

BENJAMIN J. CAYETANO
GOVERNOR
STATE OF HAWAII



RAYNARD C. SOON
CHAIRMAN
HAWAIIAN HOMES COMMISSION

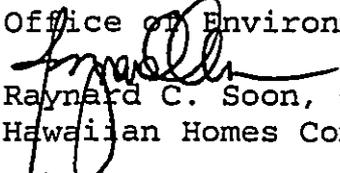
JOHIE M. K. M. YAMAGUCHI
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

June 26, 2001

To: The Honorable Bruce S. Anderson
Department of Health

Attn: Genevieve Salmonson, Director
Office of Environmental Quality Control

From: 
Raynard C. Soon, Chairman
Hawaiian Homes Commission

Subject: Anahola Village Residence Lots, Unit 1
Tax Map Keys: (4) 4-8-03: 05 & 28
(4) 4-8-08: Por. 16 (Lot 53)
Anahola, Kawaihau, Island of Kauai, Hawaii

JUN 26 10:42 AM '01

The Department of Hawaiian Home Lands has completed the formal environmental review of the subject project in accordance with Act 241, SLH 1992. We have not received any adverse comments and have determined that the subject project will not have a significant impact on the environment. Therefore, we are filing a Finding of No Significant Impact (FONSI).

Please publish a notice of availability for the Final Environmental Assessment (FEA) and a notice of the FONSI in the Office of Environmental Quality Control's (OEQC) next issue of *The Environmental Notice*.

We have enclosed a completed OEQC *The Environmental Notice* Publication Form, four copies of the FEA, and the project summary on a computer disk. Should you have any questions regarding the contents or preparation of the DEA, please contact Ms. Nadine Nakamura of NKN Project Planning at (808) 822-0388.

Should you have any questions regarding the project itself, please have your staff call Gerald Lee of our Design and Construction Branch at 587-6447.

Enc.

c: Kodani and Associates, Inc.

85

JUL 8 2001

FILE COPY

2001-07-08-KA-~~FEA~~

Final Environmental Assessment

Anahola Village Residence Lots, Unit 1
Anahola, Kawaihau, Kaua'i

Department of Hawaiian Home Lands
State of Hawaii

Prepared for:
Kodani and Associates, Inc.
3145 Akahi Street, Lihue, Hawaii 96766

NKN Project Planning
June 2001

Table of Contents		Page
Project Summary		1
I.	Project Description	2
1.1	Location	2
1.2	Proposed Action	2
1.3	Project Scope	2
1.4	Permits Required	5
1.5	Project Schedule	5
1.6	Technical Characteristics	5
1.7	Socio-Economic Characteristics	7
1.8	Environmental Characteristics	8
II.	Affected Environment and Potential Impacts and Mitigative Measures	9
2.1	Existing Land Use	9
2.2	Topography, Geology, Soils	9
2.3	Flood Hazard	10
2.4	Flora and Fauna	11
2.5	Historic and Archaeological Resources	12
2.6	Noise	13
2.7	Air Quality	13
2.8	Traffic and Circulation	14
2.9	Utilities	14
2.10	Scenic and Visual Resources	15
2.11	Economic Activity	15
III.	Alternatives to the Proposed Action	17
3.1	"No Build" Alternative	17
3.2	Alternative Configurations	17
IV.	Determination	18
V.	Agencies Consulted and References	20
VI.	References	22
VII.	Agency Comment Letters and Responses	23
Appendix A Archaeological Inventory Survey		

Project Summary

Project Name: Anahola Village Residence Lots, Unit 1

Proposing Agency & Approving Agency: Department of Hawaiian Home Lands
State of Hawaii
P. O. Box 1879
Honolulu, Hawaii 96805

EA Preparer: NKN Project Planning
4849 Iiwi Road
Kapaa, Hawaii 96746

Location: Anahola Road, off Kuhio Highway in Anahola,
Kawaihau, Kaua'i

Tax Map Key: 4-8-03:05, 28; 4-8-08: por. 16 (lot 53)

Determination: Finding of no significant impact (FONSI)

I. Project Description

1.1 Location

Anahola Village Residence, Unit 1 is located in Anahola, Kaua'i. The project is located on Anahola Road, south of Anahola River. The main access to the project site is off Kuhio Highway. A location and vicinity map is shown in Figure 1.

1.2 Proposed Action

The Department of Hawaiian Home Lands (DHHL) is proposing to consolidate TMK 4-8-03: 05 and 28¹ with 4-8-08: por. 16 (lot 53), then re-subdivide to create 11 residential lots ranging from 10,000 to 11,649 square feet in size and one remainder lot 35.888 acres in size. The consolidation and re-subdivision plan is found in Figure 2.

In 1986, as part of the Acceleration of Homestead Awards program, the DHHL created 11 residential lots on paper. These lots were awarded to persons of Hawaiian ancestry. Awards were made on the condition that the DHHL would make improvements and formally subdivide these lots when funds became available. Since then, two lessees have built single-family homes on the project site. One lessee has a water meter from the County of Kaua'i; the second lessee dug a well on her lot. Of the nine remaining lots, five lots have awardees that are awaiting infrastructure and formal subdivision.

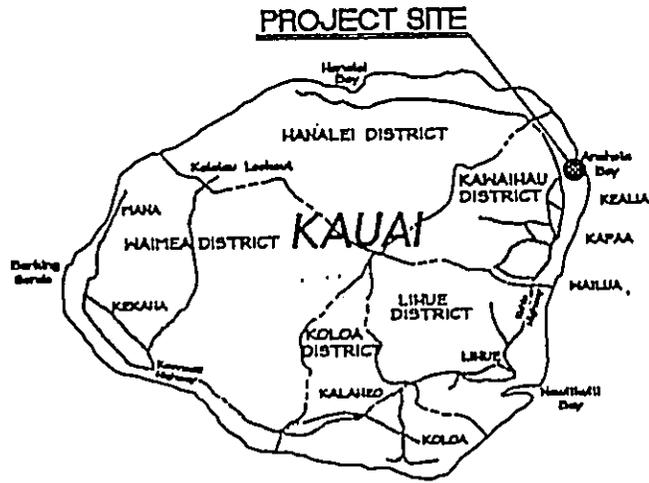
The remainder 35-acre parcel south of the proposed 11 residential lots is being used for agricultural and pastoral uses under revocable permits issued by the DHHL.

The subdivision of 11 residential lots is part of the DHHL master plan for the Anahola Area (Anahola-Kamalomalo and Moloaa Development Plan, Department of Hawaiian Home Lands, prepared by Belt Collins & Associates, December 1987).

¹ According to the Kaua'i County Real Property Tax Office and State Survey Office, TMK 4-9-03: 05 and 4-9-03: 28 is one 37.65-acre lot of record (C.S.F. 18,022 dated April 14, 1977). This parcel was later divided into two parcels, a 23.65-acre lot (Revocable Permit 119) and 14.00-acre lot (Revocable Permit 22). This division was done within the Department of Hawaiian Home Lands and is for lease purposes only.

