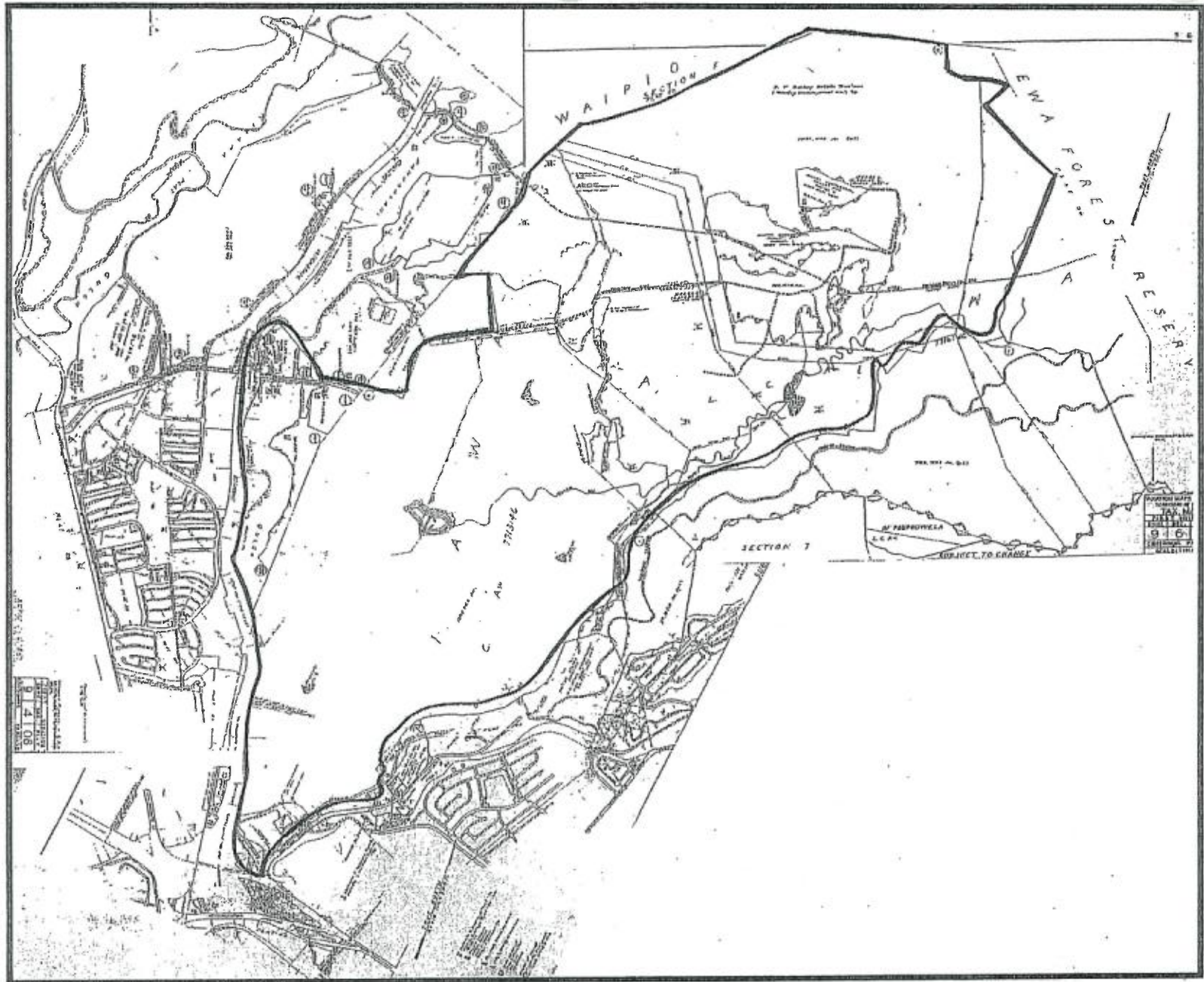


Figure 2 Composite of Portions of Tax Map Key 9-4-06, 9-6-04 and 9-6-05 Showing Project Area.

The process for evaluating cultural impacts is constantly evolving. There continue to be gray areas and unresolved issues pertaining to traditional access, gathering rights and other cultural issues. Act 50 is an attempt to balance the scales between traditional lifestyles and development and economic growth.

B. Scope of Work

The following scope of work was agreed upon to fulfill the requirements of a cultural impact assessment, as outlined in the Office of Environmental Quality Control guidelines:

- 1) Examination of historical documents, Land Commission Awards, historic maps, with the specific purpose of identifying traditional Hawaiian activities including gathering of plant, animal and other resources or agricultural pursuits as may be indicated in the historic record.
- 2) A review of the existing archaeological information pertaining to the sites on the property as they may allow us to reconstruct traditional land use activities and identify and describe the cultural resources, practices and beliefs associated with the parcel and identify present uses.
- 3) Identification of knowledgeable informants through community consultation. Organizations such as the State Historic Preservation Division, the Office of Hawaiian Affairs, the O'ahu Island Burial Council, the Wahiawā, Pu'uloa and 'Ewa Hawaiian Civic Clubs, the Mililani/Waipio/Melemanu, Pearl City and Waipahu Neighborhood Boards, Friends of Kūkaniloko, Hawaii Plantation Village, and Kipapa Elementary School along with former Oahu Plantation workers and Waiāhole Ditch Co. workers were to be consulted. The results of community consultations were to be compiled to show a good faith effort and the level of work undertaken (see Section IV).
- 4) Conduct oral interviews with persons knowledgeable about the historic and traditional practices in the project area and region. Formal and informal interviews plus coordination with relevant community groups were anticipated.
- 5) Preparation of a report on items 1-4 summarizing the information gathered related to traditional practices and land use. The report assesses the impact of the proposed action on the cultural practices and features identified.

C. Methods

1. Historic Research

Research was conducted to find historic maps at the Hawai'i State Survey Office and the Cultural Surveys Hawai'i library. Historic research was conducted at the Hawai'i State Archives where information on historic land use was sought. Records documenting Ewa Station at Waiawa in the first half of the nineteenth century were perused at the Mission Houses Museum Library for information regarding early land use and traditions regarding Waiawa. An attempt was made to find information on early historic land use and place names of Waiawa/Waipio in Bureau of Land Conveyances records. The resources at Cultural Surveys Hawai'i Library provided information on legends and other historical data concerning Waiawa/Waipio. In an effort to obtain more regional or local sources, historic documents were sought at the Pearl City Public Library and Hawai'i Plantation Villages.

2. Archaeological Review

The libraries at Cultural Surveys Hawai'i, Inc. and the Department of Land and Natural Resources, State Historic Preservation Division were used to obtain information regarding previous archaeological and cultural studies in the vicinity of Waiawa/Waipio. A description of identified archaeological sites is presented in Section V D. Archaeological Sites.

3. Identification of Knowledgeable Interview Informants

Hawaiian organizations, community members and cultural and lineal descendants with lineal ties to the Waiawa/Waipio area were contacted to (1) identify potential knowledgeable individuals with cultural expertise and knowledge of the project area and surrounding vicinity, and (2) identify cultural concerns and potential impacts relative to the project. An effort was made to locate informants who either grew up in the project area or who, in the past, used the area for cultural purposes. These included the former residents of the Oahu Sugar Co. Camps, particularly those once located in the project area such as Pump 6, Camp 3 and Camp 41. Other potential user groups pinpointed were hunters who may have knowledge of *mauka* regions of the project area and Hawaiian families who once lived in the *makai* areas of Waiawa/Waipio who may have had cultural traditions linked to *mauka* areas. In addition, informal talk-story with community members familiar with the project area was ongoing throughout the consultation period. The organizations consulted were the State Historic Preservation Division, the Office of Hawaiian Affairs and the O'ahu Island Burial Council, the Wahiawā, Pu'uloa and 'Ewa Hawaiian Civic Clubs, the Mililani/Waipio/Melemanu Neighborhood Board, Friends of Kūkaniloko, Hawai'i's Plantation Village, Waipahu Community Association, Hui Mālama I Nā Kūpuna O Hawai'i Nei, 'Ilio'ulaokalani, Pearl City Neighborhood Board, and the Filipino Community Center in Waipahu. Please refer to Table 1 for a complete list of individuals and organizations contacted.

4. Oral Interviews

Although more interviews were anticipated, only one interview was conducted. Once the participant was identified, he was contacted and an appointment was set-up to conduct the interview. The interview was conducted on October 9, 2002 and subsequently transcribed. The informant was given the opportunity to read through the transcription and edit it. He then signed an "Authorization for Release" form giving permission to Cultural Surveys Hawai'i, Inc. for the interview to be used as part of this study. Excerpts from the interview are used throughout this report, wherever applicable. The full transcript of the interview is appended to this report as Appendix A.

5. Report

This study documents relevant information on traditions and practices from the historic record as well as from the contemporary oral record. The report includes an Introduction (I), Cultural and Historic Documentation of Waiawa and Waipi'o *Ahupua'a* (II), a Summary of Archaeological Studies (III), Results of Community Consultation (IV), and an assessment of Traditional Resources/Traditional Practices (V-VI). The report is organized in such a way that sections II through VII reflect the effort of data and information gathering. This is the information used in the final assessment of Traditional Resources/ Traditional Practices reported in the Conclusions Section VIII.

D. Description of the Traditional Cultural Practices Region

The specific study area consists of 3,600 acres in the *mauka* region of Waiawa/Waipi'o. The study area extends from the interchange of the H-1 and H-2 Freeways at approximately 60 feet above sea level to the forested ridges at approximately 1500 feet elevation and includes a large part of the Waiawa *Ahupua'a*.

In assessing the cultural impact to a proposed development, the geographic boundaries of a study area are often extended beyond those of the proposed development. The reason for this is to "ensure that cultural practices which may not occur within the boundaries of the project area, but which may nonetheless be affected, are included in the assessment"(OEQC Guidelines for Assessing Cultural Impacts, 1997). For this project, the drainage of Pānakauahi Gulch and Waiawa Gulch were considered as part of the traditional cultural practices area.

E. Natural Setting

The specific study area consists of approximately 3,600 acres of lands lying on the southwest slope of the Ko'olau Mountain Range above the Middle Loch of Pearl Harbor between 60 foot (18 m) and 1,500 foot (457 m) elevation. Most of the project area lies in the uplands of Waiawa *Ahupua'a* with the extreme west portion of the project area extending into neighboring Waipi'o *Ahupua'a*. The area is bounded on the southwest by

the H-2 Freeway, on the east by Waiawa Gulch, on the west by abandoned agricultural fields and a proposed Castle and Cooke housing development, and on the north by Kipapa Gulch and forest reserve.

The vast majority of the project area consists of gently sloping plateaus interspersed with a number of gulches, some deeply dissected with tributaries to Pānakauahi and Waiawa Streams. The Pānakauahi Gulch flows into Waiawa Stream which eventually drains into the Middle Loch of Pearl Harbor. Average rainfall is approximately 46-inches per year (Giambelluca *et al.* 1984). The gulches are noted for their propensity to flood (Goodman and Nees 1991:4).

While soils in the project area are something of a patchwork they are almost all silty clays (Helemano Silty Clay, Lahaina Silty Clay, Leileihua Silty Clay, Manana Silty Clay, Pa'aloa Silty Clay, Wahiawā Silty Clay) or silty clay loams (Manana Silty Clay Loam, Molokai Silty Clay Loam) (Foote *et al.* 1972).

For over a century much of the plateau portion of these lands has been under commercial pineapple and sugar cane production. Potatoes were grown on the plateaus briefly during World War II. Commercial agriculture was abandoned in 1978 (Goodman and Nees 1991:4). Most of the project area is covered in exotic weedy plants such as feral cane (*Saccharum officinarum*), California grass (*Brachiaria mutica*), molasses grass (*Melinis minutiflora*), Guinea grass (*Panicum maximum*), with albezia (*Paraserianthes falcata*), koa haole (*Leucaena leucocephala*), Christmasberry (*Schinus terebinthifolius*), and kiawe (*Prosopis pallida*). Vegetation in the gulches includes common guava (*Psidium guajava*), strawberry guava (*Psidium cattleianum*), Christmasberry (*Schinus terebinthifolius*), liliko'i (*Passifloraceae flavicarpa*), and laua'e (*Phymatosorus scolopendria*). Native and indigenous plants are more prevalent on ravine edges and ridge tops (Goodman and Nees 1991:5).

II. WAIAWA AHUPUA`A: CULTURAL AND HISTORIC DOCUMENTATION

A. Legends and Traditions Associated with Waiawa

1. The Naming of Waiawa

The vast majority of the present project area is located in Waiawa Ahupua`a which extends from the Middle Loch of Pearl Harbor up the summit of the Ko`olau Range, and is bounded on the west by Waipi`o Ahupua`a and to the east by Mānana Ahupua`a. There are few traditional accounts related to Waiawa. Even the meaning of the name is uncertain with some sources translating it as "Milkfish (awa, *Chanos chanos*) Water" (Pukui *et al.* 1974:221) and others as "Bitter Water" (Alexander 1902:425 - if Alexander were correct the spelling should be "Wai`awa").

In a portion of a chant for Kūali`i, *He Mele No Kūali`i*, retold and translated by Fornander (1986:394-400), Waiawa is noted for its awa fish, "*E ku`u kāua i ka loko awa-o Waiawa*" translated as "Let us cast the net in the awa-pond-of Waiawa". This would be no surprise as the fish ponds of Waiawa such as Kuhialoko were well known for their productivity.

Other traditional accounts suggests that Waiawa may have been acknowledged in early times as the site of a special variety of the `awa (*Piper methysticum*) plant:

...When the wondrous maiden [Ke-ao-melemele] arrived at the entrance to the mountain of Kōnāhuanui, all the offerings were in charge of Ke-anuenue, a *pūko`a* or reddish brown pig, a clump of dark `awa [*pū`awa pōpolo*] which was not common in these islands. This variety of `awa now grows in the upland of Waiawa, down there in `Ewa. (cited in Sterling and Summers 1978:19)

`Awa is also associated with Waiawa in another legend:

...it was here in `Ewa that Kāne and Kanaloa were invoked by a planter of sweet potatoes, taros, and `awa named Maihea. This man, living in the upland of Wai`awa, [Handy and Handy use the glottal stop] when he had prepared his meal and his `awa, would pray:

O unknown gods of mine,
Here are `awa, taro greens and sweet potatoes
Raised by me, Maihea, the great farmer.
Grant health to me, to my wife and to my son.
Grant us *mana*, knowledge and skill.
`Amama. It is freed. (Handy and Handy 1972:472)

Another more complete version of the story of Maihea is shared in the June 3, 1899 edition of *Ka Loea Kalaiaina*. In this version, Maihea is described as living in Waimalu at a place called Punanalo. In Waimalu, Maihea cultivates sweet potatoes and taro. However, it is on a hill in the upland of Waiawa where he plants his *awa*. The story of Maihea is a story that marks the first time Kāne and Kanaloa travel the earth; it is also the story that tells of the introduction of the *kahuna* arts to the people of Hawai'i as well as the time when the boundaries of *ʻEwa* are distinguished. As he prayed daily to the unknown gods with his offering of *awa*, taro greens and sweet potatoes, Maihea was granted his wish of *mana* and knowledge although he didn't know it. Kāne and Kanaloa sent a whale to Waimalu. All the people of the area came marvel at the site. The beached whale waited almost four weeks until the son of Maihea, Ula-a-Maihea could resist no longer and against the wishes of his parents, he went down to the shore to see the spectacle. Once there, he followed the children climbing on to the whale. The whale began to move and Ula-a-Maihea was taken to Kahiki where he was trained in the *kahuna* arts under Kāne and Kanaloa.

When the son was gone the parents wept in grief and when night came they were told in a dream, "Do not grieve for your son. He is gone to Kahiki to receive what you asked for, *mana* and knowledge." Then Maihea recalled his repeated prayers to his gods. One evening as he worked at his usual chores, two strangers approached and he called, inviting them in. They came in. These men, what we see here, O reader, were Kane and Kanaloa. When the strangers entered the house, the *awa* was strained. Maihea had never seen them before and this was the first time. He poured the *awa* into three cups, two for the strangers and one for himself. When the *awa* was ready in the cups, Maihea said to the strangers, "Let me pray to my unknown gods." Then he prayed until he uttered "*āmama*, it is freed." It was then that one of the men said, "Say, where are you?" The gods to whom you pray are ourselves and none else." Maihea heard this was startled by these words, but Kane continued, "We are they upon whom you call and in the future call us by name. I am Kane and this is Kanaloa. Call us by these names after this." This was the beginning of the travels of these gods on earth and this was also the time when the boundaries of *Ewa* were made as I told you when I mentioned *Pohaku-pili*. On their return after dividing the land, they came to the top of *Haupu'u*, (that is the present site of the *Kahikuonālani* Church at Waiawa) they turned to look at *Ewa* and when they saw the fish ponds at Waiawa, they said, "May the fish ponds down at Waiawa be as the stars in the sky above. May there be mullets at *Kuhia-loko*, fine sea weed at *Kuhia-waho*, salt at *Ninauele*, the single fruited coconut at *Hapenui*, the taro greens at *Mokaalika* and the water of *Kaaimalu*, to remove the bitterness of the *awa* of *Kalahikuola*." This was the last thing that they did before returning to Maihea's house. They drank *awa* again that afternoon. They spent the remainder of the day going to *Pu'uloa*. The result of this was that Maihea obtained the knowledge of the priesthood, oratory and so on. This was the first time that these arts were practiced here in Hawai'i. (*Ka Loea Kalaiaina*, June 3, 1899: p. 9).

A *kupuna* who grew up in Waiawa and lives there still, Tin Hu Young, suggested a different origin of the name Waiawa. During his interview, he gave this explanation:

...In fact, the name 'Wai'awa' means water and 'awa. You know the meaning of 'awa? 'Awa is that *kava kava* root that you drink, Hawaiians call it 'awa. I kind of didn't like the idea they called it 'bitter water'. Because 'awa is a little bitter when you drink it, so Wai'awa—Wai'awa Valley was an area known in the ancient days of harvesting 'awa root. It was a ceremonial drink that they had. Of course in the old days only the royalty used that root, until later on, and then the commoners would use it. Then you could sell it in the market and go buy it, like other things. So, Wai'awa was a source of that. But, I like to think that the meaning of 'bitter water' for the name Wai'awa, to me, could come from—because the area is the farther lot, the bottom on the lowland, *mauka* of Pearl Harbor. And when I used to watch the water, the rivulets would come twisting and turning like little 'awa roots, twisted. If you ever harvest that 'awa root, you got to see, its like a big root coral. It's all tangled into each other. And it reminds me, when it flooded down in the lowland, all these little rivulets, twisting and turning, like the 'awa root. But it's just my romantic—it's just because I live there. I don't want them to say, Ehh you live in bitter water? (Laughter)...[Interview w/ T. H. Young, October 9, 2002].

In addition to the *milkfish* (*Chanos chanos*), *awa* and the 'awa root (*Piper methysticum*), the Hawaiian word *awa* has a third meaning: of harbor, cove or channel or passage (Pukui, and Elbert, 1986:33). This suggests there may be some link between the rivulets described by Mr. Young and the *awa* or channels which reach the sea.

2. Kawelo in Waiawa

The *Hawaiian Legends Index* lists only two other traditions of Waiawa but these just provide passing references. It is said to have been a home of the folk-hero Kawelo and his wife, Kānewahineikiaoha, but no details are provided (Fornander, 1919: V 700-701).

3. Ka'ahupāhau of Pu'uloa

In the story of Ka'ehu-iki-manō-o-Pu'uloa (*Au Okoa* November 24, 1870 and Thrum 1923:301) the shark from Puna, Hawai'i Island goes to visit the famous Ka'ahupāhau, chiefess of the shark gods of Pu'u Loa (Pearl Harbor) and finds her and her entourage at Waiawa. However, her royal residence was usually understood as at Honouliuli and she was known to visit many places at Pearl Harbor. Again no details are given. Other references associating the Ka'ahupāhau shark royal court with Waiawa include the naming of a fishpond (Site -119) at Pearl Harbor "Kuhialoko" after the name of a butler or purveyor to the shark queen (*Saturday Press* January 12, 1884). Ka'ahupāhau's brother, Kahi'ukā was said to have a cave in Waiawa below the former home of the Reverend Bishop who was the pastor in 'Ewa (*Ke Au Hou* Dec. 14, 1910).

4. Ke akua 'ōlelo

Ke akua 'ōlelo is described as a local god of Pānakauahi Gulch who from his *heiau* in Pānakauahi spotted a woman of high rank from Hawai'i hide her *lei niho palaoa* in a hole of a rock, a rock named *pōhaku huna palaoa*, located on the plain of Punahawe. Ke akua 'ōlelo assured the woman that when the time came for her descendants to find the necklace, he would guide them (*Ka Loea Kalaiaina*, July 22, 1899 in Sterling and Summers, 1978:22). Ke akua 'ōlelo also appears in another *mo'olelo*, the legend of the children and the secret eating place, Ka'aimalu. Pūpūkanioe, a boy and Nāluahōkū, a girl who grew up with Pana'iahakea, a tributary gulch located on the boundary of Waipi'o and Waiawa, travel frequently to Kualaka'i to fish. Usually they caught plenty of fish, however on one particular day, they only caught one fish, a *palani* which was considered a woman's fish. As they were on their long journey home, they were both caught up in hunger and the girl insisted they both eat the *palani* secretly. However, Ke akua 'ōlelo was watching and announced their sharing of the woman's fish. This was considered the first time the eating *kapu* was broken and the spot where they ate is called Ka'aimalu, the secret eating place (*Ka Loea Kalaiaina*, July 22, 1899: p.15 in Sterling and Summers, 1978:7).

B. Cultural History, Pre-Contact to the *Māhele*

John Papa 'Ūi particularly associated Awa, Waiawa, 'Ewa with the brewing of intoxicants in the early 1800s and gives an account of *ōkolehao* production there.

It was interesting to see how *ti* root was converted into a strong liquor. When the root was boiled on a stove, the liquid came forth like the flowing of sweat from a bud. The hand was wetted with the first drippings and then waved over the flames, when the drippings burned brightly. The first brew was called *lolo*, the second *kawai*, and the last *kawai hemo* ('Ūi 1959:85).

'Ūi also mentions a trail skirting Pearl Harbor passing through the lowlands of Waiawa. It appears that in pre-contact times, the main arteries through central O'ahu and out to the Leeward Coast joined in west coastal Waiawa (as Interstate H-2 and H-1 do today) to continue on east to Honolulu. This intersection of major trails would have been a natural place for people to gather and was the place of two famous *maika* playing fields or bowling courses named Puehulunui (aka Pueohulunui) and Haupū'u. (aka Haupū). These *maika* fields are located seaward of the present project area.

C. Waiawa in the *Māhele*

During the *Māhele* land division of Hawai'i in 1848, Waiawa *Ahupua'a* was awarded to Princess Victoria Kāmāmalu (sister of Kamehameha III and IV) as part of land claim 7713. This land claim included the vast majority of the present project area. Also claiming and receiving land in Waiawa was the American Board of Commissioners for Foreign Missions: LCA 387 comprised 4.13 acres in the *makai* portion of Waiawa and included a salt pond, a *mo'o* for the church, and a house lot. Making the application was

Artemis Bishop, the Protestant missionary stationed at 'Ewa from 1836-1856. Another claim by a non-Hawaiian was made by William Wallace in LCA 10942 which comprised 3.2 acres including a houselot, 2 *mo'o*, and 6 *lo'i*. The remaining 50 claims by 29 claimants in Waiawa were for *kuleana*; the claims included: 28 houselots, 176 taro *lo'i*, 20 fishponds, 23 *kula* or pasture, 8 *paukū 'auwai* [length of ditch], and 7 banana *kula*. Modern tax maps show the 30 claims actually awarded all located in the *makai* portion of the *ahupua'a* seaward of the present project area. There appear to have been no *kuleana* (commoner) land claims in the present project area or further *mauka* within Waiawa *Ahupua'a*. While the uplands of Waiawa were probably used for the procurement of resources, we have no evidence anyone actually lived there permanently in traditional Hawaiian times.

D. Cultural History, 1850s to 1900

Ewa Station was located on Haupu'u, the current site of Leeward College. The reports left by Artemus Bishops of the Ewa Station shed light on the massive impact disease was having on the Hawaiian people in the 'Ewa district. Although A. Bishop made an attempt to vaccinate as many individuals as possible, a smallpox epidemic killed upwards of 400 people in the 'Ewa District in the year 1854. The comments of Bishop reflect the destitution people were suffering district wide:

It is not necessary that I go into detail of that season of sorrow and trial which we passed through, and from which I did not myself escape without feeling its influence in my own person. Let it suffice here, that not a house or family in Ewa escaped. In many cases, whole families were cut off. Husbands and wives parents and children, were separated by death. The whole state of society became disorganized, almost every family was broken up. In the whole district between July and October inclusive, upwards of half of the people died and of those who escaped, many are still enfeebled in consequence. In the church we have lost upwards of 400 members, including several of my best men. We feel ourselves very much crippled in consequence. Many sad and affected feelings, mingled with discouragement have followed my labors through the year, and that to a degree far beyond what I ever before suffered...(Bishop, 1854)

The consequences of the great numbers of deaths were far reaching, one of which was the large displacement of people from land. Like the other *ahupua'a* in the district, Waiawa would not have escaped from the suffering.

On March 19th 1855 the *ahupua'a* of Waiawa became Kamāmalu's property by Royal Patent (R. P. 4475). During the second half of the 19th century, Waiawa was passed on to successive members of the *ali'i*:

Victoria Kamāmalu died in 1866 at the age of twenty-seven. Her entire estate was inherited by her father, Kekūanao'a. He died two years later and the estate went to Kekūanao'a's son Lota Kapuāiwa, who by that time reigned as

Kamehameha V... Kapuāiwa died intestate in 1872, whereupon Ruta Ke`elikōlani, Kapuāiwa's half-sister, petitioned for and received in 1873 the entire estate...By 1883, Ruta Ke`elikōlani died, leaving all of her estate to her cousin Bernice Pauahi Bishop. (Kame`eleihiwa 1992:309-310)

The Kamehameha Schools (Bernice Pauahi Bishop Estate) presently retains ownership of most of the *ahupua`a*.

Between the years of 1861 and 1873, parcels of Waiawa were leased to Valdemar Knudsen for use as grazing lands for live stock. A fifty-year lease and leaseholds were granted to James Robinson in 1868. After James Robinson's death in 1890, his son, Mark P. Robinson, acquired a twenty-five year lease. Overwritten on the lease was the "permission granted to assign the lease to the Oahu Railway and Land Company" (Bureau of Land Conveyances 115:496). This lease was subleased from Oahu Railway and Land Company to the Oahu Sugar Company for forty-three years on January 1st 1897.

We know of no detailed maps of the upland region of Waiawa prior to the twentieth century. The 1877 Brown map of Waipi`o, `Ewa O`ahu (Figure 3) shows the table lands of O`ahu's central valley to be a grassy plain with `ōhia and koa forests in the uplands with little sign of human activity. In the last years of the nineteenth century the Oahu Sugar Company began to radically transform this landscape.

There is a record of attempted pineapple irrigation utilizing water from shallow wells in Waiawa Gulch in 1893; and prior to 1913, most of the plateaus in the Waiawa project area were planted in pineapple (Goodman and Nees, 1991: 59).

The Oahu Sugar Company first appears in an 1894 prospectus with the first annual report issued October 1, 1897 (Condé and Best 1973:313). In this period the Oahu Sugar Company leased an initial 12,000 acres of lands from the John Papa `Īi, Bishop and Robinson Estates. In the last years of the nineteenth century the Oahu Sugar Company established a mill at Waipahu and started developing a railroad network to transport cane from the fields to the mill. The new O.R. and L. railroad transported sugar from the Waipahu mill to the Honolulu docks (Dorianne and Morgan 2000:49).

E. Cultural History, 1900s to Present

Waiawa and neighboring Waipi`o, were the site of major military and agricultural developments in the early twentieth century. By 1900, the Oahu Sugar Company had purchased four locomotives (*Waipio, Waipahu, Waiawa* and *1st Hoaeae*) and by 1910 had 38 miles of track (Conde and Best 1973:314). By the 1920s much of the present study area comprised fields of the Oahu Sugar Company. By 1932 the railroad extension into Waiawa extended from `Ewa Junction, through Waiawa Gulch, to a tunnel on the Ko`olau Forest Reserve. An additional railroad spur began west of `Ewa Junction and extended northwest to the east edge of Pānakauahi Gulch and continued northeast to the Hawaiian Pineapple cannery. Railroad transportation and shipping became obsolete and was replaced with cane haul trucks after World War II.

In 1913 a project began to transport water from the windward side of O`ahu through the Ko`olau Range to irrigate the fields and mill of the Oahu Sugar Company in `Ewa. The Waiāhole Water Company, a subsidiary of Oahu Sugar, created the Waiāhole Ditch System that was "an engineering feat of epic proportion for those times" (Conde and Best 1973:37). The original system, when completed, included 27 tunnels connecting with 37 stream intakes on the north side of the Ko`olau, with the main bore through Waiāhole Valley, then connecting it to the 14 tunnels on the southern side of the Ko`olau at Waiawa, and thence by ditch westward to Honouliuli, covering a total of 13.6 kilometers (*Ibid.*). The ditch system was completed in 1916, and with some modifications is still in use. It is included on the state inventory of archaeological sites as Site no. 50-80-09-2268.

In 1901, the Hawaiian Pineapple Company obtained 61 acres in Waiawa through public auction. Initially, most pineapple was shipped to California for packing. In an attempt to speed up processing, save money and produce a fresher product, a cannery was constructed in Waiawa in the west central portion of the project area. This cannery was constructed by the Pearl City Fruit Company but became a part of the Hawaiian Pineapple Company operations after the Pearl City Fruit Company went bankrupt. The cannery was in operation from 1905 to 1935. Remnants of the cannery building and associated (cannery) camp complex 33 were accorded state site numbers -1471 (remnant of cannery building) and -1470 (associated historic dump).

Pineapples were handpicked, graded, boxed and loaded into trucks before the introduction of machinery into the harvesting process. The introduction of the mechanical field fruit harvester in 1947 eliminated the labor-intensive process of grading, boxing, and loading.

The pineapple industry employed both male and female Japanese and Filipino workers in the fields and in the cannery. Camps were set up throughout Waiawa to be used as housing for the workers and their families. A Japanese Camp and a Filipino Camp were established next to the cannery in the present project area and are understood to have been communities from roughly 1905 to 1935. By 1935, much of the present project area was planted in sugar cane (*Ibid.*)

The 1919 Fire Control Maps (Figure 4) show the extensive changes wrought in Waiawa and Waipi`o. Virtually the entire *makai* half of the project area is shown in cane cultivation at that time. The cannery and Cannery Camp (Camp Complex 33, designated Site 50-80-09-1470/171) in the central portion of the present project area is connected by rail to the O.R. & L. line *makai*. The Waiāhole Ditch enters the project area in the northeast corner. The "Flood Ditch" between the Waiāhole Ditch and Waiawa Gulch in the northeast side of the project area would later come to be known as "Ahren's Ditch" named after Oahu Sugar Company's first manager, August Ahrens. The houses and larger structure shown in the seaward, south central portion of the project area are

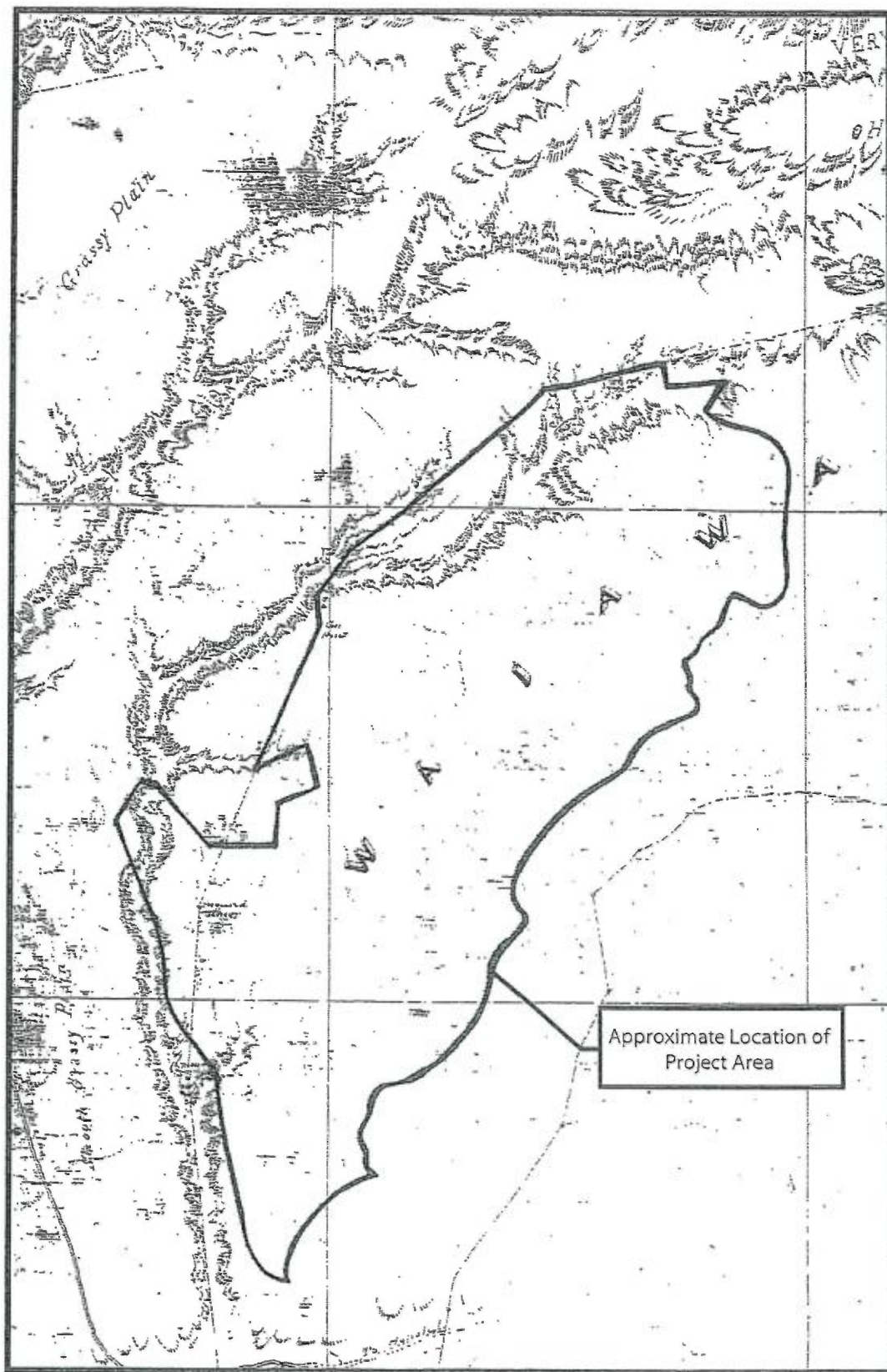


Figure 3 Map of Waipi'o (Compiled by J. F. Brown) in 1877 Showing General Conditions in the Waipi'o/Waiawa Area (Approximate Location of Project Area Shown).

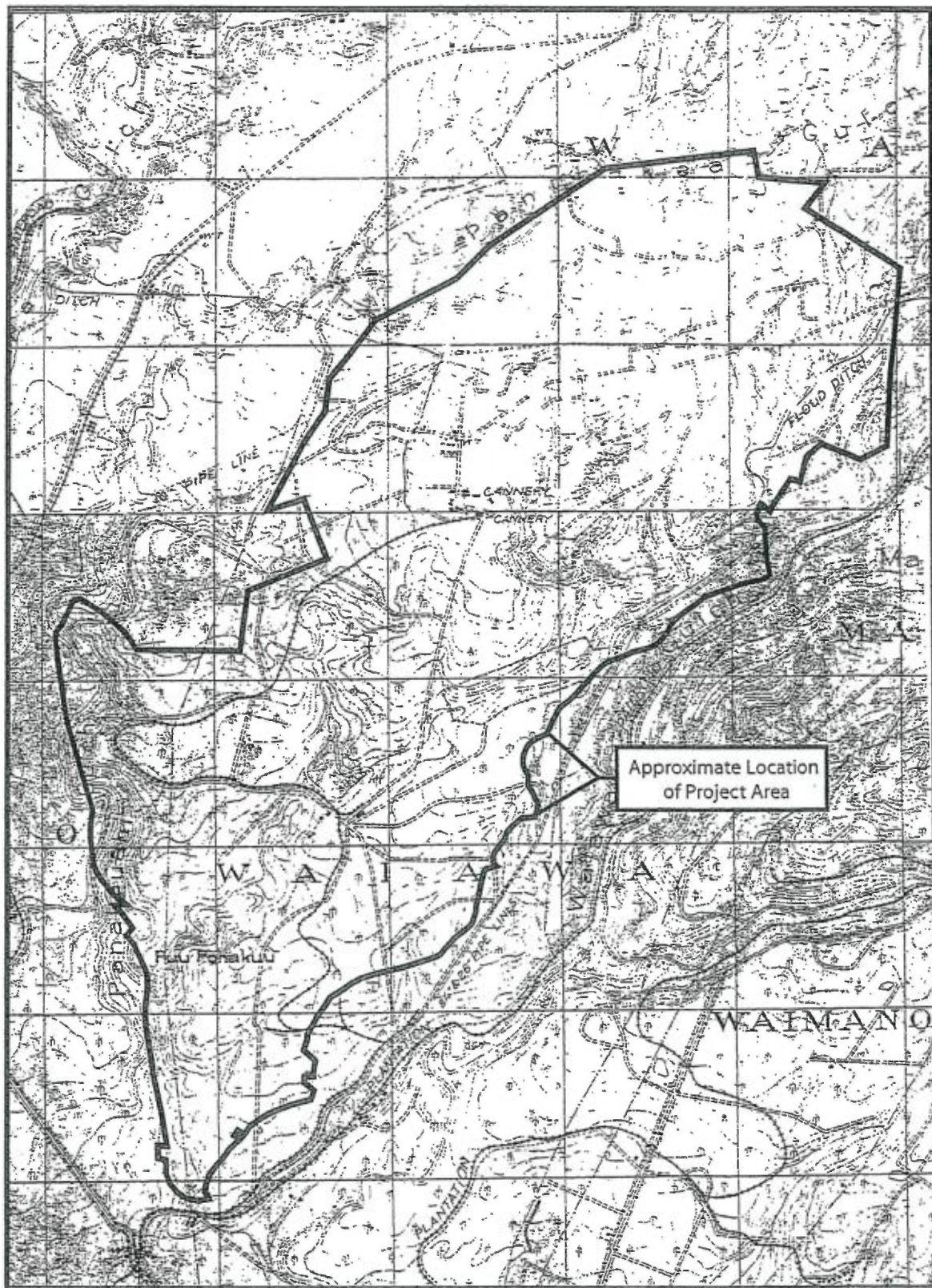


Figure 4 Portions of 1919 Fire Control Pearl Harbor and Wahiawa Quad Maps Showing Project Area.

understood as in the location of Camp 3 (designated Site 50-80-09-2272). One of the houses shown west of the Flood Ditch may be the Ditch man's camp (designated as part of Site 50-80-09-2271). No sign of developments associated with Camp 41 or Pump 6 are to be observed on this 1919 map. Several structures relating to Camp 5 may be noted just south of the project area.

An Oahu Sugar Company map of 1925 (Figure 5) shows the area seaward of the pineapple cannery (shown just *mauka* of the fields) as lying mostly in fields 1,2,3,4 and 41.

The 1928 series USGS maps (Figure 6) appears to show agricultural field expansion *mauka* (northeast) of the pineapple cannery and *mauka* of Waiāhole Ditch on areas of relatively flat table land.

The 1943 series War Department maps (Figure 7) give little indication of the former existence of the pineapple cannery and camp which has been all but obliterated. Presumably the cannery and associated camps were bulldozed shortly after abandonment in 1935. To the northeast, however, near the Waiāhole Ditch a small community is shown near a new radio station. In the seaward, south central portion of the project area, south of a large reservoir, the community understood as Camp 3 is shown as still extant.

From 1941 to 1983, portions of Waiawa have been used by the U.S. military. After entering WWII, a military reservation was established in the upland regions of the Waiawa project area. The reservation is 650.0 acres consisting of both gulch and plateau lands. From 1941 to 1945, the reservation was used as a training area for tanks and personnel and as an artillery impact area. The area was also used for the storage of munitions and supplies.

The primary structure built by the military was a communications center. This center consists of four buildings and a tunnel system. The communications center is currently being used by the State of Hawai'i as a minimum security prison (Waiawa Correctional Facility).

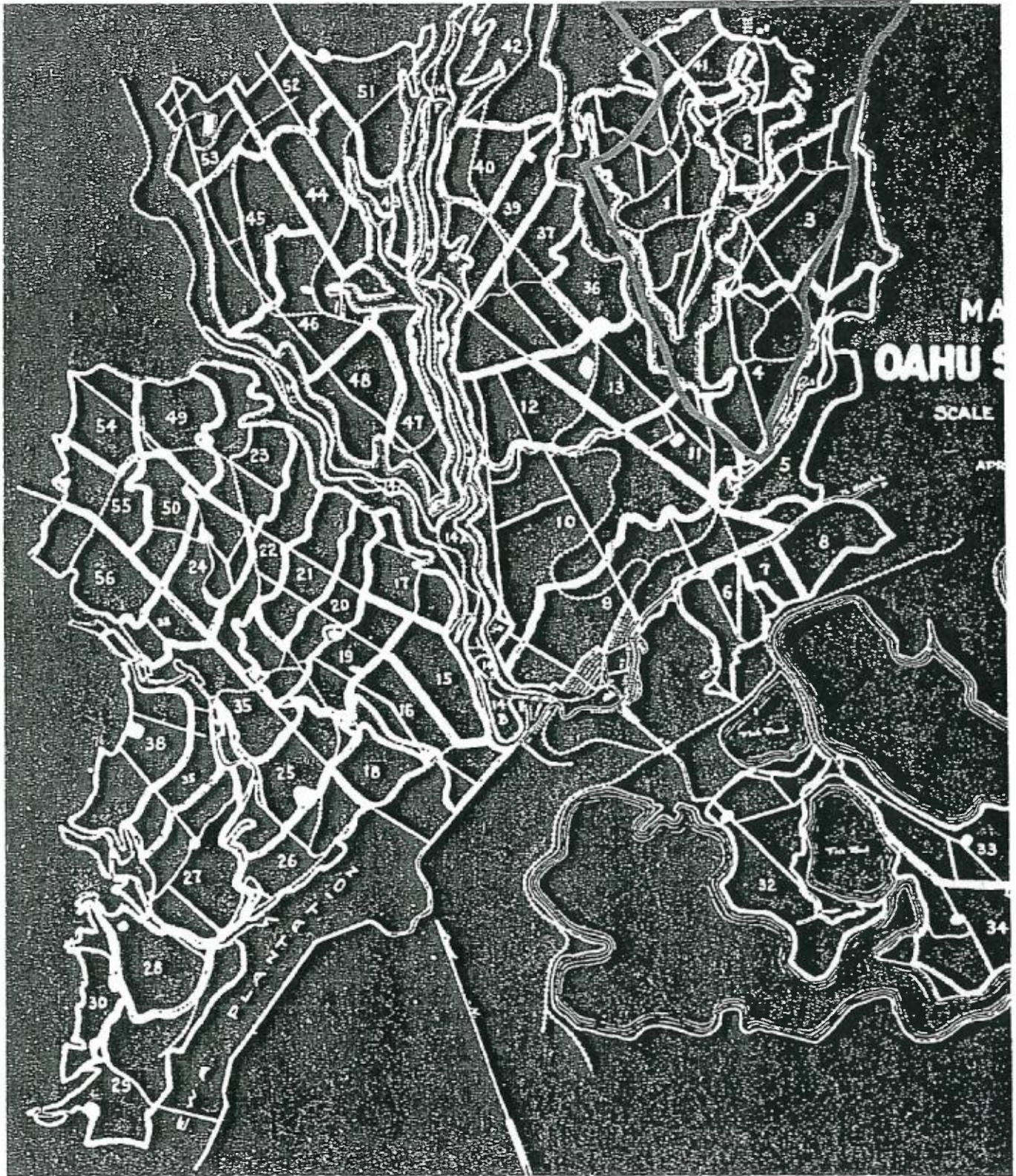


Figure 5 Portion of 1925 Map of Oahu Sugar Company (Conde and Best 1973:317) Showing Project Area in Pink.

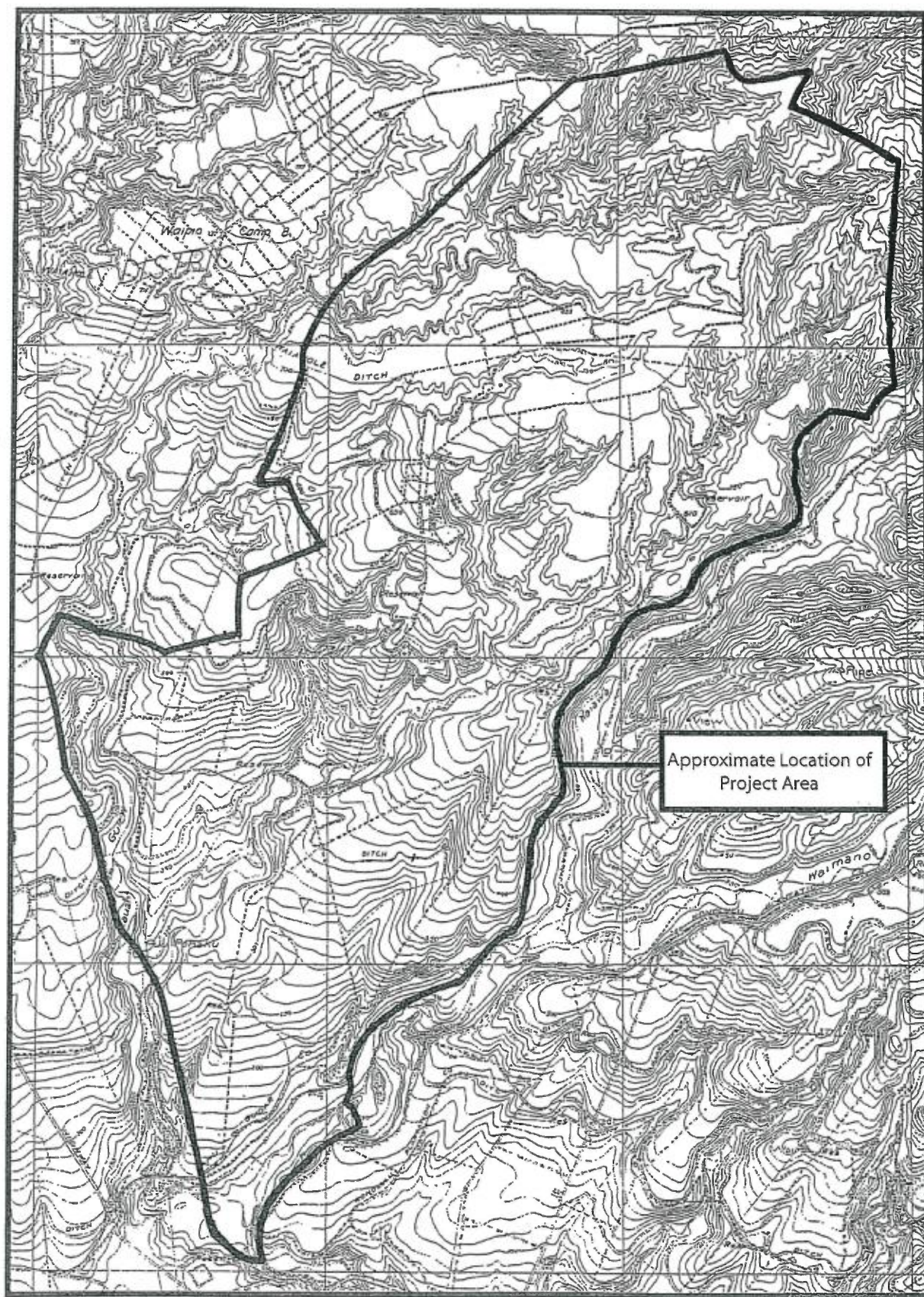


Figure 6 Portion of 1928 USGS Waipahu and Wahiawa Quad Maps Showing Project Area.

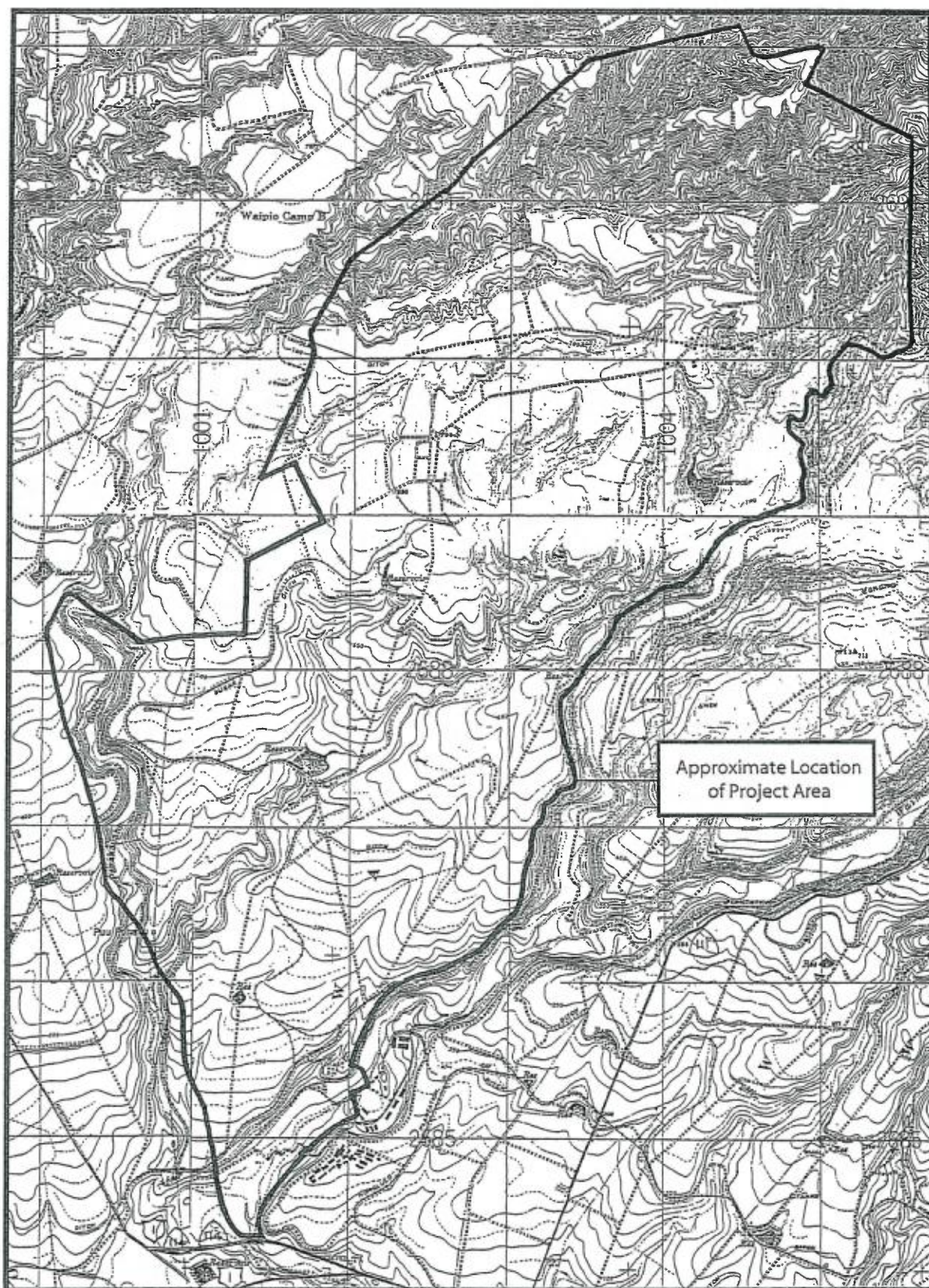


Figure 7 Portion of 1943 War Department Aiea, Kaukonahua and Waipahu Quad Maps Showing Project Area.

F. Place Names of Waiawa Uka

Place names or *wahi pana* ("legendary place" Pukui and Elbert, 1986: 376) are an integral part of Hawaiian culture. "In Hawaiian culture, if a particular spot is given a name, it is because an event occurred there which has meaning for the people of that time. (Mc Guire, 2000: 23)." The *wahi pana* were then passed on through language and the oral tradition, thus preserving the unique significance of the place. Hawaiians named all sorts of objects and places, points of interest which may have gone unnoticed by persons of other cultural backgrounds.

Hawaiians named taro patches, rocks and trees that represented deities and ancestors, sites of houses and *heiau* (places of worship), canoe landings, fishing stations in the sea, resting places in the forests, and the tiniest spots where miraculous or interesting events are believed to have taken place. (Pukui and Elbert, 1974:x)

An attempt was made to include the proper diacritical marks for all known and generally accepted translations of place names. Making incorrect assumptions about the pronunciation and where to place the diacritical marks in a name can entirely change the meaning of a name, (e.g. *pū`ā`ā*: "scattered; to flee in disorder and fright"; *pua`a*: "pig, pork"). Therefore, in cases where the pronunciation of a name was uncertain, diacritical marks were not used and no attempt was made to translate the name. In some cases, cultural relationships were made based on the literal translation of the root word.

Place Names of Hawai`i (Pukui et al., 1974) was used as the primary source for all place name translations. In some cases, where there were no known translations, a literal translation of the place name was made using the *Hawaiian Dictionary* (Pukui and Elbert, 1986). The intent of the author is to merely present the available information and let the reader come to his own conclusions.

One of the beauties of the Hawaiian language is the dualism in names and the double meanings – the literal meaning and the *kaona* or hidden meaning. It should be remembered that the true significance of a place name lies only with the people who use them and know their history.

Place Names List

Ahren's Ditch

Named in honor of Oahu Sugar Company's first manager, August Ahrens this ditch is primarily a tunnel lying in the northeast portion of the present project area. Designated Site 50-80-09-2269 (Goodman and Nees 1991:63)

| | |
|------------------------------|---|
| Camp Complex 33 | Camp complex associated with the Pineapple Cannery located |
| (Cannery Camp) | in the west central portion of the project area. Designated Site 50-80-09-1470/171(Goodman and Nees 1991:85) |
| Camp 3 (Irrigator Camp 3) | Camp built by Oahu Sugar Company to house cane workers and their families located in the south central portion of the project area. Designated Site 50-80-09-1472 (Goodman and Nees 1991:89) |
| Camp 39 | An Oahu Sugar Company irrigator camp said to be in the present project area, location uncertain (Goodman and Nees 1991:163) |
| Camp 41 | An Oahu Sugar Company irrigator camp located in the central west side of the project area. Designated Site 50-80-09-2271 although "no surface evidence remains (Goodman and Nees 1991:121) |
| Filipino Camp | Part of the camp complex associated with the Pineapple Cannery located in the west central portion of the project area. Designated Site 50-80-09-1470/171(Goodman and Nees 1991:76, 85) |
| Flood Ditch | Located between the Waiāhole Ditch and Waiawa Gulch on the northeast side of the project area this ditch and tunnel (completed prior to 1919) would later come to be known as the "Ahren's Ditch" |
| Hale | A land bounding <i>`ili</i> Kahoaiai in Waiawa (LCA 00904). |
| Hale`aha | Name of <i>`ili</i> near Kahoaiai in Waiawa (LCA 09403, 10942); <i>Lit.</i> , meeting house (PEM: 36) |
| Hi | A land bounding <i>`ili</i> Kahoaiai in Waiawa (LCA 00904). |
| Hanakehau/Honokehau | Name of an <i>`ili</i> in Waiawa (LCA 09366) |
| Japanese Camp | Part of the camp complex associated with the Pineapple Cannery located in the west central portion of the project area. Designated Site 50-80-09-1470/171(Goodman and Nees 1991:76, 85) |

| | |
|---|--|
| Ka`aimalu | Name of a stream thought to be located in Waiawa. The description reads "passed the plain of Kalipahee, passed the incline to Pueo-hulu-nui, down to the stream of Ka-ai-malu" (<i>"Nā Wahi Pana o `Ewa"</i> , <i>Ka Loea Kalaiaina</i> , July 22, 1899, p 15 in Sterling and Summers, 1978); Translated as "secret-eating" in the same reference. |
| Kahoaiai/Kahoaee/ Kahoaiaia | Name of an <i>`ili</i> in Waiawa located <i>mauka</i> of the "Government Road" along the Waiawa River and <i>makai</i> of the project area (LCAs 00904, 04213, 09359, 09366, 09403, 10942); name of a one of four chiefesses turned into stones, guardians of the path, thought to be located along the old Government Road in Waiawa—a <i>wahi pana</i> . |
| Kahoai | Name of <i>mo`o</i> in Kahoaiai (LCA 10942) |
| Kahuaiki | A land bounding <i>`ili</i> Kahoaiai in Waiawa (LCA 00904); The small fruit (PEM:66) |
| Kaihumeneiki/ Kaihumaneiki/ Kaihuminamina | A <i>mo`o`āina</i> in <i>`ili</i> Kahoaiai in Waiawa (LCA 04213, 10492) <i>Ihu mene</i> suggests "flat-nosed" (PE:246) |
| Kaihumenenui | A <i>mo`o`āina</i> in <i>`ili</i> Kahoaiai in Waiawa (LCA 04213) |
| Kalawaha | Name of <i>mo`o</i> in <i>`ili</i> of Kahoaiai in Waiawa (LCA 09359, 09366, 10942) |
| Kalona | Name of land in Waiawa (LCA 10942); Lit., the canoe resting block (PEM: 78). |
| Kaluali`i | Name of land in <i>`ili</i> Kahoaiai in Waiawa (LCA 09359, 10942); <i>Lua li`i li`i</i> (PE:213) refers to toilet, literally small pit |
| Kapuaihalulu | Name of land in Waiawa (LCA 10942); a possible reference to Halulu, the legendary man-eating bird. |
| Kapapaa | Name of land in Waiawa (LCA 10942); Pāpaa has the literal meaning of "secure enclosure" (PEM: 179) |
| Keakua`ōlelo | Referred to as a "talkative local god" who lived in the Pānakauahi Gulch (PEM: 178); associated with the story of <i>pōhaku huna palaoa</i> (<i>Ka Loea Kalaiaina</i> , July 22, 1899 in Sterling and Summers, 1978: 22). Also the name of a <i>heiau</i> described as located on one side of Pānakauahi Stream. |

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|-------------------------|--|
| Keawe | Name of <i>mo`o`āina</i> in `Ili Kahoaiai in Waiawa (LCA 09403); Name of southern star, said to be named for an ancient chief (PE:141) |
| Kipapa Trail | The Kipapa Trail alignment is an old trail which runs more or less along the ridge dividing Waip`io and Waiawa <i>Ahupua`a</i> up to the summit of the Ko`olau Mountains (where it connects to the Ko`olau summit trail) |
| Kuaioili | Name of <i>mo`o`āina</i> in Waiawa (LCA 09366) |
| Kuhiawaho | Name of land in Waiawa (LCA 10942) |
| Laepōhaku | Long, narrow ridge used as Waiawa <i>Ahupua`a</i> boundary marker (Boundary Commission Index #445, Waihona.com) |
| Leoiki: | A gulch within Kipapa Gulch, location unknown though probably adjacent to Panihakea/Pana`iahakea Gulch. In LCA 8241CC/ 11211, Poupou claims Leoiki Valley in Waipi`o Uka. One boundary of Leoiki is noted as Waiawa. This portion of Kipapa was leased out to Japanese farmers in 1908 to cultivate pineapple (Bureau of Land Conveyances, Liber 434: 228-235). <i>Lit.</i> ,. A low voice; to speak softly (PE: 203). |
| Loko Hanakehau | Name of pond in `Ili Hanakehau in Waiawa (LCA 09366) |
| Miyashiro General Store | Part of the camp complex associated with the Pineapple Cannery located in the west central portion of the project area. Designated Site 50-80-09-1470/171 (Goodman and Nees 1991:76, 85) |
| Mo`oiki | The name of a <i>mo`o`āina</i> in `Ili Kahoaiai (LCA 04213, 09359, 10942); Referred to as a <i>mo`o`āina</i> in `Ili Honokehau of Waiawa (LCA 09366) |
| `Ōma`o | Name used in association with Pu`u Kamau`u in the Waiawa Boundary Commission Claim (Boundary Commission Index #445, Waihona. com); although exact location is unknown, it is thought to be in the extreme <i>mauka</i> areas of Waiawa. <i>Lit.</i> Green (PEM:170) |
| Panihakea/Pana`iahakea | Gulch partially within the project area which drains into Pānakauahi Gulch (1919 Fire Control Map, Wahiawa Quad). Part of Panihakea is in Waiawa and part is in Waipi`o <i>Ahupua`a</i> . Portions of this gulch were leased out to Japanese farmers in 1908 to cultivate pineapple (Bureau of |

Land Conveyances, Liber 434: 228-235). Pana`iahakea is found in 'Legend of the Children, Ka-`ai-malu' referred to as the home of the children who broke the eating *kapu* (*Na Wahi Pana o `Ewa, Ka Loea Kalaiaina*, July 22, 1899, p 15 in Sterling and Summers, 1978).

Pānakauahi

Gulch and stream on the west margin of the *ahupua`a* and project area. Pukui *et al.* (1974:178) relates: A talkative local god, Ke-akua-`ōlelo (the speaking god), lived here. According to some accounts he betrayed secrets. In another story he saw a chiefess hide a *lei palaoa* (whale-tooth pendant); he promised to tell only her descendants. Lit. touched by the smoke.

Pauaio

Name of land in Waiawa (LCA 10942)

Pineapple Cannery

This cannery located in the west central portion of the project area was constructed by the Pearl City Fruit Company, became a part of Hawaiian Fruit Company and operated from 1905 to 1935. Designated Site 50-80-09-1471 (Goodman and Nees 1991:83-85)

Nā-pōhaku-luahine

These are described as old women who were changed into stones. "The names of these royal stones were Kahoaiai, Waiawakalea, Piliaumoa, Kahe`ekuluaikamoku, all chiefesses. Their four servants were Nohoana, Kikaeleke, Piliamo`o, Nohoanakai. These were the guardians of the trail" (*Ka Loea Kalaiaina*, June 3, 1899; p. 18). The writer describes the location of the stones, "Here is how the traveler can locate them. When you leave the bridge of Waiawa, for Honolulu, go up and then down an incline. The hill standing on the seaward side is Nuku-o-ka-manu. The next incline is Waiawa. Go up the ascent till you reach the top and above that, about two chains from the road you will find the stones." (*Ibid*)

Pōhaku `Ume`ume

A stone in the *mauka* regions of Waiawa used as an *ahupua`a* marker in the Waiawa Boundary Commission Claim (Boundary Commission Index #445, Waihona.com). `Ume suggests "attraction, alluring" (P&E:370).

Pump 6

Refers to Pumphouse 6, one of numerous pumphouses used by O`ahu Sugar Co. in the `Ewa District to pump water from streams into the fields for irrigation. Pump 6 was located in the southern portion of the project area in the Waiawa Stream Gulch (See Figure 8).

| | |
|---------------------------|---|
| Puoiki Heiau | McAllister (1933) reports this as Site 121, a destroyed <i>heiau</i> located on a knoll "at the juncture of Manana and Waiawa gulches" which is just east (outside) of the central portion of the present project area. |
| Pu`u Kamana | A hill at 1472 foot elevation on the ridge dividing Waip`io and Waiawa <i>Ahupua`a</i> , Lit.: Hill [of] the supernatural power (Pukui <i>et al.</i> 1974:198) |
| Pu`u Kamau`u | A hill used as a boundary marker for Waiawa <i>Ahupua`a</i> (Boundary Commission Index #445, Waihona.com); <i>Mau`u</i> refers to "general name for grasses, etc..." (PE:243) |
| Pu`u Pōhaku | A knoll at the confluence of Pānakauahi Gulch and a tributary to the west (Pu`u Pōhaku Gulch) on the west edge of Waiawa <i>Ahupua`a</i> just west of the south portion of the present project area. Lit. Rock Hill (Pukui <i>et al.</i> 1974:205) |
| Pu`u Pōhaku Gulch | Name applied (Goodman and Nees 1991:24) to a tributary to the west of Pānakauahi Gulch on the west edge of Waiawa <i>Ahupua`a</i> in the southwest portion of the present project area. Lit. Rock Hill Gulch (Pukui <i>et al.</i> 1974:205) |
| Shinsato Ditch man's Camp | A "Ditch man's Camp" of the Oahu Sugar Company located in the north central portion of the present project area bulldozed after abandonment c. 1960 leaving no surface evidence. Designated part of site 50-80-09-2271 (Goodman and Nees 1991:121, 164) |
| Ulu | Name of land in Waiawa (LCA 09366, 10942) |
| Waiāhole Ditch | Constructed between 1913 and 1915 by the Waiāhole Water Company (a subsidiary of the Oahu Sugar Company) this 21 mile long ditch brings water from windward to leeward O`ahu. Designated Site 50-80-09-2268 (Goodman and Nees 1991:64) |
| Waiawa: | The name of the <i>ahupua`a</i> meaning "Milkfish (<i>Chanos chanos</i>) water" according to Pukui <i>et al.</i> (1974:221) |
| Wai`awa: | The name of the <i>ahupua`a</i> meaning "Bitter Water" according to W. D. Alexander (1902:425) |

This place name study underscores the findings of the *māhele* data research in emphasizing the general absence of any record of Hawaiian use of these lands. Although there were several land commission awards located just *makai* of the project area in an *ili* named Kahoaiāi, there is no mention of *mauka* areas in the native testimony which accompanies these land claims. The only traditional Hawaiian place names that can be positively identified within the project area are Pānakauahi, Pana`iahakea (depicted as Panihakea in historic maps) both names of gulches. According to the sources of these names Pānakauahi and Pana`iahakea survive in documented legends of the area. Pu`u Pōhaku Gulch is thought to be an historic appellation. The known cultural history of the Waiawa study area is much more closely tied to plantation history.

III. SUMMARY OF ARCHAEOLOGICAL STUDIES

An archaeological inventory survey was carried out on the 3,600 acre project area in 1991 (Goodman and Nees, 1991). The following is a summary of the archaeological sites and their descriptions identified during the survey including information from follow up data recovery and ethnohistoric work completed in 1994 (Sinoto and Pantaleo, 1994).

Description of Identified Archaeological Sites

| | |
|---------------|--|
| Site Number | 50-80-09-1470 |
| Type of Site | Historic Dump |
| Location | Plateau above Gulch A |
| # of Features | 1 |
| Description | Site -1470 is a large pile of modern rubbish, wood and metal. The site dates back to the early 1900's. No further work is recommended for this site. |

| | |
|---------------|--|
| Site Number | 50-80-09-1471 |
| Type of Site | Remnant of Cannery Building |
| Location | Plateau Above Gulch A |
| # of Features | 1 |
| Description | Site -1471 is an abandoned pineapple cannery. Three walls, measuring 6.0m high remain standing. The site dates back to the early 1900's. This site was subsumed under the site number 50-80-09-2271 as Feature 1. Mapping and recording of the site was undertaken as part of the data recovery efforts for Sites -2262 and -2271 between 1991 and 1993 (Sinoto and Pantaleo, 1994). |

| | |
|---------------|---|
| Site Number | 50-80-09-1472 |
| Type of Site | Irrigator Camp |
| Location | Plateau Above Gulch C |
| # of Features | 2 |
| Description | Site -1472 is the remains of a housing camp built by Oahu Sugar Company to house workers and their families. Two structures make up the remains: 1) a structure made of plywood which is 3.0 by 3.0 meters. 2) two terraces made of unmodified and fractured basalt. The site dates back to the early 1900's. No further work is recommended for this site. |

| | |
|---------------|----------------|
| Site Number | 50-80-09-2261 |
| Type of Site | Rock Alignment |
| Location | Gulch A/Area A |
| # of Features | 1 |

Description Site -2261 is a rock alignment constructed from fractured basalt square slabs that measure 15 to 20 cm. The alignment extends about 1.5 meters. A complete chamber pot, two complete bottles and bottle fragments were found on the surface of the immediate area. The site dates back to the early 1900's. No further work is recommended for this site.

Site Number 50-80-09-2262
 Type of Site Lithic Scatter
 Location Ridge above Gulch A
 # of Features 1
 Description Site -2262 extends 90.0 meters from north to south along a flat ridge top that separates Gulch A from Waiawa Gulch. A basalt adze, an adze fragment, two polished flakes and two diagnostic flakes were found on site. Data recovery to determine settlement and prehistory of the Waiawa area was recommended. Data recovery and mitigation work was completed on Site -2262 in 1993 and 1994 including twelve shovel probes and two excavation units (Pantaleo and Sinoto, 1994:8-9). Negative results from the testing suggest this site was used for retouching rather than manufacturing of lithic tools and was probably based on a single visit or a short term visit. Because of the results of this work, mitigation was considered complete for Site -2262 (*Ibid*: 8).

Site Number 50-80-09-2263
 Type of Site Rockshelter Complex
 Location Gulch D
 # of Features 11
 Description Site -2263 is a complex of three rockshelters with petroglyphs and terraces. The rockshelters are believed to have been used by travelers traveling upland from the coast (via site 2264). Also worth noting is the possibility that this site contains the largest concentration of petroglyphs on O'ahu. The age of this site is estimated to be between A.D. 1430-1660. Permanent *in situ* preservation (passive) is recommended for this site.

Site Number 50-80-09-2264
 Type of Site Aboriginal Trail
 Location Gulch D
 # of Features 1
 Description Site -2264 is a series of trails which extend through Waikele and Pānakauahi Gulches, connecting the population centers of Waipahu and Wahiawā. The age of this site is estimated to be between A.D. 1430-1660. Permanent *in situ* preservation (passive) is recommended for this site.

| | |
|---------------|--|
| Site Number | 50-80-09-2265 |
| Type of Site | Rock Mounds, Terraces, Fire Pit, Wall |
| Location | Gulch G |
| # of Features | 10 |
| Description | Site -2265 is an area of six rock mounds and two dirt terraces. The mounds are arranged in a triangular pattern which encloses an area of 25.0 by 15.0 meters. Both traditional Hawaiian and historic artifacts were found on site. Age of the site is estimated to be between A.D. 1674-1742. Data recovery to determine settlement and prehistory of the Waiawa area is recommended. |

| | |
|---------------|---|
| Site Number | 50-80-09-2266 |
| Type of Site | Terrace with Depression |
| Location | Gulch G |
| # of Features | 4 |
| Description | Site -2266 is composed of the following four features: 1) a rectangular terrace made of basalt 4.2 by 2.8 m and is 0.8 meters high. 2) cobble alignments 2.0 meters in length. 3) a pit 2.7 meters in diameter and 0.6 meters deep. 4) a cement watering trough 1.0 by 1.3 m and is 0.08 meters high. Data recovery to determine settlement and prehistory of the Waiawa area is recommended. |

| | |
|---------------|---|
| Site Number | 50-80-09-2267 |
| Type of Site | Terrace |
| Location | Gulch G |
| # of Features | 1 |
| Description | Site -2267 is a terrace that measures 7.5 by 2.8 meters with a height of 1.5 meters. Located 75.0 meters south of site 2266. No further work is required for this site. |

| | |
|---------------|--|
| Site Number | 50-80-09-2268 |
| Type of Site | Waiāhole Ditch |
| Location | Gulch I |
| # of Features | 1 |
| Description | Site -2268 is a irrigation ditch designed to draw water from windward streams and subterranean lava tubes. Constructed by Waiāhole Water Co. between 1913 and 1915 the ditch begins in the Ko'olau mountain range and extends 21 miles across the 'Ewa plain ending near Kalaeloa. No further work is recommended for this site. |

| | |
|---------------|---------------|
| Site Number | 50-80-09-2269 |
| Type of Site | Ahren's Ditch |
| Location | Area B |
| # of Features | 1 |

| | |
|---------------|---|
| Description | Site -2269 is a tunnel that extends from the Ko'olau ridge to the project areas boundary. Use of this tunnel stopped once the Waiāhole Ditch was constructed. No further work is required for this site. |
| Site Number | 50-80-09-2270 |
| Type of Site | Road/Railroad System |
| Location | Areas A/B |
| # of Features | 44 |
| Description | Site -2270 is a road and railway system composed of abandoned roadbeds, retaining walls, paved and unpaved roads and other road-related structures used for the transportation of sugarcane and pineapple. Fragments of the site cover the entire project area. The site dates back to the late 1800's to the early 1900's. No further work is recommended for this site. |
| Site Number | 50-80-09-2271 |
| Type of Site | Irrigator/Ditchman/Cannery Camps |
| Location | Areas A/B |
| # of Features | 3 |
| Description | Site -2271 consists of a concrete platform, remnants of a camp structure and a historic cemetery used by Japanese workers. Archival research, detailed mapping and data recovery was recommended to determine settlement and prehistory of the Waiawa area. A remnant of the small pineapple cannery which operated as Pearl City Fruit Company and later as Hawaiian Fruit Company was mapped, narrative recording and black and white photography was conducted for the data recovery of Site 50-80-09-2271 Feature 1. Based on an oral account from an area resident, Feature 2 was found to be structures relating to a modern dairy, the Pine Ridge Dairy which closed in the 1970s. No further work was necessary for this feature. For Feature 3, the historic Japanese Cemetery, data recovery included controlled subsurface testing of eight sub-features, fifteen shovel probes and a systematic collection of surface artifacts. No human remains were recovered from the test units and the shovel probes. Exhaustive efforts were made to find lineal descendants in Hawaii, Kumamoto and Okinawa, however none were found. The remaining headstones were relocated at the Waipahu Cultural Garden Park (Sinoto and Pantaleo, 1994). Further mitigation work regarding the Japanese Cemetery was conducted in 1994 including additional interviews and sending out public notices in English and Japanese language newspapers and one Okinawan Journal (Sinoto and Pantaleo, 1995). Based on the information collected, the Japanese Cemetery is interpreted as an historic cemetery associated with two distinct |

periods of use by the pineapple cannery camp. In the years following the camps closure, families came to collect the human remains of their interred family members (Sinoto and Pantaleo, 1995).

| | |
|---------------|---|
| Site Number | 50-80-09-2272 |
| Type of Site | Military Utilization Areas |
| Location | Plateaus /Gulches A/B |
| # of Features | 5 |
| Description | Site -2272 consists of <u>military</u> structures built from 1941 to 1983. The primary structure is a communications center currently used by the State of Hawai'i as a minimum security prison. No further work is required for this site. |

| | |
|---------------|---|
| Site Number | 50-80-09-2273 |
| Type of Site | Irrigation Complex |
| Location | Areas A/B |
| # of Features | 35 |
| Description | Site -2273 is an irrigation complex composed of ditches, flumes, siphons, reservoirs, pumping stations and wells used to irrigate sugarcane fields in the Waiawa region. No further work is required for this site. |

The vast majority of designated archaeological sites and features relate to twentieth century commercial agriculture, military activities and the minimum security prison. While certain plantation infrastructure (plantation camps) may have had cultural importance for certain ethnic groups in the past, all indications are that what remains in this project area is in such a ruined state as to have effectively lost all integrity and cultural import. The project area included three types of plantation camps: cannery, irrigator, and ditchman's camps. Camp Complex 33 was associated with the Pineapple Cannery (collectively Site 1471) located in the west central portion of the project area. Of this residential camp only a building remnant and trash dump remained (the cemetery is discussed below) in 1991 (Goodman and Nees 1991:85-86). Irrigator, and ditchman's camps tended to be far more isolated, much smaller, and less involved in communal ethnic life than the larger, nucleated cane worker's camps. The three irrigator camps in the project area have long been abandoned and only one, Irrigator Camp 3 (Site -1472), had any remnants of structures remaining in 1991 (Goodman and Nees 1991:i). These remnants were minimal (Goodman and Nees 1991:89-90) and no further work was recommended. The ditchmans's camp (Shinsato Camp) in the project area had only one house, a bathhouse and an outhouse was associated with only one ditchman (Shinsato) and was demolished after abandonment. The pattern in many plantations was that following abandonment, plantation camps were demolished - often leaving remarkably little trace. The lack of physical remains argues against regarding these former Japanese and Filipino camps as cultural properties.



IV. RESULTS OF COMMUNITY CONSULTATION

A substantial effort was made to locate informants with knowledge of the plateau areas of upland Waiawa and Waipi'o. An attempt was made to contact seventy-nine individuals as possible leads, and sixty-three potentially knowledgeable parties were in fact contacted for information and/or referrals (Table 1). Because most of the 175 acres being assessed for this project have been cultivated in sugar cane for more or less the last one hundred years, one focus in the consultation effort was on finding former residents of plantation camps which were once located in the more *ma kai* portion of the project area. Efforts were also made to locate local families who had a long history in the *makai* area of Waiawa who may have cultural traditions in the *mauka* regions or gulches of Waiawa. The individuals contacted ranged from local pig hunters to *kumu hula*, to *kūpuna*, to civic leaders, to former O'ahu Sugar Co. plantation camp residents.

A. Previous Community Consultations

As a complimentary part of the archaeological assessment for the Waiawa study area carried out in the 1980s and 1990s, two informants were consulted regarding the history of pineapple and sugar cane in the project area (in Goodman and Nees, 1991: Appendix C). The purpose of the informants was to "elicit information on lifeways, events, and structures within the project area in order to assist the archaeological team in the location and interpretation of historical period structures". One of the informants Mr. Masao "Crankey" Watanabe, was a long time employee of Oahu Sugar Company and had knowledge of the irrigator camps in the project area. He also provided information on the war time use of the project area when 3,500 acres was taken out of cane production and placed into potato production. The second informant, Mrs. Masae Miyashiro grew up in the Hawaiian Pineapple Cannery Camp located in the project area. In 1905, Pearl City Fruit Company opened up a pineapple cannery in the Waiawa project area along with a Filipino and Japanese pineapple workers camp (Goodman and Nees, 1991:85). The Cannery was taken over by Hawaiian Fruit Company when Pearl City Fruit Company went bankrupt. The cannery shut down circa 1935 and the workers camps were abandoned. Mrs. Miyashiro's family operated a small dry goods store withing the cannery complex and although Mrs. Miyashiro's family left the camp when she was a young girl, she was able to provide general information of the pineapple camp including details about the camp layout and the types of structures in the Japanese camp. She describes a cemetery associated with the camp with multiple graves, one of which had belonged to her deceased, infant sister.

Further consultation was completed as part of the data recovery efforts for the historic period Japanese cemetery (Site 50-80-09-2271: Feature 3) associated with the Japanese pineapple workers camp of the Hawaiian Fruit Company Pineapple Cannery [Sinoto and Pantaleo, 1995]. Three interviews were conducted with individuals who grew up in the Hawaiian Pineapple Cannery Camp, however the interviews focused more on the cemetery than on Waiawa in general. These individuals included Mrs. Masae Miyashiro, Mr. Eddie Tamanaha and Mrs. Doris (Miyahara) Higa.

B. Plantation Era

Three camps associated with Oahu Sugar Company were once located in the project area. The camps consisted of two irrigator camps, Camps 3 and 41 located on the tablelands adjacent to reservoirs and one pumphouse camp, Pump 6 located near the Waiawa River (See Figure 8). Many of our consultation efforts were focused on finding former residents of these particular camps. This proved to be difficult as many of the camp members have either passed away or dispersed. Though we were unable to contact any of the former residents of the camps within the Waiawa project area, we were successful in contacting former residents of Camp 5, a camp which was located just *makai* of the project area, approximately one mile from Pump 6 (See Figure 8). Former residents from Camp 5 and other camps were able to give us a few insights into the camps which once existed in the project area as well as of camp life in general.

Of all the camps in the project area, Pump 6 seems to have been the most well known, most likely due to its location, close to Waiawa River and not so far from Kamehameha Highway. Camps 3 and 41 were quite isolated up in the cane fields and therefore more difficult to access. People remember between eight and ten houses in the camp (Personal communication w/ W. Higa, 10/17/02, and H. Suzuki, 11/20/02). Generally, the irrigator camps and pump camps were inhabited by Japanese, Okinawans and Filipinos and those who do recall Pump 6 remember the camp consisting of mostly Filipino families and single men with a few Japanese families (personal communication with H. Terashima, 10/24/02 and H. Suzuki, 11/20/02). One name which was mentioned frequently in conjunction with Pump 6 was the Kusunoki family. Attempts made to contact this family were unsuccessful.