FIGURE 1
Anahola Village Residence Lots, Unit 1

LOCATION MAP



VICINITY MAP

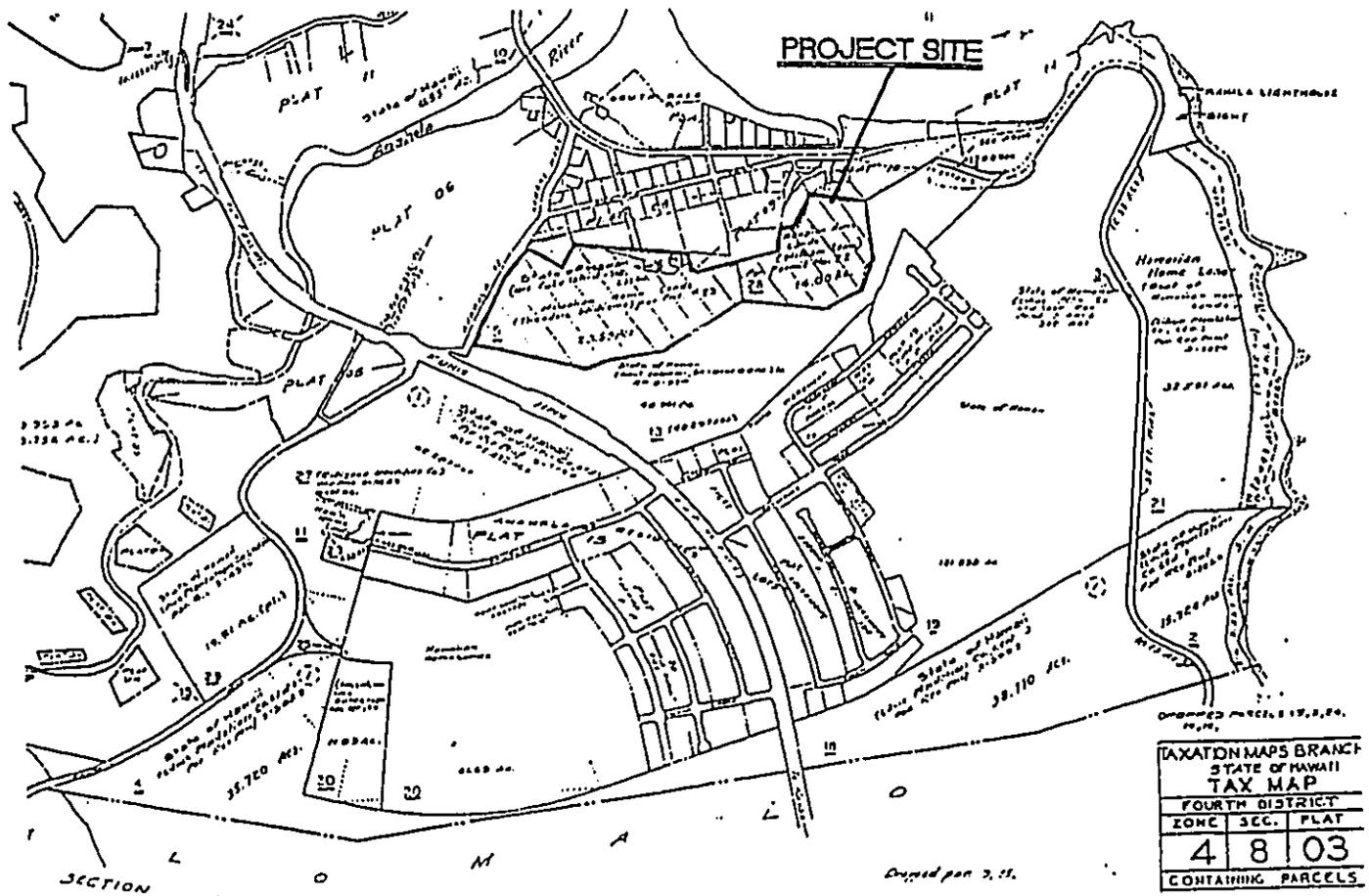
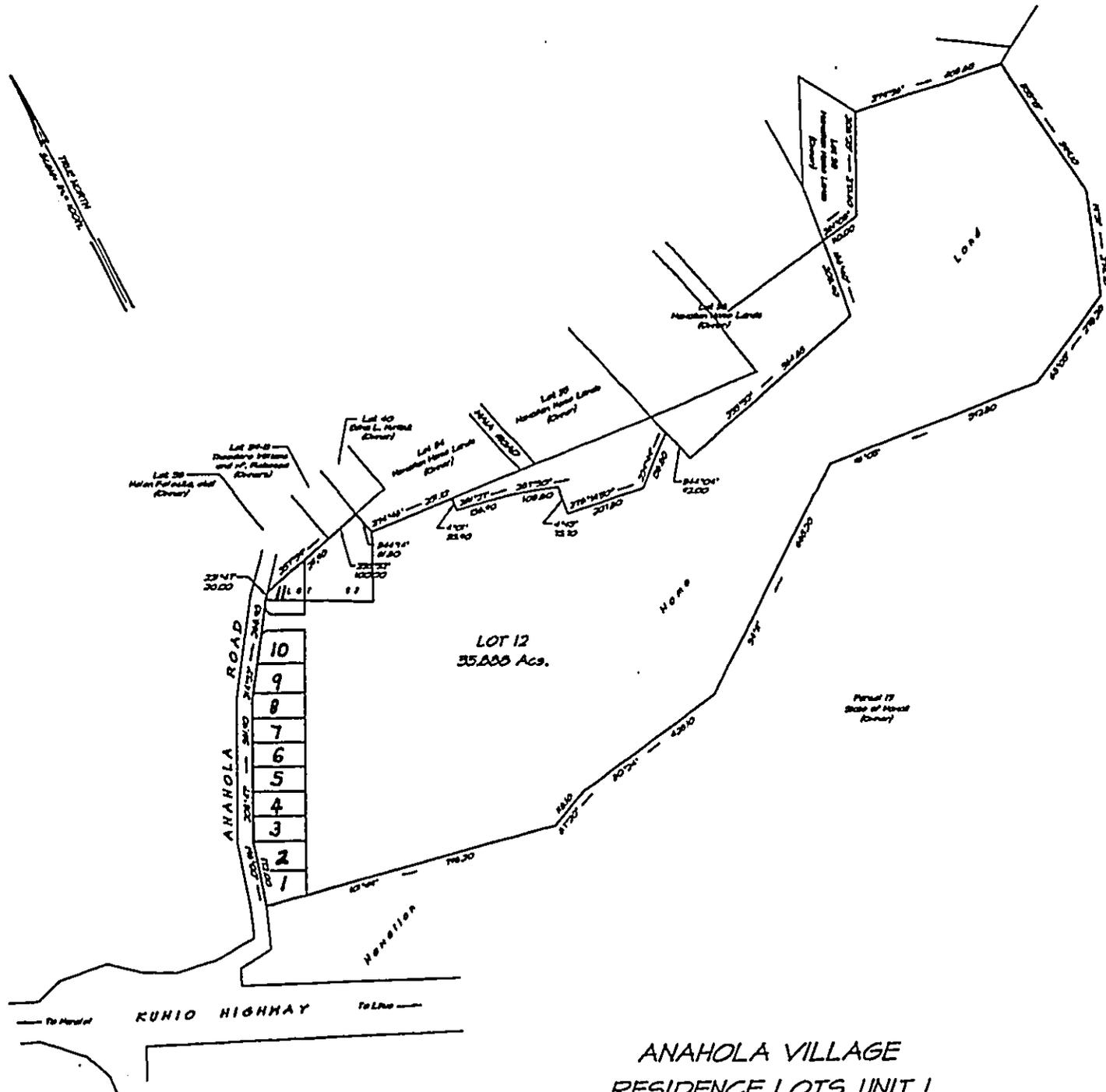


FIGURE 2

Anahola Village Residence Lots, Unit 1
Consolidation and Re-subdivision Plan



ANAHOLA VILLAGE
RESIDENCE LOTS, UNIT 1
FIGURE 1

CONSOLIDATION AND RESUBDIVISION OF PORTION OF
GOVERNMENT (CROWN) LANDS OF ANAHOLA
DESIGNATED AS HAWAIIAN HOME LAND
AS SHOWN ON C.S.F. No. 18,022
AND LOT 53 OF ANAHOLA LOTS
INTO LOTS 1 TO 12 INCLUSIVE
AT ANAHOLA A KAIHAI HAWAII

Development of the property is proposed in two phases. The first phase, which is the subject of this environmental assessment, involves the consolidation of two parcels and subdivision into 12 lots. The second phase, which is not part of this environmental assessment, is to explore the feasibility of developing a retention basin and/or recreational area to serve Anahola Villages on the 35-acre parcel.

1.3 Project Scope

The expenditure of State funds to subdivide and improve Lots 1-11, located on the northeast end of the subdivision triggers the environmental review process as defined by Chapter 343, Hawaii Revised Statutes (HRS). Lot 12, the 35-acre remainder parcel is not included in the development, but is important to the overall design of the project with respect to drainage.

1.4 Permits Required

Although the Department of Hawaiian Home Lands is exempt from State and County land use regulations, the applicant will seek Final Subdivision approval from the County of Kaua'i Planning Department and individual lessees of residential lots will obtain County of Kaua'i building permits.

1.5 Project Schedule

Complete construction plans	July 2001
Complete infrastructure improvements	June 2002
Obtain final subdivision approval	September 2002

Following final subdivision approval, the DHHL will activate the leases on the awarded lots, notifying these lessees that home construction can begin. The remaining vacant residential lots will be awarded to qualifying DHHL residential lease applicants. Individual lessees will have one year to begin construction of single-family dwelling units.

1.6 Technical Characteristics

The project site is 38.53 acres in size and is comprised of two lots of record owned by the DHHL.

<u>Tax Map Key</u>	<u>Acres</u>
4-8-3: 05 and 28	37.65
4-8-8: por. 16 (Lot 53)	.88

Roads: The proposed project involves subdividing 2.642 acres into 11 residential lots. Access to each residential lot will be off Anahola Road, which is currently 40 feet wide. A separate access road is proposed off Anahola Road to service the 35-acre Lot 12. The State Department of Transportation has requested improvements to the intersection of Kuhio Highway and Anahola Road to improve safety. These include: acceleration and deceleration lane tapers, with proper markings.

Water: There is presently one water meter serving the project. Existing water storage and source facilities are at capacity. However, a half a million-gallon water tank was recently constructed and is in service. The County of Kaua'i Water Department and the DHHL are also currently negotiating a new License Agreement. The County Water Department owns some water lines in Anahola; the DHHL owns wells, tanks, and lines. The license agreement will formalize the relationship whereby the County operates and maintains the water system for both DHHL lessees and private residences in the Anahola area. Execution of the license agreement is expected in the near future. The outcome of the license agreement will determine whether additional water meters will be approved for this project.

Prior to final subdivision approval, the DHHL must also:

- 1) Prepare and receive DOW's approval of construction drawings for necessary water system facilities and construct facilities or post a performance bond for construction with the DOW. These facilities shall include:
 - a. A mainline extension of approximately 1,800 feet, eight inch in diameter, beginning at the Kuhio/Anahola Road intersection, and running north along Anahola Road toward the subject lot, connecting to the existing 4" waterline on Anahola Road.
 - b. The domestic service connections
 - c. The fire service connections
 - d. Pressure Reducing Vaults (PRVs) as necessary
 - e. Provisions to abandon the existing 4" cross-country waterline and PRV feeding Anahola Road.
- 2) Pay the applicable fees at the time of receipt. At the present time, these fees include the FRC of \$2,600 per unit (5/8") water meter, or \$28,600 for 11 units.
- 3) Enter into and complete a Proportionate Refund Contribution Agreement with the DOW, agreeing to pay their share of the cost of

the mainline extension installed by the developers of the Aliomanu Estates subdivision. The approximate share of this is \$24,104.17.

Sewer: There are no sewer lines serving the area. Individual wastewater systems will be installed in conformance with Department of Health Administrative Rules, Chapter 11-62. The two existing homes are now using cesspools. The DOH will allow these cesspools to remain in place provided the cesspools do not create or contribute to any problems outlined in Section 11-62-06(g), Title 11, Chapter 11-62, "Wastewater Systems," Hawaii Administrative Rules; or the cesspools were not required to be pumped more than two times in the last 12 months. Appropriate documentation will be submitted to the DOH prior to subdivision approval.

Drainage: There are no underground drainage lines serving the area. Lots 1 through 7 and Lots 9 through 11 drain towards Lot 12.

Swales have been designed along both sides of Lot 8 that will direct portions of the runoff towards Lot 12. The remaining runoff, although directed towards Anahola Road, doesn't enter the Right-of-Way. The runoff flows along the frontage of Lots 9 and 10 to a swale directing flow towards Lot 12.

Lot 12 and its adjacent properties form a sump with elevations approximately one foot lower in the middle of the area than at the lowest surrounding roadway. There is a small, five-foot wide trapezoidal ditch leading to a culvert to drain the area.

1.7 Socio-Economic Characteristics

Subdivision, construction, and project management costs are estimated at \$663,000 - \$720,000 (2001 dollars). The planning, design, and construction of the proposed project will generate some short-term employment opportunities.

The proposed subdivision will provide needed housing for families of Hawaiian ancestry. As of December 31, 1999, there were 1,490 persons on the DHHL residential lot waiting list for the island of Kaua'i. Awardees will be given the opportunity to build a home on land leased at a \$1.00 per year for 99 years.

No business enterprise or residence will be displaced by the project.

1.8 Environmental Characteristics

Construction of the proposed improvements may temporarily impact existing air quality and noise levels. Construction will also increase the amount of dust in the air. Noise levels in the surrounding area will be raised during this time. These impacts are considered short-term.

Once homes are built on the nine vacant lots, additional traffic will be generated along Anahola Road and Kuhio Highway.

The DHHL is conducting a separate study to consider the design and construction of a retention basin to alleviate flooding conditions in Anahola Village. The basin would retain flows primarily from the upper Anahola DHHL residential areas at and mauka of Kukuihale Road. One design option is to extend the existing soccer and play field (with comfort station at the end of Poha Road) into TMK 4-8-03: 28 to serve a dual purpose of park area and retention basin.

II. Affected Environment, Potential Impacts, and Mitigative Measures

2.1 Existing Land Use

Of the 11 residential lots proposed along Anahola road, two lessees have built single-family homes. The remaining nine lots are vacant. The land south of the 11 residential lots is used for agricultural purposes under revocable permits issued by DHHL. There are also abandoned vehicles and debris throughout the property.

North of the project site is Anahola Road, agricultural lots, and single-family homes. East of the project site is the Anahola Village neighborhood, consisting of single-family homes. South of the project site are agricultural lands owned by the Department of Hawaiian Home Lands. West of the project site are agricultural lands and Kuhio Highway.

The State of Hawaii Land Use Classification of the project site is "Agriculture." The project site is designated "Open" and "Rural Residential" in the County of Kauai General Plan. The County of Kauai Comprehensive Zoning Code shows a large portion of the subject zoned "Agriculture" and a small portion within the "Residential R-4 District."

Impacts and Mitigation Measures

The proposed 12-lot subdivision is not anticipated to have impacts on land uses in this area. The residential lots, ranging from 10,000 to 11,649 square feet in size, will blend into the existing Anahola Village community. All residential lots will front Anahola Road. Lot 12, comprised of over 35 acres will be devoted to open space. The DHHL will only permit agricultural/pastoral uses that do not adversely impact nearby residential areas.

3.2 Topography, Geology, Soils

The project site is located in a low-lying area and is generally flat. Elevations range between four to ten feet.

The soil type for most of the project area is Mokuleia clay loam (Mta); the soil type for a small section of the project area on the northeast corner is Mokuleia fine sandy loam (Mr). Mokuleia clay loam is nearly level and is poorly drained. Mokuleia fine sandy loam is also nearly level. Unlike the Mokuleia clay loam, the surface layer of the Mokuleia fine sandy loam has moderately rapid permeability and the subsoil has rapid permeability. Runoff is very slow and erosion hazard is slight.

Average temperatures in this area range from 71 to 79 degrees Fahrenheit. The average annual precipitation is about 44 inches.

Impacts and Mitigation Measures

The proposed subdivision may alter the topography of the area. Some excavation or grading is planned around infrastructure improvements. Residential lots will be filled above the 100-year flood elevation contour to prevent flooding. A grading plan will be included in construction plans. Residents will be encouraged to use post and pier construction in the design of their homes.

3.3 Flood Hazard

Federal Emergency Management Flood Insurance Rate Map, Panel 70, shows a portion of the project site in Zone X (unshaded) and a portion of the project site in Zone X (shaded). Zone X (unshaded) means that the Federal Emergency Management Agency (FEMA) determines this area to be outside the 500-year flood plain. Zone X (shaded) means that FEMA determines this an area of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

Impacts and Mitigation Measures

The Drainage Impact Study, Anahola Village Residence Lots, Unit 1, revised October 11, 1999, Kodani & Associates, Inc. states that:

“Peak discharge rates for the 100-year, 24-hour storm were determined. The total drainage area of 275 acres produces 1,415 cubic feet/second of total runoff during a 100-year storm event. The runoff accumulates in Lot 12 and adjacent properties, including a park and escapes the basin through two 85”span pipe arch culverts crossing under Anahola road. The drainage capacity of the culvert is about 300 cfs. During large storm events, the culvert capacity is insufficient to drain the area and the water will accumulate in Lot 12 and the surrounding lots. When the water surface elevation exceeds 8.27’, the water flows over portions of Anahola Road and flows through adjacent properties toward Anahola Stream or the ocean.”

According to the study, the 11-unit residential subdivision will not cause any increase in water surface elevation. There will be no adverse effect on drainage in the area due to development.

As mentioned earlier, the DHHL is exploring the design and construction of a retention basin, under a separate contract, to alleviate existing flooding conditions in Anahola Village. One option involves designing the basin to retain flows primarily from the upper Anahola DHHL residential areas at and mauka of Kukuihale Road. DHHL is considering extending the existing soccer and play field (with a comfort station) at the end of Poha Road into Lot 12 and/or TMK 4-8-03: 28 to serve a dual purpose of park area and retention basin. The design of a retention basin is appropriate and consistent with concerns raised in pre-consultation meetings with residents regarding the impact of mauka developments on drainage in Anahola Village.

3.4 Flora and Fauna

A topographical survey of the site shows a variety of flora including buffalo grass, java plum trees and coconut trees.

Fauna species that typically inhabit the nearshore environment include the gull, cardinal, dove, sparrow, feral cat, feral dog, mouse, and rat.

Impacts and Mitigation Measures

No rare, threatened and/or endangered species of flora and fauna are known to inhabit the project area.