A popular attraction at Pump 6 was the swimming hole, apparently frequented by many youth growing up in Camp 5 down the road (personal communication w/ A. Delos Reyes, 11/25/02, H. Suzuki, 11/20/02 and H. Terashima, 10/24/02). Another common activity which seemed to attract many outlying camp residents was the fishing. The Waiawa Stream at Pump 6 was considered a good place to catch river shrimp, *ōpae*, *ō'opu* and catfish (personal communications w/ A. Delos Reyes, B. Miguel, H. Suzuki, and H. Terashima). Mr. Delos Reyes recalls catching catfish by the barrel after big rains and selling the extra.

Having grown up in Pump 4, a camp near Waipahu Town, Mr. Higa was well versed in how the pumphouses operated. The primary function of a pumphouse was to pump stream water to the fields at higher elevations. This supplemented other irrigation techniques. Pumphouses operated on team work and they required 24 hour coverage. Mr. Higa recalls most pumphouses had teams of four working one of three 24 hour shifts. One team of two worked the boiler room and one team of two worked the pump room. Those in the boiler room were responsible for maintaining the fire and steam. Those in the pump room oiled the pump and made sure the pump was operating smoothly. According to Mr. Higa, in the mid-1950s, the steam powered pumps were replaced by electronic pumps which reduced the pump staff (personal communication w/ W. Higa, October 17, 2002).

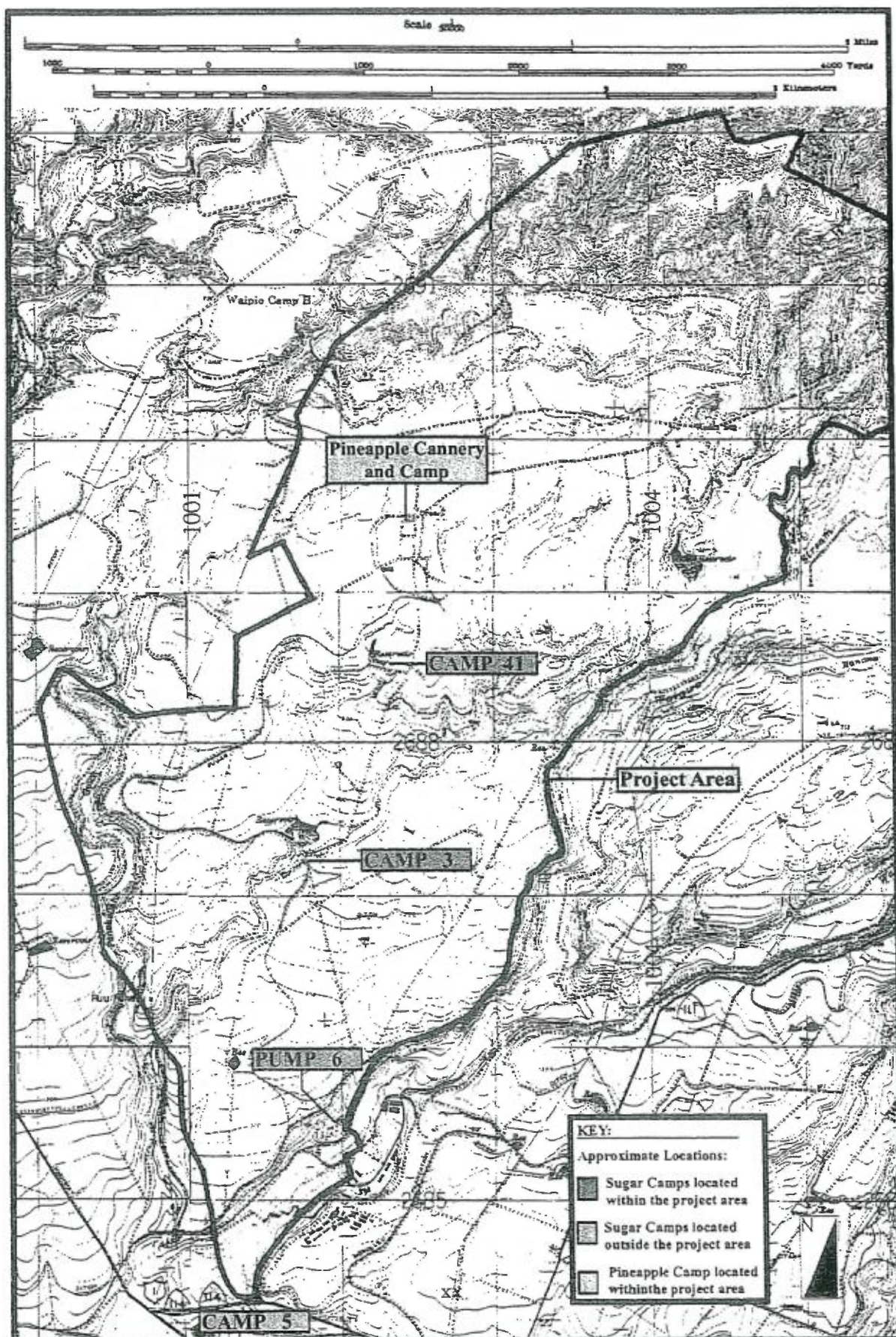


Figure 8 Portion of 1943 War Department Map, Aiea and Waipahu Quads, Showing Locations of O'ahu Sugar Camps and Pineapple Cannery and Camp.

Like other Oahu Sugar Co. irrigator camps, the name of the irrigator camps in the project area reflects the number assigned to a nearby field. Those familiar with the camp remember it being about the same size as Pump 6, about 10 houses with a largely Filipino population. One Japanese family is known to have lived there (H. Terashima, 10/24/02). Camp 3 was located next to a large reservoir which was fed by Waiahole Ditch water. According to Mr. Delos Reyes, the reservoir at Camp 3 was used by camp residents to fish for tilapia (personal communication w/ A. Delos Reyes, 11/25/02). Two families are known to have resided at Camp 3, the Makapulay and Seteno families, however efforts to reach them were unsuccessful.

The third camp, Camp 41 was the most isolated of the camps and was remembered by only one of the individuals consulted. No one else knew anything about the camp or even of its existence. Born in 1924 in Camp 5, Mr. Terashima was one of the oldest former camp residents consulted. He recalled that Camp 41 was populated solely by single Filipino men. This may account for the difficulty in locating former Camp 41 residents.

C. *Kama`āina* Families of Waiawa

The difficulty in locating old *kama`āina* families in Waiawa may reflect the history of land use in that area. Land records give no indication of any Hawaiians living in Waiawa Uka in the mid nineteenth century. Hawaiian families that may have been active in the uplands of Waiawa and Waipi`o such as some of the ranching families were largely replaced with immigrant laborers who moved in with the advent of pineapple and sugar cane cultivation. Memories of these paniolo families still surface in conversations with some *kūpuna* (personal communication w/ J. Goodness, 11/25/02 and R. Santiago, 10/15/02). Other folks genealogies attest to the influence of the Chinese rice farmers who converted many of the old taro *lo`i* in the *makai* aras of Waiawa into rice patties during the second half of the nineteenth century. Hawaiian-Chinese marriages were not uncommon in those days. As the adjacent town of Pearl City began to grow and provide more opportunities for small business in the beginning of the 20th century, many of the farming families of Waiawa migrated over to Pearl City.

The following table shows the results of the community consultations which were conducted by Tina Bushnell for Cultural Surveys Hawai'i.

Table 1: Results of Community Consultations Results of Community Consultations

Key:

Y=Yes

N=No

A=Attempted (at least 3 attempts were made to contact individual, with no response)

S=Some knowledge of the project area

D=Declined to comment

U=Unable to contact, i.e., no phone or forwarding address, phone number unknown

| Name | Affiliation | Contacted | Personal Knowledge (Y/N/S) | Comments |
|------------------------|---|-----------|----------------------------|--|
| Akiona, Brian | Hui Mālama I Nā Kūpuna O Hawai'i Nei | Y | N | Made referrals |
| Antolin, Orlando | Employee of C. Brewer | Y | N | |
| Arakaki, Masanobu | Kīpapa Valley Farmer | Y | N | As a youngster growing up in a truck farming family, Waiawa was considered so far away. No knowledge of project area |
| Arakawa, Goro | Life time Waipahu Resident and owner of Arakawa Store | Y | S | Made referrals. Participated in Waipahu Elementary School garden which was up in Waiawa, in project area. |
| Au, Dan | Wāhiawā Hawaiian Civic Club | Y | | Made referrals |
| Ayau, Edward Halealoha | Hui Mālama I Nā Kūpuna O Hawai'i Nei | Y | N | Verified that no burial concerns for Waiawa project area |
| Bacon, Pat Namaka | Bishop Museum | A | | |
| Balfour, Bill | Director of City & County Parks and Recreation | A | | Former employee of O'ahu Sugar Co. |
| Bunda, Darrlyn | Waipahu Community Association | Y | N | No information on project area |
| Cabral, Mervin | Hunter of mauka areas referred by Richard Estoesta | U | | Phone was not functioning |

| Name | Affiliation | Contacted | Personal Knowledge (Y/N/S) | Comments |
|--------------------------|---|-----------|----------------------------|--|
| Casiño, Silayan | The Filipino Community Center, Inc. | Y | N | No information on project area |
| Castello, Mariano | Waipi'o Valley Hunter and Dirt Bike Rider | Y | S | Made referral |
| Cayan, Phyllis "Coochie" | O'ahu Island Burial Council | Y | N | No burial concerns; suggested talking to farmers and ranchers and researching at UH Oral History |
| Cherry, Bob | Leased land in project area | Y | N | Raises goats on leased land in project area, but has no knowledge of historic use |
| Chung, Lily | Longtime resident of Pauhala Homesteads in Waipahu | A | | |
| Cope, Agnes | Wai'anae Coast Culture and Arts; referred by Nettie Tiffany | A | | |
| Crabbe, John | Former resident of Waiawa | Y | S | Mahi Family. Grew up near Haupu'u, Leeward Community College |
| Cruze, Sandra | Mānana Elem. School Teacher | Y | S | Has done research for Mānana; made referrals and gave resources. |
| Dahang, Ka'imi Loa | Hawaiian Studies Teacher; works with kūpuna | Y | N | Made referrals |
| DeLima, Richard | Waipi'o Hunter | A | | |
| Delos Reyes, Artemio | Former resident of Waiawa | Y | Y | Grew up in Camp 5; had relatives in Camp 3 in project area. |
| DE Silva, Phil | Waipahu Resident | Y | N | |
| Derego, Hokulani | Hālau Hula O Hōkūlani | Y | N | Halau Hula does not gather in project area |
| Derego, Larry | | Y | N | Made referrals |

| Name | Affiliation | Contacted | Personal Knowledge (Y/N/S) | Comments |
|--------------------------|--|-----------|----------------------------|--|
| Eaton, Arlene | Pu'uloa/Ewa Hawaiian Civic Club | Y | S | Made referral |
| Erickson, Jackie | Pearl City resident | Y | S | Member of the Mahi family. Grandparents had land near Haupu'u, Leeward Community College. |
| Estoesta, Richard | Waipi'o Hunter | Y | N | Made referrals |
| Ferreira, Linden | Waipi'o Dirt Biker | Y | S | Made referrals |
| Fukushima, Albert | Pearl City Neighborhood Board | Y | N | Made referrals |
| Fukushima, Alvin | Grew up Waimalu; referred by Warren Higa | Y | N | No knowledge of project area |
| Gilliland, Guy | Kamehameha Schools--Land Manager for Waiawa area | Y | N | No information |
| Goodness, Jackie | Aiea kupuna | Y | N | Father was rancher in Aiea area; would cross project area to get to Crossley Ranch, Waipi'o uka. |
| Hanohano, Dani | Halawa resident | Y | S | Member of the Mahi family. Grandparents had land near Haupu'u, Leeward Community College. |
| Henderson, Rannie "Bula" | Royal Construction | Y | N | Made referral |
| Higa, Warren | Former resident of Pump 4 | Y | N | Gave information on Pump Camps in general and made referrals |
| Holt Takamine, Victoria | 'Ilio'ulaokalani; Pua Ali'i 'Ilima, kumu hula | A | | |
| Ishihara, Jon | Waipahu Resident | Y | N | |
| Kaimikaua, John | Kumu Hula; grew up in Aiea | Y | N | No knowledge of area |

| Name | Affiliation | Contacted | Personal Knowledge (Y/N/S) | Comments |
|-----------------------|---|-----------|----------------------------|--|
| Kane, Shad | Committee of Historic Sites and Cultural Properties for Hawn Civic Club | Y | N | Concerned re: unrecorded sites eg. <i>heiau</i> and <i>ahupua'a</i> boundary in Pānakauahi Gulch |
| Kaneshiro, Joann | Works for Campbell Estate; thought to have information on former Oahu Sugar Plantation employees | Y | N | Gave referral |
| Kapeliela, Kana'i | SHPD, Burials Division | Y | N | No burial concerns for project area |
| Kawano, Irwin | Pearl City Resident | A | | Family hunted in <i>mauka</i> areas of Waiawa |
| Kawano, Toshio | Former Hunter of Waiawa | U | | Deceased September 2002 |
| Keala, Jalna | Office of Hawaiian Affairs | Y | N | <i>Maika</i> fields in Waiawa; gave referrals |
| Kojima, June | Formerly of Waiawa | Y | N | Grew up in Camp 5 |
| Lenchanko, Tom | Wahiawā Hawaiian Civic Club; Friends of Kūkaniloko; Native Hawaiian Historic Preservation Council | Y | S | Concerned re: <i>ahupua'a</i> boundary in project area |
| Makaneole, Kalama | <i>Lā'au lapa'au</i> and <i>lomilomi</i> practitioner and teacher; has family in Waikele | Y | N | No knowledge of project area |
| Markell, Ka'iana | SHPD-Burials Director | A | | |
| McEldowney, Dr. Holly | SHPD-Culture and History Division | Y | N | Focus on access issues to <i>mauka</i> areas and inland gulch resources |

| Name | Affiliation | Contacted | Personal Knowledge (Y/N/S) | Comments |
|--------------------|---|-----------|----------------------------|--|
| McKenzie, Edith | Pearl City Resident | Y | S | Father rented land in Waiawa for cultivating taro <i>makai</i> of project area in early part of 20 th century |
| Miguel, Bobby | Former employee of O'ahu Sugar Co. | Y | Y | As a boy, used to fish near Pump 6 |
| Nakamura, Mike | Former employee of Oahu Sugar Co. | Y | N | |
| Naone, Herbert | Security Guard for Waiawa Project Area | Y | S | Involved in ranching in Waiawa, including project area in 1980s |
| Nedbalek, Lani | Author of "Waipahu" and "Wahiawa" | Y | S | Gave referrals and resources |
| Nishioka, Aethell | Referral from G. Arakawa | Y | N | Member of the Kawano family, a family who hunted in Waiawa; gave referral to nephew |
| Poirier, Dick | Mililani/Waipio, Melemanu Neighborhood Board | A | | |
| Ramos, Angel | Former Kahuku Sugar Co. employee | Y | N | |
| Rego, Arthur | Former employee of Del Monte | Y | N | No knowledge of Waiawa |
| Sakuma, Amy | Volunteer with Hawaii's Plantation Village | Y | S | Grew up with Yasuda family at Pump 4, visited friends at Pump 6 in project area |
| Santiago, Rodney | Former Waiawa Hunter | Y | S | Knowledge of <i>mauka</i> hunting areas |
| Santos, Eddie | Former Waiawa Hunter referred by Richard Santiago | U | | |
| Scheuer, Johnathon | Kamehameha Schools | Y | N | Made Referral |
| Seteno, Joe | Former member of Camp 3, camp in project area | Y | Y | Made referrals; unable to talk due to death in the family |

| Name | Affiliation | Contacted | Personal Knowledge (Y/N/S) | Comments |
|-------------------------------|---|-----------|----------------------------|---|
| Seto, Duncan Ka'ohuoka'ala | O'ahu Island Burial Council | A | | |
| Shirai, Thomas | O'ahu Island Burial Council | A | | |
| Silva, Anthony | Former Waiawa Hunter | Y | Y | Knowledge of <i>mauka</i> hunting areas; Made referrals |
| Silva, Henry | Owner of former Pine Ridge Dairy in project area | U | | Called the phone number for a Henry Silva from the phone book and was informed that Henry Silva never had a dairy in Waiawa |
| Suzuki, Harold | Former Waiawa resident | Y | S | Grew up in Camp 5 <i>makai</i> of project area; made referrals. |
| Suzuki, Roger | Former Waiawa resident | Y | S | Grew up in Camp 5 <i>makai</i> of project area; made referrals. |
| Tanji, Tom | Waipahu Resident | Y | N | Made referrals |
| Terashima, Hidaru | Former Waiawa resident | Y | S | Lived in Camp 5 <i>makai</i> of project area |
| Tiffany, Nettie | O'ahu Island Burial Council; Ewa Regional Rep. | Y | N | Made referrals |
| Topolinski, John Kaha'i | Kumu Hula and Teacher of Hawaiian Studies at Mililani High School | Y | S | |
| Tseu, Iwalani | Iwalani School of Dance (Mililani) | Y | N | Suggested talking to other <i>hālau hula</i> |
| Uemori, Eddie | Waipahu Resident | Y | S | Made referrals |
| Wilson, Momi | Family originally from Waikele | Y | N | Made referral |
| Yamaguchi, Annette | Waipahu Neighborhood Board | Y | N | Made referrals |
| Yasui, Fred | Waipahu Resident | Y | N | Due to age, Mr. Yasui is unable to communicate |

| Name | Affiliation | Contacted | Personal Knowledge (Y/N/S) | Comments |
|---------------|---|-----------|----------------------------|----------------|
| Yent, Martha | State Parks Archaeologist | Y | N | Made referrals |
| Young, Tin Hu | Royal Order of Kamehameha; Family originally from Waiawa | Y | | Interviewed |

Through the consultation process, one individual, Tin Hu Young, was identified as a potential informant. Although Mr. Young grew up in Waiawa and has lived there most of his life, his knowledge mostly focused on the *makai* lands of Waiawa. Mr. Young was interviewed on October 9, 2002 and the interview transcript is available in Appendix A of this report. A second family name which appeared several times during scoping was the Mahi Family. Three members of the Mahi family were consulted and only one of them actually grew up in Waiawa. According to one family member, the Mahi family has traditions connected to Pu'uloa and the song Pūpū A O 'Ewa (Personal communication w/ D. Hanohano, 11/20/02).

D. Biographical Sketch of the Interview Informant

The following biographical sketch of the interviewee serves to introduce the reader to the informant.

Tin Hu Young

Tin Hu Young's roots go way back in Waiawa. He was born in 1927 to a Chinese father, Tin Hu Young and a part-Hawaiian mother, Elizabeth Kahiku Johnson. Tin Hu Young's grandfather, Young See Hop, grew rice in the *makai* areas of Waiawa near Pu'uloa. This land was inherited by Tin Hu Young's father and is where Tin Hu Young grew up. From his mother, Tin Hu gained a strong sense of God and the church. Elizabeth Kahiku Johnson had strong ties to the Kalavina or Calvinist tradition and attended Kahikuonalani Church when she was growing up. Here, she learned the joy of music and song and her son, Tin Hu continues this tradition singing with the Kawaiha'o Church Choir. Music runs deep in his family as can be seen by the song written by Tin Hu's grandfather, Pedro Manini Johnson for his grandmother, Pa'ahana. The story goes that Pedro Manini Johnson was a cowboy who met Pa'ahana in the *mauka* areas of the Ko'olaus, she was in flight from her step-mother from Wahiawā. The following is the song taken from Elbert and Mahoes' "*Nā Mele o Hawai'i Nei*" (1970:84):

PA`AHANA

This is an example of the old type of song that tells a story. Pa`ahana (busy) was a girl mistreated by her stepmother. She ran into the hills above Wahi-a-wā and lived on river shrimps and guava until she was discovered by a cowboy and taken back to Mānana, the present site of Pearl City.

| | |
|--|--|
| <i>He inoa keia nō Pa`a hana Kaikamahine noho kuahiwi</i> | This is a name song for Pa`ahana The girl who lived in the hills. |
| <i>Na`u i noho aku ia wao kele, Ia uka `iu`iu Wahi-a-wā</i> | I lived in the rain forests, The distant uplands of Wahi-a-wā |
| <i>`Opae `oeha`a o ke kahawai, `O ka hua o ke kuawa ka`u `ai ia.</i> | Clawed shrimps of the stream, Guava fruits my food. |
| <i>Mai kuhi mai `oe ka makuahine, Aa he pono keia e noho nei</i> | Don't think about the mother, I live here and am glad. |
| <i>`O kahi mu`umu`u pili i ka `ili, `O ka lau lā`i ko`u hale ia.</i> | A single mu`umu`u clings my skin, My blankets are ti leaves. |
| <i>Pilali kukui kau lā`au Lau o ke pili lo`u hale ia.</i> | Kukui gum on the trees And pili grass my home. |
| <i>I hume iho au ma ka pūhaka I nalo iho ho`i kahi hilahila.</i> | I bind my loins And hide my private parts. |
| <i>I ho`i iho ho`i au e pe`e `Ike `ē`ia mai e ka `enemi</i> | I came and hid To be seen by the enemy. |
| <i>Lawe `ia aku au a i Mānana Māka`ika`i `ia e ka malihini.</i> | I was taken to Mānana And visited by strangers. |
| <i>Ha`ina `ia mai ana ka puana: He mele he inoa nō Pa`ahana.</i> | Tell the refrain: A song, a name for Pa`ahana. |

Growing up in Waiawa, Tin Hu Young attended school in Pearl City. He has always felt a strong connection to Pearl City and believes that most residents and farmers growing up in Waiawa were more linked to Pearl City than to Waipahu, a Plantation town. During World War II, his family land was taken over by Presidential Order and he and his family moved to an area near Eighteen Bridge where he still lives today. Most of his career was spent working as a civilian at Pearl Harbor. Retired today, Tin Hu is very active in his community including with the Kawaiaha`o Church and the Royal Order of Kamehameha.

V. DOCUMENTED TRADITIONAL RESOURCES/TRADITIONAL PRACTICES

A. Plant Resources

Hawaiians gathered upland resources for quite a variety of purposes. Forest resources were gathered for food, clothing, tools, dying, construction, adornment, fish poison, medicinal purposes and religious purposes. It is impossible to know the exact appearance of the project area prior to its conversion into agriculture in the late nineteenth century, early twentieth century, however an 1887 map of the adjacent Waipi'o *Ahupua'a* at the same elevations suggest the lower reaches of the project area were covered in grass while the more *mauka* reaches hosted *koa* and *'ōhi'a* trees (Figure 3). The surveyor for the Waiawa *Ahupua'a* in the 1870s, J.F. Brown, describes certain points in the vicinity of the project area as flat grasslands (BCId:445, Waiawa., Waihona.com) Certain accounts related to the construction of the 'Ewa Mission church at Haupu'u discuss the gathering of grass for thatching. Although there is no direct reference to Waiawa or the project area, the Waiawa uplands near Haupu'u would have been one option for gathering grass in the vicinity of Haupu'u.

During a field visit up the Pānakauahi Gulch, the *wiliwili* (*Erythrina sandwicensis*) was noticed growing in the gulch in the lower reaches of the project area (Personal communication w/ D. Au, 1/12/03). *Wiliwili* is characteristic of arid regions and was traditionally valued for its light weight and was commonly used in fabricating canoe outriggers and net floats (Krauss, 1993).

A previous study in the uplands of Waipi'o and a portion of Waiawa adjacent to the present project area lists several plants identified in the Waiawa parcel which were commonly used medicinal plants (Hammatt and Shideler, 1996:18). Hawaiians have discovered the medicinal qualities of many of these historic introductions and have incorporated them into their *lā'au lapa'au*.

| Hawaiian Name | Latin Name | Known Traditional Uses* |
|------------------------------|----------------------------|----------------------------|
| <i>Ko'oko'olau</i> | <i>Bidens alba</i> | Soothing tea |
| <i>Ko'oko'olau</i> | <i>Bidens pilosa</i> | Soothing tea |
| <i>Pualele</i> | <i>Sonchus oleraceus</i> | Treat diabetic sores |
| Bitter melon | <i>Momordica charantia</i> | Treat diabetes |
| <i>Pa'aīla</i> , castor bean | <i>Ricinus communis</i> | Many medicinal concoctions |
| <i>'Ilima</i> | <i>Sida fallax</i> | Treat indigestion |
| Yellow guava | <i>Psidium guajava</i> | Treat colds |

| Hawaiian Name | Latin Name | Known Traditional Uses* |
|-----------------|----------------------------|---|
| <i>ʻŌhi</i> | <i>Oxalis corymbosa</i> | Treat asthma |
| <i>Laukahi</i> | <i>Plantago lanceolata</i> | Treat variety of ailments |
| <i>Popolo</i> | <i>Solanum americanum</i> | Treat digestive tract ailments, & sores |
| <i>ʻUhaloa</i> | <i>Waltheria indica</i> | Pain killer and for sore throat |
| <i>Owi</i> | <i>Stachytarpheta spp.</i> | Treat a variety of ailments |
| <i>Owi</i> | <i>Verbena litoralis</i> | Treat fractures |
| <i>Honohono</i> | <i>Commelina diffusa</i> | Treat constipation |

A number of professional botanical surveys have been conducted within the project area, which document the presence of many native Hawaiian plants with recorded traditional uses (Char 1985, 1986, 1994, Goodman and Nees). The Goodman and Nees survey appears to have included the upper reaches of the project area and lists plants mostly typical of the *mauka* regions. Char's three surveys identified nine native plants (indigenous + endemic) which included:

| Hawaiian Name | Latin Name | Known Traditional Uses* |
|----------------------------------|-------------------------------|---|
| <i>ʻĀkia</i> | <i>Wikstroemia sp.</i> | Used medicinally as a laxative, and for asthma also for stupefying fish and as a poison |
| <i>ʻĀlaʻalawainui</i> | <i>Peperomia leptostachya</i> | None known |
| <i>Kīlau</i> | <i>Pteridium aquilinum</i> | None known |
| <i>ʻŌhi (Yellow wood sorrel)</i> | <i>Oxalis corniculata</i> | Edible, used medicinally (no details) |
| <i>Moa</i> | <i>Psilotum nudum</i> | Used medicinally as a purge and in a children's game |
| <i>Palaʻā</i> | <i>Sphenomeris chinensis</i> | Used for a brown dye and for ornamentation |

| Hawaiian Name | Latin Name | Known Traditional Uses* |
|-----------------|-------------------------------|--|
| Pōpolo | <i>Solanum americanum</i> | Used medicinally for digestive tract and sore throats |
| ʻUhaloa, Hialoa | <i>Waltheria indica</i> | Used medicinally as a pain killer and for sore throats |
| ʻUluhe | <i>Dicranopteris linearis</i> | None known |

* Notes traditional uses in Hawaiʻi documented in major studies (Neal 1965, Handy and Handy 1972, Pukui & Elbert 1986, Wagner *et al.* 1991, etc.)

The plants of Polynesian introduction identified in the three Char studies included:

| Hawaiian Name | Latin Name | Known Traditional Uses* |
|---------------|------------------------------|--|
| Kō | <i>Saccharum officinarum</i> | Source of sugar and fiber, used in thatching |
| Kī | <i>Cordyline terminalis</i> | Used for thatch, food wrappers, hula skirts, sandals; edible |
| Niu | <i>Cocos nucifera</i> | Hawaiians used all parts of the tree |

The Goodman and Nees (Appendix A) botanical study adds the following native plant species presumably identified in the *mauka* portion of the project area

| Hawaiian Name | Latin Name | Known Traditional Uses* |
|-----------------|--------------------------------|---|
| Alaheʻe | <i>Canthium odoratum</i> | Hard wood used for tools and adze blades |
| ʻIliahi | <i>Santalum freycinetianum</i> | Sold commercially, used traditionally for fragrance |
| Koa | <i>Acacia koa</i> | Used for canoes, surf boards and calabashes |
| ʻŌhiʻa lehua | <i>Metrosideros polymorpha</i> | Used for images, spears, posts, mallets and for ornamentation |
| Naupaka kuahiwi | <i>Scaevola gaudiehaudiana</i> | No known uses |

| | | |
|----------------|-----------------------------|---|
| <i>Pākiawe</i> | <i>Styphelia tameiameia</i> | Used medicinally for cold and headache, used in lei |
|----------------|-----------------------------|---|

The Goodman and Nees (Appendix A) botanical study adds three additional Polynesian introductions:

| Hawaiian Name | Latin Name | Known Traditional Uses* |
|---------------|-------------------------------|---|
| <i>Kukui</i> | <i>Aleurites moluccana</i> | Used for light, dye, canoes, , a condiment, lei, glue, as a laxative, etc. |
| <i>Kamani</i> | <i>Calophyllum inophyllum</i> | Used for calabashes |
| <i>Maia</i> | <i>Musa sp.</i> | Edible, used in religious ceremonies, poultices, canoe rollers, imu linings, etc. |

In summary, 15 native plants (indigenous + endemic) and 6 Polynesian introduced plant species have been identified within the project area. Of these, 11 of the native plants and all 6 Polynesian introductions have known traditional uses. The presence of the Polynesian introductions suggests traditional Hawaiian activity in these uplands. Most of these native and Polynesian-introduced plant species are ubiquitous on the lower slopes of the Ko'olau Mountain Range and none can be said to be uncommon. Some Polynesian-introduced plants as well as other introduced fruit species were historically grown in the gulch sides and bottoms by the sugar cane irrigator camp residents. This is especially true for bananas which are still found in groves alongside dry stream beds in gulches (Goodman and Nees, 1991: 117).

B. Burials

Two burial features were identified within the project area: Site 50-80-09-2271:8 an historic cemetery and Site 50-80-09-2271:3.1 a grave site both in the central portion of the project area. Both are understood as Japanese/Okinawan burial sites associated with laborers living at the pineapple cannery camp between 1905 and 1935. The only headstone translation is for Tokiko Takamine who died at age three in 1910 (Goodman and Nees 1991:87). Further data recovery and mitigation work was conducted on Site 50-80-09-2271:3 including test excavations in Features 3.1-3.8 (Sinoto and Pantaleo, 1995). No human remains were found. In addition, a search for family members and relatives in Hawaii, Kumamoto and Japan was conducted for Site 50-80-09-2271:3.1, the most intact gravesite. No one came forward to claim the burial and the gravestones from this feature were relocated to the Waipahu Cultural Garden in 1993. Additional informant interviews suggest there were originally less than ten burials and they were primarily infants and young children. The cemetery is interpreted as having been used during two different time periods coinciding with the bankruptcy of Pearl City Fruit Company

and the taking over of the pineapple operation by Hawaiian Fruit Company in the early part of the twentieth century. Families associated with these companies most likely took the remains of their family members with them when they left the camp or soon after the camp was abandoned (Sinoto and Pantaleo, 1995:8).

C. Trails

A trail which ran from Pueohulunui in Waiawa to Kūkaniloko in Wahiawā was a major route connecting the `Ewa District to the Waialua District. John Papa `Īi also discusses a secondary trail branching from this `Ewa-Waialua main trail:

A trail ran from this main trail to Kalakoa, O`ahunui, and other places much visited, such as Kūkaniloko. From there it extended to the digging place of Kahalo, then went below to Paupalai, thence Lelepua, and to Kahalepoi, where the legendary characters Kalelealūaka and Keinohoomanawanui lived. Then it reached Kekuolelo, the stone in which the *niho palaoa* was hidden, then went on to Pu`unahawe and Pueohulunui, where it met with the Waialua trail (`Īi, 1959: 99).

`Īi goes on to say that these places were once well populated, with fertile land and a wealth of trees.

A second reference to an upland trail beyond the `Ewa-Waialua trail appears in the Hawaiian newspaper *Ka Loea Kalaiaina*, this time in association with the legendary rock, *Pōhaku-huna-palaoa* or what `Īi referred to as Kekuolelo:

On the plain [of Punahawe] was a famous rock, famed in the olden days as Pōhaku-huna-palaoa (Ivory-hiding-stone). This stone was by the old road going from `Ewa to Waialua, but not the road used now, this is the new road. This road (that I am speaking of) was farther up about a mile from the new road. The old road was inland (*Ka Loea Kalaiaina*, July 14, 1899).

If the "old" (pre-1899) trail was aligned a mile further *mauka* of what is now considered Kamehameha Highway, then this trail may have traversed the southwestern portion of the present project area.

A *mauka/makai* trail in the project area was recorded during an archaeological inventory study of the 3,600 acres in Waiawa and was identified as a "possible aboriginal trail" [Site -2264] (Goodman and Nees, 1991:37). The trail was found in the Pānakauahi Gulch and is described as 0.5 m wide and not paved, but worn from use. Part of what makes this site so significant is the associated complex of rockshelters, terraces and "possibly the largest concentration of petroglyphs (Site -2263) with the most varied motifs..." on O`ahu (Goodman and Nees, 1991: 129). Based on its location and `Īi's description of trails, this site is interpreted as a portion of the Waialua trail which was used to connect the coastal area of Pearl Harbor with the central plain surrounding Wahiawā.

Goodman and Nees (1991: 130) also note the importance of the petroglyphs and trail at the location of the Waipi'o Waiawa *ahupua'a* boundary. They suggest the petroglyphs were made as travelers crossed from one boundary to another. There is a possibility the trail in Pānakauahi Gulch also served as a *mauka/makai* trail to mark the *ahupua'a* boundary from Pu'uloa up to the Ko'olau mountains (Figure 9). The Kipapa Ridge Trail hooks into the Waipi'o Waiawa *ahupua'a* boundary starting at the 1000' elevation and the trail continues almost up to the summit. A *mauka* trail popularly used by hunters, the Kipapa Ridge Trail, is referred to as the 'Waiawa Trail' in a 1943 map (Figure 9). Beginning approximately the 1000' elevation, the Waiawa trail follows the *ahupua'a* boundary to the top of the Ko'olau, where the trail connects with a Ko'olau crest trail. This crest trail hooks into trails from the Waikāne and Wahiawā areas. The Waiawa Trail may have at one time connected with the Waiawa-Waiālua Trail traveling up Pānakauahi Gulch and followed the *ahupua'a* boundary to other trans-*mauka* routes.

The remains of many historic roads and transportation routes including a railroad line crisscross the project area. One of the main roads which is still used today by *kama'āina* to access the *mauka* areas for hunting, gathering and recreational use is known as the Waiawa Prison Road. This road now leads to the Waiawa Prison, however historically led to the pineapple cannery and camps. This well used access road to the Waiawa uka areas may once have been a trail, however there is no documented account of this.

D. Archaeological Sites

1. Traditional Hawaiian Cultural Sites

During the Archaeological Inventory Survey of the 3,600 acre Waiawa parcel, four traditional Hawaiian sites were identified (-2262, -2263, -2264 & -2265) including twenty-three designated features (Goodman and Nees, 1991). Site -2262 (1 feature) is a surface lithic scatter located on a ridge above Gulch A in the central portion of the east side of the project area. Site -2263 (11 features) is a complex of rock shelters which includes three rock shelters (Site -2263 features 1-3), petroglyphs (Site -2263 feature 4), and seven terraces (Site -2263 features 5-11) located in Pānakauahi Gulch (Gulch D) in the central portion of the southwest side of the project area. Site -2264 (1 feature) is an aboriginal trail located in Pānakauahi Gulch (Gulch D) in the central portion of the southwest side of the project area. Site -2265 (10 features) is a complex including 6 rock mounds (Site -2265 features 1-6), two terraces (Site -2265 features 1-6), a fire pit (Site -2265 feature 9), and a stream retaining wall (Site -2265 feature 10) located in Gulch G in the north portion of the project area.

The archaeological inventory survey asserts that "no evidence was found for permanent habitation or dryland agriculture" and concludes that the lithic scatter (Site -2262), rock shelter complex (Site -2263) and trail (Site -2264) relate to travel and resource procurement in the gulch bottoms and upland areas (Goodman and Nees 1991:i). Procurement of *koa* and *ili ahi* was suggested.

Sites -2263 and -2264 (12 features) located in Pānakauahi Gulch (Gulch D) have been recommended for preservation and may be considered as cultural properties. The most remarkable feature regarded as having particularly unique cultural significance is the petroglyph feature (Site -2263 feature 4) including 84 petroglyphs located in Pānakauahi Gulch. Petroglyph sites are uncommon on O'ahu. The Pānakauahi Gulch petroglyphs are notable for their richness and variety of symbolic expression including geometric, zoomorphic and anthropomorphic figures. This site has been called "possibly the largest concentration of petroglyphs with the most varied motifs, with roughly 84 petroglyphs recorded on O'ahu to date" (Goodman and Nees, 1991: 129). While petroglyph interpretation remains somewhat subjective, the interpretation of the depiction of supernatural beings and/or *`aumāku*a (Goodman and Nees 1991:31) suggests religious associations.

2. Traditional Japanese and/or Okinawan Cultural Sites

The historic cemetery (Site -2271:3) and grave site (Site -2271:3.1) located on the slope of Gulch A in the central portion of the 3600 acres can be regarded as traditional Japanese sites. While there was a former Filipino Camp 500 feet to the west, of which no trace remains there is no indication Filipino's were buried in this cemetery. The only headstone translation is for Tokiko Takamine who died at age three in 1910 (Goodman and Nees 1991:87). The previous recommendation for this site is further archival research and detailed mapping (Goodman and Nees 1991:137). Data recovery and mitigation work for Site -2271:3 completed in 1993 and 1994 found no human remains in the cemetery (Pantaleo and Sinoto, 1994, 1995). An exhaustive search in Japan, Kumamoto and Hawai'i failed to identify any family members associated with the cemetery. Interviews with previous residents suggest the cemetery was used primarily for infants and young children, consisting of less than 10 graves and probably represented two periods of occupation of the pineapple cannery camps. Following this work, mitigation was considered complete for Site -2271:3 (Pantaleo and Sinoto, 1995).



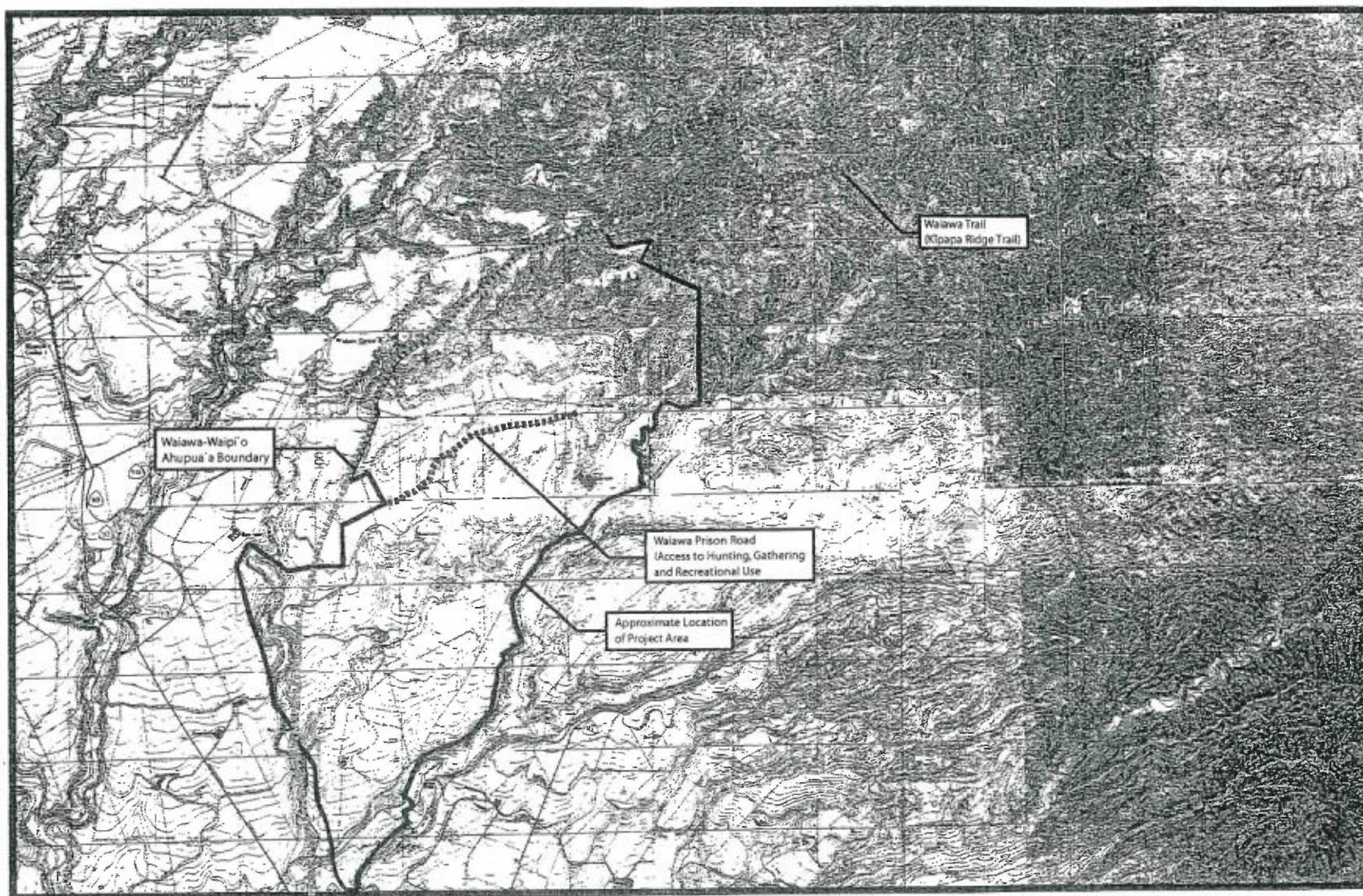


Figure 9 Portions of 1943 War Department Map, Aiea, Waipahu, Kaukonahua and Waikane Quads. Showing Project Area. Kipapa Ridge Trail Following Upland Part of Waiawa-Waipi'o Ahupua'a Boundary and the Waiawa Prison Road.



VI. CULTURAL RESOURCES/ PRACTICES EXPRESSED DURING COMMUNITY CONSULTATION

A. Plant Resources and Gathering Practices

In the adjacent *ahupua`a* of Waipi`o, John Papa `Ii describes the value of gathering in the uplands in the 1800s during times of famine (1959:77): "This prohibition was called kapu `ohi`a because, while the famine was upon the land, the people lived on mountain apples (`ohi`a `ai), tis, yams and other upland foods". The Hawaiians dried the `ohi`a`ai first before eating it, thus avoiding a stomach ache (Handy and Handy, 1972:235). For generations, children living in the pineapple and sugar camps have enjoyed gathering the `ohi`a`ai in the cool, *mauka* valleys of Waipi`o and Waiawa. Born in 1924, Hidaru Terashima grew up in Camp #5, an Oahu Sugar Co. camp located just *makai* of the project area. Mr. Terashima recalls scouring the valleys for the mountain apple (Personal communication w/ H. Terashima, 10/24/02). Born one generation later at Pump #4, Warren Higa also has fond memories of picking mountain apple from the Waiāhole Ditch Trail. Although these gathering areas are located *mauka* of the project area, access routes were through the existing plantation roads which are in the project area. In the Hawaiian tradition, `ohi`a`ai was commonly used medicinally, the bark and old fruit for sore throats and infusions of the young leaves for post natal complications (Gutmanis, 1976:37).

The *mauka* areas have traditionally been gathering places of *hālau hula*. One *kumu hula*, who preferred to remain anonymous, described the *maile* he once gathered in the uplands of Waiawa. It was the *maile lauli`i*, a variety of *maile* with small leaves, which also was variegated with white along the edges. Gathering for *halau hula* is not a simple task, but often involves ceremony and chant.

...It was necessary to bear in mind that when one deflowered the woods of their fronds of *ie-ie* and fern or tore the trailing lengths of *maile*— albeit in honor of Laka herself—the body of the goddess was being despoiled, and the despoiling must be done with all tactful grace and etiquette (Emerson, 1965:16).

The *hālau* often followed protocol concerning gathering including when to gather, how to gather and the types of prayers and chants to offer when gathering. One such prayer speaks to the goddesses of forest growth Laka and Hi`iaka.

Pule Kuahu no Laka

Haki pu o ka nahelehele
Haki hana maile o ka wao,
Hooulu lei ou, o Laka, e!
O Hiiaka ke kaula nana e hooulu na ma`i,
A aeae a ulu a noho i kou kuahu
Eia ka pule la, he pule ola,
He noi ola nou, e-e!

Chorus:
E ola ia makoü, aohe hala!

[Translation]

Altar-Prayer to Laka

This spoil and rape of the wildwood,
This plucking of wilderness maile—
Collect of garlands, Laka, for you.
Hiiaka, the prophet, heals our diseases.
Enter, possess, inspire your altar;
Heed our prayer, 'tis for life;
Our petition for you is for life.

Chorus:
Give us life, save from transgression!
(Emerson, 1965:18-19)

According to the *kumu* who shared with us, Waiawa is one of the few places that has this variety of *maile lauli'i*. One of the principal routes of access into the gathering areas was by using the Waiawa Prison Road through the project area. It was necessary to trespass through Kamehameha School lands in order to access the *maile*. This *kumu* no longer gathers *maile lauli'i* in Waiawa uka due to the difficulty in access and the work involved in traveling to and from the gathering locales.

B. Burials

Burials were mentioned by Mr. Terashima who grew up in Camp 5 just *makai* of the project area. Mr. Terashima would often visit Pump 6, a Pump Camp in the project area. Pump 6 was located near the Waiawa Stream and here the boys would swim and fish. When asked if he had traveled further *mauka* into Waiawa, Mr. Terashima remembered that the adults would dissuade them from traveling further up the Waiawa gulch because of the "Hawaiian graves" on the sides of the gulches (personal communication w/ H. Terashima, 10/24/02). Mr. Terashima did not know if this was true or whether the adults just wanted to scare the kids from going off.

Cliff burials are a well recorded tradition in old Hawai'i. Mountains, ravines and gulches were considered good places for burial and provided protected crevices such as *lua meki* (deep pits), *lua huna* (hiding pits) and *ana huna* (hiding caves) (Kamakau, 1964: 38). Following a field visit to a rock feature in Pānakauahi Gulch in early January, Mr. Lenchanko of the Wahiawā Hawaiian Civic Club communicated that he sensed there were burials on the gulch sides. No burials were identified during the archaeological survey of the project area and no individual or organization has come forward to identify any within the project area.

C. Traditional Sites

1. Possible Ahupua'a Boundary

One representative of the Hawaiian community expressed concern over what he referred to as an *ahupua'a* boundary marker within the project area (personal communication w/ T. Lenchanko, September 10, 2002). According to Mr. Lenchanko, this *ahupua'a* boundary marker is in the form of a pile of rocks on the ridge and is visible from H-2 Freeway looking east across the gulch from just before the Ka Uka Exit. A walk along H-2 Freeway confirmed there was a rock feature on the Pearl City side of Pānakauahi Gulch (See Figure 10). A visit to the rock feature was made on October 1, 2002 in conjunction with Waiawa Gentry Project Director, Patrice Liu, the Waiawa project archaeological consultant, Aki Sinoto, O'ahu Island Archaeologists from the State Historic Preservation Division, Sara Collins and Elaine Jourdane and a representative of Cultural Surveys Hawai'i, Tina Bushnell. The feature was a loosely built rock wall built against the side of the gulch (Figure 11). The wall was quite long, approximately thirty to forty feet in length and seven feet in width in some portions. The basalt rocks used were flat and angular and appeared to be quarried, not like other rocks in the area which were well-rounded and quite eroded. A utility pole was located less than fifteen feet away on the same ridge and the archaeologists concurred that the rock wall was most likely constructed as a revetment wall to support the position of the utility pole (Personal communication w/ A. Sinoto, E. Jourdane and S. Collins, October 1, 2002). Follow up with Hawaiian Electric Company did not yield any conclusive origin of the wall. Apparently the utility pole was installed in early 1970 and the drawings do not indicate the construction of a retaining wall. Further work in the area did not require movement of the pole (personal communication w/ P. Liu, 10/09/02).

Traditionally, *ahupua'a* boundaries were very significant and in some cases may have held *kapu* restrictions:

Trespass was a serious offense. Passage from one *ahupua'a* to another was not taken lightly, and the crossing of a district boundary was an even more rare and auspicious event (Cox and Stasack, 1970:31).

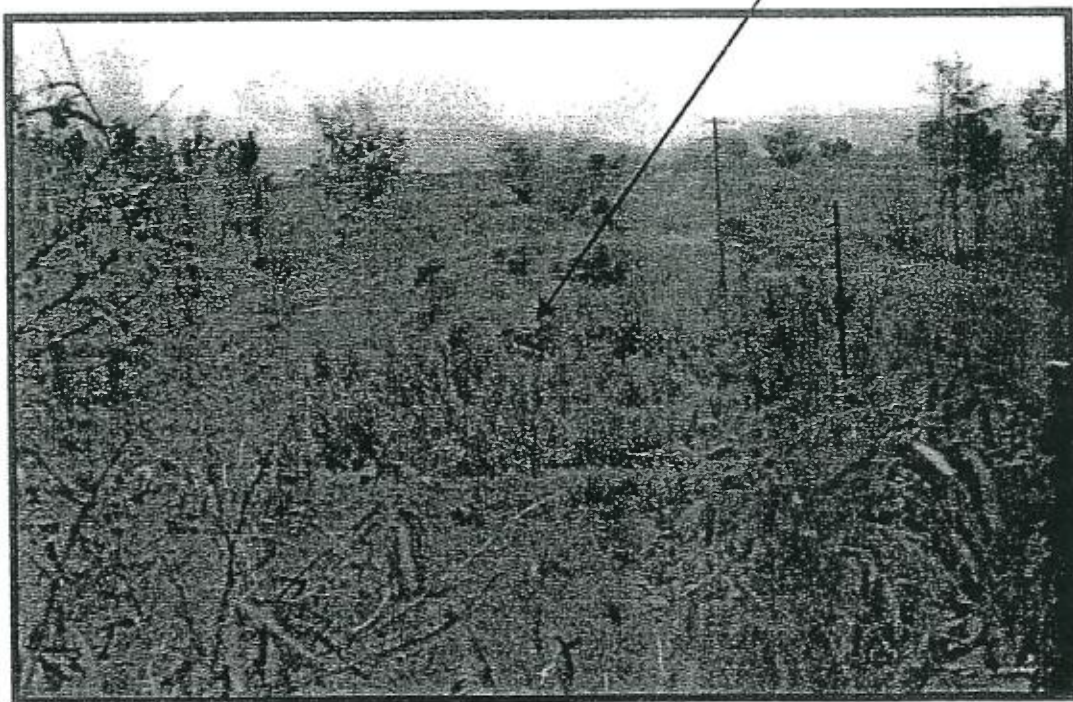
For Mr. Lenchanko, *ahupua'a* boundary markers and other types of boundary markers have often been overlooked by archaeologists in the past or have been misinterpreted (Bushnell and Hammatt, 2001). For him, boundary markers are often one of the few remaining cultural sites left in the *ahupua'a* of central O'ahu due to the massive land modifications which have occurred beginning with cattle grazing in the mid-1800s and most recently with mechanized agriculture of the twentieth century. He feels those *ahupua'a* boundary markers which remain should be preserved because they tell a story of the past and help orient Hawaiians to the land divisions and traditional attitudes towards land.

The 1983 USGS map depicts the *ahupua'a* boundary running through the small ridge that extends into Pānakauahi Gulch. An older map dated 1877, compiled by J. F. Brown depicts the Waiawa *Ahupua'a* based on survey lines (Figure 3). In the boundary commission claims, J. F. Brown states the following:



Figure 10 Close Up of Rock Feature in Question (Photo left).

Figure 11 Photo of Rock Feature from H-2 Freeway. Facing Northeast (Photo below).



J. F. Brown, sworn, states, I surveyed the land of Waiawa in August 1877 and this is the map and notes of survey I made at the time. Almost the entire boundaries are settled by Land Commission Award and Grants, that had been settled before my survey. Where it is not bounded by Land Commission Awards & Grants I took evidence of old kamaainas, the principal one was a woman of over 60 years of age named Kaupena. She is since dead... (BCId:445, Waiawa in Waihona.com).

Based on the 1877 map, the boundary line traverses the ridge which has the rock wall feature. The survey point which corresponds to the feature ridge says, "mound stones", however the mound of stones is depicted somewhat inland or on the flat lands, not on the gulch side. The corresponding note reads, "North 3°16' East 4179 feet on smooth grass land to mound of stones from which point Government Survey trig. "Waipio" mauka bears North 38° 34' West;" (BCId:445, Waiawa in Waihona.com). This note suggests the mound of stones is on grass lands.

A second visit to the rock feature was made on January 12, 2003. Several individuals assisted this field visit including Tom Lenchanko, Dan Au, Maria Orr of the Wahiawā Hawaiian Civic Club and Shad Kane, who represented the committee on the preservation of historic sites of the Hawaiian Civic Clubs. Patrice Liu of Gentry Waiawa, Aki Sinoto of Sinoto Consultants, David Shideler, Tina Bushnell and Kehau Souza of Cultural Surveys Hawai'i were in the group who made the second visit. During this visit, some time was spent clearing the rock feature and other rocks in the area. Archaeologists noted that the quarried rock appeared similar to other quarried rock used in the construction of other historic features in the project area including reservoirs and roads (Personal communication w/ A. Sinoto, 1/12/03). 1943 USGS maps depict a historic road at the upper edge of the ridge where the rock feature is located (Figure 12). In addition, this historic map shows a railroad further up on the ridge. This suggests that the rock feature in question is associated with the historic plantation road.

Conversations with Tom Lenchanko of the Wahiawā Hawaiian Civic Club following the second site visit indicated he still had some unanswered questions regarding the feature. Mr. Lenchanko and others from the Wahiawā Hawaiian Civic Club who were on the site visit feel the rock feature may be older than the map's plantation infrastructure might suggest. They also feel the rock feature's strategic location on the ridge line, the direct view to Middle Loch, and the marine shell fragments found on one of the stones all point towards a site with more traditional significance.

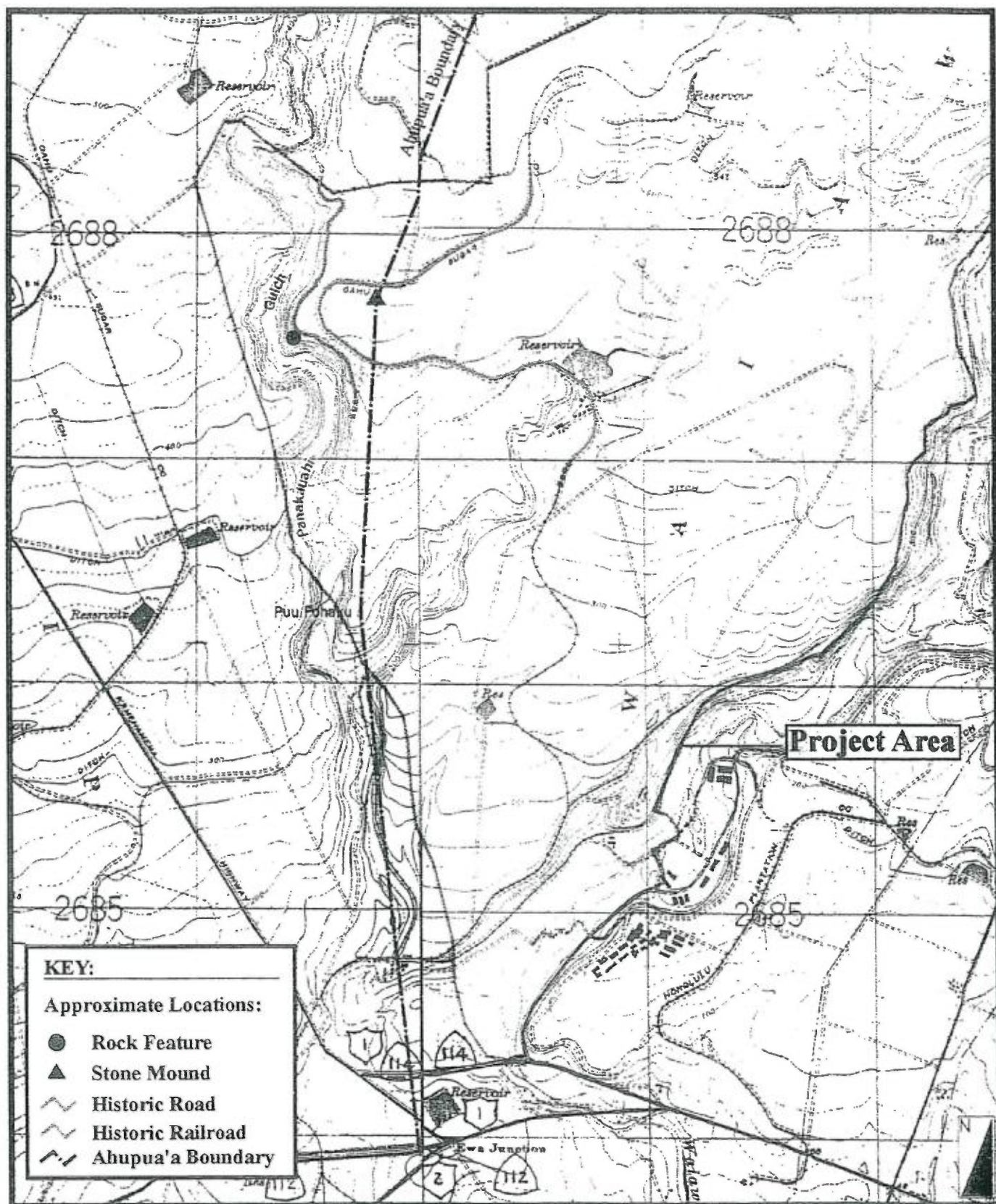


Figure 12 Portion of Figure 9: 1943 War Department, Aiea and Waipahu Quads Showing Rock Feature, Historic Road, Historic Railroad, and Posited Location of Stone Mound According to 1877 Survey Map of Waipi'o.

2. Possible Heiau in Pānakauahi Gulch

The Chair of the Hawaiian Civic Club Historic Properties and Cultural Sites expressed a concern about possible impact of the Waiawa Gentry development on a "heiau" located in Pānakauahi Gulch. The heiau is said to be located inside the gulch below the Crestview Subdivision near Waipio Gentry. Mr. Kane described the heiau as a formation of large stones that had been disturbed by rock mining carried out by former tenants. The heiau is near H-2 Freeway and in proximity of a large banana patch. Mr. Kane has accessed the heiau from the Crestview Subdivision. No name was known for the heiau.

Documentation does exist of a heiau in the Pānakauahi Gulch in the form of a *mo'olelo*. The story goes there is a famous rock on the plain of Punahaweale, which is thought to be in Waipi'o, adjacent to Waiawa. The rock is called Pōhaku-huna-palaoa and a woman from Hawai'i of some rank hides her ivory necklace in one of the holes in the rock thinking her necklace will remain safely there for her descendants. However, her secret hiding place was being observed by a god who was stationed at a heiau in Pānakauahi Gulch:

But there was a certain god who saw her hiding it and he was on the opposite side of Pānakauahi stream. The name of this god was Ke-`kua-olelo (Talking god). He was looking at the woman from a certain heiau. The heiau was named Ke-`kua-olelo for the god and that is the name to this day...(*Ka Loea Kalaiaina*, July 22, 1899 in Sterling and Summers, 1978: 22)

According to the story, Ke-`kua-olelo Heiau is located across the Pānakauahi Gulch from Punahaweale Plain. Although Punahaweale is thought to be in Waipi'o, its exact location is unknown. Portions of Pānakauahi Gulch were surveyed for archaeological resources, however no heiau was identified. A site visit in late November verified that the feature described by Mr. Kane was outside of the project area, to the west of H-2 Freeway.

D. Water Resources

1. Fishing

The project area is bordered by two streams, the Waiawa Stream and the Pānakauahi Stream. Portions of the Pānakauahi Gulch are within the project area. Only Waiawa Stream is considered a perennial stream (Wilcox and Edmunds, 1990:36). Pānakauahi is more of a dry gulch which acts as drainage during periods of high precipitation. People who grew up in the Oahu Sugar Company plantation camps and visited Pump 6 recall swimming and fishing in Waiawa Stream (personal communication w/ B. Miguel and H. Terashima, October 2002). Pump 6 was a Pump Camp located in the project area bordering the Waiawa Stream and what is now the Pearl City Industrial Park. Mr. Terashima who grew up in Camp 5, approximately 1 mile *makai* of Pump 6, went to visit friends at Pump 6 and swam in the Waiawa River. He had fond memories

of going fishing in the river with a Filipino man who would take the boys along with him. They would catch `o`opu (Eleotridae, Gobiidae, and Blennidae spp.), `ōpae (shrimp) and catfish in the stream. The `o`opu is a native freshwater fish which was traditionally very popular with the Hawaiian and other nationalities with access to freshwater sources. `Ōpae, or freshwater shrimp were also traditionally caught as food. The last stream survey for Waiawa in 1969 found only introduced species (Wilcox and Edmunds, 1990:175). Although the Chinese catfish (*Clarias fuscus*) is considered an alien species thought to have been introduced before 1900, it was embraced by the plantation culture as a food fish and was often considered a delicacy (Staples and Cowie, 2001:37). Members of Camp 5 recall gathering catfish along the Waiawa Stream by the buckets after big rains and selling the excess (Personal communication w/ A. Delos Reyes, 11/25/02 and H. Terashima, 10/24/02).

Several individuals consulted, former plantation camp residents as well as other community members who resided along the stream indicated that the Waiawa Stream is not what it used to be. Most have not seen `o`opu and `ōpae in years and several indicated that the development of the Pearl City Industrial Park inside Waiawa Gulch has been detrimental to the water quality of Waiawa Stream.

2. Flood Control

Although the Waiawa Stream is not considered to be within the project area, it is affected by the lands above. One observation in the mid 1800s by Sereno Edwards Bishop, son of the first missionary family assigned to Ewa Station, correlated the loss of certain oysters and clams unique to Pearl Harbor and Pearl River, to the introduction of grazing cattle in the upland regions.

The lochs or lagoons of Pearl River were not then as shoal as now. The subsequent occupation of the uplands of cattle denuded the country of herbage and caused vast quantities of earth to be washed down by storms into the lagoons, shoaling the water for a long distance seaward. No doubt the area of deep water and anchorage has been greatly diminished. In the [eighteen] thirties the small oyster was quite abundant, and common on our table. Small pearls were frequently found in them. No doubt the copious inflow of fresh water favored their presence. I think they have been almost entirely extinct, drowned out by the mud (Bishop, 1916:46).

The introduction of large scale agriculture in the twentieth century and later mechanized agriculture on the plateau lands of Waiawa and the surrounding lands probably had similar effects on freshwater species in the bordering streams and estuary species in Pu`uloa in later years.

Similarly today, those who live "downstream" along the Waiawa River are concerned about what goes on upstream. Mr. Young grew up and has lived most of his life in Waiawa. He has witnessed many changes to the landscape throughout his life and has real concerns regarding flood control caused by *mauka* development. In the past Mr. Young has been involved in task forces to help with flood control and realizes that it is imperative that the *mauka* developers get involved in flood control.

CSH: How about Gentry's proposed development in Waiawa? Do you have any concerns other than the flood control?

Young: Well, flood control is the biggest concern. I mean, it really don't have. Actually, the developers really should be interested in that first. Because like I was telling you, one day I was standing on that bridge, and this was on the— this was different, this was about watercress, about James Nakatani. And I was there to testify on their behalf, okay, because we were sort of neighbors. And then of course, Bishop Estate was involved at that time, Kamehameha Schools, because they were leasing that property. So, he had worked in conjunction with Sumida as a silent partner, in that area in Waiawa, there. I testified for him. So when I sat up to testify, somebody, I don't know, there was a lot of opposition, I don't know why, there was a lot of opposition. So I had to tell these people— they were telling me, 'eh what's important about the area? Where am I in development?' in that kind of area. But I had to stand up and say, 'you know, James Nakatani, the only things he's trying to develop is watercress patches,' and then they got so excited because they see Richard Lee's trucks with all these big equipment and whatever, going into in and out. So they were against all that stuff. So, I had to stand up and tell them—so what happened was they said, 'we don't like it but, what's so important about Waiawa? There's nothing over there. And I said 'wait a minute. Don't say nothing.' Waiawa, we're like Pearl City, we are in the middle of everything. Whatever goes through O'ahu that crosses over goes through us. Whether it is communication lines, which the Navy and the Army had one, that is sealed in lead, moving right across there. Whether it's a big water line that goes across for the military, it does. Whether it's Standard Oil pipe line that supplies all our fuel for the whole U.S. Navy, and the airport, and Red Hill, where they have a tank in there that's taller than the Empire Building (tank storage) in their ground that feeds it, I said, and on top of that— not Kahe, but Waiawa Power Plant line that goes above it, over there. And then underneath, under the river there's the main sewer line that goes from Pearl City that catches all the middle of O'ahu,

goes into under the river, under Waiawa river, goes to Honouliuli side and 'Ewa, so all that waste water can be treated and go into the ocean. And we have the bike trail and the bridges that crosses that river. 'So don't tell me Waiawa is not important.' They don't know, they don't think about all these things. It is very important...(Interview w/ T. H. Young, 10/9/02).

Another reason Mr. Young feels the flood control issue is important is because of the small landowners and farmers who live on the Waiawa flood plain. Many of these small farmers have lived and farmed along the Waiawa River for generations and continue with the farming tradition. They include watercress farmers, taro farmers and fish farmers.

Young: Going back to this flood control thing, when I sat on the committee with other people that helped, we all worked together, it wasn't just one guy, we found out that when you went to the Corps of Engineers, they did have a system of priority, and the priority was whether the developers or the owners up on the *mauka* side was going to go along with you. So, that was important.

CSH: What do you mean, go along with you?

Young: In other words, the more people I can get that wanted to help—say all the little watercress farmers on the lower edge of the river, and the taro patch farmers and the people that raise aquaculture (fish) and all that—which I got them to go along, which is fine. And these were the people, or those people who lived along the edge of the river to go along and go to the Corps of Engineers, which is fine, it was okay, except, maybe you never had that much priority. Who cares for a little taro farmer? Who cares for this guy that has a little fishpond? Right? But, if you had this guy who had control of a lot of land, right next to the river, and says, 'Yeah, I'm on that committee, I want to help get that stream fixed,' then it gets more weight because you have a bigger ownership, a larger land area that you're talking about, and probably a lot of that area that the water comes from is from their area, or from that area from the forest that they managed or owned. Of course, they, like everyone else, they would have to get permission to change the land code or land use law, so that they can develop. It had nothing to do on the committee. Whether you liked that guy or not, it wasn't that. It was, are you all in the same boat that wants to develop this river? (Interview w/ T. H. Young, October 9, 2002).

Mr. Young's own family is involved in shrimp farming near Eighteen Bridge in Waiawa. The flood problem is particularly poignant for his family because Eighteen Bridge drains all the flood waters from the *mauka* areas of Waiawa and the bridge has had a history of getting plugged up with debris which originates from the *mauka* areas (personal communication w/ T. Young, October 2002).

E. Hunting

A Traditional Practices Assessment reported evidence of pigs from adjacent Castle and Cooke lands to the north of Waiawa, (Hammatt and Shideler, 1996: 15). Pigs were probably a part of the local fauna for centuries. The place name Waiakapua'a (LCA #8241R) in the *Māhele* documents for Waipi'o Uka implies pigs were significant in the Kipapa Valley in traditional times. For the Waipi'o Uka area which supported small settlements up until the time of the *Māhele*, *pua`a* may have been an attractive source of meat considering Waipi'o Uka residents lived some distance from the coast and did not have daily access to fish. Testimony from cultural impact assessments in the neighboring lands of Waipi'o Uka document hunting in *mauka* areas from the twentieth century (Bushnell and Hammatt, 2001). The Kipapa Ridge Trail, formerly known as Waiawa Trail, just to the west of the present project area is understood as a popular route facilitating pig hunting in adjacent areas. In fact, cane roads through the Waiawa project area were historically used to access the Kipapa Ridge hunting grounds [See Figure 9] (personal communication w/ R. Santiago, 10/15/02).

Hunting continues as a tradition in the area. In the plantation era as part of the plantation community culture, residents engaged in subsistence activities as a means of supplementing their diet. Hunting game in the upland forest was a way of placing meat on the table. Hunting also "comprised a major form of recreation, cultivated a sense of environmental kinship, and engendered an active network of sharing and exchange between households in the community, both within extended families and between neighbors" (Minerbi *et al.* 1993: 41). In modern times, hunting game may no longer be necessary as a supplementary food source. Hunting has become important as a tradition perpetuating recreation, environmental kinship and particularly active networks of sharing and exchange so important in *ʻohana* even today.

One hunter we spoke with mentioned he had learned to hunt from his father and grandfather, who worked for Oahu Sugar Company and lived in the Waipahu area (personal communication w/ R. Santiago, October 15, 2002). Mr. Santiago remembers that his grandfather would ride his horse from Waipahu and stay at the Left Ditchman's House where he was good friends with the Ditchman's family. From the Ditchman's House, Mr. Santiago's grandfather would hunt the surrounding *mauka* areas of Waiawa and Waipi'o. Mr. Silva, who grew up hunting in the 1940s and '50s, recalls his favorite hunting was done by moonlight (personal communication w/ A. Silva, October 2002). In those days, pigs were numerous and there was plenty for everyone.

During talk story with hunters originally from the Waipahu and Pearl City (Mānana) areas, many hunting grounds in the *mauka* regions of Waiawa were identified (personal communication w/ R. Santiago and A. Silva, October 2002). The area *mauka* of the present day Waiawa Correctional Facility and within the project area was hunted as

well. Some of the names of the main hunting grounds identified include Kipapa Ridge, Waiāhole, Kaipolo and Waimano Gulch. Some of the smaller valleys hunted within these main valleys include Left Hand, Right Hand, Banana Gulch, Cucumber Gulch, Wāwaepōpoki and Lemon Gulch. As with the more traditional place names, hunters have named these small valleys and ridges based on some defining characteristic or in reference to a defining landmark. For instance, Cucumber Gulch is named such because people planted cucumbers in that area and later it became a hunter's camp (Personal communication w/ R. Santiago, October 15, 2002). In the same spirit, Lemon, Banana and Wāwaepōpoki Gulches are named after the lemon trees, banana trees and cat's claw found growing in them.

According to several hunters, one of the best ways to access the hunting grounds was from what is now referred to as the Waiawa Prison Road (Figure 9). Prior to the prison, the military had several big antennas there (personal communication w/ R. Santiago, October 15, 2002). Hunters considered this a good access route because it got them as close as possible to the hunting grounds. Another route which was historically used to access hunting grounds in Waiawa was up Waiawa gulch where the present day Pearl City Industrial Park is. One hunter claimed that following the opening of the Waiawa Prison in 1988, access became too difficult in the area and he gave up hunting there. Hunters in their sixties expressed concern over access to hunting areas particularly for the younger generations who cannot experience the freedom the older had in their days. Younger hunters are weary that too much development closer to the upland valleys known as pig habitat may both push the pigs away and open up the area too much.

VII. SUMMARY OF CULTURAL RESOURCES AND CONCERNS

The legendary accounts linked to the uplands of Waiawa include Maihea, a farmer who grows a special strain of *`awa* which is associated with the adventures of Kāne and Kanaloa in *`Ewa* and Keakua^ōlelo, described as a "local talking god" of Pānakauahi Gulch who reveals the secrets of those who pass by. Historic documents shed light on Waiawa as a sort of crossroads for the people of O^ʻahu. Strong traditions of wetland agriculture and fishponds are related to the *makai* regions of Waiawa. Areas along major trails such as Puechuluhulu and Haupuu, attracted thousands to celebrated *ulu maika* fields. Haupuu was later to be converted to a mission station, Ewa Station, and later to the Kahikuonālani Church, in honor of King David Kalākaua. A major pre-contact trail which linked Pu^ʻuloa with Wahiawā and Waialua is thought to lead up the Pānakauahi Gulch, on the western boundary of the Waiawa project area.

In the mid 1800s, the Chinese began cultivating rice in the lowlands of Waiawa and in other *ahupua`a* surrounding Pu^ʻuloa. Cattle were introduced in the uplands around this time and grazing began to denude the *mauka* areas. In the late 1800s, Japanese immigrants leased small parcels in the uplands of Waipi^ʻo and Waiawa to independently grow pineapple. In 1905, a small pineapple cannery was opened in the central portion of the 3,600 acre proposed Waiawa development. This camp closed circa 1935. Prior to the closing of the pineapple cannery and camps, Oahu Sugar Company leased land to cultivate sugar on the table lands of Waiawa. Three small residential camps located in the 3,600 acre Waiawa parcel represent the historic plantation era. These camps included Camp 3, Camp 41, and Pump 6. Camp 3 was located adjacent to Parcel C of the 175 acre Phase 2 area, Camp 41 was located just south of the pineapple cannery and Pump 6 was located adjacent to Parcel A of the Phase 2 proposed development.

An attempt was made to contact seventy-nine individuals who may have information pertaining to the 3,600 acre proposed Waiawa Development. It was difficult to find people with a direct connection to the Waiawa project area. Most people's memories of the Waiawa uplands are of sugar and more sugar. Those who did have knowledge of the 3,600 acre parcel focused primarily on the *mauka* areas of Waiawa, North of the Waiawa Prison and in the two gulches which border the 3,600 acre Waiawa parcel, Pānakauahi Gulch and Waiawa Gulch. Based on our consultation, the people most familiar with Waiawa uplands were the hunters, the former residents of plantation camps in the vicinity and the lease holders of the last thirty years or so. Despite our efforts, we were unable to locate any of the former plantation camp residents from camps once located within the project area.

Cultural practices and concerns relevant to the 3600 acre proposed development focused on the two gulch areas, the Pānakauahi Gulch and the Waiawa Gulch and the *mauka* reaches of the project area. Concerns were raised regarding a possible *ahupua`a* boundary and a *heiau* in the Pānakauahi Gulch. The posited *ahupua`a* boundary is located on the side of Pānakauahi Gulch adjacent to Parcel D of the proposed Phase 2 Development. The *heiau* was described as located in the gulch near Crestview Subdivision. Based on our review of an 1877 survey map and associated notes, 1927, and 1943 historic maps, and two site visits, the stone feature identified as an "*ahupua`a*

boundary" is thought to be a retaining wall associated with an historic plantation road. The original mound identified as an *ahupua`a* boundary on the 1877 survey map is thought to have been located not on the gulch side, but somewhat inland of the ridge. The feature described to us as a "*heiau*" is located to the west of H-2 Freeway and outside of the project area, therefore, no determination could be made regarding its exact location and description.

Though the "*ahupua`a* boundary" was interpreted as a retaining wall related to Oahu Sugar Company's plantation infrastructure, there is reason to believe the Pānakauahi Gulch was a significant traditional place. It's location as an *ahupua`a* boundary, the petroglyph site associated with a major pre-contact trail, the local god Keakua`ōlelo linked to Pānakauahi through *mo`olelo*, and place names which allude to sacredness point to an area of *mana*.

Another concern expressed is related to flood control of the Waiawa River. The sole informant for this study who grew up in Waiawa is keenly aware of the propensity for flooding of the Waiawa River. Flooding in the past has endangered those living and farming in the *makai* areas of Waiawa. Many families who live down river continue farming traditions such as the growing of watercress, taro cultivation, and aquaculture. Concern was expressed that large scale *mauka* development will potentially increase flooding.

Access to *mauka* areas is a common concern not only in Waiawa, but throughout the island. Traditionally, forest resources were gathered for food, clothing, tools, dying, construction, adornment, medicinal and religious purposes. Today, the *mauka* areas continue to be used to collect resources and for hunting and recreational purposes. In the adjacent Waipi`o Ahupua`a, a recent study documents the contemporary gathering of Hawaiian medicinal plants and minerals as well as a long hunting tradition (Bushnell and Hammatt, 2001). Gathering and hunting also continues in the uplands of Waiawa. Concerns over access to *mauka* lands is longstanding in Waiawa, particularly with the opening of the Waiawa Prison in the 1980s and the prohibition of access to Kamehameha Schools Lands. Contact with the surrounding community suggests that difficulty in access has affected gathering and hunting traditions to some degree. Some individuals expressed their frustration at having to illegally enter land if they want to pick plants or hunt.

VIII. CONCLUSIONS

The three main cultural concerns expressed by the community for the 3,600 acre project area are 1) *mauka* access for hunting and gathering, 2) a rock feature, described by the Wahiawā Hawaiian Civic Club as a traditional site and 3) a concern for flooding potentially affecting traditional farming in lowland areas as a result of *mauka* development.

Lack of *mauka* access to practice traditional activities is not unique to Waiawa on O'ahu. Many of the hunters who were consulted for this project are older and no longer hunt at Waiawa. They say that access has been getting more difficult as the years pass and has become a discouragement to them. Other younger hunters expressed fear that development would encroach on their hunting grounds and open the area to even more people in an area that is already a magnet to recreational dirt bike riders. The hunters feel they are being pushed more and more to the periphery. There is no easy solution to the *mauka* access issue, however, in the future as development proceeds *mauka*, access to traditional hunting grounds in Waiawa uka may become more feasible via public roads constructed as part of the project.

Though no definitive statement has been made regarding the rock feature interpreted by some members of the Wahiawā Hawaiian Civic Club as an "*ahupua'a* boundary" marker, archaeologists familiar with the project area associate the feature with other similar plantation infrastructure. In addition, historic maps depict a plantation road in the very location of the rock feature in question. Those of the Wahiawā Hawaiian Civic Club, however, have their own protocol and guidelines in identifying a traditional site, those which they believe they have gained through their *kūpuna* and from being familiar with other traditional sites of the Ewa District. Their intention is not to halt development, but rather to protect those remaining traditional sites which may be impacted by development. They appreciate the opportunity to work directly with Gentry on cultural issues and continue to search for *kūpuna* or lineal descendants with direct knowledge of the Waiawa project area.

Gentry has spent many years investigating the issues of increased surface water run-off and flooding in the lower reaches of Waiawa Stream as part of its development planning for Waiawa. Drainage studies were conducted and a Drainage Master Plan was prepared and approved by the City & County of Honolulu. The Plan quantifies the increase in surface water run-off attributable to the development of Waiawa and establishes design criteria for on-site drainage structures and detention basins to mitigate the impact on downstream facilities. One measure proposed to mitigate the impact of flooding is to direct much of the development's surface water runoff to the Pānakauahi Gulch on the northwest boundary of the project area, rather than the Waiawa Stream.

In addition, the intent of the Drainage Master Plan is to reduce peak run-off rates through the use of detention basins and outlet structures designed to control the outflow of stormwater run-off so as not to exceed pre-development run-off rates. The Plan proposes thirteen detention basins within the Gentry-Waiawa project. Construction of these facilities will mitigate potential downstream flooding resulting

from the proposed developments. Moreover, these basins will be designed to trap debris and sediment on-site and improve the quality of stormwater run-off leaving the development.

Although the Waiawa Drainage Master Plan is not intended to resolve all of the existing downstream flood problems, Gentry feels it does address those potential problems created by increased surface water run-off due to the construction of the Waiawa Gentry development.

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APPENDIX A: Interview Transcript



Waia5 (Waiawa Cultural Impact Assessment)

Interview with Tin Hu Young (Young)

October 9, 2002

Kawaiha'o Church, O'ahu

Interviewed by Tina Bushnell (CSH)

CSH: -in the *mauka* areas of Waiawa.

Young: *Mauka*?

CSH: *Mauka*.

Young: *Mauka* areas of Waiawa, okay, alright.

CSH: Oh, there's the map you wanted me to look at.

Young: That's the map I want you to look. I want you to look at these maps very carefully. It has a lot of *mauka* areas. If you going to notice, it shows, like for instance, where all the cane fields were and who controlled the land—like you see O. R. & L. O. R. & L. tells you that O'ahu Railway and Land Company—. So, in the old days, where you see O. R. & L. way up *mauka*, my grandfather was a cowboy that worked under my granduncle, Johnny Johnson¹. He was one of the foremans for the Dillingham Family, that had all these railroad right-of-ways given to them through the King. So, today, all that railroad route is the bike path, now. Of course, they had also lands up *mauka*— where the railroad basically surrounded Pearl Harbor and was all lowland area. But anyway, my granduncle, Johnny Johnson, worked as a cowboy and his duty was ranch-foreman for the Dillinghams up *mauka*. They had cattle up there.

CSH: Where did they have cattle, the Dillinghams?

Young: Well, I would venture to say probably all of these O. R. & L. properties that you see on this map. That's why I wanted you to look carefully where O. R. & L. [lands are on this map]. And I presume that they must have made lease arrangements maybe with the Bishop Estate at that time, which is now called Kamehameha Schools. And they had a lot of property in that area, in Waiawa Valley, even up until today. You would have to go through your Bureau of Conveyance to find out where all these movements were being done, who leased what— unless you lived at that time, or your family passed down the stories. Then you would know.