3.5 Historic, Cultural, and Archaeological Resources

A report of the project site, Archaeological Inventory Survey of Approximately 38 Acres, Department of Hawaiian Homelands (TMK:4-4-8-03:05, por. 16), was completed by Rechtman Consulting in April, 2001. A copy of the report is found in Exhibit A. No surface or surface manifestations of cultural deposits were observed during the reconnaissance. The report also notes:

“The soil features observed in Trenches 2 and 3 can be interpreted in one of three ways: one, that the trough and associated gley represent what remains of an ancient *loi* system; two that the trough and associated gley are the poorly developed result of a recent irrigated pondfield; or three, that an older (perhaps pre-Contact) system existed in the area, which was later disturbed by historic and modern land use, and the area was subsequently put back into *kalo* production during recent times. Given the oral testimony, the known history of land use, and the radiocarbon results, the latter interpretation seems the most plausible. Therefore, it can be concluded that a former irrigated

field system once existed on the parcel, and that historic and recent land use, both inconsistent (ranching and habitation) and consistent (*kalo* cultivation) with the earlier use occurred.”

In preparing the Draft Environmental Assessment for Anahola Village Residence, Unit 1, consultants obtained feedback from long-time residents of the area. A presentation of the project was made at the Department of Hawaiian Home Lands (DHHL) Kaua'i Island Meeting on February 22, 2000 at the Anahola Clubhouse. Notification of the meeting was through two sources:

1. Letter to adjacent landowners and list of adjacent landowners. The names and addresses of adjacent landowners were obtained using County of Kaua'i Real Property Tax data base.
2. Department of Hawaiian Home Lands Kaua'i February, 2000 newsletter. The DHHL Kaua'i office mails newsletters to all Kaua'i lessees.

The community meeting was attended by DHHL Kaua'i Manager Roland Licona and six Anahola residents. The six residents included Jane Lovell, Winifred Cummings, Emmalani Lovell White, Stephanie Ano, James Torio, and Sabra Contrades. In attendance were two residents from long-time Anahola families (from the early 1900's). It should be noted that although the residents in attendance were a good cross-section of the community and are active community leaders, they did not speak for the entire community.

The Consultants described the proposed project and potential impacts outlined in the Draft Environmental Assessment. Residents in attendance then raised questions and concerns about the proposed project. Residents raised concerns regarding flooding in the area, the need for street lights on Anahola Road, whether the project would be owner-built or built by the DHHL. There were no concerns regarding the use of the subject property for cultural beliefs or practice. Likewise, there were no concerns regarding the existence of resources on subject lands important to native Hawaiian or other ethnic groups.

Impacts and Mitigation Measures

Although a former irrigated field system once existed on the parcel, recent and historic land uses of ranching, housing and *kalo* cultivation have impacted the subject site. The limited subsurface expression of agricultural use is assigned SIHP Site 50-30-04-877. Site 877 is significant under Criterion D for having yielded important information important for research on prehistory and history. As sufficient information was collected in the inventory survey, no further archaeological work is needed prior to development.

Based on the archaeological inventory survey and discussion with residents, there are no other historic, archeological, or cultural resources in the project area. Should historic sites, including human burials, be uncovered during construction, all work in the area will terminate and the Historic Preservation Division will be contacted for further action. At the request of the Office of Hawaiian Affairs, they, Hui Malama I Na Kupuna 'O Hawai'i Nei, and the Kauai Island Burial Council will also be contacted if human burials are inadvertently discovered during construction.

3.6 Noise

The Anahola Village typifies a tranquil Kaua'i neighborhood that does not generate nor is impacted by large amounts of noise. The addition of 11 residential units will not adversely affect noise quality in the neighborhood.

Impacts and Mitigation Measures

The proposed project is not anticipated to have long-term adverse noise impacts on the surrounding environment. However, there will be temporary noise impacts during the construction of the new road. Excavation and construction machinery will increase noise levels in the project area. Contractors will work during reasonable hours of the day and comply with State Department of Health noise regulations during construction.

3.7 Air Quality

Anahola Village's air quality benefits from trade winds and its proximity to the ocean. The addition of 11 residential lots will not impact air quality in this neighborhood.

Impacts and Mitigation Measures

Roadway construction and lot improvements will increase the amount of fugitive dust in the air. Construction machinery will increase exhaust gases in the area of the proposed project. These temporary construction nuisances cannot be avoided but can be mitigated by frequent water sprinkling of exposed dirt surfaces. Contractors will comply with State Department of Health regulations regarding air quality during construction. The Contractor will also be responsible for keeping adjacent areas free of mud, sediment, and construction debris.

3.8 Traffic and Circulation

The project site is accessed via Kuhio Highway and Anahola Road.

Kuhio Highway is a two-lane undivided highway through Anahola. Anahola Road is a two lane collector street that is 40 feet wide with a posted speed limit of 20 miles per hour.

Impacts and Mitigation Measures

The 11-lot residential subdivision will incrementally increase traffic along Anahola Road and Kuhio Highway. To improve access from Kuhio Highway to Anahola Road, the DHHL intends to make improvements to the Kuhio Highway/Anahola Road intersection. This will include providing acceleration and deceleration lane tapers, with proper pavement markings.

Temporary lane closures while these improvements are made will impact the flow of traffic and increase travel time. Construction will take place during non-peak hours to minimize traffic disruption. Flag men or off-duty police officers will be stationed to direct traffic flow.

3.9 Utilities

Utilities that run along Anahola Road include overhead electrical lines, a 4-inch water line, and telephone lines. There are no sewer lines along Anahola Road.

The Department of Water will require a mainline extension of approximately 1,800 feet, eight inch in diameter, beginning at the Kuhio/Anahola Road intersection, and running north along Anahola Road toward the subject lot, connecting to the existing 4" waterline on Anahola Road. DOW will also require provisions to abandon the existing 4" cross-country waterline and PRV feeding Anahola.

Impacts and Mitigation Measures

The water line extension, upgrade, and connection will impact traffic along this portion of Anahola Road and water service to the Anahola Village. One lane will be closed during the water line installation.

Temporary lane closures while these improvements are made will impact the flow of traffic and increase travel time. Construction will take place during non-peak hours to minimize traffic disruption. Flag men or off-duty police officers will be stationed to direct traffic flow. Should there be a need to temporarily disconnect water, surrounding residents and businesses will be

properly notified in writing. The contractor will be required to provide a temporary water supply line or water wagon to the affected neighborhood.

3.10 Scenic and Visual Resources

From Anahola Road, the subject property consists of two residential dwellings and overgrown trees, shrubs, and grass. See photographs in Figures 3. At full build-out, the view will consist of 11 single-family dwelling units on lots approximately 10,000 square feet in size.

Impacts and Mitigation Measures

The proposed 10,000 to 11,649 square foot lots are in keeping with the rural residential character of the Anahola Village neighborhood. The 35-acre lot south of the residential lots is not proposed for residential development and will remain open. Agricultural or pastoral uses that do not adversely impact the nearby existing residential areas will be permitted under leases or revocable permits.

3.11 Economic Activity

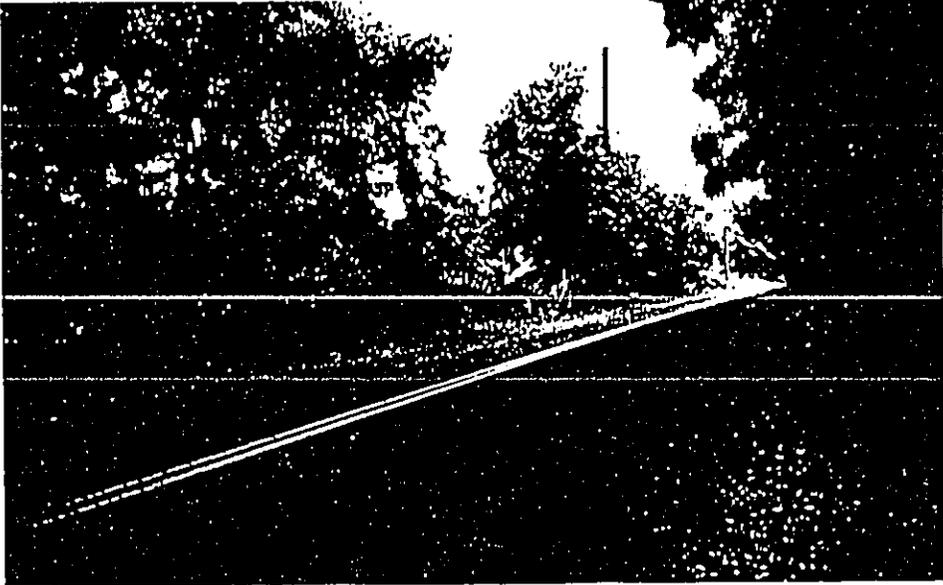
The proposed 11-lot residential subdivision is estimated to cost between \$663,000 - \$720,000.