CSH: Did your family pass down stories of your great uncle?

¹Oldest son of Ambrose Johnson (born about 1832) and La'amaikahiki Wahine (born about 1836); Also brother to Enoch (Enoka) Johnson (born May 3, 1857 in Mānoa Valley)—Secretary to Prince Jonah Kūhiō Kalaniana'ole.

Young: Oh yeah. That's how I knew about this. And of course, on the death certificate of my grandfather, Pedro Johnson², it had occupation like cowboy. I'm sure my parents weren't lying (laughing) when they said, 'your grandfather was a cowboy'. In fact, they went to Wyoming one time with Ikua Purdy to the rodeo in Wyoming someplace. And they won. Of course, that's what made Ikua Purdy so famous in Waimea, Kamuela. And it was great to hear that kind of stories. So when Lee, this woman that did a feature about that— it was great. I haven't seen it, though. It was stories about the cowboys, and about what they did, and she had photographs and pictures of the people, and that's why I wanted to go and see it. I've never seen it, but I thought it was great. I forgot her first name. Her last name was Lee.

CSH: So your grandfather's name was Peter Johnson?

Young: Yeah, my grandfather is Pedro Manini Johnson.

CSH: Pedro Manini Johnson?

Young: Yeah, that's my grandfather. And he married my grandmother, Pa'ahana³, and had a song written about her. Running away in the forest, which is the one that met her in the forest (laughing). She was living on guava and whatnot, shrimps, up in the wild.

CSH: Your grandmother?

Young: Yeah, my grandmother. It's a beautiful song. I think she was running away from her step-mother at that time, that lives somewhere in Wahiawā. So she was using all the old *mauka* trails, up in the Ko'olau. I guess the old folks in those days knew the trails. Like I tell my children, when I was a boy in Pearl City, you know where the main intersection meets the highway, meets Lehua Avenue and Waimano Home Road, right where Cutter Ford is and the Bank across the street, where the old Pearl City Tavern used to situate, before Cutter Ford. I can remember that area, where Pearl City Tavern was built and now there's Cutter Ford on it. It was an old empty lot, right there. An old empty lot. It was full of *kiawe* trees. And at that time, everything *mauka* of the road, which we call the highway over there, was all sugarcane fields. And then of course, when my children came along, it became all houses. But then, when I talked to my mother she said when she was a little girl that intersection was where the

² Born about 1871 and died May 28, 1925; Youngest son of Ambrose Johnson and Laamaikahiki Wahine.

³ Born about 1860 and died 1927; Daughter of Palaniko and Puakea; also had second marriage at age 36 to Henry Halm Jr. (age 32) February 16, 1915.

forest line started. And it's hard for me to believe that. It seems kind of weird.

CSH: It makes you wonder what's going to come next.

Young: Right. And so, you hear stories about a lot of the—[Pause for telephone call].

CSH: You were talking about where your mom was telling you that the forest bordered the highway.

Young: Oh yeah. That area there was different. And then later on, the town evolved like how you see this map, you see.

CSH: So here is Kamehameha Highway.

Young: Yeah, Kamehameha Highway.

CSH: And Lehua Ave.

Young: That's Lehua Avenue, and this is where Pearl City Tavern was at, I was telling you about, today, it's Cutter Ford. But when I was a child, all this was empty lot, bushes. And during the war years, they had the military camp in here. They had this big huge search light that went up into the sky, stationed here. So of course, we were all under Marshal Law, and Pearl City was, you know like how I say, Pearl City is the pathway to Mānana—It really, Lehua Avenue,— If you went down to Lehua Avenue all the way down to the peninsula, then you would come across more military. All the empty lots that were down at the peninsula, all had military camps. There were tents in all the empty lots. And of course, in those days, the military would patrol up and down the streets, especially after eight o'clock because we had a curfew. Everybody had to be in their homes. And of course, we had blackout. All your windows had to be blacked out. If they saw light shining out, they had authority to shoot those light bulbs out. So we were very strict in those days, very strict, we were under Marshal Law, Presidential Orders. The home that we had at the peninsula, a lot of the housing up here, land were through the Presidential Orders at that time, were taken— especially *mauka* in Mānana, if you will notice, all those big leftover warehouses, there's a few of them, and where the big stores are, the big box stores in Pearl City—HomeDepot, and Sam's Club— there were a lot of— all those properties were military— taken over during the war through Presidential Orders. We need it. So they housed all the materials and supplies that we shipped overseas.

CSH: Can we go back for a minute? You were telling me that across the street from the Tavern was where all the sugarcane was, on the other side of

Kamehameha Highway.

Young: Yeah, everything *mauka*—but then I wanted you to look also at that map, I wanted you to see how far the sugarcane went during those days. That's the days I'm talking about. They went all the way down to the airport. If you follow, you see all the patches here? These are all sugarcane along the Highway you know. That's what it looks like to me. There was sugarcane there. All that area in front of the airport, where the Navy golf course is—

CSH: Here is the United States Naval Reservation.

Young: Yeah, you see.

CSH: Bishop Estate, Queen Emma Estate—

Young: In this area here by the airport it used to be a huge housing there for the civilians, to house the civilians that came over from the mainland to help in our war efforts. It was like a *mini* town by itself. It had everything in there. All those buildings have been broken down already, but I wanted you to look at this map and check out all the sugarcane areas and who owned the properties. They would say, in the 'Aiea side, the Austin Estate.

CSH: It says, let's see, this is Waiawa at the edge here.

Young: So you can see O. R. & L— but, the important thing about it to me was, about the *'āina* at the time, when they had the sugarcane, it did protect the land a little for runoff. Like I was telling you, the moment you put housing up *mauka* the water is controlled, but it is diverted real fast into the river. So that's why, we, who live at the lowest part, where we live at the lowest part, will get the water rushing fast. In fact, the name 'Waiawa' means water and *'awa*. You know the meaning of *'awa*? *'Awa* is that *kava kava* root that you drink, Hawaiians call it *'awa*. I kind of didn't like the idea they called it 'bitter water'. Because *'awa* is a little bitter when you drink it, so Waiawa—Waiawa Valley was an area known in the ancient days of harvesting *'awa* root. It was a ceremonial drink that they had. Of course in the old days only the royalty used that root, until later on, and then the commoners would use it. Then you could sell it in the market and go buy it, like other things. So, Waiawa was a source of that. But, I like to think that the meaning of 'bitter water' for the name Waiawa, to me, could come from—because the area is the farther lot, the bottom on the lowland, *mauka* of Pearl Harbor. And when I used to watch the water, the rivulets would come twisting and turning like little *'awa* roots, twisted. If you ever harvest that *'awa* root, you got to see, its like a big root coral. It's all tangled into each other. And it reminds me, when it flooded down in the lowland, all these little rivulets, twisting and turning, like the *'awa* root. But it's just my romantic— it's just because I live there. I don't want them to say, Ehh you live in bitter water? (Laughter) But, we do have good

drinking water if you drill a well at the proper depth. All these little *apana*, like Waiawa, Waikele, Waiau, Mānana, Hālawā, Kalauao—you know, they all have spring water, some natural. But if you dig too deep, you hit the salty water. And if you dig too shallow, you don't get enough pressure. They like to dig their well deeper to get more pressure, but when you do that, you let more salt get into your water system. But there's good water there.

CSH: Talking about water, how has the aspect of Waiawa changed over the years you've been there, so that the water behaves differently now that it goes downstream?

Young: Well, first of all, Waiawa Stream—Waiawa River, although it has the second largest water shed that backs it up, *mauka*. I'm surprised that the government has not brought flood improvements. That would have helped the developers a lot. One time, I was on that committee to have flood control, like they had in Waikele, like they had in Pearlridge area. But, for some reason, the money ran out at the right or wrong time, I don't know. So there was never funds. But you still need people to go in there, and ask for this kind of change, for government help. So when I was on the original committee, I went up the—and had people that would see the same problems, and even people who would have to give up part of their leases, or part of the land they owned, were willing to do that in exchange for having flood improvement in the area. But, when we had a little meeting at the Pearl City Japanese School at that time, and by the way that Japanese School also played an important part in its little role, too, when Leeward College was being built a lot of the school was there, Leeward College was held there before that. And parts of where the original Pearl City Elementary School when I went to, where the courthouse is now, the children went to the little Japanese School. Unless you remember these things, you wouldn't think about it. Maybe sometimes it's nice to have an oral history, because sometimes we forget the little details here and there, and then we just go on with the big stuff, with the big show, but we never talk about the little things, the little seed that would grow big into the big old tree. Going back to this flood control thing, when I sat on the committee with other people that helped, we all worked together, it wasn't just one guy, we found out that when you went to the Corps of Engineers, they did have a system of priority, and the priority was whether the developers or the owners up on the *mauka* side was going to go along with you. So, that was important.

CSH: What do you mean, go along with you?

Young: In other words, the more people I can get that wanted to help—say all the little watercress farmers on the lower edge of the river, and the taro patch farmers and the people that raise aquaculture (fish) and all that—which I got them to go along, which is fine. And these were the people, or those people who lived along the edge of the river to go along and go to the

Corps of Engineers, which is fine, it was okay, except, maybe you never had that much priority. Who cares for a little taro farmer? Who cares for this guy that has a little fishpond? Right? But, if you had this guy who had control of a lot of land, right next to the river, and says, 'Yeah, I'm on that committee, I want to help get that stream fixed,' then it gets more weight because you have a bigger ownership, a larger land area that you're talking about, and probably a lot of that area that the water comes from is from their area, or from that area from the forest that they managed or owned. Of course, they, like everyone else, they would have to get permission to change the land code or land use law, so that they can develop. It had nothing to do on the committee. Whether you liked that guy or not, it wasn't that. It was, are you all in the same boat that wants to develop this river?

CSH: Are there still people farming down river? Taro farmers? Watercress Farmers?

Young: Well, yeah, there's more here and there, and there's part of the University that has their section, and there's part of that section that was the military warehouses where Home Improvement is at right now. At one time, all that area was considered flood area. But, they're in a stable area now because they are a little higher. Where the University is at, their farms may be a little lower. That's right next to them. Of course, a lot of the Navy property is up on high grounds. You have to get the Navy also to work with it, because if you walk across the river where the bridge is, Eighteen Bridge⁴, the Navy would say, 'Okay we control everything from the *makai* side of the bridge.'

CSH: Which one is the Eighteen Bridge?

Young: That's the one that crosses Waiawa River.

CSH: On Kamehameha?

Young: No, if your following the bike trail, where the railroad used to go—So, the railroad when your looking at all these old maps where the railroad had or the plantation—. The rail system was built on the transportation for sugarcane, pineapple and other stuff. But when it became more economical to use trucks, that mode of transportation died out, real fast. It was cheaper with trucks. In fact, in the old days when my dad was a young kid, where the power plant was, a lot of it, the old farmers never shipped their things on the train. It was more expensive. They had little boats come in from Honolulu that went to the mouth of Pearl Harbor, come down right to a little landing point behind the power plant, Kahe [Waiau]

⁴From Honolulu towards 'Ewa direction the railroad bridges were given a number.

Power Plant in Waiau, right across from Zippy's. That big Zippy's right across the street. They have a pond back there. That same pond belongs to pond by the park, by the power plant. And of course there's a huge spring under there. That's why the power plant is there, to tap that spring there.

CSH: That's not Kahe?

Young: No, that's Waiau Power Plant. I'm sorry, did I say Kahe? No, that's Waiau Power Plant. That power plant was built first and then they supplied Campbell Industrial Park in the beginning and all this area where we are talking about. And then later on, Kahe Power Station came on line. Yeah, you are right. I meant to say Waiau. That's another spring water area [in Waiawa that supplied the plantation].

CSH: So the farmers shipped all their goods out of a landing.

Young: Yeah, the landing. In fact, there used to be a tea house back there, too. When we were kids we were interested in the fish (laughing), not the Geisha girls, the fish. And that's true. They used to have beautiful koi. We never bothered with girls, when I was a kid. The sailors landed there, too. There was a small little mini market where people could sell their wares, things that they made, to sell the sailors. Because I would ask the sailors for a match. And they would say, 'kid you smoke' and I would say, 'no, no, no'. I collect the match covers. In those days, all the ships that berthed in Pearl Harbor or was tied to the buoys in Pearl Harbor—. And when the fleet used to come in, I used to go sell newspapers. And one of the things I used to do was ask the sailors for matches. They thought I smoked, but I didn't. I don't smoke either now, never did. But, I used to collect the match covers because in those days each Navy vessel had their ship on the match cover, had their name, and it showed it. And then I used to collect them and keep them.

CSH: Do you still have them?

Young: No, no. My mom ditched it long ago. Later on, I got into bottle collections, ironically. But the railroad really made a spur going from Pearl City down, down to the peninsula. The old town of Pearl City used to be along the railroad track. Remember this picture in this book that shows the railroad stations, that's the sign. The reason why we chose that title for "The Pathway to Mānana, the Pathway to Pearl City"⁵ was the fact that in the ancient days when the Hawaiians settled on O'ahu, one of the pathways was through Pu'uloa, Pearl Harbor. That was the perfect place for the canoes to come in. And later on, the sailing vessels came in, and then that lead to the Pearl Harbor we know today, where all the Naval

⁵ Book authored by Arlene Ching, State Librarian—in children's section.

ships come in. When the Navy settled in Pearl Harbor, the railroad built a spur down to the peninsula to pick up Navy personnel and so forth. And there was another pathway, and of course, when the airplanes go into the commercial side they landed there at the peninsula, Pan American Clippers, and the Hawaiian Clippers, big flying amphibian. So all the people who wanted to stay at the Royal Hawaiian Hotel in the old days, the first hotel, came through that way, through Pearl City, the pathway.

CSH: So that was basically, the point of arrival?

Young: Right. You wouldn't think so, but it was. The other big ships like the Lurline, and the Matsonia, Lusitania, came into Honolulu Harbor. In those days, all the big stars like Shirley Temple came in through there. Of course, she came on the Matsonia too.

CSH: So you were right there?

Young: Yeah, we were right there. In fact, my wife was on board on one of these sailing trips when Shirley Temple saw them playing, she wanted to go up and play with them. Of course, you had to get permission. Of course, her husband (later when she married) Mr. Black, was from here also. Nice family in Hawai'i. And then when my wife went to California one time and happened to go into a Hawaiian club⁶ in San Francisco that her brother had belonged to, she somehow met Shirley Temple Black there. But, just by chance, personally. We had famous people staying down there (the peninsula); President Roosevelt was there in 1934 as part of his overnight stay with classmate George Fuller, head of Bank of Hawaii at that time. Then Mrs. Guigni was asked by Mr. Fuller to decorate his home at the peninsula to make President Roosevelt welcomed with a Hawaiian motif in the background. She got all her friends to help—Mrs. Guigni was also for fifty years, the principle of Pearl City School. And her dad was Judge Ho'okano, of the whole 'Ewa district of O'ahu. And of course, he married a Hawaiian, blue blood, an *ali'i* family. His wife was part of the Piikoi family. Mrs. Guigni's had two sons Henry Guigni and Alfred Kealoha Guigni was the principle of Pearl City Elementary School for years, very respected and well loved. And when she was asked by George Fuller to decorate the home, she was real happy. Oh, I failed to mention that her son Henry Guigni worked with Senator Inouye in Congress, and later became the Sergeant of Arms of the United States Congress. That was one of the highest positions that any Hawaiian held in office, in the United States, outside of Senator Akaka. And he's a Pearl City boy!

CSH: What about your family? What did your parents do?

Young: Well, my parents...

⁶Hayward, California Hawaiian Club.

CSH: What were their names?

Young: My mom was Elizabeth Kahiku Johnson⁷. Her family had lots to do with Pearl City. The Johnsons were the ones that worked for the Dillinghams. But on their Hawaiian side, they were the ones that lived at the mouth of the Pearl River, and they were from the family La'amaikahiki, part of that family that settled in Hawai'i. And so my great grandma— that's my grandfather's mother—she was born in Mānoa Valley. About the same time that Queen Ka'ahumanu died (1832), that family went underground, when Kamehameha's forces invaded O'ahu.

CSH: What was the name of that family?

Young: La'amaikahiki Family. Family on my great grandma's side. She was a La'amaikahiki Wahine. Her father went to Kawaiha'o Church in the 1830s. Timoteo La'amaikahiki. This church here. They were part of the *kaukauali'i* that went underground. Kamehameha took over. And it just so happens to be my wife's family that took over that spot at the mouth of the river. There's a picture in here of where it was, it's right at the mouth of Pearl River, which they call in the old days. We call it Waiawa River today. It had another name also, according to John Papa 'Ōi, who lived nearby at Waipi'o. He is the ancestor of the Brown Family. John Papa served the monarchy during Kamehameha III's term. So this Don Francisco de Paula Marin was an ally of Kamehameha, and he was powerful because of what he knew—he had a ship. He had fire power on that ship. And he had men that knew how to take care of gun powder, which was very important. And he happened to have an expert mason at that time, I think his name was Ferreira. Of course, Don Francisco was a devout Catholic. His oldest daughter was baptized Maria Cruz—Don had three or four Hawaiian wives. I think he had at least three documented really well. My wife happens to belong under the first wife [the first wife of Don Francisco de Paula Marin]. So, when Marin married this first Hawaiian lady, of course they got permission from the *ali'i*, here, to marry. His first child was Maria Cruz. She married, I guess you could call him a pirateer, this guy Maughan, had a ship. In those days, the people who owned ships were powerful. They would go get the material, you know how Matson today would go get, bring all the material here. So, they were like the shipping company all rolled in one. Maria Cruz married this ship captain named Maughan, spelled M*a*u*g*h*a*n, sort of like that, not the M*o*r*g*a*n, it's the other way. And part of that family was buried right here at the corner of Likēkē Hall, where you parked your car. But of course, they were later removed and put in the corner in our cemetery here. What happened was, she married this Maughan and then they had

⁷ See Kūnihi Ka Mauna 'Ōiwi—a Native Hawaiian journal to notable Hawaiians of the 20th Century.

two children, a boy and a girl. Well, Elizabeth married a Colbourn, that's my wife, my wife is a Colbourn. And that family had settled from England, came over on the Mayflower and settled in Dracutt⁸, Massachusetts, and then eventually came over to Hawai'i. They were fortunate to have their records well kept, because their family happened to be in the printing business. So they were very fortunate. Luckily, somewhere along their line, up to their father, her father was a devout Mormon, so he kept very good records, right up to my time.

CSH: So your great grandmother, La'amaikahiki, was from Mānoa?

Young: Yeah, born (about 1836) there.

CSH: So how did they also have family, or land, in Waiawa? You said that your wife's family took the land away La'amaikahiki's land.

Young: So at that time, just before my grandmother's time, the family according to my mom, lived there at that-that family, on my grandmother-lived there at that place.

CSH: So they moved?

Young: No, when Kamehameha's people came in through Don Francisco Marin, Kamehameha had allowed this Spanish man to control all of Pearl Harbor, all of that Pearl Harbor basin, bosom of Pearl Harbor, all this *apana* that we are talking about, Waikele, Mānana, Waiau, all these that surround Pearl Harbor. All the way around into Hālawā, he controlled it. So his descendants are the Colburns. They stayed at the mouth of that river, until the last Colburn. That was John Colburn. And that's my wife's granduncle. He was the minister of interior for Queen Lili'uokalani.

CSH: So how did your family get there? Your family was there before them?

Young: Before them. In other words, Kamehameha really was our enemy. Although I belong to the Royal Order of Kamehameha.

CSH: Why did your family have to go underground?

Young: Because they're conquering you.

CSH: But I mean, what was the...

Young: They'll kill you.

⁸Original Family Colburn settled in Dracutt Massachusetts in 1635.

CSH: No, I understand that they can kill anybody, but...

Young: No, because it's common sense that if your family comes from a line that has very high rank you don't want them around. By the same token, the other family that I'm talking about on my mother's father's side, the Johnsons, La'amaikahiki, then on my mother's mother's side Pa'ahana, that's the Hopu and missionaries. That's why Thomas Hopu came back with Hiram Bingham. He didn't really go to the mainland, get on an American vessel to become a missionary. He just by chance met up with Henry Opukahai'ia and became good friends and converted. He was a *kolohe* kid, he was getting away—he didn't want to get killed by Kamehameha's warriors, either. His family was the one that was related to the Hā'upus that live on Hapuu Hill. Of course, the missionaries did not spell Hā'upu correctly, they would put H*o*o*p*o*o, Hoopoo, you know. Actually Hawaiians would pronounce it, Ho'opo'o, but the Americans would say Hoopoo. When they come back to the islands they were writing, H*o*p*u, Hopoo, but the name is really supposed to be Hā'upu, like Lonoikahāupu. But they cut short and use Hā'upu. That's why we're related—my grandmother was related to this people that lived up on—in that area up there. In that area there, in that picture where the church was up on the hill. And that family was allied to the missionaries more so than the Kamehameha and the ones with the ruling power. So when the missionaries came to Hawai'i, they could come out of the woodwork, sort of speak. Because on my grandmama's side, there were five sisters from the Nahakualii line, that Kamehameha's warriors were tracking down. Five sisters. And according to my mom—

CSH: Five of your grandma's sisters?

Young: Yeah, she was one of five sisters they were tracking down by the warriors. They were part of the [inaudible], Notley family, they were part of the Pa family, the Kealiikoa Dempster family, Beamer family, and our family. They were all into hiding, they were from Kohala, these ladies. But, what happened just by chance when Kamehameha died in 1819, the warriors stopped. They saw no reason to go track down these five women. These women come from *ali'i* lines that Kamehameha wanted to get rid of. We were on the wrong side. I have nothing against Kamehameha, we just happened to be on the wrong side. So, that's what happened. The only thing you would be interested now, I guess, was to go find the relationship with all these families. What they did and where they went and whatnot, I don't know. But all these names pop up today. These names of children, same like me, I see these names going to Kamehameha School. When I went to Kamehameha Schools, all these names popped up again. And I knew that.

CSH: Probably all your cousins.

Young: But then when we were young kids, we never knew that. We weren't interested in genealogy, or history, or you name it. We were just about football, girls and food, right?! When you get older, you change, you become interested in the right thing, I guess mother nature steers you that way. Back to the—

CSH: What I'm trying to do is find out how your family is associated with that land and then maybe get a sense of what your parents or grandparents passed on to you about that land. And particularly the *mauka* areas of Waiawa.

Young: Well that land actually, on my Chinese side, they did a lot of work. My grandfather, Young See Hop, grew rice. In fact, he leased the land for the mill from the Colburn family. It sort of worked real nice. Sometimes the real story is better than the make believe. But he did. He leased the land, but of course my dad, was Chinese and married my mom, and they had the land in that area.

CSH: What was your dad's name?

Young: My dad was Tin Hu Young. Or he went under Edward. He had an English name.

CSH: So you're Tin Hu Young, Junior?

Young: Yeah, but only in Hawaii, because Chinese don't put Junior.

CSH: They don't put Junior?

Young: No (laughing). It's the *haole* style, the American way.

CSH: Did he speak Chinese?

Young: My grandfather?

CSH: Your father?

Young: My grandfather could speak Chinese, and a little English, and Hawaiian. They were well versed. My grandfather was a *punti*, my grandmother didn't have to work. She had bound feet, so she didn't have to work. Her children had to work, though, to support their family. My dad worked at Pearl Harbor, like my brother, he worked at Pearl Harbor. So we are all Navy people—connection with the Navy.

CSH: You all worked for the Navy as military people or as civilians?

Young: No, no, as civilians. Of course I was in the Army later on.

CSH: So your Chinese grandfather grew rice in the bottom lands?

Young: Yeah, all the bottom lands. You see, try look at that book and see if you can see that picture. You'll see the pictures yeah. I'll show you. All this kind of places—you will see another picture, where this boy or somebody is going up the river. I want to go back to there later on. Okay, that's on Waiawa River where they're hauling up that stuff, rice, and stuff, not too far from Eighteen Bridge. Coming up that river, or going down, I don't know which way, but you gotta kind look at it. [inaudible] I was talking to you about where the Colburn Family lived [looking at a map]. Oh yeah, you can see the hill back there, you see the church? The church is back there.

CSH: That's the church on the hill, huh?

Young: Yeah, okay. After this church was, after the congregation moved to Pearl City side, across the river, Mrs. Nawa'a, one of the wife of the pastors (Pastor Simeon Nawa'a), had asked the King, Kalākaua, for monies to help build a new church in Pearl City. Of course at that time, this was still known by the missionaries like 'Ewa Station, as some other name. When they built the new church proper in Pearl City, they renamed the church Kahikuonalani, in honor of Kalākaua.

CSH: This one?

Young: This church (pointing to the church). Then it moved from this area. And then it became the one room schoolhouse. The first in this whole area, *mauka*.

CSH: So when it moved into Pearl City proper, then it became Kahikuonalani?

Young: Yeah, it became Kahikuonalani to honor the seventh King of the Kingdom, Kalākaua. And to honor him, they sang one of the old songs that was known in the Pearl City area, Pūpū O 'Ewa. That beautiful song, dedicated at that church ceremony for the King. And that's the story about this church. And then the church moved from— you know where the Kingdom Hall is, underneath the freeway on Lehua Avenue, near where the fire station is, Pearl City?

CSH: I don't know.

Young: Well, anyway. When you go down Pearl City, down Lehua Avenue, where the freeway crosses over Lehua Avenue, right under there is where this church had moved. And where that church was, where the fire station is now, that's where the old Courthouse used to be. And then I think,

underneath the freeway now, I think that's the Jehovah Witness, it has a little church or something under there. Jehovah Witness right there, now. So, Kahikuonalani went *mauka* above the freeway, now, up above the shopping center, you know, the Pearl City one, where Long's is. Right above that hill there. The church is situated there now. So that church has a long history.

CSH: So you folks used to go to this church when you were young?

Young: When I was a child, I went to the Kalawina church, that church. The one down below under the freeway now.

CSH: Oh, Kahikuonalani?

Young: Yeah, that church.

CSH: But your mother went to this church?

Young: My mother went to that church. We had this family story--when my mom had another junior before me. So when my mom was pregnant with this other junior, at that time we were living at the peninsula, and we were living right next to the Guigni's, Kealoha Guigni, the one I was talking to you about. By the way, Kealoha Guigni's father, Judge Ho'okano was a trustee of this Church (Kawaihāo) and was also the Chairman of the Board of the Trustees. And his neighbor was Frank Archer. How we got to live next to the Guigni's was, Frank Archer, that happened to be a Trustee and also a Chair of the Board of this church, just so happened to be, were neighbors. Judge Ho'okano was the judge of the 'Ewa District, and Frank Archer was the Tax Collector. But the family story was, when they first given this job, I think Stanford Dole was in charge then, after the overthrow, it was an intermittent period. According to my mom, they wanted to switch jobs, and they went ask the Queen, but they really had to get permission from the Dole fraction. So, they did switch. So Frank Archer, being the Judge of the whole 'Ewa District, they switched, Ho'okano became the Judge and Archer became the Tax Collector. That's the family story I heard. And from Archer, Tūtū Archer, Frank Archer, he went back home to Moloka'i and Ho'olehua, too, to live the rest of his life on the homestead, up there, they had a homestead. He gave that property in the peninsula, the [inaudible] to my mom, how fortunate. That's how we became neighbors to the Guignis. And I was born in the converted cottage that used to be Queen Lili'uokalani's carriage house for her horse and carriage. My dad had renovated, and fixed it into a little cottage, so that's where I was born, next to where the main house was, we lived in it for a little while, and then my Chinese grandparents, Apo (grandmother) and Akoon (grandfather) lived there. We let them live there. But I heard that Queen Lili'uokalani used to own all that property around there. And the

park, which one of these maps shows here. And that big pond is where they had victory dock, you know, today. At the peninsula. And when we were children we used to play in that park, go crabbing and fishing. I mean it was neat. You didn't need T.V. or—in those days, we could go to Ford Island, go fishing, do all kinds of stuff. It was fun in those days.

CSH: Did you folks ever go up *mauka*?

Young: Yeah, we went up to Waimano Valley, go past Waimano Home. We knew all the trails up there, and the water tunnels, and go pick mountain apples, and go swimming up in the pools up there.

CSH: Natural pools or the irrigation ditches?

Young: Yeah, the natural pools, and the irrigation ditches. We used to do all those things.

CSH: Did you go up the gulches of Waiawa?

Young: Yeah, well not so much the gulches itself. What we used to do was go look for the sugarcane reservoirs, they had reservoirs here and there, Pump Eight, Pump Nine, or whatever. Pump Seven, and then we would go swim in it, and do all those crazy things. And we got bored, we'd take our bicycles and go all the way to 'Ewa in those days. All the way to 'Ewa. When we were children in Pearl City, there was an open air theater—never had roof. What you brought was your Japanese tatami mat, mosquito punk, and put your mat down on the floor, got settled, light your punk, and wait till it got dark, then when the movie got started, when it got dark, then we had lots of fun sitting out there in the open sky, having this movie, in this open air theater. Waipahu had that beautiful, nicely built theater. So we either take our bikes, take our parents, or somebodies parents to take us there and standing in long lines to watch Shirley Temple movies, because she was a big star in those days. Judy Garland was one of them. We had all our childhood stories in those days. But we had a written rule in our neighborhood in those days, and I loved that. If a kid didn't have any money, it didn't matter, we would take 'em. Somebody would treat 'em. And it was good. In those days, you never had to worry about your children. Our neighbors, if you did something wrong, our folks would hear about it. I mean it.

CSH: So did your mom stay home and take care of the kids?

Young: Well, I can remember when I was younger, it was frowned upon if your mother had to go to work, you know. In those days all the stores were closed on Sundays. No stores were open, it was strict. People took their religion very seriously. A lot of the church functions, you got to attend in

those days.

CSH: How did that work with your Chinese father?

Young: Well, I tell you what. Like I was talking to you, when we first was living down the peninsula where I was born, there was another junior before me. And so, you know how the Mormon elders used to walk two-by-twos, nicely, neatly dressed, white shirts, neck tie, they come to your room knock on the door, they want to read the gospel, and get you to be acquainted with Mormonism. So my mom, chased them away one day. I don't know if she meant it, or if she was ill, or what. But she did. She told them, 'I don't want you here, coming anymore.' And she was pregnant at that time, with the other junior, and he died. So she had a guilty complex and so went to the Mormon Church later on. And then somehow, my dad became a devout Mormon, Chinese now—devout Mormon. All my aunts, my Chinese aunts and uncles, all became Mormon. But my mom somehow went back to the Calvinist church. I think she felt more comfortable in her first church. So she went back. Normally the wives would follow the husbands in those days. They made a nice split. She went back to the Kalawina church, like Kawaiha'o. And then my dad stayed. So he did his missionary work by helping build the Church College of Hawai'i. So if you go in the theater you will see his name on the plaque. He wasn't well educated, my dad. Because when my grandfather was raising the rice and all that kind of stuff, he was the one picked to go out and go work. He ended up at Pearl Harbor. Help talking care of the farm and working Pearl Harbor. He was a pipe fitter, a plumber. He made good salary, though. Although he didn't get a good education. In those days you went up to seventh grade, and that was all that you needed. And people went up to normal school or something else. My uncle's, the older ones especially, my dad was in the middle, the older ones got their education and everything. But my dad was happy, he lived a full life. He got religion, he was contented.

CSH: And your mother, was she—

Young: Well see, the war changed everything. At first from being a staying at home wife, which was the proper thing to do, when I was a child. You got funny eyes if your mom had to go to work in those days. Not like today, today you have to. It was like a norm. Unless you came from a very wealthy family. You have to go to work. But the war changed everything. The lifestyle, the culture, you name it. Everything. It even took away our home. But it's okay, we were patriotic in those days. And we believed in our country, and in our government. You never questioned. In those days you never questioned your *kūpuna*, your elders, your leaders, your country. That's the way it was. So my mom got to work at Fort Shafter as a house mom. Interesting job. All the ladies she took care, the militaries,

I guess you call them WACS, yeah. Women's Air Corps or something, but they were military women. And they worked at Fort Shafter in this secret building where all they did was plot the war, where this ship was, where this army was, and all that, the whole war. Then they would come back to their own place and it was very secure. Because of the type of job they were doing. So my mom worked in that, and then later on she worked at the prison, O'ahu Prison, as the matron where my father-in-law worked, as the Assistant Warden.

CSH: Oh yeah?

Young: Just so happened. I didn't know, well I knew who he was at that time. Because at that time, my dad, he was Mormon, and my dad was Mormon, so they knew each other and all that stuff.

[Tape Stopped Momentarily]

Young: I was old fashioned so when I met my wife, I went to the prison—not knowing he was all this. He was also the Security Officer at the prison at that time. So, I walk in, the guards open the gates, you hear the gates 'clank' [making the noise], shut behind you, you walking through different hallways, and all these gates clanking, real old fashioned, not the quiet stuff today. They close like you're never coming out. So, I go into his office and I hear this guy cleaning up. I didn't know he was in there for murder (laughing). So my father-in-law, my future father-in-law anyway, says, 'oh, hi. Nice to meet you,' and I say, 'Mr. Colburn, I came to ask for your daughter's hand in marriage'. I was real old fashioned, cute. Probably never do that today.

CSH: When was that?

Young: That was in '51, 1951. He gave me the one, the warm shoulder, and he goes back in his store room and comes back with a book. A big book. He opens it. And there's a picture of my mom, and I say, 'yeah, that's my mom.' Of course it didn't upset me, because I knew she was working there as a matron. Because during the war years all the men were gone. They needed man power. So they had to use a lot of women to cover a lot of these jobs. [inaudible] "Yeah that's my mom". But it's all right.

CSH: Okay, then it's all right. Oh, you had never met him before.

Young: Well not really, not officially. That was kind of official. I knew who he was, but we didn't treat him like a father.

CSH: But I mean when you were dating your wife, did you ever see him?

Young: Yeah, yeah, yeah. Well yeah, yeah, yeah. I saw him a couple of times, but not really intimately. We kind of stayed away, right. And you didn't have to ask your parents, we were of age. But just to be nice I went in there.

CSH: So, did you folks eat a lot of Hawaiian Food growing up? Or Chinese? Or mix-? Or what was it like?

Young: You know in Hawai'i, Hawai'i is really a mixture of all kinds of foods.

CSH: No, but I mean in your family.

Young: Well like my family, for instance, my mom, my mom was brought up, in the old days, since my granduncle was a ranch foreman, they got a side of beef to bring it home to the family home in Pearl City. Pearl City, behind Mow Leong Store, you see Mow Leong Store, in the back of this store on this side here, there's a lane going in the back, this is where my mom's family home, where the Johnson's lived. So when my granduncle used to go work for the Dillinghams, we would bring home every so often, maybe once a month, a side of beef. Their basic food at that time was *poi*. Their staple. Of course they had rice, potatoes and all that other stuff. But my mom, would be hungry if she never had her *poi*. She was brought up on Hawaiian fish and *poi*, and pork and beef, and stuff like that. In those days all the beef, they would have, they would get this big, what Hawaiians call *kelamania*, that big crockery. This big crockery they made, tall like this. And they would salt all their meat, like how they salt it, and then they would preserve it like that. And then they would have all these *kelamania*, all these crockery, and fill it up with *poi* that they pounded. Not mixed with water, just *poi* they pounded. And put it in the cupboard with a strainer, a table cloth, fish or something. And then, they didn't worry too much about fermentation. Because nobody in those days ate fresh *poi*. All the *poi* had to be sour. They wouldn't eat it. We ate fresh *poi*, I couldn't eat sour *poi*, I couldn't stand it. But that's the way the old folks ate. As long as they had their fish, *poi*, dried fish, dried jerk meat, and stuff like that, they were happy.

CSH: Did your mom go out fishing, or collecting, or--

Young: No my mom never did fishing and stuff like that. She was also homebody or working. Homebody or working. Actually we never had no fisherman in our family. Although, Pearl Harbor, in the old days, was a bread basket. Even the time when I was a kid, you know that picture you saw of this kid going on that boat up Waiawa River? When I was a kid, had schools of mullet, I mean schools, one right after another, going up and down the river. So, a lot of the kids that live up Waiawa and come to the school, Pearl City School, used to go across that bridge, hide their stuff, under the

railroad trellis. Every kid had a hiding place. When after school was over, they go get up their star hook, they didn't need bait, you just dropped the line and wait for a little while and the school went (by), and then you jerked it up, and then you went home with one mullet. And that's what the kids did, stuff like that, and it was fun.

CSH: Did you folks ever hang out with the kids in the camps up *mauka*?

Young: No. Well, Pearl City was more like a bedroom community. It was not a plantation community. We had a lot of sugarcane up *mauka* but the camps were in 'Aiea and Waipahu, actual camps. We might have had a itty-bitty camp up, way up *mauka*, whatever camp was above that, but it was just a few families to take care of the irrigation, the reservoir, the ditches, or whatever that plantation. But no. The community we lived in was all self-sufficient people that lived in our community. All the people that lived in the peninsula area was considered all well to do. They lived all along the waterfront. Who's who in Hawai'i was living along the waterfront. Either they lived there, or they had a summer home there, or used it both ways. We happened to live on the middle side. Our waterfront was taken over by the Colburns already. So, forget that. We got the one from Tūtū Archer, Frank, where the Guignis lived. We were in the middle.

CSH: Middle, middle, of the middle loch, you mean? That's actually the east loch.

Young: Where the map is. You see, we are right here by the park, right there. Right around here. Because where we lived, where Kirk bride and Lanakila met, right at that corner, we had that corner of that block, and the Guignis had the other corner of the block. Section, section. Then later on, we chopped that into a little lot, and sold it off by the time the war came.

CSH: Do you know any ranchers, or older ranchers, or hunters who still use the *mauka* areas or who did use the *muaka* areas in the past? For hunting or when they were ranching up there? Do you know any of those people?

Young: I don't—we were—what's the closest name to suburban—we never did that kind of stuff. Okay, unless you knew because if you're a hunter you need to have a big yard—

CSH: To have all your dogs—

Young: Yeah, and many—you better have nice neighbors (laughing). So these people lived way out in the country. Now, the place where we lived you had to keep up with the Jones. You had to keep your yard nice. You had to tend to 'em. Well we never had no problems, but that's the way it was.

And I mean the Jones were like the Rockefeller, next door. See but, the only difference was that they had yard people, we had to do our own yard. That was the only difference.

CSH: How about Gentry's proposed development in Waiawa? Do you have any concerns other than the flood control?