Impacts and Mitigation Measures

The planning, design, and construction of the proposed project will generate temporary employment opportunities. This will incrementally improve Kauai's economy in the short-term. While construction may cause inconveniences to residences or businesses along the project site, there will be no long-term adverse economic impacts.

FIGURE 3
Anahola Village Residence Lots, Unit 1
Photographs

View of project site from Anahola Road.



One of two existing homes on project site.



View of 35-acre remainder lot.



III. Alternatives to the Proposed Action

3.1 "No-Build" Alternative

An alternative to the proposed action is not to proceed with the final consolidation and subdivision of the property. The "paper subdivision" would remain, with only two existing dwelling units. This alternative does not accomplish DHHL's mission, does not accommodate the five awardees waiting for final subdivision approval, nor does it address the long list of persons of Hawaiian ancestry waiting for adequate infrastructure to build their own homes.

3.2 Alternative Configurations

Alternative configurations were considered early in the subdivision process. However, due to site constraints such as access to Anahola Road and flood designations, the proposed subdivision is considered the optimum site design. Since this area is not serviced by the municipal sewer system, Department of Health regulations dictate minimum lot sizes.

IV. Determination

The impacts of the proposed action have been assessed. The proposed project is not anticipated to cause significant negative impacts to the environment. Therefore, a Finding of No Significant Impact (FONSI) will be issued. The determination of a FONSI is based on the following:

1. *The proposed action does not involve an irrevocable commitment to loss or destruction of any natural or cultural resources;*

The proposed residential lot subdivision is an extension of land use plans for this area. There are no natural or cultural resources that will be destroyed by the proposed action.

2. *The proposed action will not curtail the range of beneficial uses of the environment;*

The rural residential character of the proposed subdivision will blend into the existing Anahola Village community. A separate study is being conducted to explore the feasibility of developing a retention basin on the 35-acre remainder lot for flood control purposes.

3. *The proposed action does not conflict with the State's long-term goals or guidelines as expressed in Chapter 344, HRS;*

The project is consistent with the State Department of Hawaiian Home Land's long-range plans for the Anahola area, as described in the Anahola-Kamalomalo and Moloaa Development Plan.

4. *The proposed action does not substantially affect the economic or social welfare of the community or state;*

The proposed action gives nine additional families of native Hawaiian ancestry the opportunity to live in a single-family home. The economic and social impacts of this 11-lot residential subdivision are positive.

5. *The proposed action does not substantially affect public health;*

The applicant will take all measures during construction to minimize noise, dust, and disruption to homes and businesses in the surrounding neighborhood, as described in Chapter 3 of this report.

6. *The proposed action does not involve substantial secondary effects;*

The addition of nine single-family homes will have a minimal affect on population growth or the use of public facilities.

7. ***The proposed action does not involve substantial degradation of environmental quality;***

The proposed subdivision will have little or no effect on environmental quality. Improvements to environmental quality may come about in the future, as DPHL explores the feasibility of developing a detention basin/recreational area to serve the needs of the larger community.

8. ***The proposed action does not cumulatively have a considerable effect on the environment or involve a commitment to larger actions;***

No additional residential development is contemplated on these lands in the future.

9. ***The proposed action does not affect a rare, threatened, or endangered species or its habitat;***

There are no known rare, threatened, or endangered species or habitat on these lands.

10. ***The proposed action does not detrimentally affect air or water quality or ambient noise levels;***

Aside from temporary disruptions during construction of infrastructure improvements and eventual home building, air, water and noise impacts will be minimal.

11. ***The proposed action does not affect an environmentally sensitive area.***

The project site is not considered an environmentally sensitive area.

12. ***The proposed action does not substantially affect scenic vistas and view planes; and***

There are no scenic vistas and view planes that will be impacted by the proposed project.

13. ***The proposed action does not require substantial energy consumption***

The proposed project will not require substantial energy consumption.

V. Agencies Consulted and References

5.1 Agencies consulted

Copies of the Draft EA were sent to the organizations and individuals listed below.

State

Department of Transportation, Highways Division
Department of Health
DLNR, State Historic Preservation Division*
Office of State Planning
Office of Hawaiian Affairs

County

The Honorable Maryanne Kusaka, Mayor
The Honorable Ron Kouchi, Chair, County Council
Planning Department*
Department of Public Works
Department of Water*

Community and Other Organizations

Anahola Hawaiian Homes Association*
Anahola Native Hawaiian Association (William Aki, President)
Anahola Hawaiian Land Farms Association (Audrey Loo, President)
Kalalea Farmers Association (James Torio, Project Director)
Laulima O Hawaii (John Hanson, Director)
State Council of Hawaiian Homestead Associations (Judy Naumu-Stewart, Kaua'i
Ahupua'a President)
Kapaa Public Library
Kauai Electric Company
GTE Hawaiian Telephone

Anahola Residents

Winifred Cummings**
Jane Lovell**
Emmalani Lovell White**
Stephanie Ano**
Sabra K. Contrades**

*Pre-consultation meetings and phone conversations were held between December 1999 – February 2000.

**Attended project briefing at the Anahola Hawaiian Homes Association meeting on February 22, 2000 and requested a copy of the Draft Environmental Assessment.

VI. References

Archaeological Inventory Survey of Approximately 38 Acres, Department of Hawaiian Home Lands, prepared by Robert B. Rechtman, Ph.D. and Dennis S. Dougherty, B.A., April, 2001.

Anahola-Kamalomalo and Moloaa Development Plan, Department of Hawaiian Home Lands, prepared by Belt Collins & Associates, December 1987.

Drainage Impact Study, Anahola Village Residence Lots, Unit 1, Department of Hawaiian Home Lands, prepared by Kodani and Associates, Inc., revised October 11, 1999.

Letter from Planning Department Director Dee Crowell to Mr. Clyde T. Kodani, dated July 26, 1999, regarding Anahola Village Residence Lots, Unit 1, Consolidation and Resubdivision.

Licon, Roland, Department of Hawaiian Home Lands, meeting with Nadine Nakamura, January 12, 2000.

National Flood Insurance Program FIRM Flood Insurance Rate Map, Kauai County, Hawaii, Panel 70, revised March 4, 1987.

Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii, United States Department of Agriculture, Soil Conservation Service in cooperation with The University of Hawaii Agricultural Experiment Station, August 1972.

The State of Hawaii Data Book 1998, A Statistical Abstract, The State of Hawaii, Department of Business, Economic Development & Tourism.

VII. Agency Comment Letters and Responses

- A. Department of Water, County of Kauai
- B. Office of Environmental Quality Control, State of Hawaii
- C. Office of Hawaiian Affairs, State of Hawaii
- D. Department of Transportation, State of Hawaii
- E. Department of Health, State of Hawaii
- F. Department of Land and Natural Resources, State of Hawaii

DEPARTMENT OF WATER
County of Kauai

"Water has no Substitute - Conserve It"

August 24, 2000

Mr. Ray Soon, Director
DHHL
P.O. Box 1879
Honolulu, HI 96805

Dear Mr. Soon:

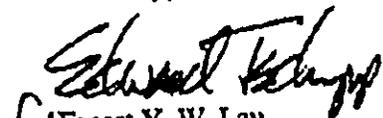
Subject: Draft Environmental Assessment for the Anahola Village Residence Lots,
Unit 1, TMK: 4-8-03:005, 028; 4-8-08:016, Anahola, Kauai, Hawaii

The Department of Water comments are as follows:

We have no objections to this draft Environmental Assessment. However, the applicant is made aware that any actual subdivision or development will be dependent on the adequacy of the source, storage and transmission facilities existing at that time.

If you have any questions, please call Mr. Keith Aoki at 808-245-5418.