Young: Well, flood control is the biggest concern. I mean, it really don't have. Actually, the developers really should be interested in that first. Because like I was telling you, one day I was standing on that bridge, and this was on the-- this was different, this was about watercress, about James Nakatani. And I was there to testify on their behalf, okay, because we were sort of neighbors. And then of course, Bishop Estate was involved at that time, Kamehameha Schools, because they were leasing that property. So, he had worked in conjunction with Sumida as a silent partner, in that area in Waiawa, there. I testified for him. So when I sat up to testify, somebody, I don't know, there was a lot of opposition, I don't know why, there was a lot of opposition. So I had to tell these people-- they were telling me, 'eh what's important about the area? Where am I in development?' in that kind of area. But I had to stand up and say, 'you know, James Nakatani, the only things he's trying to develop is watercress patches,' and then they got so excited because they see Richard Lee's trucks with all these big equipment and whatever, going into in and out. So they were against all that stuff. So, I had to stand up and tell them--so what happened was they said, 'we don't like it but, what's so important about Waiawa? There's nothing over there. And I said 'wait a minute. Don't say nothing.' Waiawa, we're like Pearl City, we are in the middle of everything. Whatever goes through O'ahu that crosses over goes through us. Whether it is communication lines, which the Navy and the Army had one, that is sealed in lead, moving right across there. Whether it's a big water line that goes across for the military, it does. Whether it's standard oil pipe line that supplies all our fuel for the whole U.S. Navy, and the airport, and Red Hill, where they have a tank in there that's taller than the Empire Building (tank storage) in their ground that feeds it, I said, and on top of that-- not Kahe, but Waiawa Power Plant line that goes above it, over there. And then underneath, under the river there's the main sewer line that goes from Pearl City that catches all the middle of O'ahu, goes into under the river, under Waiawa river, goes to Honouliuli side and 'Ewa, so all that waste water can be treated and go into the ocean. And we have the bike trail and the bridges that crosses that river. 'So don't tell me Waiawa is not important.' They don't know, they don't think about all these things. It is very important. When Henry Kaiser came to build the cement plant in the Wai'anae side, it's the first area he looked at, Waiawa. All those areas there, Pearl Harbor. Why? Because there was access for the ships to come into Pearl Harbor. Why? Because there was a lot of spring waters in that area, wells that you can tap, because when you have

a cement plant you need a lot of water and so forth? Why? Because there was a bikeway there where the old railroad track was, you can run a track go to the [inaudible] beach, go to Pearl Harbor. It's important. All these little things. So when the Navy had their Environmental Impact Statement on the use of nuclear, spent nuclear, whatever they call it, because the Navy has them, they keep them around there, but they have to show a pathway where they are going to go, you got to move them. You can start around there, but people got to know where you're going to move them, where you got to store them, and how long they are going to be there. So even the Navy has to know these things, if we have a meeting sometimes. They'll call certain people that are interested in these things. And the reason why they call you is because they figure you can tell them a safer pathway for these [inaudible] to go, to pick up these materials, where they can keep away from people. It might not seem important, but it is important, very important. And there is another reason why, too, because knowing full well that the Pearl Harbor area is where all our spring water, and well water, and our artesian system is. You never want one of those things to get in your water system underground. You really don't want terrorists into our nation, spoil the water man, and you had it. That's why we don't have tours (Halawa Pumping Station) for the water that's going underground in Halawa anymore. It's not good. They used to have a lot of good (rides) for the schoolchildren and everybody, but it should be stopped anyway. Just for safe keeping. So it's important. Even Waiawa, that area there has a well for the Navy, that feeds it today, right now. All that area *mauka*. That's why it's important. And it's important for flood control because all that stuff that come from *mauka*, where all these land owners own—because the Navy one time tried to accuse the population of throwing all that junk in the river. I said, 'Eh, wait a minute. A lot of that debris that comes from up *mauka* from the mountain are all natural, nature stuff come down, the tree stump, you name it.' At that time, the Navy just wanted to be— they don't want to be concerned with anything above the river, the only—by the bridge, we're talking about Eighteen Bridge, they telling you, 'Oh no, we are only interested on our side of the bridge, *makai* side, we are not interested on the *mauka* side.' So we standing on the bridge, me and this guy, with all this big shot emblems on his shoulder—scrambled eggs we call them—he was a Commander, I guess. But I'm telling the guy, we was meeting over there. You know when you have flood control, you can't go get one pencil and say, 'Hay, this bridge here, draw a line, that's yours, that's yours.' That's not flood control, it's going to flood on your side, I don't care what you say. Got to go down, and got to come up. And I thought of that, and I told him, 'You know, the mouth of the Pearl River, Waiawa River, you guys lands 'til the delta, where all those rice patties used to be and how the Nile is, spread out and such. The Nile was so rich in Egypt, because they left all that silt from Mother Nature to spread out. And they cultivated on that Nile. I said, 'What you guys did with all that old land, you guys covered it up, you guys

narrowed the mouth of that river. So it's going to flood more, your guys side. Don't blame us, *mauka*, that we're throwing all that stuff in the water.' Because when you constrict the mouth, the river goes up, up, up, up and then the water raises, water levels go up *mauka*, it gets wider, I mean way up, I'm talking about the river gets wider, it floods the homes along the bank and it brings their plastic stuff, boat, you name it, sucked back in the river and goes down into Pearl Harbor. I said, 'That's how it happened.' And, you guys controlled the bridge, Eighteen Bridge now, not anybody, you guys. And if you guys want to clear it out, there's two bridges, one is inside your guys side, you guys clear that bridge, and you guys clear the one we are standing on right now. So he says, 'No, we can't do that.' You know what the guys said? I don't know what he said, it had to do with something with the Secretary of the Navy. I was so, I wasn't mad, I guess I was frustrated, so I happened to have a cell phone at the time. I called Henry Guigni, my good childhood friend, and he was Sergeant of Arms at that time. I called him and he answered, just by chance. I said, 'Eh Henry, I got this Navy Commander from Pearl Harbor and we're dealing with flood control.' and all this kind of stuff. And I told him that because they have jurisdiction of Eighteen Bridge and *makai*, cannot they help us by taking one of those middle pillars of the river that's clogging all the debris, get it out of there. All they have to do is block the middle—get it out the middle pillar, because the train does not go across there anymore. You don't even need that support anymore. The thing is strong. The under-Secretary of the Navy happened to be in his office, he got on that phone and talked to this Commander. And do you know what happened? In a week the Navy Seals was over there demolished that pillar.

CSH: See what happens when you have people in high places. You have friends of people in high places.

Young: That's right. Who the hell is Waiawa, right? But it's important, it's important. So my suggestion to anybody owns land up there, wants to develop land up there, they should have got a hold of the Corps of Engineers, and the Government, and everybody involved for flood control yesterday. They were supposed to come yesterday, not all this. That's why they have trouble, *mauka*. I would say it would be helpful. They don't have to do it maybe, they don't care, guys on the bottom, that's why the Navy can flood all the debris can go into Pearl Harbor, after. But it would make more sense. Then if you had flood control you protect the people on the bank, along the bank, and you would have control of the debris that flows into Pearl Harbor, and then the Navy doesn't have to worry about all this rubbish going into Pearl Harbor. It helps everybody. But you see all this stuff, when they had [inaudible]. I cannot talk to you, go back in history too much because I'll lose you.

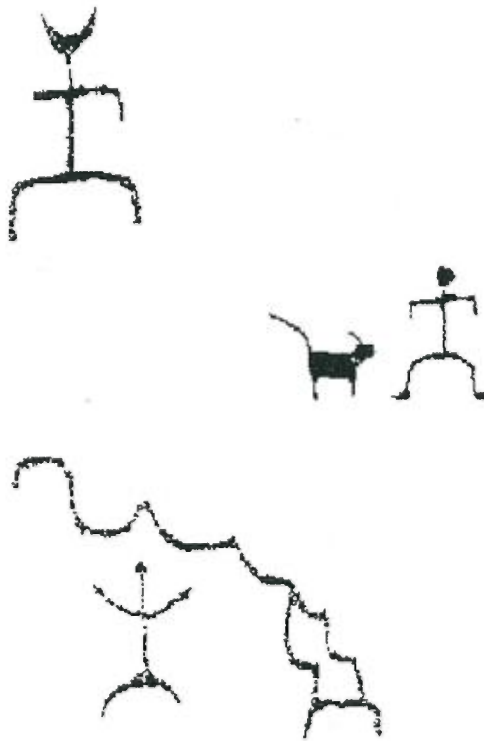
CSH: No, no, no. I was around then. I'm not that young.

Young: You not that young? Okay, okay.

-End of Interview-

CULTURAL RESOURCE PRESERVATION PLAN
SITES 50-80-09-2263, 2264, 2265, & 2266
IN THE WAIAWA GENTRY DEVELOPMENT AREA
WAIAWA *AHUPUA* 'A, 'EWA, O' AHU
(TMK 9-4-06:11, 31, & 34-37; 9-6-04:24-26; & 9-6-05:3)

September 2005



Aki Sinoto Consulting
2333 Kapiolani Blvd., No. 2704
Honolulu, Hawai'i 96826

ASC0905

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for:
Gentry Investment Properties
560 Nimitz Highway
Suite 211
Honolulu, Hawaii 96817

September 2005

by:
Aki Sinoto
and
Paul Titchenal, M.A.

Aki Sinoto Consulting
2333 Kapiolani Blvd., No. 2704
Honolulu, Hawai'i 96826

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INTRODUCTION

The preparation of this cultural resource preservation plan was requested by Gentry Investment Properties in conjunction with a change in zoning for the planned phased development of the property known as Waiawa Gentry. The proposed preservation plan involves four previously recorded archaeological sites. The procedures proposed in this document are based partially upon recommendations from the original archaeological inventory survey undertaken by the Bishop Museum in 1990 and also include new preservation initiatives. The results of the survey have been presented in a report entitled; *Archaeological Reconnaissance and Inventory Surveys of 3,600 acres in Waiawa ahupua`a, `Ewa, O`ahu* (Goodman and Nees 1991), produced by the Bishop Museum.

PROJECT AREA

Waiawa Gentry is a 3,600-acre property (TMK: 9-4-06:11,31,&34-37; 9-6-04:24-26; & 9-6-05:3) located on the central plain of the Island of O`ahu, in the *ahupua`a* of Waiawa, within `Ewa District. It is bounded on the south by the H-2 Freeway, on the east by Waiawa Gulch, on the north by Kipapa Gulch, and on the west by former pineapple fields. For the purposes of the archaeological surveys, the property was divided into *mauka* (Area B) and *makai* (Area A) areas that approximately coincide with Tax Map plats 4 and 5 (Fig. 1). The area slated for the first phase of development is located within the 1,800-acre *makai* portion.

SITE DESCRIPTIONS

The four sites included in this plan consist of Sites 50-80-09-2263 and 2264 in Panakauahi Gulch (TMK 9-4-06:11) in the *makai* area and Sites 50-80-09-2265 and 2266 in Panikahea Gulch (TMK 9-6-05:3) in the *mauka* area (Fig. 2). All of the sites are significant under multiple Hawaii Register of Historic Places criteria (A, C, and D).

Makai Sites

Panakauahi Gulch parallels the H-2 Freeway along the southwestern periphery of the project area. On the gulch floor along its northeastern edge are two areas of large bedrock outcrops that form shallow overhang shelters fronted by small terraces and segments of a possible aboriginal trail.

Site 2263

Eleven features comprise Site 2263. Feature 1 is an overhang shelter with approximately 12 petroglyphs (Feature 4) on the vertical outcrop faces. Features 2 and 3 are overhang shelters located roughly 100m south of Feature 1. Approximately 65 petroglyphs (Feature 4) were

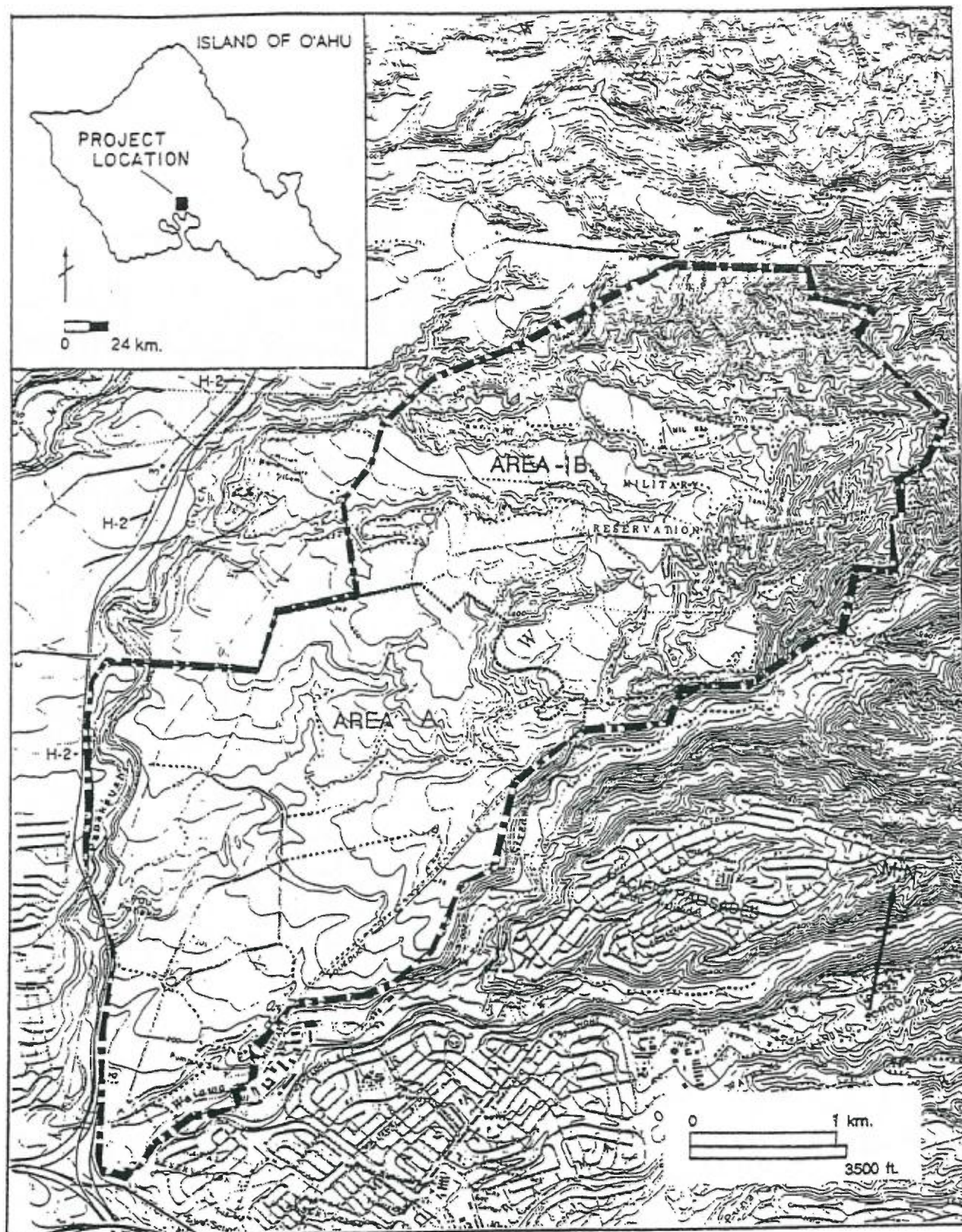


Figure 1. Project Area Location on USGS Waipahu Quadrangle (Goodman & Nees 1991:2)

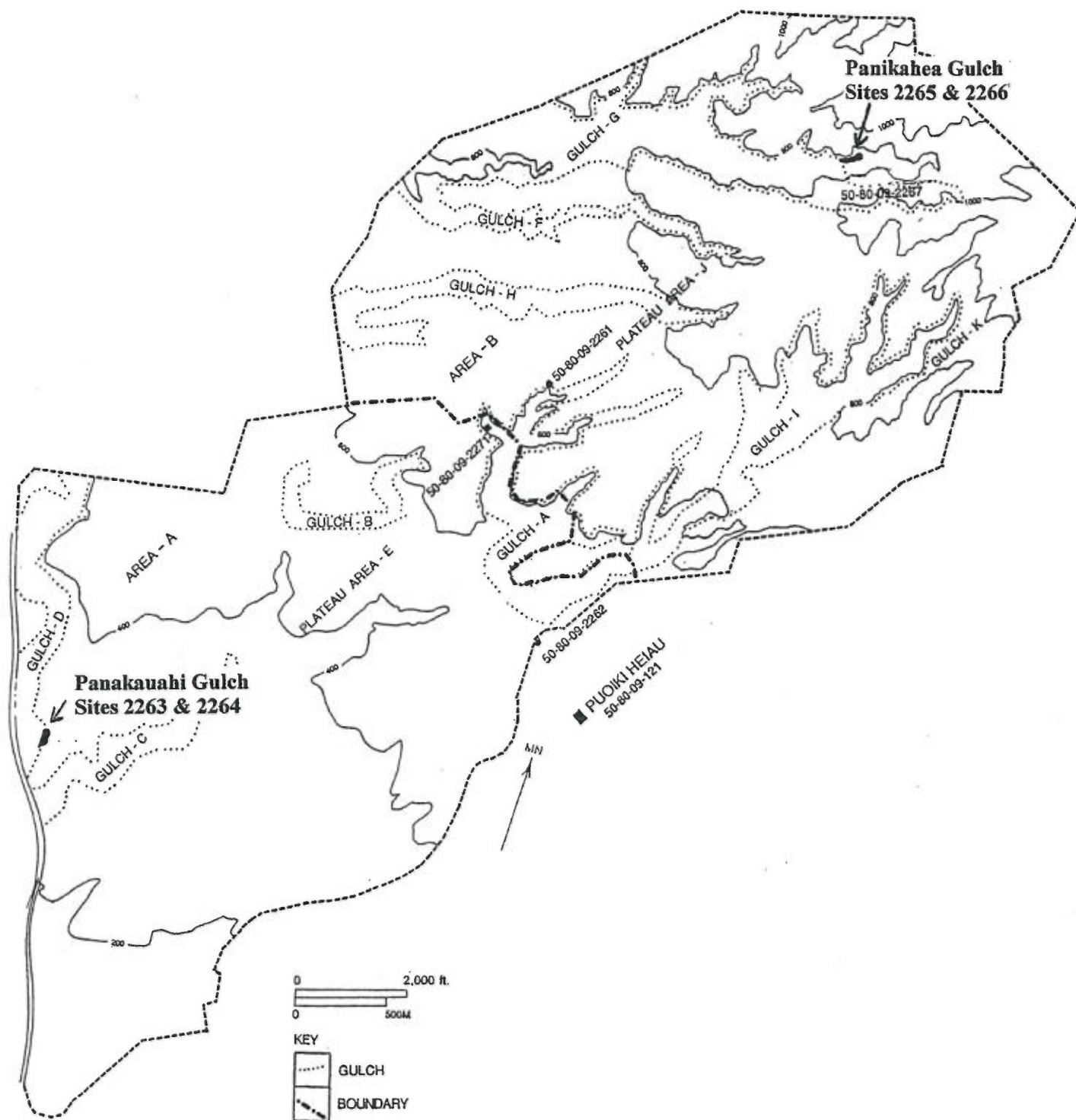


Figure 2. Locations of Sites in the Waiawa Project Area (Goodman & Nees 1991:13)
Arrows Indicate Sites 2263/2264 and 2265/2266

observed on the vertical outcrop faces. Features 5 –11 are small earthen terraces retained by alignments of boulders and cobbles that front Features 2 and 3 on the slope down to the stream (Fig. 3).

Three shovel probes placed in Features 1-3 resulted in the discovery of cultural deposits with charcoal and one basalt flake. Radiocarbon dating produced a date range of A.D. 1640-1955 for Feature 1 and A.D. 1430-1660 for Feature 3.

Site 2264

Site 2264 consists of the remnant segments of a possible aboriginal trail in the area fronting Site 2263 (see Fig. 3). This site is described as follows:

...This feature is approximately 0.5m in width and traverses the gulch bottom in the flat area on either side of the streambed, crossing the stream frequently. This trail is not paved or otherwise defined using basalt, but it is worn from use. The trail can be clearly seen in front of the shelters, but it has been severely eroded along its length by motorcycles and wild pigs. Because of these activities and extensive changes to the slopes caused by erosion and the construction of H-2, the total length and precise location of the trail are unknown (Goodman and Nees 1991:38).

Currently, Site 2264 appears to be less clearly defined due to erosional disturbances caused by high stream-flow during periods of heavy rainfall.

Mauka Sites

Two sites are located in the bottom lands of Panikahea Gulch which occurs near the upper terminus of Area B (see Fig. 2).

Site 2265

Site 2265 consists of 10 features, eight surface structural features (Features 1-8), one subsurface feature (Feature 9), and a stream bank retention (Feature 10). Features 1-6 are rock mounds, ranging in maximum dimensions from 2.2 to 9.0 meters with two spatially associated earthen terraces, Features 7 (32m long) and 8 (11m long). Feature 9 is a buried firepit that occurred .25m below surface, during the excavation of a stratigraphic trench across the terraces. Feature 10 consists of three courses of basalt cobbles and boulders that line a stream bank (Fig. 4).

Three test units were excavated at Site 2265, in the Features 1 and 5 mounds, and across the Features 7 and 8 terraces. The trench at Feature 5, where an adze was previously found on the surface, exhibited rusted metal, glass fragments, and machine-induced (bulldozer) basalt shatter

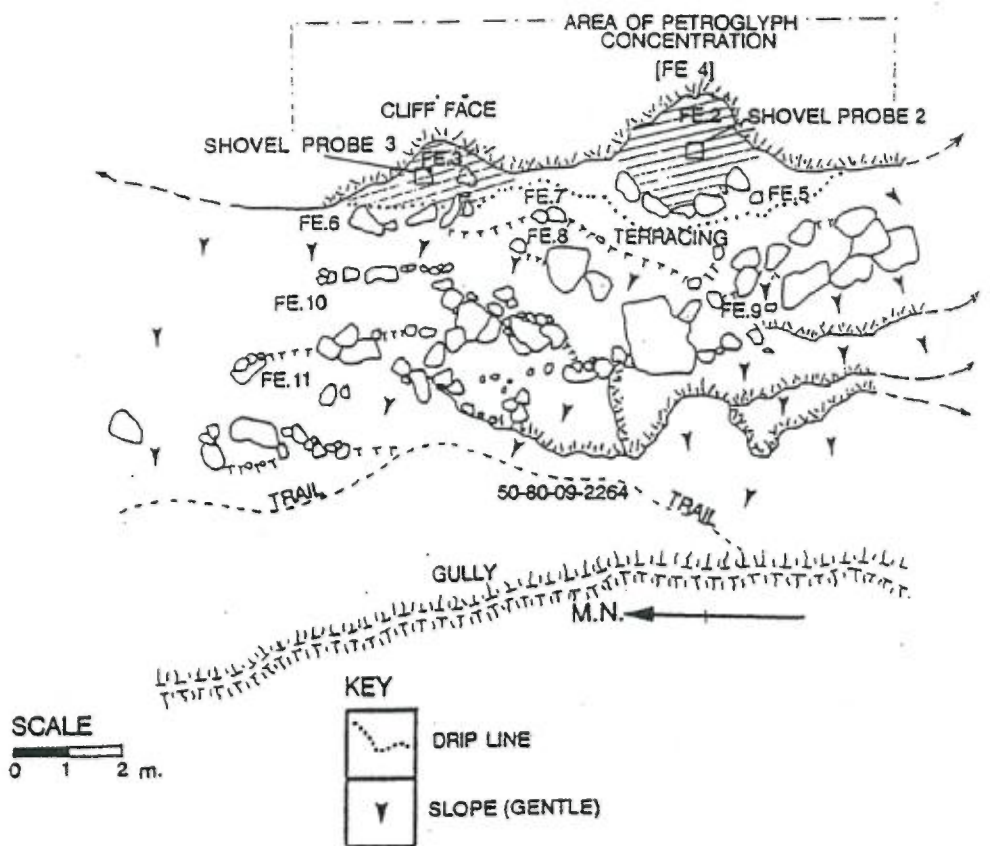
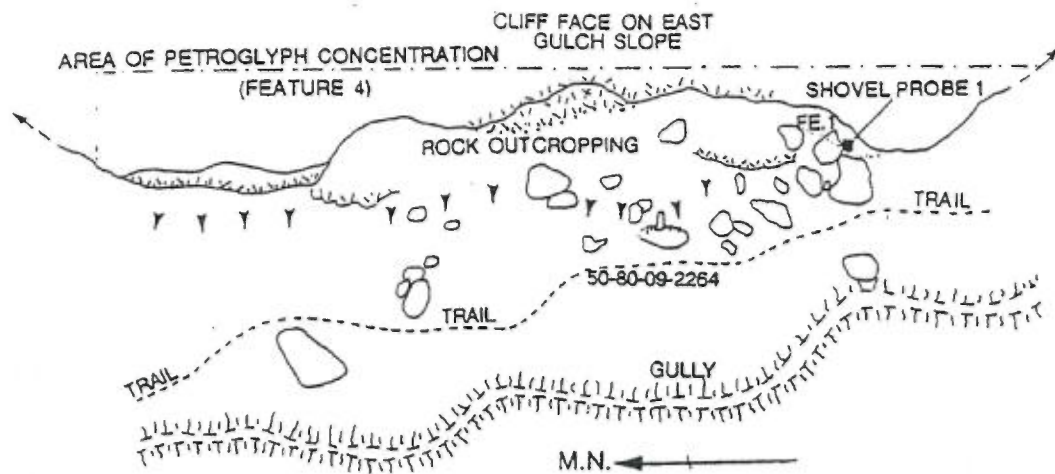


Figure 3. Plan View of Sites 2263 and 2264 (Goodman & Nees 1991:27)

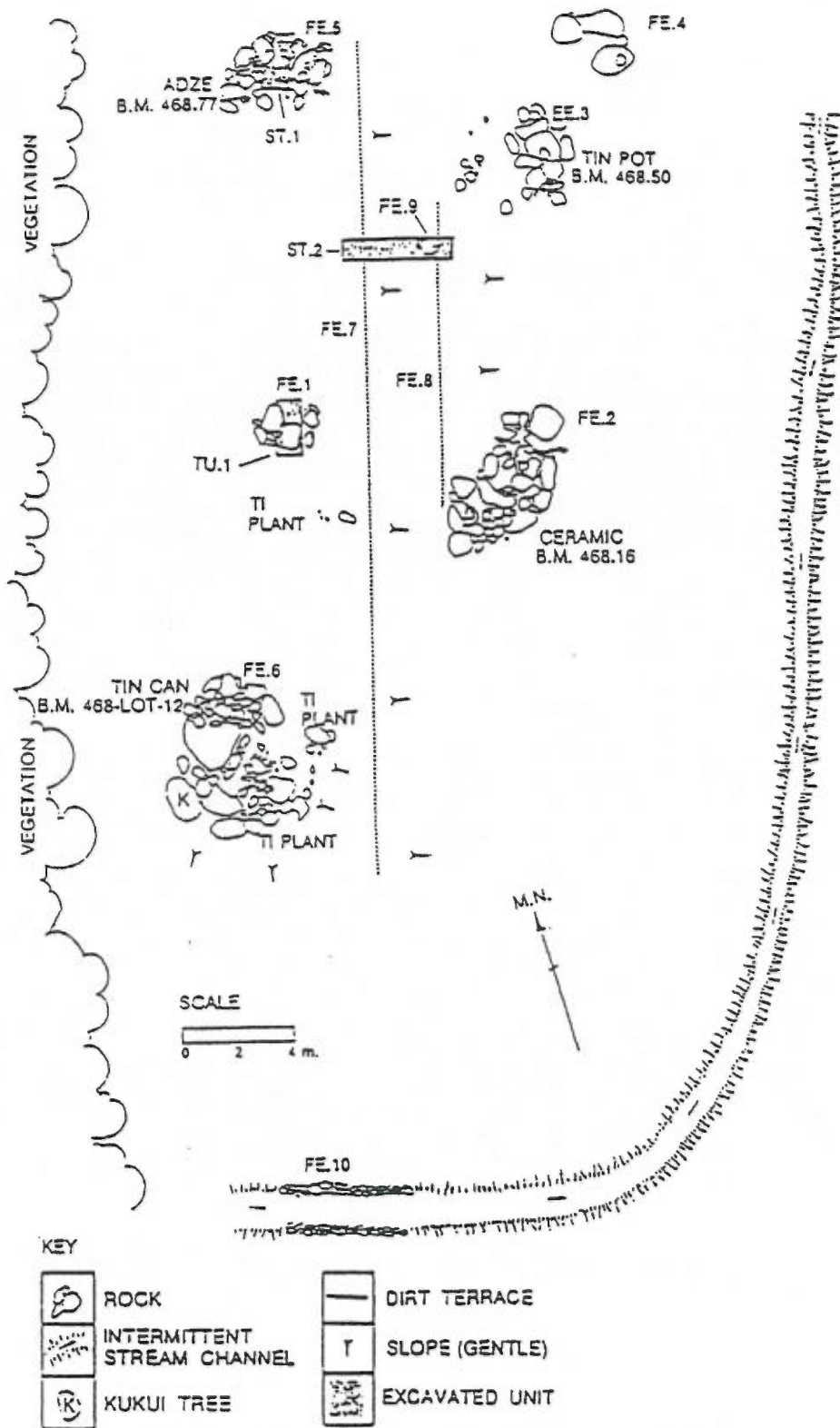


Figure 4. Plan View of Site 2265 (Goodman & Nees 1991:46)

within the stone fill of the mound. The trench excavated through the earthen terraces exposed a buried firepit (Feature 9). Two charcoal samples from the firepit yielded an age range of A.D. 1640-1940. Test Unit 1 in the Feature 1 mound revealed 3 layers. Layer I contained charcoal flecking, a metal fragment, basalt shatter, and one possible basalt flake. Layers II and III were culturally sterile.

Site 2266

Site 2266, located roughly 25m south of Site 2265, consists of four features. Feature 1 is a terrace of stacked basalt cobbles, measuring 4.2 by 2.8m and .80m high. A glass bottle was found wedged in the retaining wall stones. Feature 2 is two cobble alignments that extend 2m from the northwest and southeast corners of Feature 1. Feature 3 is a depression or pit measuring 2.7m in diameter and .60m in depth, located south of Feature 1. The edge of the pit is strewn with rocks and a rusted metal pipe can be seen at the bottom of the pit. Feature 4 is a cement watering trough measuring 1.0 by 1.3m and .80m high, located 18m northeast of Feature 1. No testing was conducted at this site.

Both the *makai* area Sites 2263 and 2264 and the *mauka* area Sites 2265 and 2266 are slated for permanent *in situ* preservation. Although the *mauka* sites were previously recommended by Goodman and Nees (1991:136) for data recovery, recent modifications in the development plan have established that this area will be excluded from future development and remain in open space. The *makai* sites represent the remains of prehistoric Hawaiian cultural activities while the *mauka* sites manifest a subsurface prehistoric component together with the surface remains of historic period activities possibly associated with large scale agriculture and the transport of fresh water. Therefore, *in situ* preservation is recommended for both areas.

PRESERVATION PLAN

All four sites are recommended for *in situ* permanent preservation. Passive preservation, or data banking, without any stabilization or interpretive procedures is proposed for both localities.

Makai SITES

All of the features of Sites 2263 and 2264, located in Panakauahi Gulch, are recommended for *in situ* permanent preservation. Petroglyph sites on O`ahu Island, in similar states of excellent preservation and exhibiting such a large number (77) of elements, are rare. Thus, Site 2263 is considered to manifest high value and significance under multiple Hawaii Register criteria.

Remnant segments of traditional trails are also scarce. Thus, Site 2264 is also considered valuable and significant under multiple criteria.

Interim Plan

Since no development activities will take place within the gulch in close proximity to the sites, no protective buffer zones or physical boundaries are necessary. However, to prevent damage caused by falling debris from above, during development activities, a buffer zone shall be established and clearly marked against encroachment by heavy equipment in the plateau area above Sites 2263 and 2264. Temporary orange plastic fencing shall be erected, under the supervision of an archaeologist, on the plateau along the gulch-side edge of the existing dirt road paralleling Panakauahi Gulch along its *mauka* edge.

Long-Term Plan

Due to difficulty of access and the rough terrain, Sites 2263 and 2264 shall not be open for public interpretation. Rather, controlled limited access, at the Owner's discretion shall be permitted primarily for research purposes and periodic inspections to update condition reports. A passive approach is being proposed without any stabilization or other procedures to be implemented.

Mauka SITES

The extant surface features of Site 2265 were interpreted to represent the disturbed remains of a historic agricultural site associated with the neighboring Site 2266. It encompasses roughly 640 square meters on an elevated flat adjacent to the stream. A subsurface prehistoric hearth was discovered during test excavations undertaken during the inventory survey. An adz fragment and basalt flakes were discovered on the surface and in the fill of one of the stone mound features. Thus, the remains of two, most likely unrelated, occupation episodes are present at this site.

Site 2266, a four feature complex, located 25m south of Site 2265, was interpreted to be a possible temporary habitation area for workers associated with maintaining the nearby well sites or irrigation ditches during the late 1800s to the early 1900s. This complex encompasses roughly 200 square meters on an elevated area around which the stream meanders. This site was not tested during the inventory survey. However, the surface remains, including the refuse, suggest origins ranging from the 1860s to the early 1900s. The similarity of the historic-period artifacts also suggest that Sites 2265 and 2266 may have been functionally associated.

Sites 2265 and 2266, located in the upper limits of Area B and deemed significant under multiple criteria, were previously recommended for data recovery in the future at the time of imminent development. However, recent modifications to the development plans have established that this area will be excluded from future development and remain in open space. Therefore, permanent *in situ* preservation of these sites is proposed.

Since the traditional inland settlement of 'Ewa District and Waiawa *ahupua`a* is not well known, these two sites located within Panikahea Gulch afford an opportunity to bank some relevant data regarding the settlement of this inland area, perhaps for future research purposes

Interim Plan

Since no development is slated to take place in the vicinity of Sites 2265 and 2266, temporary protection measures are not warranted.

Long-term Plan

Sites 2265 and 2266 are slated for *in situ* preservation for data banking. The nature and morphology of both sites are not suited for public interpretation. Rather, controlled limited access at the Owner's discretion shall be permitted primarily for research purposes and periodic inspections of the condition of each site. A passive approach is being proposed without any stabilization or other measures to be implemented.

DISCUSSION

The inland reaches of Waiawa *ahupua`a* and 'Ewa District have not yet been adequately studied archaeologically. Details of traditional inland settlement and associated cultural activities have not been well documented. Large portions of the inland areas have been extensively modified during subsequent periods through various historic activities including large scale agriculture, military activities, and more recently urbanization. Due to the paucity of archaeological data, even the degree of impact of these historic activities upon any potential prehistoric remains is difficult to assess. To this end, these four sites provide an opportunity not only to save important data, but also to preserve some of the few tangible remains from this inland region of O`ahu Island.

REFERENCE CITED

Goodman, Wendy and Richard Nees

- 1991 *Archaeological Reconnaissance and Inventory Surveys of 3,600 acres in Waiawa ahupua`a, `Ewa, O`ahu*. Prepared for the Gentry Development Company. By the Applied Research Group, Bishop Museum. Honolulu.

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

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HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

October 25, 2007

Patrice Tottori Liu
Waiawa Ridge Development
P.O. Box 295
Honolulu, Hawai'i 96809

LOG NO: 2007.2651
DOC NO: 0710ED13
Archaeology

Dear Ms. Liu:

SUBJECT: Chapter 6E-42 Historic Preservation Review –
Revised Cultural Resources Preservation Plan – Sites 50-80-09-2263, 2264, 2265, &
2266 in Waiawa Gentry Development Area
Waiawa Ahupua'a, 'Ewa District, Island of O'ahu
TMK: (1) 9-4-006:001, 031 & 034-037; 9-6-004:024-026; and 9-6-005:003

Thank you for resubmitting the aforementioned preservation plan by Sinoto and Tichenal (September 2005), which we received on August 2, 2007. We apologize for the delay in responding. SIHP Nos. 50-80-09-2263, 2264, 2265, and 2266 are all proposed for *in situ* preservation with controlled limited access at the owner's discretion for research purposes and periodic inspections.

In a previous letter dated December 23, 2005 (LOG NO: 2005.2752, DOC NO: 0512NM20), regarding our preliminary review of the preservation plan, we requested that the established size of the interim buffer zone for Sites -2263 and -2264 be submitted to our office. According to the plan, no development activities will take place in the gulch in the vicinity of Sites -2263 and -2264. However, temporary plastic fencing will be installed on the plateau above Sites -2263 and -2264, under the supervision of an archaeologist, to prevent damage from falling debris by construction activities. The fencing will be 150 meters long placed 10-20 meters from the edge of the escarpment to prevent encroachment by equipment or materials being pushed over the edge. Given that no development is planned in the vicinity of Sites -2265 and -2266, an interim plan is not warranted for these sites.

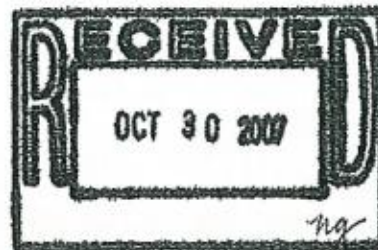
We accept this report as fulfilling the requirements of §13-277.

Please contact Teresa Davan at (808) 692-8015 if you have any questions or concerns regarding this letter.

Aloha,

Melanie Chinen, Administrator
State Historic Preservation Division

BD:oap



NEIL ABERCROMBIE
GOVERNOR OF HAWAII



**HISTORIC PRESERVATION DIVISION
DEPARTMENT OF LAND AND NATURAL RESOURCES**

601 Kamokila Boulevard, Suite 555
Kapolei, HI 96806

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DEPUTY DIRECTOR - WATER

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KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

April 21, 2014

Chris Monahan, PhD
Principal, Archaeologist
TCP Hawai'i LLC
333 Aoloa St., #303
Kailua, HI 96734

LOG NO: 2014.01283
DOC NO: 1404SL16
Archaeology

Dear Dr. Monahan:

**SUBJECT: Chapter 6E-42 Historic Preservation Review –
Request for HAR 13-284-5(b) Determination of SunEdison's 50 MW Waiawa Solar Project
Waiawa and Waipi'o Ahupua'a, 'Ewa District, Island of O'ahu
TMK: (1) 9-4-006:034, 035, 036; (1) 9-6-004:024, 025, 026**

Thank you for the opportunity to respond to your letter dated March 19, 2014, requesting a determination pursuant to Hawaii Administrative Rules (HAR) §13-284-5(b) for SunEdison's proposed 50-MV Waiawa Solar Project. We received your submittal on March 19, 2014. In accordance with our consultation on March 10, 2014, your letter includes information on the proposed project, project area, previously-identified historic properties in and near the project area, and the nature and findings of previous archaeological studies.

Your letter indicates the project proponent is SunEdison and that they are working with the landowner, Kamehameha Schools (KS), and Hawaiian Electric Company (HECO) to develop a 50-Megawatt (MW) solar facility. All access roads are on private land owned by KS or by Castle & Cooke; no public roads occur in the project area. The project area consists of about 445.75 acres in Waiawa Ahupua'a with a small portion in Waipio Ahupua'a. Although SunEdison is proposing to develop only two of the three main construction footprint areas, all three areas are included in the current project area which is synonymous with the area of potential effects (APE). The project area/APE includes all staging, storage, and parking areas in addition to the main solar facilities, a perimeter security fence, and a 20-m wide buffer beyond the fence to incorporate all impacts associated with access and facility/fence installation.

Your letter also indicates that (1) the entire project area has been impacted by over 70 years of prior grubbing, grading, and/or plowing related to pineapple, and later, sugarcane commercial agriculture; (2) several archaeological reconnaissance surveys have been completed in the project area (Barrera 1987, Goodman and Nees 1991, and Thurman et al. 2012); (3) portions of four previously-identified historic properties occur in the project area: Sites 2270 (plantation road and railroad bed network), 2271 (plantation camps), 2272 (military storage areas), and 2273 (plantation irrigation and reservoir system); and (4) many of the features comprising these sites have not been systematically recorded. In addition, you indicate that Goodman and Nees (1991) identified no subsurface historic properties during subsurface testing within the northern-most construction area footprint immediately south of the main road leading up to the correctional facility. You conclude that no traditional Hawaiian sites likely exist within the project area due to extensive historic alteration of the project area and vicinity. Therefore, no subsurface testing (excavation) is recommended. Based on the above and the passage of time, you recommend that (1) the four previously-recorded sites within the current project area be re-visited to evaluate and document their current condition, and (2) any as-yet undocumented features of Sites 2270, 2271 and/or 2273 be identified, if present, and recorded.

We concur with your assessments and recommend **an archaeological inventory survey be conducted within the entire project area** in order to identify, document, and evaluate all existing historic properties. We also concur that low potential exists for encountering intact historic properties below the agricultural zone atop the plateaus that

Chris Monahan, PhD
April 21, 2014
Page 2

characterize the entirety of the project area. However, testing may be appropriate should any areas be identified that have not been extensively disturbed (e.g., within Site 2271, Plantation Camp No. 41). We look forward to the opportunity to review and accept a report that details the findings of the AIS prior to commencement of any project construction-related ground-disturbing activity.