Sincerely,


Ernest Y. W. Lau
Manager & Chief Engineer

cc: OEQC
Clyde Kodani, Kodani & Associates

KA/san
D:\san\docs\wrpl\laoki\ea-dhhl-4-8-03-028

DEPT OF HAWAIIAN
HOME LANDS
00 AUG 28 AM 01

RECEIVED
LAND DEVELOPMENT
DIVISION
AUG 29 9 19 AM '00

BENJAMIN J. CAYETANO
GOVERNOR
STATE OF HAWAII



STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

RAYNARD C. SOON
CHAIRMAN
HAWAIIAN HOMES COMMISSION

JOBIE M. K. M. YAMAGUCHI
DEPUTY TO THE CHAIRMAN

June 25, 2001

The Honorable Ernest Y. W. Lau
Manager and Chief Engineer
Department of Water Supply
P. O. Box 1706
Lihue, Hawaii 96766-5706

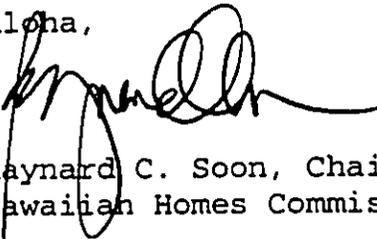
Dear Mr. Lau:

Subject: Draft Environmental Assessment
Anahola Village Residence Lots, Unit 1
TMK: 4-8-03: 05 and 28; 4-8-08: por.16

Thank you for your letter dated August 24, 2000, in response to the Draft Environmental Assessment for the above-referenced project. The Department of Hawaiian Home Lands is aware that any actual subdivision or development will be dependent on the adequacy of the source, storage, and transmission facilities existing at that time.

If you have any further questions or comments, please call me at 586-3801, or have your staff contact Clyde Kodani, of Kodani and Associates, Inc., at (808) 245-9591 or call Gerald Lee of our Design and Construction Branch at 587-6447.

Alona,


Raynard C. Soon, Chairman
Hawaiian Homes Commission

c. Kodani and Associates, Inc.

BENJAMIN J. CAYETANO
GOVERNOR



GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

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

August 16, 2000

Raynard Soon
Department of Hawaiian Home Lands
PO Box 1879
Honolulu, Hawaii 96805

Attn: Gerald Lee

Dear Mr. Soon:

Subject: Draft environmental assessment for Anahola Village Residence Lots, Unit 1

We have the following comments to offer:

1. Two-sided pages: In order to reduce bulk and save on paper, please consider printing on both sides of the pages in the final document.
2. Contacts: Document all contacts in the final EA, including those made during the pre-consultation phase, and include copies of any correspondence. This is especially important regarding your consultation with the State Historic Preservation Division of DLNR.
3. Segmentation: This project is entitled Unit 1. Are additional "units" planned? If so impacts (and related mitigation measures) for all units must be disclosed. The Environmental Impact Statement law prohibits segmentation of larger projects and requires that full disclosure of impacts be made on projects in their entirety.
4. Funding: Construction costs are given at \$500,000. Is this the total project cost? Please disclose all state funds involved, including any federal funds flowing through the state.
5. Drainage: Section 1.6, *Technical Characteristics*, notes that Lot 8 will drain onto Anahola Road. Although a retention basis is being considered for the other lots that drain into Lot 12, what measures will be taken to prevent the additional runoff from Lot 8 and the subsequent flooding of Anahola Road?

If you have any questions call Nancy Heinrich at 586-4185.

Sincerely,

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

GENEVIEVE SALMONSON
Director

c: Nadine Nakamura

BENJAMIN J. CAYETANO
GOVERNOR
STATE OF HAWAII



STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

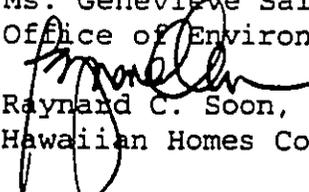
RAYNARD C. SOON
CHAIRMAN
HAWAIIAN HOMES COMMISSION

JOHIE M. K. M. YAMAGUCHI
DEPUTY TO THE CHAIRMAN

June 25, 2001

To: The Honorable Bruce S. Anderson
Department of Health

Attn: Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control

From: 
Raynard C. Soon, Chairman
Hawaiian Homes Commission

Subject: Draft Environmental Assessment
Anahola Village Residence Lots, Unit 1
TMK: 4-8-03: 05 and 28; 4-8-08: por.16

Thank you for your letter dated August 16, 2000, in response to the Draft Environmental Assessment for the above-referenced project. Our responses that follow track the comments in your letter.

1. Two-sided pages: The final EA will be printed on both sides of the page.
2. Contacts: Contacts in pre-consultation phase will be fully documented.
3. Segmentation: Other than the 11 lots designated for this project, there are no additional residential units planned at this site.
4. Funding: We would like to clarify that the total project cost will range between \$663,000 - \$720,000. This includes subdivision, construction, and project management.
5. Drainage: Swales have been designed along both sides of Lot 8 that will direct portions of the runoff towards Lot 12. The remaining runoff, although directed towards Anahola Road, does not enter the Right-of-Way. The runoff flows along the frontage of Lots 9 and 10 to a swale directing flows towards Lot 12.

The Honorable Bruce S. Anderson
June 25, 2001
Page 2

If you have any further questions or comments, please call me at 586-3801, or have your staff contact Clyde Kodani, of Kodani and Associates, Inc., at (808) 245-9591 or call Gerald Lee of our Design and Construction Branch at 587-6447.

c: Kodani and Associates, Inc.

PHONE (808) 594-1888

FAX (808) 594-1866

DEPT. OF HAWAIIAN
HOME LANDS

AUG 30 8 56 AM '00

STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

August 24, 2000

AUG 30 3 10 PM '00

LANDS
DEPARTMENT

Mr. Ray Soon, Director
Department of Hawaiian Home Lands
P.O. Box 1879
Honolulu, Hawai'i 96805

EIS# 415

Subject: Draft Environmental Assessment for Anahola Village Residence Lots,
Unit 1, Anahola, Kawaihau, Kaua'i

Dear Mr. Soon,

Thank you for the opportunity to review and respond to the above-referenced DEA. As with any project, the Office of Hawaiian Affairs is concerned that subsurface archaeological, historical and cultural remains may be impacted as well as the cultural integrity of the land.

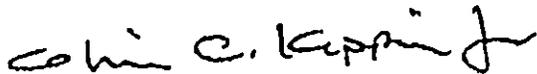
We have the following comments to offer:

- Effective April 26, 2000, Governor Cayetano signed into law Act 50 (HB 2895, HD1) requiring a cultural impact statement as part of all environmental assessments. Please include one in the Final EA.
- In the event human burials are inadvertently discovered please contact the Office of Hawaiian Affairs and other Hawaiian agencies in addition to contacting the State Historic Preservation Division.

If you have any questions, please contact Ken R. Salva Cruz, Policy Analyst, at 594-1847.

Mr. Ray Soon, Director
August 24, 2000
Page 2

Sincerely,



Colin C. Kippen, Jr.
Deputy Administrator

cc: Board of Trustees
Kauai CRS
OEQC
Kodani & Associates
File

BENJAMIN J. CAYETANO
GOVERNOR
STATE OF HAWAII



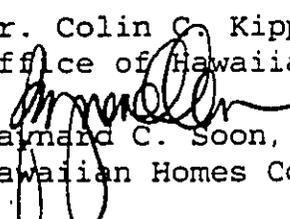
STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOMELANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

RAYNARD C. SOON
CHAIRMAN
HAWAIIAN HOMES COMMISSION

JOBIE M. K. M. YAMAGUCHI
DEPUTY TO THE CHAIRMAN

June 25, 2001

To: Mr. Colin C. Kippen, Jr., Deputy Administrator
Office of Hawaiian Affairs

From: 
Raymond C. Soon, Chairman
Hawaiian Homes Commission

Subject: Draft Environmental Assessment
Anahola Village Residence Lots, Unit 1
TMK: 4-8-03: 05 and 28; 4-8-08: por.16

Thank you for your letter dated August 24, 2000, forwarding your comments to the Draft Environmental Assessment for the above-referenced project.

In response to your comments, the Final Environmental Assessment will include a cultural impact statement. In addition, we will include language in the Final EA and construction documents to ensure that the Office of Hawaiian Affairs is contacted in the event human burials are discovered.

If you have any further questions or comments, please contact Clyde Kodani, of Kodani and Associates, Inc., at (808) 245-9591 or call Gerald Lee of our Design and Construction Branch at 587-6447.

c: Kodani and Associates, Inc.

BENJAMIN J. CAYETANO
GOVERNOR



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



KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MINAJI
GLENN M. OKIMOTO

OCT 5 2000

IN REPLY REFER TO:

HWY-PS
2.0245

Mr. Ray Soon
Director
Department of Hawaiian Homelands
P. O. Box 1879
Honolulu, Hawaii 96805

Dear Mr. Soon:

Subject: Draft Environmental Assessment, Anahola Village Residence Lots, Unit 1,
Anahola, Kauai, TMK: 4-8-03: 5, 28; 4-8-08: por. 16

The proposed improvements to the Kuhio Highway and Anahola Road intersection should be coordinated with our Kauai District Office, Highways Division, and conform to our State highway design standards.

We have no further comment on this development.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

OCT 10 9 23 AM '00

RECEIVED
OCT 10 11 17 AM '00

BENJAMIN J. CAYETANO
GOVERNOR
STATE OF HAWAII



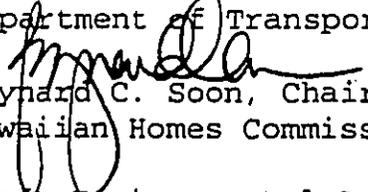
RAYNARD C. SOON
CHAIRMAN
HAWAIIAN HOMES COMMISSION

JOBIE M. K. M. YAMAGUCHI
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOMELANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

June 25, 2001

To: The Honorable Brian K. Minaai
Department of Transportation

From: 
Raynard C. Soon, Chairman
Hawaiian Homes Commission

Subject: Draft Environmental Assessment
Anahola Village Residence Lots, Unit 1
TMK: 4-8-03: 05 and 28; 4-8-08: por.16

Thank you for your letter dated October 5, 2000, forwarding your comments to the Draft Environmental Assessment for the above-referenced project.

In response to your comments, we will coordinate the Kuhio Highway and Anahola Road intersection road improvements with your Kauai District Office, Highways Division. In addition, these road improvements will conform to State highway design standards.

If you have any further questions or comments, please call me at 586-3801, or have your staff contact Clyde Kodani, of Kodani and Associates, Inc., at (808) 245-9591 or call Gerald Lee of our Design and Construction Branch at 587-6447.

c: Kodani and Associates, Inc.

BENJAMIN J. GAYTANO
GOVERNOR OF HAWAIIBRUCE S. ANDERSON, PH.D., M.P.H.
DIRECTOR OF HEALTHSTATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801

*OK/Sui

In reply, please refer to:
File:

October 6, 2000

00-170/epo

Mr. Ray Soon, Director
Department of Hawaiian Home Lands
P.O. Box 1879
Honolulu, Hawaii 96805

Dear Mr. Soon:

Subject: Draft Environmental Assessment
Anahola Village Residence Lots, Unit 1
Anahola, Kawaihau, Kauai
TMK: 4-8-03:5, 28

Thank you for allowing us to review and comment on the subject project. We have the following comments to offer:

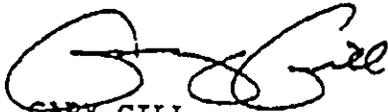
1. The two existing cesspools can remain in place providing a) the cesspools do not create or contribute to any problems outlined in Section 11-62-06(g), Title 11, Chapter 11-62, "Wastewater Systems", Hawaii Administrative Rules (HAR); or b) the cesspools were not required to be pumped more than two times in the last 12 months. The Department of Health (DOH) does not have any records of the existing cesspools on file. The owners of the existing cesspools shall have a licensed contractor or engineer complete the Wastewater Branch's "Existing Cesspool Information Card" and have it placed in the DOH's record files prior to subdivision approval.
2. The environmental assessment does not indicate what will happen to the existing well on the property once each of the lots is provided with a "domestic service connection". As indicated in the document, the Department of Hawaiian Home Lands will provide "domestic service connection" to each of the lots prior to final subdivision. If the well is abandoned, it should be rendered safe so as not to become a nuisance. If the well is not to be abandoned, the piping systems of the well and the potable water system shall be kept separate to prevent cross-connection between a potable water system and a non-potable water system.

Mr. Ray Soon, Director
October 6, 2000
Page 2

Due to the general nature of the application submitted, we reserve the right to implement future environmental health restrictions when more detailed information is submitted.

Should you have any questions, please call Mr. Clyde Takekuma, Kauai District Environmental Health Program Chief at 241-3323.

Sincerely,



GARY GILL
Deputy Director
Environmental Health Administration

c: OEQC
KDHO
Kodani & Associates, Inc.

BENJAMIN J. CAYETANO
GOVERNOR
STATE OF HAWAII



RAYNARD C. SOON
CHAIRMAN
HAWAIIAN HOMES COMMISSION

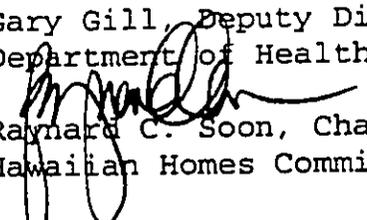
JOBIE M. K. M. YAMAGUCHI
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOMELANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

June 25, 2001

To: The Honorable Bruce S. Anderson
Department of Health

Attn: Gary Gill, Deputy Director
Department of Health

From: 
Raynard C. Soon, Chairman
Hawaiian Homes Commission

Subject: Draft Environmental Assessment
Anahola Village Residence Lots, Unit 1
TMK: 4-8-03: 05 and 28; 4-8-08: por.16

Thank you for your letter dated October 6, 2000, forwarding comments to the Draft Environmental Assessment for the above-referenced project.

In response to your comment regarding the two existing cesspools, the owners will have licensed engineers complete and submit "Existing Cesspool Information Cards" for the cesspools prior to subdivision approval.

In response to your comment regarding the existing well, if the well is to remain in service, the lessee shall apply for a permit with the Department of Land and Natural Resources (DLNR), the Commission on Water Resource Management (CWRM), to continue to operate her well.

If the lessee applies for a water meter, the lessee will need to submit house plans, including the proposed plumbing layout, for review to the Kauai County Department of Water Supply (DWS). During the plan review process, DWS can verify that a cross-connection situation will not be created. If cross-connection is created, then DHHL and the lessee will amend the lease to prohibit connection to the municipal water system

The Honorable Bruce S. Anderson
June 25, 2001
Page 2

without proper backflow-preventers and DWS approval of plumbing plans.

If the lessee elects to abandon the well at a later date, DHHL will require the lessee to prepare and file a well capping application with DLNR, CWRM. A lease amendment currently being prepared will require that a certification of the well-capping be submitted to DOH, Safe Water Drinking Branch, in addition to DWS.

We hope that this satisfies your concerns. If you have any further questions or comments, please call me at 586-3801, or have your staff contact Clyde Kodani, of Kodani and Associates, Inc., at (808) 245-9591 or Gerald Lee of our Design and Construction Branch at 587-6447.

c: Kodani and Associates, Inc.

BENJAMIN J. CAVIYANG
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
U. S. Kamehameha Building, Room 555
801 Kamehameha Boulevard
Honolulu, Hawaii 96807

TIMOTHY E. JOHNS, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSIONER OF WATER RESOURCE MANAGEMENT

DEPUTIES
JANET E. KAMELO
LINDA KISHIKAWA

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

October 3, 2000

Mr. Ray Soon, Director
Department of Hawaiian Home Lands
P.O. Box 1879
Honolulu, HI 96805

LOG NO: 26243 ✓
DOC NO: 0009NM15

Dear Mr. Soon:

**SUBJECT: Historic Preservation Review – Draft EA for Anahola Village
Residence Lots, Unit 1
TMK: 4-8-03: 05, 4-8-08: por. 16 (lot 53)
Anahola, Kawaihau, Kauai**

No archaeological inventory survey of this parcel has taken place. A heiau existed on the bluff above. Sand soils have contained habitation deposits and associated burials, and burial sites have been found in the Anahola Park. Immediately adjacent alluvial soils once were the location of irrigated kalo fields, and these areas still can contain archaeological remains of these fields. All such sites would be significant.

We understand that the parcels have seen some land alteration in modern times. However, it is uncertain whether significant historic sites still might be present.

Given the above information, we believe that archaeological inventory survey of the project area is needed to determine whether significant historic sites are present. An acceptable report of the survey findings needs to be submitted to our office for review, so we can evaluate whether significant sites are present.

If significant sites are present, then mitigation measures to properly treat those sites may be needed. Preservation and/or archaeological salvage (data recovery) are common mitigation treatment forms.

If you have any questions, please call Nancy McMahon at 742-7033.

Aloha,

DON HUBBARD, Administrator
State Historic Preservation Division

NM:an

cc: Mr. Clyde Kodani, Kodani & Associates, 3145 Akahi St., Lihue, HI 96766
OEQC 235 S, Beretania St., Room 702, Honolulu, HI 96766

BENJAMIN J. CAYETANO
GOVERNOR
STATE OF HAWAII



RAYNARD C. SOON
CHAIRMAN
HAWAIIAN HOMES COMMISSION

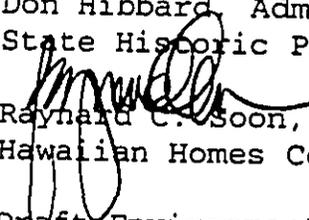
JOBIE M. K. M. YAMAGUCHI
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOMELANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

June 25, 2001

To: The Honorable Gilbert S. Coloma-Agaran, Chairperson
Board of Land and Natural Resources

Attn: Don Hibbard, Administrator
State Historic Preservation Division

From:  Raynard C. Soon, Chairman
Hawaiian Homes Commission

Subject: Draft Environmental Assessment
Anahola Village Residence Lots, Unit 1
TMK: 4-8-03: 05 and 28; 4-8-08: por.16

Thank you for your letter dated October 3, 2000, commenting on the Draft Environmental Assessment for the above-referenced project.