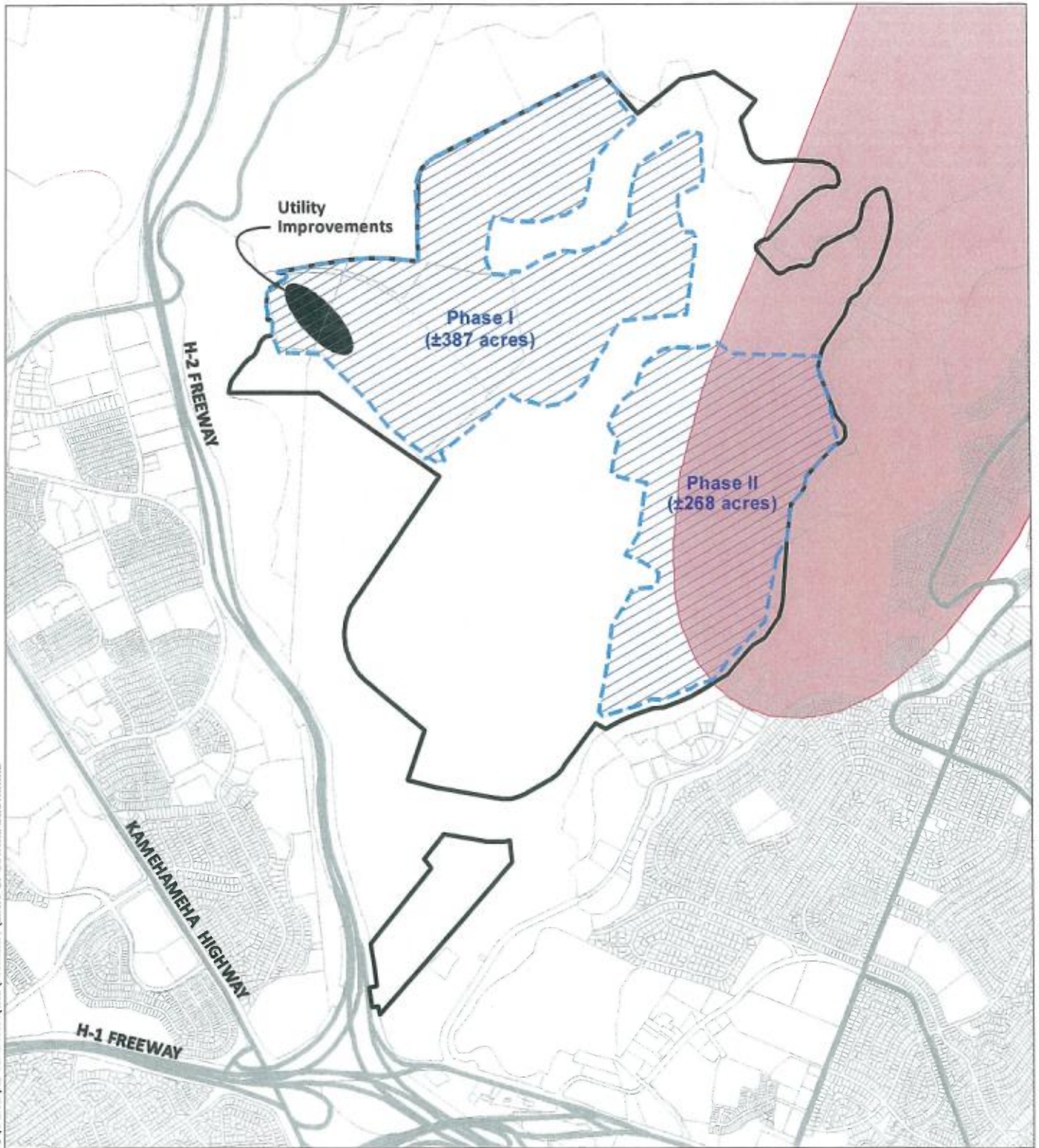
Please contact me at (808) 692-8019 or at Susan.A.Lebo@hawaii.gov if you have any questions or concerns regarding this letter.

Aloha,

A handwritten signature in black ink that reads "Susan A. Lebo". The signature is written in a cursive, flowing style.





Susan A. Lebo, PhD
Oahu Lead Archaeologist

Q:\Oahu\KS WAIAWA\GIS\PROJECT\Zone of Contribution.mxd



DATE: 6/17/2014

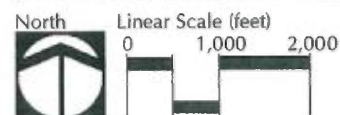
LEGEND

-  KS Waiawa Property (SLU Urban, Docket A87-610)
-  Photovoltaic Locations
-  Utility Improvements
-  Hydrologic Zone of Contribution

Source: SunEdison (2014), Kamehameha Schools (2014)

Disclaimer: This Graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

KS Exhibit 24 Hydrologic Zone of Contribution KAMEHAMEHA SCHOOLS WAIAWA MOTION TO AMEND



Island of O'ahu





DEPARTMENT OF THE NAVY
JOINT BASE COMMANDER
JOINT BASE PEARL HARBOR HICKAM
850 TICONDEROGA ST STE 100
PEARL HARBOR HI 96860-5102

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Mr. Keith K.A. Chang
Land Asset Manager, Kamehameha Schools
P.O. Box 3466
Honolulu, HI 96801

FU-LAD

Dear Mr. Chang:

We have reviewed your letter dated November 26, 2013 regarding the proposed solar farm development and its proximity to our Waiawa Pumping Station's Zone of Contribution (ZOC). Based on the content of your letter, all our concerns have been adequately addressed and we agree that your proposed solar farm development is a compatible land use within the designated ZOC.

Please continue to keep us informed as the planning and development of this project progresses. Our point of contact for this issue is Captain Mike Saum, Public Works Officer at (808) 448-2714.

Sincerely,

J. W. JAMES
Captain, U.S. Navy
Commander

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Any misuse or unauthorized disclosure of this information may result in both criminal and civil penalties.

KS Exhibit 25

From: HICKEY, MICHAEL J (Legal) <mh2685@att.com>
Sent: Friday, May 30, 2014 1:35 AM
To: Jennifer A. Benck
Subject: RE: In the Matter of the Petition of Tom Gentry and Gentry-Pacific, Ltd

Thank you very much Jennifer for the attachment and further clarification.

Have a great weekend.

Cheers,
Michael Hickey
Senior Paralegal
AT&T Services, Inc.
One AT&T Way
Bedminster, NJ 07921
908-532-1869

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From: Jennifer A. Benck [<mailto:jbenck@carlsmith.com>]
Sent: Thursday, May 29, 2014 9:07 PM
To: HICKEY, MICHAEL J (Legal)
Subject: RE: In the Matter of the Petition of Tom Gentry and Gentry-Pacific, Ltd

Dear Mr. Hickey,

You are correct that AT&T Corp. was served with a copy of the *Motion for Order Amending Findings of Fact, Conclusions of Law and Decision and Order dated May 17, 1988* (the "Motion"), that we filed with the State of Hawaii Land Use Commission solely for the purpose of providing notice. The State of Hawaii Land Use Commission rules require us to serve the Motion upon any person who may have a recorded property interest in the area affected by a proceeding before the Commission, e.g., anyone with an easement, lease, development agreement, etc. Based upon our review of the attached Lease, we determined that AT&T Corp., as the successor entity of American Telephone and Telegraph Company, holds rights to the easement described, and is therefore entitled to notice of the Motion.

As you can see from the Certificate of Service that was included with our Motion, several other utility companies and agencies were served.

If you have questions about proceedings before the State of Hawaii Land Use Commission, you may contact that office at 808-587-3822.

Best regards
Jennifer

Jennifer A. Benck
Partner | Carlsmith Ball LLP

ASB TOWER 1001 BISHOP STREET, SUITE 2100, HONOLULU, HI 96813

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From: HICKEY, MICHAEL J (Legal) [<mailto:mh2685@att.com>]
Sent: Thursday, May 29, 2014 6:11 AM
To: Jennifer A. Benck
Subject: In the Matter of the Petition of Tom Gentry and Gentry-Pacific, Ltd

Ms. Benck,

In the above named *Motion for Order Amending Findings of Fact, Conclusions of Law and Decision and Order dated May 17, 1988*, which was served on AT&T Corp., a reference is made to a lease agreement between the deceased, Hawaiian Telephone and American Telephone & Telegraph Company. The lease dated December 2, 1964 went into effect on September 1, 1964 for a period of 65 years and was recorded in Book 5117, page 381 of the Official Record.

Are you able to provide a copy of the lease agreement and any amendments?

I believe AT&T was named for the sole purpose of advising all named parties and that the current proceeding will not impact any agreement(s) that may still be in effect between the current land owner(s), Hawaiian Telephone and AT&T. I hope I am correct.

Thank you,
Michael Hickey
Senior Paralegal
AT&T Services, Inc.
One AT&T Way
Bedminster, NJ 07921
908-532-1869

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**TABLE 21-3
MASTER USE TABLE**

In the event of any conflict between the text of this Chapter and the following table, the text of the Chapter shall control. The following table is not intended to cover the Waikiki Special District; please refer to Table 21-9.6(A).

| | | | |
|------------|------------|---|---|
| KEY | Ac | = | Special accessory use subject to standards in Article 5 |
| | Cm | = | Conditional Use Permit-minor subject to standards in Article 5; no public hearing required (see Article 2 for exceptions) |
| | C | = | Conditional Use Permit-major subject to standards in Article 5; public hearing required |
| | P | = | Permitted Use |
| | P/c | = | Permitted use subject to standards in Article 5 |
| | PRU | = | Plan Review Use |

| USES (Note: Certain uses are defined in Article 10.) | ZONING DISTRICTS | | | | | | | | | | | | | | | | | | | | |
|---|------------------|------|------|---------|------------|-------------------|-----|-----|-----|-------|-------|-------|--------|-----|-----|-------|-------|-----|-----|-----|-------|
| | P-2 | AG-1 | AG-2 | Country | R-20, R-10 | R-7.5, R-5, R-3.5 | A-1 | A-2 | A-3 | AMX-1 | AMX-2 | AMX-3 | Resort | B-1 | B-2 | BMX-3 | BMX-4 | I-1 | I-2 | I-3 | IMX-1 |

AGRICULTURE

| | | | | | | | | | | | | | | | | | | | | | |
|--|-----|-----|-----|----|--|--|--|--|--|--|--|--|--|--|--|--|--|-----|-----|--|-----|
| Agribusiness activities | | Cm | Cm | | | | | | | | | | | | | | | P/c | P/c | | P/c |
| Agricultural products processing, minor | | P/c | P/c | | | | | | | | | | | | | | | P/c | P/c | | P/c |
| Agricultural products processing, major | | C | C | | | | | | | | | | | | | | | | P/c | | |
| Animal products processing | | | | | | | | | | | | | | | | | | P | P | | |
| Aquaculture | P | P | P | P | | | | | | | | | | | | | | | | | |
| Centralized bulk collection, storage and distribution of agricultural products to wholesale and retail markets | | P/c | P/c | | | | | | | | | | | | | | | P/c | P | | |
| Composting, major | C | C | C | | | | | | | | | | | | | | | | P/c | | |
| Composting, minor | P/c | P/c | P/c | | | | | | | | | | | | | | | | P/c | | |
| Crop production | P | P | P | P | | | | | | | | | | | | | | | | | |
| Forestry | P | P | P | | | | | | | | | | | | | | | | | | |
| Open land | | P | P | | | | | | | | | | | | | | | | | | |
| Roadside stands, accessory | | Ac | Ac | Ac | | | | | | | | | | | | | | | | | |
| Sale and service of machinery used in agricultural production | | P/c | P/c | | | | | | | | | | | | | | | P | P | | P |
| Sawmills | | P/c | P/c | | | | | | | | | | | | | | | | P | | |
| Storage and sale of seed, feed, fertilizer and other products essential to agricultural production | | P/c | P/c | | | | | | | | | | | | | | | P | P | | |

ANIMALS

| | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------|---|-----|-----|-----|--|--|--|--|--|--|--|--|--|--|-----|-----|-----|-----|---|--|-----|
| Game preserves | P | | P | | | | | | | | | | | | | | | | | | |
| Kennels, commercial | | | P/c | P/c | | | | | | | | | | | P/c | P/c | P/c | P/c | P | | P/c |
| Livestock grazing * * * * | P | P | P | P | | | | | | | | | | | | | | | | | |
| Livestock production, minor | | P | P | P | | | | | | | | | | | | | | | | | |
| Livestock production, major | | P/c | P/c | | | | | | | | | | | | | | | | | | |
| Livestock veterinary services | | P | P | P | | | | | | | | | | | | | | | | | |



KAMEHAMEHA SCHOOLS®

April 9, 2014

Joanna L. Seto, P.E., Chief
Safe Drinking Water Branch
Environmental Management Division
Hawaii State Department of Health
919 Ala Moana Blvd., Room 308
Honolulu, HI 96814-4920

Re: Kamehameha Schools Waiawa Property
Land Use Commission Docket A87-610, TMK Nos: (1) 9-4-006: 034, 035, 036,
037; 9-6-004: 024, 025, 026; 9-6-005: 001, Located at Waiawa, Ewa, Oahu

Dear Ms. Seto:

Thank you and your staff for meeting with us on March 24, 2014, to discuss the solar farm project currently proposed by the Trustees of the Estate of Bernice Pauahi Bishop, dba Kamehameha Schools ("KS"), the owner of the above referenced 1,395 acre property, and SunEdison, the solar farm project developer.

As discussed at our meeting, the solar farm will be contained within one or more utility easement areas located within the KS property. The initial phase of the solar farm is expected to produce 50 megawatts of power and be within an approximately 300-acre area in the north/west portion of the property. A second phase, with the potential to produce up to 65 megawatts of power, if pursued, would be within approximately 376 acres at the south/west portion of the property. The two areas are approximately shown on the enclosed Exhibit A, which also identifies in crosshatch all of the KS property that was reclassified by the State Land Use Commission ("LUC") under the above referenced Docket.

SunEdison, as the solar farm developer, will pursue all necessary permits and approvals for the solar farm from the State Department of Health and the City and County of Honolulu. In parallel, KS, as the landowner, will return to the State LUC to request formal approval of the use of the property as a solar farm. Therefore we request your department's written confirmation that the proposed solar farm, as discussed at our meeting, and as described below, is acceptable to the Department of Health ("DOH"). We have made a similar request to The Department of the Navy.

The Waiawa Ridge project originally presented to the State LUC was anticipated to include 7,900 residential units (a mixture of single-family units and apartment units, 115 acres of land in

use for retail/commercial and commercial/industrial uses, two golf courses with related club houses, an elementary school and a public park. As we discussed at our meeting, in approving the reclassification of the property to the State Urban District in 1988, the State LUC imposed the following two conditions:

1. A study funded by the U.S. Department of the Navy to review the potential for groundwater contamination resulting from the urbanization of the Property shall be completed prior to any site development and construction unless the Department of Health after consultation with the United States Navy and after review of the proposed study scope makes a determination that development and construction within a specified area will not cause groundwater contamination to wells in the area. Petitioner shall not proceed with the project until the study shows to the satisfaction of the Department of Health that groundwater contamination will not occur as a result of the proposed project, or until the Department of Health makes a determination that development or partial development may be allowed.
2. Any urban development within the Property shall be subject to further review and subsequent approval by the Department of Health. The Department of Health may require appropriate mitigative measures and conditions relating to the proposed development's impact on the groundwater resources in the area.

In compliance with Condition 1, the DOH prepared a study ("*Report to the Office of State Planning by the Department of Health Safe Drinking Water Branch on the Delineation of the Hydrologic Zone of Contribution for the U.S. Navy Waiawa Shaft*" (Revised Dec. 1990)) ("**ZOC Study**"). The ZOC Study was undertaken to identify the zone of contribution of the Waiawa Shaft. The Navy concurred with the methodology of the ZOC Study and the location of the zone of contribution. A portion of the zone of contribution is within the KS property, and is shown on Exhibit A as the "Hydrologic Zone of Contribution." The DOH recommended that any future development within the zone of contribution be subject to careful review and approval to ensure no adverse effect on groundwater supplies.

Compliance with Condition 2 is ongoing, in that any "urban development" within the KS property must be reviewed and approved by the DOH. KS does not believe that the solar farm constitutes "urban development." It is clearly far less intensive than the Waiawa Ridge project anticipated by the DOH, the Navy and the State LUC at the time these conditions were imposed. Nevertheless, KS wanted to solicit any concerns that the DOH may have about the solar farm project, prior to seeking State LUC approval. The following is a description of the proposed solar farm project:

- The solar farm will be a low impact, low maintenance, facility. The photovoltaic modules will be mounted on metal piers with limited concrete pads for the inverters throughout the array, and will passively collect solar energy. Using

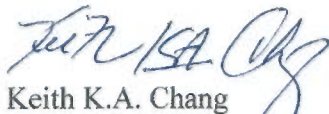
fixed-tilt racking, the project will not have moving parts or include bearings that require lubricant, or any oil filled transformers.

- The energy will be transported to a 46kV project substation and battery storage area that will be sited within the easement area, close the western side of the KS property and well outside of the zone of contribution, about 1,000 feet from the H-2 freeway.
- The foundations of the ground mount rack systems that hold the solar panels will be pile driven metal piers with limited concrete pads for the inverters throughout the array. Prior to installing the foundations, geotechnical studies will be performed to ensure the appropriate depth of the piers. No piers will be driven to a depth that could reach the highest historical levels of groundwater.
- The solar farm site will be secured by perimeter fencing, and manned by security/maintenance personnel. This will protect the solar farm assets, and should also reduce the risks of any illegal dumping or wildfires that could take place on the Waiawa land.
- Material delivery, site preparation and the installation of the solar panels will take place under the supervision of a highly experienced construction management team.
- Quality assurance checks will be conducted daily by the construction management team during the entire construction process.
- During the construction phase of the project, SunEdison will have a monitoring program to address oil and fuel spills, and Best Management Practices will be established and utilized. After construction, no fuel, oil or chemical sources will be utilized on the site.
- Site preparation will be relatively minor. Cut and fill of the site will only result in surface level impacts to soils. No run-off is anticipated, and in any event earthwork will be managed under stormwater management and hydrology mitigation plans. All site work will be done in compliance with all federal, state and municipal laws and requirements.
- After construction, SunEdison will have its technicians monitor the system's performance 24 hours per day, seven days per week from its Renewable Operations Center.
- SunEdison will clean the solar panels once or twice a year (depending upon rainfall) with water that will be trucked onto the property. No cleansers or other additives will be added to the water.

- A variety of easily controlled grasses are anticipated to be used for groundcover. If any solar farm activities take place within the zone of contribution, the ground cover and vegetation will be maintained through mechanical means, by utilizing zero-turn mowers and weed trimmers.
- Outside of the zone of contribution, SunEdison proposes to use an EPA certified herbicide to help control the growth of the vegetation. These chemicals are widely used by landscapers and other horticulture specialists, and will be used in compliance with all federal, state and municipal laws.
- At the end of the easement term, SunEdison will remove all equipment from the site, and return it to its current state. That includes the removal of foundational piers and modules, as well as all electrical infrastructure. SunEdison will recycle the solar farm components wherever possible.

Once again, on behalf of KS and SunEdison, we thank you for the time you and your staff gave us earlier this week to discuss the solar project. We trust that the information shared at that meeting and in this letter is sufficient to allow the DOH to provide its written confirmation that the proposed solar farm development is an acceptable use of the KS Waiawa land both within and outside of the zone of contribution, and that the proposed mitigative measures are sufficient to minimize any potential impacts to groundwater resources in the area.

Very truly yours,



Keith K.A. Chang
Kamehameha Schools

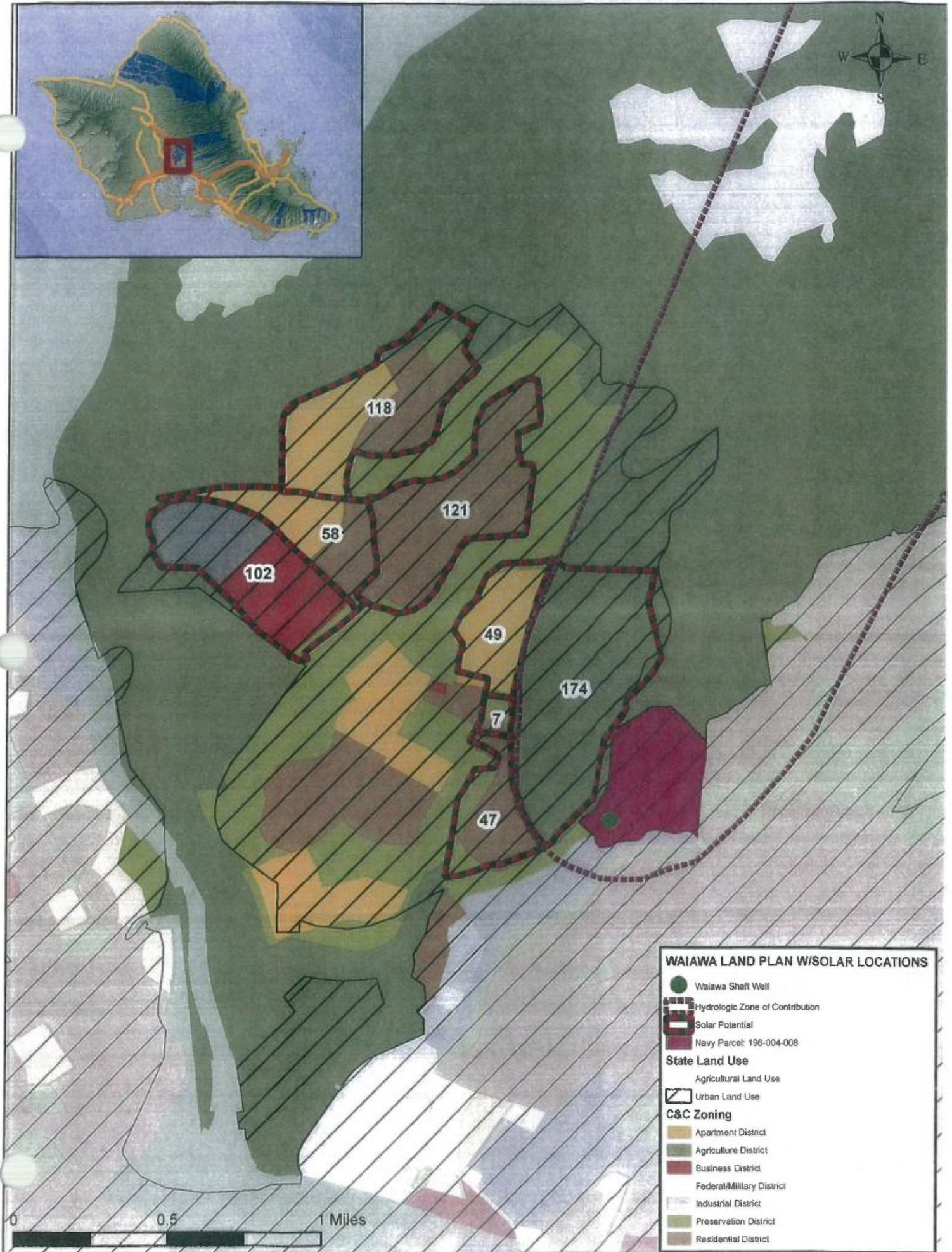
Enclosures

cc: Leanne Nikaido, Esq., Kamehameha Schools
Nicola Doss, SunEdison
Jennifer A. Benck, Esq., Carlsmith Ball LLP

Exhibit A

Summary Explanation:

The initial phase of the solar farm is expected to produce 50 megawatts of power and be within an approximately 300-acre area in the north/west portion of the property. A second phase, with the potential to produce up to 65 megawatts of power, if pursued, would be within approximately 277 acres at the south/west portion of the property. The two areas are approximately shown on the enclosed Exhibit A, which also identifies in crosshatch all of the KS property that was reclassified by the State Land Use Commission ("LUC") under the above referenced Docket.



WAIAWA LAND PLAN W/SOLAR LOCATIONS

- Waiawa Shaft Well
- Hydrologic Zone of Contribution
- Solar Potential
- Navy Parcel: 196-004-008
- State Land Use**
 - Agricultural Land Use
 - Urban Land Use
- C&C Zoning**
 - Apartment District
 - Agriculture District
 - Business District
 - Federal/Military District
 - Industrial District
 - Preservation District
 - Residential District

06/16/2014

Thomas S. Witten, ASLA

Chairman

PBR HAWAII & Associates, Inc.

1001 Bishop Street, Suite 650

Honolulu, Hawai'i 96813

EDUCATION

University of California, Berkeley, College of Environmental Design, 1976, Bachelor of Arts in
Landscape Architecture

Harvard University, Cambridge, Massachusetts, Graduate School of Design, Special Programs

- Golf Course Design (1986)

- Fountains and Pools (1986)

- Rooftop Garden Design (1984)

Menlo College, Menlo Park, California, 1974, Associate of Arts

Punahou School, Honolulu, Hawai'i, 1972

EXPERIENCE

PBR HAWAII

Honolulu, Hawai'i - Chairman

2014-Present

PBR HAWAII

Honolulu, Hawai'i - President

1999-2014

PBR HAWAII – Managing Partner

Honolulu, Hawai'i

1989-1999

PBR HAWAII – Associate/Partner

Honolulu, Hawai'i

1982-1989

PBR HAWAII – Landscape Architect/Planner

Honolulu, Hawai'i

1981-1982

PBR HAWAII – Landscape Designer/Planner

Honolulu, Hawai'i

1979-1981

DEPARTMENT OF PARKS AND RECREATION, Advance Planning Section,

City and County of Honolulu - Landscape Designer/Planner I

1978-1979

HAWAII ARCHITECTS AND ENGINEERS, INC.
Honolulu, Hawai'i - Landscape Designer/Planner
1977-1978

THE OFFICE OF DONALD WOLBRINK
Honolulu, Hawai'i - Landscape Designer/Planner
1976-1977

PROFESSIONAL AFFILIATIONS

Licensed Professional Landscape Architect No. 5181, State of Hawai'i, 1981
American Society of Landscape Architect –
 Elected to Council of Fellows – November 2014
American Society of Landscape Architects, Hawai'i Chapter -
 Member and Past Secretary, Vice President and President
 1982 ASLA Annual Meeting Host Committee; Residential Landscape Design,
 Continuing Education Class, University of Hawai'i - Chairperson & Lectures and
 Lecturer; Landscape Registration Legislative Committee-Licensure Sunset Legislation
 Challenge -Chairperson; Standing Committee on Landscape Architecture Degree
 Program, University of Hawai'i - Chairperson
Urban Land Institute - Member
Lamda Alpha International – Member, Executive Committee/Treasurer
Hawai'i Leeward Planning Conference - Member
American Planning Association, Hawai'i Chapter - Member
Friends of Honolulu Botanical Gardens –
 Board Member, Past Vice President and President
Advisory Council, School of Architecture, University of Hawai'i –
 Member and Past Chairperson (2010)

SPECIAL SKILLS

Community Planning, Regional Landscape Analysis, Environmental Planning and Design,
Landscape Design, Recreation Planning and Design, Urban Design, Rooftop Garden Design,
Fountains and Pool Design and Golf Course Design

RESPONSIBILITIES AND QUALIFICATIONS

As Chairman of PBR HAWAII, Mr. Witten oversees the successful completion of community and environmental planning projects. Involved in a diverse range of community and regional land planning projects from the preparation of strategic land management to community master plans, Mr. Witten has developed successful approaches and strategies for the management of land resources and planning for new communities.

A life-long resident of Hawai'i with 38 years of experience in land planning and landscape architecture, Mr. Witten is intimately familiar with the planning and design issues affecting the future of the islands' social, physical and environmental structure. With his educational background and professional experience, he offers a creative and sensitive approach to the full range of current design, community planning, and resource management issues.

Mr. Witten has been involved with the preparation of regional community plans, land

management programs, and site specific development plans along with the related land use and permitting for various properties throughout the State of Hawai'i. Familiar with all levels of Federal, State, and County regulatory processing and permit procedures and requirements related to land use planning and entitlements, Mr. Witten has served as an expert witness on land use and environmental planning issues for projects throughout the State of Hawai'i.

Specific project planning and design experience includes the following projects:

Regional Land Planning/Resource Management

Ho'olehua-Pālā'au Community Development Plan, Ho'olehua, Moloka'i
Kamaoa-Pu'u'eo Management Plan, Pu'u'eo, Moloka'i
Kā'ū Regional Plan, Kā'ū, Hawai'i
Kawaihae Ahupua'a Strategic Plan, Kawaihae, Hawai'i
Kilauea Agricultural Master Plan, Kilauea, Kaua'i
Mauna Kea Sugar Company Regional Plan, S. Hilo, Hawai'i
North Shore Sustainable Communities Plan, O'ahu
Parker Ranch Strategic Land Asset Management Plan, Waimea, Hawai'i
Pua'a Land Assessment, Kailua-Kona, Hawai'i
Waialua Regional Plan, Waialua, O'ahu
Wailuku Regional Plan (Kehalani), Wailuku, Maui

Residential Community Planning and Design

Honohononui, Keaukaha, Hawai'i
Honokōhau Makai, N. Kona, Hawai'i
Honua'ula (Wailea 670), Wailea, Maui
Hu'ehu'e Ranch, N. Kona, Hawai'i
Installation Exterior Architecture Plans (5 Military installations), O'ahu
Kalihiwai Ridge, Kilauea, Kaua'i
Kea'au Village, Kea'au, Hawai'i
Kīhei Mauka Master Plan, Maui
Kulaimano, Hilo, Hawai'i
Līhu'e-Hanamā'ulu (Wailani) Master Plan, Kaua'i
Mauna Kea Sugar (Various Parcels), S. Hilo, Hawai'i
Mā'alaea Mauka, Mā'alaea, Maui
Mā'alaea Village, Mā'alaea, Maui
North Beach Mauka, Kā'anapali, Maui
O'ahu Urban Design Study, Honolulu, O'ahu
'O'oma Beachside Village, 'O'oma, Hawai'i
Pi'ihana Project District, Wailuku, Maui
Plantation Estates, Kapalua, Maui
Puhi Master Plan, Puhi, Kaua'i
Puhi Master Plan Update, Puhi, Kaua'i
Pu'u'eo Makai, Hilo, Hawai'i
Spreckelsville Community Plan, Spreckelsville, Maui
Village at Po'ipū, Kaua'i
Waiākea Lands Assessment, Hilo, Hawai'i
Wailea SF-7, Wailea, Maui
Wailuku Project District (Kehalani), Wailuku, Maui

Waimea Town Center, Waimea, Hawai'i
Wai'ale Community Master Plan, Maui

Resort/Mixed Use

Kapalua Resort, Kapalua, Maui
Kauna'oa, Mauna Kea, Hawai'i
Keauhou Resort Strategic Master Plan, Keauhou, Hawai'i
Kūki'o, N. Kona, Hawai'i
Mākena Resort, Mākena, Maui
Punalu'u Resort, Ka'ū, Hawai'i
Waikoloa Village, Waikoloa, Hawai'i

Industrial/Commercial

Kaonoulu Industrial Park, Kīhei, Maui
Kapolei Business Park, Kapolei, O'ahu
Kaunakakai Business Center, Kaunakakai, Moloka'i
Kohanaiki Mauka, N. Kona, Hawai'i
Manana Storage Facility, Pearl City, O'ahu
Maui Business Park, Kahului, Maui
Maui Tropical Plantation, Waikapu, Maui
Mā'alaea Triangle, Mā'alaea, Maui
Mililani Technology Park, Mililani, O'ahu
The Millyard, Wailuku Industrial Park, Wailuku, Maui
W. H. Shipman Industrial Park, Kea'au, Hawai'i
Waimea Industrial Park, Waimea, Hawai'i

Parks and Recreation

Foster Botanical Garden Master Plan, Honolulu, O'ahu
Kahanu Garden Master Plan, Hana, Maui
Kalaelo Park Master Plan, O'ahu
Kapolei Park Master Plan, Kapolei, O'ahu
Kapolei Regional Park, Kapolei, O'ahu
Wailuku Community Center, Wailuku, Maui
Waimea District/Regional Park Master Plan, Waimea, Hawai'i

EXPERT WITNESS

Mr. Witten has prepared technical studies/reports and/or provided expert witness testimony as a Land Planner/Environmental Planner before the State Land Use Commission, State of Hawai'i, on the following projects:

A&B Hawaii – Important Agricultural Land, Kaua'i
A&B Hawaii – Important Agricultural Land, Maui
Honua'ula (Wailea 670), Maui
Kalihiwai Ridge Phase II, Kaua'i
Kamehameha Schools – Important Agricultural Land, Kaua'i
Kaonoulu Industrial Park, Maui

Kapalua Mauka, Maui
Kohanaiki Mauka, Hawai'i
Kūki'o (Huehue Ranch), Hawai'i
Lihu'e-Hanamā'ulu Master Plan, Kaua'i
Māhā'ulepū Farm – Important Agricultural Land, Kaua'i
Maui Business Park, Maui
'O'oma Beachside Village, Hawai'i
Parker Ranch – Important Agricultural Land, Hawai'i
Pu'u'eo Makai, Hawai'i
Spreckelsville Mauka, Maui
W. H. Shipman Industrial Park, Hawai'i
Wailuku (Kehalani)/Pi'ihana Project Districts, Maui
Wailuku Industrial Park, Maui

Paul T. Matsuda, P.E., LEED AP

PRINCIPAL, DIRECTOR OF CIVIL ENGINEERING



group70int.com



Mr. Matsuda has more than 20 years of Civil Engineering experience in a wide variety of project types including, commercial, industrial, residential and educational site development, and transportation and utility infrastructure throughout Hawai'i and the Pacific Northwest. Responsibilities include the preparation of construction plans, specifications, and cost estimates for various civil site projects including, subdivisions, cluster housing, planned development housing and infrastructure improvement projects. Duties include the design of roads, drainage, water, and sewer systems; grading; quantity take-offs; and preparation of drainage reports and NPDES permit applications.

SELECT PROJECTS

| | |
|--|---------------------------|
| Sunetric 5MW Solar Farm, Kalaeloa | <i>Kalaeloa, O'ahu</i> |
| Sunetric 5MW Solar Farm, Ma'ili | <i>Ma'ili, O'ahu</i> |
| East Kapolei Solar Farm | <i>Kapolei, O'ahu</i> |
| Sunetric Residential Solar, Farrington – Permitting | <i>Waianae, O'ahu</i> |
| Sunetric Residential Solar, Mahina ʻau – Permitting | <i>Waianae, O'ahu</i> |
| Hawai'i BioEnergy – HECO Biofuels Program Development | <i>Kaua'i and Hawai'i</i> |
| Hawai'i Dairy Farms | <i>Kaua'i, Hawai'i</i> |
| City & County of Honolulu – Honolulu Fire Department Regional Fire Training Center | <i>Honolulu, O'ahu</i> |
| County of Maui – Wailuku Campus Master Plan | <i>Wailuku, Maui</i> |
| Department of Hawaiian Home Lands – Ka'u Water Master Plan | <i>Ka'u, Hawai'i</i> |
| Department of Hawaiian Home Lands – Lualualei Homestead Subdivision and Stream Study | <i>Lualualei, O'ahu</i> |
| Department of Education – Kihei High School | <i>Kihei, Maui</i> |
| University of Hawai'i at Manoa – College of Education Master Plan | <i>Honolulu, O'ahu</i> |
| Kamehameha Schools – Hale'iwa Commercial Redevelopment | <i>Hale'iwa, O'ahu</i> |
| Kamehameha Schools – Hale'iwa Rural Village Drainage Master Plan | <i>Hale'iwa, O'ahu</i> |
| Kamehameha Schools – Kawaihoa Agribusiness Center Master Plan | <i>Kawaihoa, O'ahu</i> |
| Kamehameha Schools – Kohou Infrastructure Evaluation | <i>Honolulu, O'ahu</i> |
| Armstrong Builders – Wailea Multifamily Residential | <i>Wailea, Maui</i> |
| Hoakalei Resort – Master Plan | <i>Ewa, Oahu</i> |
| Kolōa Landing at Pō'ipu Beach – Multifamily Residential | <i>Koloa, Kaua'i</i> |
| New Hope Leeward – Kunia Site Development | <i>Waipahu, O'ahu</i> |
| Girl Scouts of Hawai'i – Paumalu Camp Master Plan | <i>North Shore, O'ahu</i> |
| Special Olympics Hawai'i | <i>Kapolei, O'ahu</i> |
| Papakolea Community Development Corporation – Papakolea Master Plan | <i>Honolulu, O'ahu</i> |
| Kaua'i Community Federal Credit Union | <i>Lihu'e, Kaua'i</i> |
| CVS Kapolei Distribution Center – Industrial Warehouse Facility/Distribution Facility for CVS Longs Drugs* | <i>Kapolei, O'ahu</i> |

Paul T. Matsuda, P.E., LEED AP
PRINCIPAL, DIRECTOR OF CIVIL ENGINEERING



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Hale'iwa Road Drainage Improvements Study*

Hale'iwa, O'ahu

Hualalai Na Hale at Kahikole – Multifamily Residential*

Ka'upulehu, Hawai'i

Makakilo C & D(Kahiwelo) – Residential Subdivision*

Makakilo, O'ahu

Makakilo Phase 5 (Oceanridge) – Multifamily Residential*

Makakilo, O'ahu

USMC Base Finegayan Drainage Master Plan*

Guam

**Projects prior to Group 70*

PROFESSIONAL HONORS & ASSOCIATIONS

| | |
|---|-----------|
| American Society of Civil Engineers, Hawai'i Section (ASCEH) | Current |
| American Council of Engineering Companies Hawai'i (ACECH) | Current |
| American Water Works Association, Hawai'i Section (AWWA) | Current |
| U.S. Green Building Council, Hawai'i Chapter | Current |
| Honolulu Habitat for Humanity, Building Committee Chair, Board Member | 2008-2010 |
| Honolulu Habitat for Humanity, Fran Brossy Lifetime Achievement Award | 2011 |
| Pacific Business News, Forty under 40 Class of 2009 | 2009 |

PROFESSIONAL REGISTRATIONS & EDUCATION

| | |
|---|---------|
| State of Hawai'i – Professional Civil Engineer (P.E.) #10901 | Current |
| State of Oregon – Professional Civil Engineer (P.E.) #19,250 | Current |
| State of Washington – Professional Civil Engineer (P.E.) #35,943 | Current |
| USGBC LEED Accredited Professional | 2008 |
| University of Washington, Seattle, WA – B.S. in Civil Engineering | 1993 |

JASON ALAPAKI JEREMIAH

567 South King Street, Suite 200, Honolulu, HI 96813 | 808.541.5376 | jajeremi@ksbe.edu

EDUCATION

University of Hawai'i at Mānoa, Honolulu, Hawai'i

Masters in Urban and Regional Planning (M.U.R.P)

2011

Capstone: No Be Lolo, Restore Stream Flow: A Natural Resource Management Framework for Nā Wai 'Ehā, Maui

Areas of Concentration: Land Use Planning and Community-based Planning

University of Hawai'i at Mānoa, Honolulu, Hawai'i

B.A. in Hawaiian Studies

2004

Areas of Concentration: Hawaiian Land Use and Land Titles

Kamehameha Schools, Honolulu, Hawai'i

High School Diploma

2000

AWARDS

First Nations Futures' Program Fellowship, Kamehameha Schools and Te Rūnanga o Ngāi Tahu

2008 – 2009

First Nations Futures' Institute, Certificate, Stanford University

2008

WORK EXPERIENCE

Kamehameha Schools, Honolulu, Hawai'i

Cultural Resources, Senior Manager

2012-present

Responsible for developing strategic direction and operational guidance for cultural properties, areas and remains for Kamehameha Schools lands statewide.

Cultural Resources Planner Analyst

2010-2012

Responsible for cultural resource planning, analysis, management, compliance and restoration efforts on KS' Hawai'i lands

Office of Hawaiian Affairs, Honolulu, Hawai'i

Policy Advocate – Historic Preservation

2007-2010

Responsible for historic preservation related compliance reviews for the Office of Hawaiian Affairs. Also was responsible for OHA's Geographic Information Systems

Kamehameha Schools, Honolulu, Hawai'i

Land Information Systems Intern

2007

Assisted Land Information Systems staff with GIS projects and research including mapping and spatial analysis

Land Legacy Resources Intern

2006-2007

Assisted Land Legacy staff with gathering information and historical reference material for planning and management of cultural resources and other land-based research initiatives

Independent Research Consultant

Cultural Researcher

Research pertaining to Palmyra Atoll for client Partners in Development

2003

RELATED EXPERIENCE

Hawai'i Community Stewardship Network

Geographic Information Systems and Mapping Specialist

2011-2012

Protecting Our Future with Lessons From our Past: Enhancing Community Self-Sufficiency Through Youth Engagement in Ahupua'a Management

Community Conservation Network

Geographic Information Systems and Mapping Specialist

2008

Technical assistance and capacity building in GIS/GPS mapping technology in the Hookena and Pupukea communities

Department of Urban and Regional Planning, University of Hawai'i at Mānoa

Planning Practicum

2006

Adapting the Ahupua'a System for Contemporary Use in Managing Hawai'i's Watersheds, Summer 2006

Department of Urban and Regional Planning, University of Hawai'i at Mānoa

Community Service Project Participant

2006

Mana'e GIS Mapping Project, a project for the County of Maui - Department of Planning - Long-range Planning Division

PUBLICATIONS AND PRESENTATIONS

"Kamehameha Schools: Nā 'Āina Ho'oilina, Our Land Legacy

Published Article: The SAA Archaeological Record, Volume 13, No 2, March 2013

2013

"Ethnohistorical and Archaeological Resources"

Presentation at the Pāpā Ho'olālā: 2013 Conference of the Hawai'i Congress of Planning Officials, September, 2013, Keauhou, Hawai'i

2013

"'Āina Kaumaha: Kamehameha Schools Natural and Cultural Resources Management"

Presentation at the 24th Annual Symposium on Maritime Archaeology and History of Hawai'i, Honolulu, Hawai'i

2013

"Kamehameha Schools: Cultural Resources Management Plan"

Presentation at the 2012 Society for Hawaiian Archaeology Conference, October 2012, Keauhou, Hawai'i

2012

BOARDS

Ka'ūpūlehu Foundation

Board of Directors – Treasurer

2013-present

Purpose: The Ka'ūpūlehu Foundation is responsible for the Cultural and Educational program in the ahupua'a of Ka'ūpūlehu on Hawai'i Island.

KAHEA: Hawaiian-Environmental Alliance

Board of Directors – Treasurer

2012-2013

Purpose: KAHEA is a community-based organization working to improve the quality of life for Hawai'i's people and future generations through the revitalization and protection of Hawai'i's unique natural and cultural resources.

LANGUAGES

English – native language

Hawaiian – read, writes, and speaks with moderate proficiency

MEMBERSHIPS

Society for Hawaiian Archaeology



Sohrab Rashid, TE

PRINCIPAL

San Diego Office Leader

about

Sohrab is a registered Traffic Engineer in California with over 25 years of experience in transportation planning and traffic engineering. He has served as Principal in Charge or Project Manager for numerous high-profile transportation projects throughout California, Hawaii and internationally. Mr. Rashid has managed or directed the preparation of traffic impact analysis reports, project development studies for state facilities, circulation elements for general and specific plans, regional transportation plans, transit facilities, and traffic operations reports. His varied experience also includes travel demand forecasting, traffic micro-simulation, planning and design for non-automobile modes, travel surveys, transit station area planning, and traffic calming. He is currently the Office Leader and Operations Manager in the firm's San Diego office, oversees projects in the San Diego County area and Hawaii, and coordinates the company's efforts on international work.

education

B.S. Mechanical Engineering, San Jose State University, 1988

affiliations

- Institute of Transportation Engineers (ITE)
- South Bay Transportation Officials Association – ITE Chapter in San Jose (President 2004)
- American Planning Association (APA)
- Urban Land Institute (ULI)

registrations

Licensed Traffic Engineer, State of California (TR1845)

publications & presentations

- Sustainable Transportation and Land Use Planning in a Changing Environment, Nanning, China, December 2010
- Estimating Trip Generation for Transit-Oriented Developments (TODs), ITE Technical Conference, 2007
- Co-Instructor for Fehr & Peers Academy – Transportation Impact Analyses – On-going
- Guest Lecturer, San Jose State University – Transportation Planning Courses, 2004 to 2009
- Panelist for Transportation and Land Use Interaction – Moderated by State Senator Joe Simitian, 2006

project experience

Midway and Old Town Community Plan Updates (San Diego, California)

Fehr & Peers is conducting the transportation analysis of proposed changes to land use and the mobility network for the two community plan areas located immediately adjacent to and south of the I-5/I-8 interchange in San Diego. Sohrab is leading the effort to increase the density of the street system in an area dominated by large-scale retail development in the case of the Midway-Pacific Highway area, and maintain the character of the historic Old Town District while still enhancing regional access to the area. The study evaluated transportation facilities using multi-modal level of service analysis and involved use of SANDAG travel demand model forecasts to refine the planned street system.

Envision 2040 General Plan Update (San Jose, California)

Fehr & Peers completed the technical analysis, background report, and policy development for the Envision San José 2040 General Plan (GP) Circulation Element update with Sohrab serving as Project Manager. This process involved a comprehensive evaluation of existing transportation conditions for 100 roadway segments, validation and enhancement of the City's travel demand model, analysis

FEHR & PEERS

San Diego | Denver | Honolulu | Inland Empire | Oakland | Orange County | Reno
Roseville | Salt Lake City | San José | San Francisco | Seattle | Santa Monica | Walnut Creek

401 West A Street
Suite 900
San Diego, CA 92101
619.234.3190



Sohrab Rashid, TE

PRINCIPAL, Director - Pacific Rim Markets

of five land use alternatives, , and input to policies for all travel modes. A primary focus of the update was to promote a balanced policy approach to all modes and evaluating changes to the City's level of service and parking policies.

H-1 Corridor Planning Study (Oahu, Hawaii)

Fehr & Peers is assisting the prime consultant, SSFM, with a planning study of the entire H-1 freeway in Honolulu, Hawaii. The purpose of the study is to identify near-term, mid-term and long-term projects to improve corridor operations and minimize congestion through a planning horizon of 2035. Projects under consideration include capacity enhancements, safety improvements, modified/modernized interchanges, new ramp connections, Intelligent Transportation Systems (ITS) strategies, transportation demand management (TDM) strategies, and replacement of bridge/viaduct structures. In addition, the study is examining improvements to parallel and feeder facilities to appropriately distribute regional and local traffic volumes.

Transit Station Area Plan and EIR (Milpitas, California)

Fehr & Peers assisted with the development of the specific plan and the subsequent EIR transportation section for the Transit Area Plan surrounding the future BART station. Sohrab directed the analysis of the plan area that is expected to include over 5,000 dwelling units and over 2,000,000 square feet of commercial, retail and industrial development. Impacts were analyzed based on future traffic projections from the Santa Clara Valley Transportation Authority (VTA) model. Trip internalization, impacts to bicycle, pedestrian and transit facilities, and an assessment of greenhouse gas emissions were also key elements of the study.

NASA Research Park Master Plan and EIS (Mountain View, California)

Sohrab served as the Project Manager for the preparation of the EIS transportation section for the proposed development of NASA Research Park (NRP) located at Moffett Field. The project included up to 4.5 million square feet of office, R&D, university, and museum space plus on-site housing for students and employees. The potential near-term and cumulative impacts of five alternatives were analyzed, and an aggressive and comprehensive Transportation Demand Management

(TDM) program was developed to reduce single-occupant vehicle trips and greenhouse gas (GHG) emissions.

Chenggong New Town Master Plan (Kunming, China)

In collaboration with Calthorpe Associates and the China Sustainable Transportation Center, Fehr & Peers completed the transportation analysis to justify a paradigm shift in the planned roadway system for this new town area of Kunming expected to house 240,000 residents and an equivalent number of employees. Sohrab oversaw the analysis of a much denser grid street system with several one-way couplets, exclusive transitways, and an integrated auto-free street network that would replace the typical 400-meter block spacing with six- to ten-lane arterial roadways. Intersection operations were analyzed using VISSIM software and illustrated the operational and environmental benefits of the proposed circulation system.

Ala Moana TOD Study (Honolulu, Hawaii)

Fehr & Peers is assisting RTKL with TOD planning studies for the Ala Moana Station on the rail transit corridor that is currently under construction in Honolulu. Sohrab is leading the transportation planning effort that involves a constraints and opportunities evaluation and a trip generation analysis of three land use alternatives for the surrounding community. Recommendations to enhance multi-modal access and improve overall mobility are being developed to support the preferred plan with a special focus on active transportation modes.

Jurong Lake District Sustainability Plan (Singapore)

Sohrab led Fehr & Peers' effort to prepare the transportation element of a sustainability model for a large-scale, mixed-use project in the Jurong Lake District of southwest Singapore. The project included the redevelopment of the area around three existing Mass Rapid Transit (MRT) stations, development of several resort villages, and creation of five new "edutainment" attractions with a total of 27,000,000 sq. ft. of development. This effort was unique given the already high use of non-auto travel modes, the magnitude of densities proposed, and the distinctive trip making characteristics of attractions and resorts. The transportation study culminated in a comprehensive transportation program to enhance project sustainability by reducing automobile use.



FEHR & PEERS

San Diego | Denver | Honolulu | Inland Empire | Oakland | Orange County | Reno
Roseville | Salt Lake City | San Jose | San Francisco | Seattle | Santa Monica | Walnut Creek

401 West A Street
Suite 900
San Diego, CA 92101
619.234.3190

CHRISTOPHER M. MONAHAN, PH.D.
PRESIDENT, SOLE PROPRIETOR
TCP HAWAI'I, LLC
333 Aoloa St., #303, Kailua, Hawai'i 96734
(808) 754-0304 mookahan@yahoo.com

EDUCATION

Ph.D. & M.A. in Anthropology (Archaeology Section), University of Wisconsin-Madison (1991, 1996)
B.A. in Anthropology (Archaeology Concentration), St. Lawrence University, Canton, New York (1986),
including one semester of cultural immersion in Kenya, East Africa

WORK HISTORY (SELECTED)

Sole Proprietor, TCP Hawai'i, LLC, Kailua, HI (2006–present)

I founded a research company based in Hawai'i dedicated to conducting cultural resource studies including work on Traditional Cultural Properties (TCP) and all types of archaeological and cultural surveys, plans and assessments, including all aspects of burial treatment.

- Major projects included TCP studies of Kamaile, Wai'anae, and Waimea, O'ahu; and critical analyses of the effectiveness of historic-preservation laws and rules in Hawai'i.
- TCP Hawai'i, LLC, also specializes in consultation with lineal and cultural descendants, community groups and Native Hawaiian organizations, and government agencies.

Principal Investigator/ Project Manager, Cultural Surveys Hawai'i (CSH), Inc., Kailua, HI (2009-2012)

I managed a wide variety of cultural resource management projects for CSH throughout the Hawaiian Islands, including a \$5 million contract for the U.S. Army Corps of Engineers consisting of 25 individual projects, and many other public agencies and private clients.

- At CSH, I authored dozens of reports on a variety of historic-preservation and environmental-assessment projects including archaeological surveys and mitigation plans, cultural impact assessments and ethnohistorical studies. My primary roles and responsibilities were to maintain Quality Assurance/ Quality Control and oversee all aspects of project management.

Principal Investigator/ Project Manager, SWCA Environmental Consultants, Portland, OR (2008-2009)

I worked as a Principal Investigator/ Project Manager for SWCA—my roles and responsibilities were essentially the same as those described above for CSH.

- A major project completed at SWCA, in cooperation with OHA and the U.S. Army, was a critical re-analysis of archaeological surveys conducted by previous firms on Stryker-related projects.

O'ahu Island Lead Archaeologist and Acting Branch Chief, SHPD/DLNR, Honolulu, HI (2006)

- Conducted site visits and investigations on O'ahu Island—including burial sites and inadvertent discoveries—to ensure compliance with historic preservation laws and rules
- Served as liaison between Native Hawaiians and other concerned parties, developers, archaeological firms, government agencies, politicians, activists, and others
- Advocated for the rights of locals, including Native Hawaiians, in the historic preservation process, to the extent that the laws and rules allow
- Consulted with archaeological contractors, developers, government agencies, and private landowners on O'ahu, regarding their historic preservation obligations and responsibilities
- Authored approximately 450 historic-preservation project reviews, mostly for O'ahu Island

[WORK HISTORY (SELECTED), continued]

Archaeologist, Project Director, Scientific Consultant Services, Inc., Honolulu, HI (2003–2005)

- Authored dozens of archaeological reports on O‘ahu, Maui, Kaua‘i, and Hawai‘i Islands
- Appeared before the Island Burial Councils on several occasions
- Conducted docent training (*pro bono* work), Kaua‘i Museum, Lihua‘e

Lecturer, University of Hawaii-Mānoa, Department of Anthropology (2002–2003)

Courses included “Humanity Emerging” (an introduction to Physical Anthropology and Archaeology), “Introduction to Physical Anthropology,” “Introduction to Archaeology,” “Seminar in Lithic Analysis”

Forensic Archaeologist, U.S. Army Central Identification Laboratory, Honolulu, HI (2001–2002)

- Conducted recovery/excavation of human skeletal remains of U.S. military servicemen from Vietnam- and World War II-era sites in Laos, Vietnam, Papua New Guinea, and Kiribati
- Case work (osteological examination) in U.S. military forensic studies
- Conducted public presentations and trainings

OTHER RELEVANT WORK AND TEACHING EXPERIENCE (SELECTED)

Adjunct Assistant Professor (2004–2006), University of Maine, Machias, ME (Anthropology)

- Taught “Introduction to Physical Anthropology” (on-line classroom)

High School Teacher (2000–2001), Perspectives Charter School, Chicago, IL, Social Studies

- Designed and implemented a Social Studies curriculum for 9-12 graders in Chicago
- Focused on issues of self-empowerment, civil and human rights, and alternative histories

Lecturer (1998–2000), Loyola University, Chicago, IL, Department of Anthropology

- Taught “Human Origins” (an introduction to Physical Anthropology and Archaeology)

Instructor (1997–1999, summers), Rutgers University, Koobi Fora Field School, Kenya, East Africa

- Taught Field Methods in Paleolithic Archaeology and Physical Anthropology

Visiting Assistant Professor (1996–1997), The George Washington Univ., Department of Anthropology

- Courses: “Introduction to Biological Anthropology,” “Paleolithic Archaeology,” Graduate Seminar “Biological Anthropology,” Seminar “Archaeology of Human Origins”

Visiting Student (Pre-Doctoral) Internship (1994–1996); Smithsonian Institution, Anthropology

- Conducted experimental archaeology
- Research included Scanning Electron Microscopy

Dissertation (1993–1994); National Museum of Kenya, Paleontology & Archaeology Divisions

- Fieldwork included ethnoarchaeology (living with various ethnic groups) in Kenya
- Laboratory analyses of million-year-old fossils from Olduvai Gorge and Koobi Fora

Assistant Field Supervisor (1991); excavations at Gilman Falls, ME, University of Maine

- Fieldwork included work with the Passamaquoddy tribe of Maine

Teaching Assistant (1990–1991), University of Wisconsin-Madison (Department of Anthropology)

Assistant Field Supervisor (1990); excavations at Neolithic Cave, Fontbreguoua, Provence, France

Field Technician (1987–1989); excavation and survey, various companies and agencies, Maine

Field Technician (1984–1985); survey in southwestern Kenya on Neolithic-Age sites

PEER-REVIEW PUBLICATIONS

- Monahan, C.M. (1999a). Comparing apples and oranges in the Plio-Pleistocene. *Journal of Human Evolution* 37: 789–792.
- Monahan, C.M. (1999b). Quantifying bone modification by African wild dogs and spotted hyenas. *Journal of Human Evolution* 36: A14.
- Monahan, C.M. (1998). The Hadza carcass transport debate revisited and its archaeological implications. *Journal of Archaeological Science* 25: 405–424.
- Monahan, C.M. (1996). New zooarchaeological data from Bed II, Olduvai Gorge, Tanzania: implications for hominid behavior in the Early Pleistocene. *Journal of Human Evolution* 31: 91–128.
- Pobiner, B.L., Rogers, M.J., Monahan, C.M. & Harris, J.W.K. (2008). New evidence for Hominin carcass processing strategies at 1.5 Ma, Koobi Fora, Kenya. *Journal of Human Evolution* 55: 103–130.
- Rogers, M., Monahan, C.M. *et al.* (1999). New discoveries of hominid-modified bones from the Koobi Fora Formation, Kenya. *Journal of Human Evolution* 36: A18.
- Byrd, B. & Monahan, C.M. (1995). Death, mortuary ritual, and Natufian social structure. *Journal of Anthropological Archaeology* 14: 251–287.

PROFESSIONAL PRESENTATIONS (SELECTED)

- “A Functional and Temporal Interpretation of Excavated Pits in the Mauna ‘Āina (Pōhakuloa Training Area) and Their Significance in Hawaiian Prehistory” (October 2012), Society for Hawaiian Archaeology annual meeting, Keauhou, Hawai‘i.
- “New Archaeological and Experimental Data on Functional Interpretations of Excavated Pits at Pohakuloa Training Area, Hawai‘i Island” (October 2010), Society for Hawaiian Archaeology annual meeting, Kaua‘i.
- “Stemming the Tide in the Hawaiian Islands: Impacts of Sea-level Rise on Cultural Resources” (July 2008), 6th World Archaeological Conference, Dublin, Ireland (with co-author Dr. Michael Kimball).
- “New Directions in Historic Preservation in Hawai‘i: The Traditional Cultural Properties Paradigm” (July 2006), Queen Emma Hawaiian Civic Club, Honolulu.
- “Traditional Cultural Properties in Hawai‘i” (June 2006), University of Hawai‘i-Mānoa, East-West Center, for an audience comprised of U.S. Fish and Wildlife biologists and land managers.
- “Archaeological Issues in Section 106 Compliance in Hawai‘i” (May 2006), Federal Office Building, Honolulu, for an audience comprised of Federal Housing and Urban Development (HUD) contractors.
- “Treatment of Human Remains on Non-Federal Lands: Laws, Rules, and Practice” (April 2006), JPAC/CIL, Hickam Air Force Base, to an audience of forensic anthropologists.
- “A View from Both Sides of the Fence: Why a Graduate Degree *Does* Matter in CRM, and Why CRM *Should* Matter in Academia” (Fall 2004), Society for Hawaiian Archaeology annual meeting Kailua-Kona.
- “Variability in the Foraging Behavior of *Homo Erectus*” (Fall 2003), Society for Hawaiian Archaeology annual meeting, Kāne‘ohe, O‘ahu.
- “Forensic Anthropology at the USA-CILHI” (March 2002), to ROTC Cadets, UH-Mānoa, Honolulu.
- From 1994 and 2000, I delivered approximately a dozen scientific papers at annual meetings of the Society for American Archaeology, American Association of Physical Anthropology, and Paleoanthropology Society.

INVITED PUBLIC LECTURES (HONORARIA)

- St. Lawrence University, Canton, New York (March 2000), “Two Million Years of African Prehistory.”
- Rutgers University, New Jersey (March 2000), “New Perspectives in the Archaeology of Human Origins.”
- Tulane University, New Orleans (May 2000), “Human Origins.”
- Facing History and Ourselves (Educational Non-Profit Organization), “Integrating the Principles of a Disciplined Life into High School Teaching,” Chicago (March 2001).

AWARDS AND GRANTS

- Dissertation Improvement Grant, National Science Foundation (1992–1993)
- Visiting Student Internship, Department of Anthropology, National Museum of Natural History, Smithsonian Institution (1994–1995)
- Travel Awards to present papers at national conferences, University of Wisconsin, George Washington University, and Loyola University (1995–2000)

ORGANIZED CONFERENCE

While a Pre-doctoral Intern at the Smithsonian (see above), I organized a 5-week public lecture series on New Directions in Neanderthal Research; invited speakers: Dan Lieberman (Harvard University), Curtis Marean (Arizona State University), John Shea (SUNY-Stony Brook), Steve Churchill (Duke), and Jamie Shreeve (National Geographic Society).

HISTORIC PRESERVATION TRAINING (SELECTED)

- *Introduction to Section 106*: National Preservation Institute Workshop (3/02), Honolulu; instructor: Tom King
- *NEPA Compliance*: National Preservation Institute Workshop (9/04), Honolulu; instructor: Claudia Nissley
- *Historic Structures Reports*: National Preservation Institute Workshop (3/05), Phoenix; instructor: Alfonso Narvaez
- *Consultation with Native American Tribes*, a 2-day workshop/conference (11/08), Suquamish Indian Tribe's Clearwater Casino Resort, Washington state
- Hawai'i Department of Transportation NEPA training (3/11), UH East-West Center, Honolulu
- Advisory Council on Historic Preservation, Section 106 intensive/advanced training (10/11), Waikiki

OTHER RELEVANT EXPERIENCE AND INTERESTS

- From 1984–1999, I traveled to East Africa on several occasions, staying from several months up to a year, conducting research, living with native people in Kenya (Maasai, Samburu, Abaluyha, Swahili). I was fluent in Kiswahili at this time. I climbed (the 17,000 ft.) Mount Kenya in 1985.
- In 1984, I traveled to Alaska to work on a fishing boat for the summer, at which time I worked and traveled with native (Inuit) people I met along the way.
- From 2000-present, I have conducted several solo camping excursions lasting from 1-2 weeks into the wild, mountain outbacks of New Mexico, Arizona, and Maui.
- Most recently, I have become interested and active in describing and documenting Traditional Cultural Properties (TCP) as a means of preserving landscapes and natural resources.
- I am currently studying the Hawaiian language with Associate Professor Kahikāhealani Wight, Kapi'olani Community College, Honolulu.

Solar Glare Hazard Analysis Flight Path Report

Generated June 20, 2014, 1:59 p.m.

Flight path: Honolulu Airport

Landing

No glare found

g Print



Analysis & PV array parameters

| | |
|----------------------------|--------------------------|
| Analysis name | Waiawa Solar Glint Glare |
| PV array axis tracking | none |
| Orientation of array (deg) | 180.0 |

| | |
|---------------------------------|--------------------------|
| Tilt of solar panels (deg) | 10.0 |
| Rated power (kW) | 65000.0 |
| Vary reflectivity | True |
| PV surface material | Smooth glass without ARC |
| Timezone offset | -10.0 |
| Subtended angle of sun (mrad) | 9.3 |
| Peak DNI (W/m ²) | 1000.0 |
| Ocular transmission coefficient | 0.5 |
| Pupil diameter (m) | 0.002 |
| Eye focal length (m) | 0.017 |
| Time interval (min) | 1 |
| Slope error (mrad) | 10.0 |

Flight path parameters

| | |
|--|--------|
| Direction (deg) | 271.91 |
| Glide slope (deg) | 3.0 |
| Consider pilot visibility from cockpit | True |
| Max downward viewing angle (deg) | 30.0 |
| Azimuthal viewing angle (deg) | 180.0 |

PV array vertices

| id | Latitude (deg) | Longitude (deg) | Ground Elevation (ft) | Height above ground (ft) | Total elevation (ft) |
|----|----------------|-----------------|-----------------------|--------------------------|----------------------|
|----|----------------|-----------------|-----------------------|--------------------------|----------------------|

| id | Latitude (deg) | Longitude (deg) | Ground Elevation (ft) | Height above ground (ft) | Total elevation (ft) |
|----|----------------|-----------------|-----------------------|--------------------------|----------------------|
| id | Latitude (deg) | Longitude (deg) | Ground Elevation (ft) | Height above ground (ft) | Total elevation (ft) |
| 1 | 21.4344544453 | -157.985329628 | 534.75 | 12.0 | 546.75 |
| 2 | 21.4377300754 | -157.977776527 | 640.87 | 12.0 | 652.87 |
| 3 | 21.4360922695 | -157.975502014 | 630.01 | 12.0 | 642.01 |
| 4 | 21.4340150259 | -157.977991104 | 562.51 | 12.0 | 574.51 |
| 5 | 21.4319377527 | -157.979149818 | 504.74 | 12.0 | 516.74 |
| 6 | 21.4305395714 | -157.981681824 | 448.14 | 12.0 | 460.14 |
| 7 | 21.4286220438 | -157.982153893 | 425.04 | 12.0 | 437.04 |
| 8 | 21.4263049977 | -157.982025146 | 402.88 | 12.0 | 414.88 |
| 9 | 21.4237482145 | -157.984170914 | 370.84 | 12.0 | 382.84 |
| 10 | 21.4239080148 | -157.986960411 | 401.45 | 12.0 | 413.45 |
| 11 | 21.4229891609 | -157.990651131 | 403.39 | 12.0 | 415.39 |
| 12 | 21.4259454528 | -157.991466522 | 443.15 | 12.0 | 455.15 |
| 13 | 21.4273836272 | -157.990908623 | 437.55 | 12.0 | 449.55 |
| 14 | 21.4304996231 | -157.992281914 | 460.21 | 12.0 | 472.21 |
| 15 | 21.4328565502 | -157.991123199 | 501.62 | 12.0 | 513.62 |
| 16 | 21.433375868 | -157.989706993 | 531.21 | 12.0 | 543.21 |

Flight Path Observation Points

| | Latitude (deg) | Longitude (deg) | Ground Elevation (ft) | Height above ground (ft) | Glare? |
|-----------|----------------|-----------------|-----------------------|--------------------------|--------|
| Threshold | 21.311125533 | -158.008117676 | 3.28 | 50.0 | No |

| | Latitude (deg) | Longitude (deg) | Ground Elevation (ft) | Height above ground (ft) | Glare? |
|----------|----------------|-----------------|-----------------------|--------------------------|--------|
| 1/4 mi | 21.3110050883 | -158.00423631 | 3.28 | 119.17 | No |
| 1/2 mi | 21.3108846436 | -158.000354944 | 0.0 | 191.64 | No |
| 3/4 mi | 21.3107641989 | -157.996473578 | 0.0 | 260.81 | No |
| 1 mi | 21.3106437542 | -157.992592212 | 0.0 | 329.99 | No |
| 1 1/4 mi | 21.3105233096 | -157.988710846 | 0.0 | 399.18 | No |
| 1 1/2 mi | 21.3104028649 | -157.98482948 | 0.0 | 468.35 | No |
| 1 3/4 mi | 21.3102824202 | -157.980948114 | 0.0 | 537.54 | No |
| 2 mi | 21.3101619755 | -157.977066749 | 0.0 | 606.71 | No |

No glare found.

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Solar Glare Hazard Analysis Flight Path Report

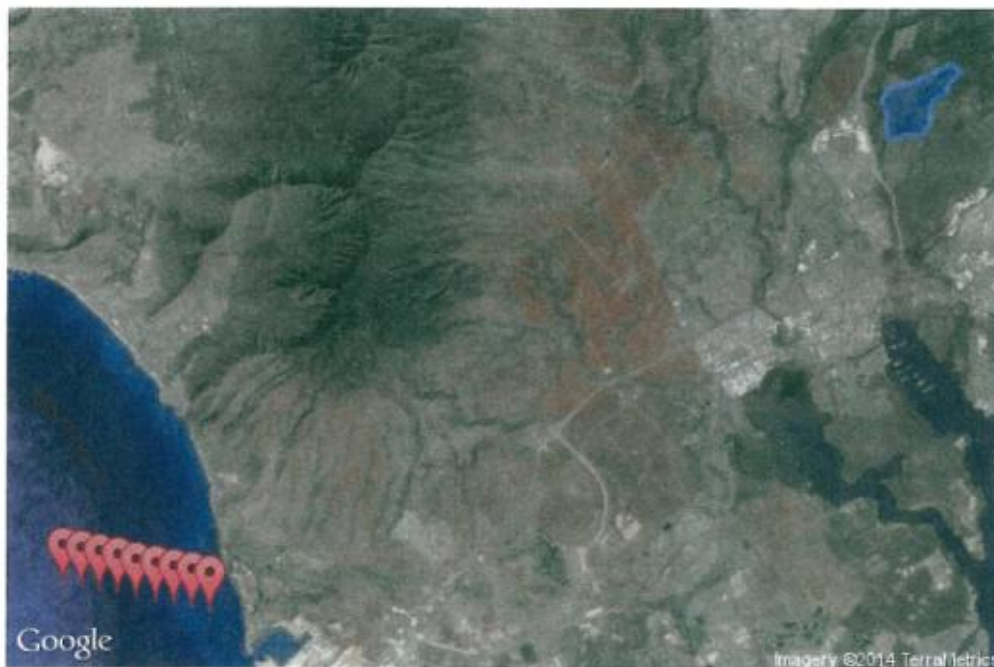
Generated June 20, 2014, 2 p.m.

Flight path: Honolulu Airport

Incoming

No glare found

g Print



Analysis & PV array parameters

| | |
|----------------------------|--------------------------|
| Analysis name | Waiawa Solar Glint Glare |
| PV array axis tracking | none |
| Orientation of array (deg) | 180.0 |

| | |
|---------------------------------|--------------------------|
| Tilt of solar panels (deg) | 10.0 |
| Rated power (kW) | 65000.0 |
| Vary reflectivity | True |
| PV surface material | Smooth glass without ARC |
| Timezone offset | -10.0 |
| Subtended angle of sun (mrad) | 9.3 |
| Peak DNI (W/m ²) | 1000.0 |
| Ocular transmission coefficient | 0.5 |
| Pupil diameter (m) | 0.002 |
| Eye focal length (m) | 0.017 |
| Time interval (min) | 1 |
| Slope error (mrad) | 10.0 |

Flight path parameters

| | |
|--|--------|
| Direction (deg) | 280.95 |
| Glide slope (deg) | 3.0 |
| Consider pilot visibility from cockpit | True |
| Max downward viewing angle (deg) | 30.0 |
| Azimuthal viewing angle (deg) | 180.0 |

PV array vertices

| id | Latitude (deg) | Longitude (deg) | Ground Elevation (ft) | Height above ground (ft) | Total elevation (ft) |
|----|----------------|-----------------|-----------------------|--------------------------|----------------------|
|----|----------------|-----------------|-----------------------|--------------------------|----------------------|

| id | Latitude (deg) | Longitude (deg) | Ground Elevation (ft) | Height above ground (ft) | Total elevation (ft) |
|----|----------------|-----------------|-----------------------|--------------------------|----------------------|
| id | Latitude (deg) | Longitude (deg) | Ground Elevation (ft) | Height above ground (ft) | Total elevation (ft) |
| 1 | 21.4344544453 | -157.985329628 | 534.75 | 12.0 | 546.75 |
| 2 | 21.4377300754 | -157.977776527 | 640.87 | 12.0 | 652.87 |
| 3 | 21.4360922695 | -157.975502014 | 630.01 | 12.0 | 642.01 |
| 4 | 21.4340150259 | -157.977991104 | 562.51 | 12.0 | 574.51 |
| 5 | 21.4319377527 | -157.979149818 | 504.74 | 12.0 | 516.74 |
| 6 | 21.4305395714 | -157.981681824 | 448.14 | 12.0 | 460.14 |
| 7 | 21.4286220438 | -157.982153893 | 425.04 | 12.0 | 437.04 |
| 8 | 21.4263049977 | -157.982025146 | 402.88 | 12.0 | 414.88 |
| 9 | 21.4237482145 | -157.984170914 | 370.84 | 12.0 | 382.84 |
| 10 | 21.4239080148 | -157.986960411 | 401.45 | 12.0 | 413.45 |
| 11 | 21.4229891609 | -157.990651131 | 403.39 | 12.0 | 415.39 |
| 12 | 21.4259454528 | -157.991466522 | 443.15 | 12.0 | 455.15 |
| 13 | 21.4273836272 | -157.990908623 | 437.55 | 12.0 | 449.55 |
| 14 | 21.4304996231 | -157.992281914 | 460.21 | 12.0 | 472.21 |
| 15 | 21.4328565502 | -157.991123199 | 501.62 | 12.0 | 513.62 |
| 16 | 21.433375868 | -157.989706993 | 531.21 | 12.0 | 543.21 |

Flight Path Observation Points

| | Latitude (deg) | Longitude (deg) | Ground Elevation (ft) | Height above ground (ft) | Glare? |
|-----------|----------------|-----------------|-----------------------|--------------------------|--------|
| Threshold | 21.3367110294 | -158.161239624 | 0.0 | 50.0 | No |

| | Latitude (deg) | Longitude (deg) | Ground Elevation (ft) | Height above ground (ft) | Glare? |
|----------|----------------|-----------------|-----------------------|--------------------------|--------|
| 1/4 mi | 21.3360245905 | -158.157426142 | 0.0 | 119.17 | No |
| 1/2 mi | 21.3353381516 | -158.15361266 | 0.0 | 188.36 | No |
| 3/4 mi | 21.3346517128 | -158.149799177 | 0.0 | 257.53 | No |
| 1 mi | 21.3339652739 | -158.145985695 | 0.0 | 326.71 | No |
| 1 1/4 mi | 21.333278835 | -158.142172213 | 0.0 | 395.89 | No |
| 1 1/2 mi | 21.3325923962 | -158.138358731 | 0.0 | 465.07 | No |
| 1 3/4 mi | 21.3319059573 | -158.134545249 | 0.0 | 534.26 | No |
| 2 mi | 21.3312195184 | -158.130731767 | 0.0 | 603.43 | No |

No glare found.

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Solar Glare Hazard Analysis Report

Generated June 20, 2014, 1:56 p.m.

No glare found

g Print



Inputs

| | |
|----------------------------|--------------------------|
| Analysis name | Waiawa Solar Glint Glare |
| PV array axis tracking | none |
| Orientation of array (deg) | 180.0 |
| Tilt of solar panels (deg) | 10.0 |
| Rated power (kW) | 65000.0 |
| Vary reflectivity | True |
| PV surface material | Smooth glass without ARC |
| Timezone offset | -10.0 |

| | |
|---------------------------------|--------|
| Subtended angle of sun (mrad) | 9.3 |
| Peak DNI (W/m ²) | 1000.0 |
| Ocular transmission coefficient | 0.5 |
| Pupil diameter (m) | 0.002 |
| Eye focal length (m) | 0.017 |
| Time interval (min) | 1 |
| Slope error (mrad) | 10.0 |

PV array vertices

| id | Latitude (deg) | Longitude (deg) | Ground Elevation (ft) | Height above ground (ft) | Total elevation (ft) |
|----|----------------|-----------------|-----------------------|--------------------------|----------------------|
| 1 | 21.4344544453 | -157.985329628 | 534.75 | 12.0 | 546.75 |
| 2 | 21.4377300754 | -157.977776527 | 640.87 | 12.0 | 652.87 |
| 3 | 21.4360922695 | -157.975502014 | 630.01 | 12.0 | 642.01 |
| 4 | 21.4340150259 | -157.977991104 | 562.51 | 12.0 | 574.51 |
| 5 | 21.4319377527 | -157.979149818 | 504.74 | 12.0 | 516.74 |
| 6 | 21.4305395714 | -157.981681824 | 448.14 | 12.0 | 460.14 |
| 7 | 21.4286220438 | -157.982153893 | 425.04 | 12.0 | 437.04 |
| 8 | 21.4263049977 | -157.982025146 | 402.88 | 12.0 | 414.88 |
| 9 | 21.4237482145 | -157.984170914 | 370.84 | 12.0 | 382.84 |
| 10 | 21.4239080148 | -157.986960411 | 401.45 | 12.0 | 413.45 |
| 11 | 21.4229891609 | -157.990651131 | 403.39 | 12.0 | 415.39 |
| 12 | 21.4259454528 | -157.991466522 | 443.15 | 12.0 | 455.15 |
| 13 | 21.4273836272 | -157.990908623 | 437.55 | 12.0 | 449.55 |

| id | Latitude (deg) | Longitude (deg) | Ground Elevation (ft) | Height above ground (ft) | Total elevation (ft) |
|----|----------------|-----------------|-----------------------|--------------------------|----------------------|
| 14 | 21.4304996231 | -157.992281914 | 460.21 | 12.0 | 472.21 |
| 15 | 21.4328565502 | -157.991123199 | 501.62 | 12.0 | 513.62 |
| 16 | 21.433375868 | -157.989706993 | 531.21 | 12.0 | 543.21 |

Observation Points

| | Latitude (deg) | Longitude (deg) | Ground Elevation (ft) | Height above ground (ft) |
|--------|----------------|-----------------|-----------------------|--------------------------|
| 1-West | 21.4134407283 | -157.995071411 | 337.99 | 0.0 |

No glare found.

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Solar Glare Hazard Analysis Report

Generated June 20, 2014, 1:59 p.m.

No glare found

g Print



Inputs

| | |
|----------------------------|--------------------------|
| Analysis name | Waiawa Solar Glint Glare |
| PV array axis tracking | none |
| Orientation of array (deg) | 180.0 |
| Tilt of solar panels (deg) | 10.0 |
| Rated power (kW) | 65000.0 |
| Vary reflectivity | True |
| PV surface material | Smooth glass without ARC |
| Timezone offset | -10.0 |

| | |
|---------------------------------|--------|
| Subtended angle of sun (mrad) | 9.3 |
| Peak DNI (W/m ²) | 1000.0 |
| Ocular transmission coefficient | 0.5 |
| Pupil diameter (m) | 0.002 |
| Eye focal length (m) | 0.017 |
| Time interval (min) | 1 |
| Slope error (mrad) | 10.0 |

PV array vertices

| id | Latitude (deg) | Longitude (deg) | Ground Elevation (ft) | Height above ground (ft) | Total elevation (ft) |
|----|----------------|-----------------|-----------------------|--------------------------|----------------------|
| 1 | 21.4344544453 | -157.985329628 | 534.75 | 12.0 | 546.75 |
| 2 | 21.4377300754 | -157.977776527 | 640.87 | 12.0 | 652.87 |
| 3 | 21.4360922695 | -157.975502014 | 630.01 | 12.0 | 642.01 |
| 4 | 21.4340150259 | -157.977991104 | 562.51 | 12.0 | 574.51 |
| 5 | 21.4319377527 | -157.979149818 | 504.74 | 12.0 | 516.74 |
| 6 | 21.4305395714 | -157.981681824 | 448.14 | 12.0 | 460.14 |
| 7 | 21.4286220438 | -157.982153893 | 425.04 | 12.0 | 437.04 |
| 8 | 21.4263049977 | -157.982025146 | 402.88 | 12.0 | 414.88 |
| 9 | 21.4237482145 | -157.984170914 | 370.84 | 12.0 | 382.84 |
| 10 | 21.4239080148 | -157.986960411 | 401.45 | 12.0 | 413.45 |
| 11 | 21.4229891609 | -157.990651131 | 403.39 | 12.0 | 415.39 |
| 12 | 21.4259454528 | -157.991466522 | 443.15 | 12.0 | 455.15 |
| 13 | 21.4273836272 | -157.990908623 | 437.55 | 12.0 | 449.55 |

| id | Latitude (deg) | Longitude (deg) | Ground Elevation (ft) | Height above ground (ft) | Total elevation (ft) |
|----|----------------|-----------------|-----------------------|--------------------------|----------------------|
| 14 | 21.4304996231 | -157.992281914 | 460.21 | 12.0 | 472.21 |
| 15 | 21.4328565502 | -157.991123199 | 501.62 | 12.0 | 513.62 |
| 16 | 21.433375868 | -157.989706993 | 531.21 | 12.0 | 543.21 |

Observation Points

| | Latitude (deg) | Longitude (deg) | Ground Elevation (ft) | Height above ground (ft) |
|--------|----------------|-----------------|-----------------------|--------------------------|
| 2-East | 21.4121622297 | -157.973098755 | 97.52 | 0.0 |

No glare found.

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BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAII

To Amend the Agricultural In the Matter of the
Petition of

TOM GENTRY AND GENTRY-PACIFIC,
LTD

Land Use District Boundary into the Urban
Land Use District for Approximately 1,395
Acres at Waiawa, Ewa, Oahu, State of Hawaii,
Tax Map Key Nos." 9-4-06: Portion of 26; 9-6-
04: Portion of 1 and Portion of 16; and 9-6-05:
Portion of 1, Portion of 7 and Portion of 14

DOCKET NO. A87-610

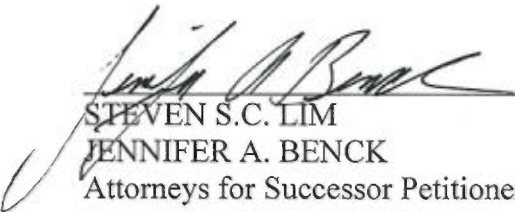
CERTIFICATE OF SERVICE

CERTIFICATE OF SERVICE

I hereby certify that due service of a copy of the foregoing was served upon the
following either by hand delivery or by depositing the same with the U. S. Mail, postage prepaid,
on June 20, 2014, addressed to:

| | |
|---------------|---|
| HAND DELIVERY | LEO R. ASUNCION, JR., Acting Director Office of Planning State Office Tower, 6th Floor 235 South Beretania Street Honolulu, HI 96813 |
| HAND DELIVERY | DAVID M. LOUIE, Esq. BRYAN YEE, Esq. Deputy Attorney General Commerce and Economic Development Department of the Attorney General 425 Queen Street Honolulu, Hawaii 96813 |

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| HAND DELIVERY | <p>GEORGE I. ATTA, Director Department of Planning and Permitting City & County of Honolulu 650 South King Street, 7th Floor Honolulu, HI 96813</p> |
| HAND DELIVERY | <p>DONNA Y.L. LEONG, Esq. DON S. KITAOKA, Esq. DAWN E. TAKEUCHI-APUNA, Esq. Deputy Corporation Counsel Department of the Corporation Counsel Honolulu Hale 530 South King Street, Room 110 Honolulu, HI 96813</p> |


STEVEN S.C. LIM
JENNIFER A. BENCK
Attorneys for Successor Petitioner
KAMEHAMEHA SCHOOLS

Dated: Honolulu, Hawaii, June 20, 2014