In response to your comments, Rechtman Consulting completed an archaeological inventory survey of the project area in April 2001. Although a former irrigated field system once existed on the parcel, recent and historic land uses of ranching, housing, and kalo cultivation have impacted the subject site. The limited subsurface expression of agricultural use is assigned SIHP Site 50-30-04-877. Site 877 is significant under Criterion D for having yielded important information important for research on prehistory and history. As sufficient information was collected in the inventory survey, no further archaeological work is recommended prior to development.

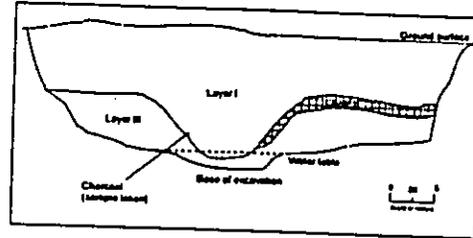
We are pleased that your office concurs with this finding.

If you have any further questions or comments, please call me at 586-3801, or have your staff contact Clyde Kodani, of Kodani and Associates, Inc., at (808) 245-9591 or call Gerald Lee of our Design and Construction Branch at 587-6447.

c: Kodani and Associates, Inc.

Archaeological Inventory Survey of Approximately
38 acres, Department of Hawaiian Homelands
(TMK:4-4-8-03:05, por. 16)

Anahola Ahupua'a
Kawaihau District
Island of Kaua'i



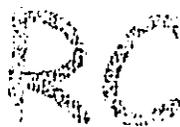
PREPARED BY:

Robert B. Rechtman, Ph.D.
and
Dennis S. Dougherty, B.A.

PREPARED FOR:

Clyde Kodani
Kodani and Associates
3145 Akahi Street
Lihu'e, HI 96766

April 2001



RECHTMAN CONSULTING

HC 1 Box 4149 • Kea'au, Hawai'i 96749
phone: (808) 966-7636 • FAX (800)406-2665
e-mail: rechtmanconsult@aol.com

Contents

INTRODUCTION	1
Scope of Work	1
Project Area Description	2
BACKGROUND	2
Previous Archaeological Studies	2
Historical Context	4
Oral-Historical Information	5
CURRENT PROJECT EXPECTATIONS	5
FIELDWORK	5
Methods	5
Findings	7
SIGNIFICANCE EVALUATION AND RECOMMENDATION	11
APPENDIX A-Radiocarbon Data	12
REFERENCES CITED	15

Figures

1. Project location and previously recorded archaeological sites in the area.	3
2. Portion of project area showing locations of bakhoe trenches.	6
3. Trench 1, south wall profile.	8
4. Trench 4, southwest wall profile.	8
5. Trench 5, south wall profile.	8
6. Trench 2, north wall profile.	9
7. Trench 2, south wall profile.	9
8. Trench 3, north wall profile.	10

Archaeological Inventory Survey of Approximately
38 acres, Department of Hawaiian Homelands
(TMK:4-4-8-03:05, por. 16)

Anahola Ahupua'a
Kawaihau District
Island of Kaua'i

INTRODUCTION

At the request of Mr. Clyde Kodani of Kodani and Associates on behalf of their client, the Department of Hawaiian Homelands (DHHL), Rechtman Consulting conducted an archaeological inventory survey of TMK: 4-8-03:05 and 4-8-03:por.16 comprising approximately 38 acres located in Anahola Ahupua'a, Kawaihau District, Island of Kaua'i. DHHL plans to develop a roughly 3-acre housing subdivision (11 lots) along Anahola Blvd at the extreme western portion of the project area. The remaining 35 acres will be left as pasture land. The objective of the survey was to record the locations of all archaeological sites and features that might be present within the study area and to provide preliminary significance evaluations for any recorded sites. This report is intended to fulfill the requirements of the County of Kaua'i Planning Department and the Department of Land and Natural Resources--State Historic Preservation Division (DLNR-SHPD) with respect to permit approvals for land altering and development activities. The current project was undertaken in compliance with the historic preservation review process requirements of DLNR-SHPD as specified in *draft* Hawaii Administrative Rules.13§13-284 (dated 10-15-98).

This report details the current project objectives and scope of work, field methods and procedures, and survey findings. A brief archaeological and historical background is provided, which forms the basis for a set of project expectations. Recommendations addressing future historic preservation concerns are offered.

Scope of Work

Given the nature of known archaeological resources in the general vicinity of the current project area and the proposed development of only a small portion of the overall subject property, a discussion was conducted with Nancy McMahan, Kaua'i Island Archaeologist for DLNR-SHPD to define an appropriate scope of work to guide the research effort. In accordance with the historic preservation review requirements of DLNR-SHPD the following tasks were determined adequate to constitute an appropriate scope of work:

- (1) Conduct a limited archival search of the readily available archaeological and historical literature, historic documents and records, and cartographic sources relevant to the immediate project area;
- (2) Perform an intensive surface survey of the subject parcel, locating and documenting all archaeological sites and features;
- (3) Excavate a series of backhoe trenches to sufficiently sample subsurface deposits within the proposed subdivision area (along Anahola Road) in an effort to identify buried archaeological material; and
- (4) Analyze the researched and recovered information and prepare a report of the findings that includes significance evaluations and recommendations for any subsequent historic preservation work that may be required.

Project Area Description

The project area (Figure 1) consists of approximately 38 acres located in Anahola Ahupua'a, Kawaihau District, Island of Kaua'i (TMK: 4-8-3:05 and 4-8-03:por.16). Dune and stabilized dune formations and alluvial benches adjacent to the major drainages characterize the coastal region of Anahola. These deposits overlie lavas in the Koloa Volcanic Series that are approximately 1.5 million years in age (Macdonald et al. 1970). Along the coast the mean annual rainfall ranges from 25 to 150 inches, and surface soils within the project area consist of the Hanalei-Kolokolo-Pakala association, which includes alluvium, silty clay, and loam.

The study area is roughly 600-900 meters inland from Anahola Bay; and is bounded on the north and east by Anahola Road, on the west by undeveloped DHHL parcels and Kukuihale Road, and on the south by undeveloped DHHL parcels and Kuhio Highway. The terrain throughout the project area is relatively flat, having previously been substantially graded and used as a grazing pasture. The project area supports a false *kamani* (*Terminalia catappa*) canopy with an under story of weeds and exotic grasses.

Currently, three residences exist in the western portion of the project area on proposed Lots 1, 8, and 11; proposed Lot 9 has been grubbed, filled, and leveled; and proposed Lot 10 contains a modern shed structure and abandoned automobiles. Proposed Lots 2-7 are currently open/undeveloped. The larger (35 acre) proposed Lot 12 is a relatively level fenced off pasture, and will remain so.

BACKGROUND

To generate set of expectations regarding the nature of archaeological resources that might be encountered on the study parcel, and to establish an environment within which to assess the significance of any such resources, previous archaeological studies relative to the project area and a general historical context for the Anahola region are presented, along with some oral-historical information collected during the inventory fieldwork.

Previous Archaeological Research

Bennett (1931) conducted early archaeological research on Kaua'i. He recorded five sites, all north and west of the current study area, in Anahola Ahupua'a that include: Site 113, Aikanaka Heiau at Anahola Point on the south shore of Anahola Bay; Site 114, Paeeaa Heiau at the back of Anahola Bay on the north side of the stream; Site 115, Kahua Heiau on the edge of the north bluff of Anahola Valley; Site 116, dune burials in the sands around Anahola Bay; and Site 117, taro terraces inland within Anahola Valley (see Figure 1).

Archaeological research that has been recently conducted in the *ahupua'a* of Anahola identified the remains of a large animal enclosure that was assigned State Inventory of Historic Places (SIHP) number 50-03-04-473 (Kikuchi 1979). A survey conducted on the slopes adjacent to the Anahola Valley located an animal pen, terraces, and walls and was assigned SIHP number 50-03-04-472; and a C-shaped habitation enclosure with nearby agricultural terracing was assigned SIHP number 50-03-04-471 (Kikuchi 1983). One human burial and an earth oven were identified in the beach sands subsequent to Hurricane Iniki and were assigned SIHP numbers 50-30-04-1881 and 1882 (McMahon 1992) (see Figure 1).

An archaeological inventory survey was conducted for an approximately 12-acre parcel located north of the Anahola River (Dixon et al. 1997). The study identified a total of 7 subsurface features located in three backhoe trenches. The features were interpreted as being representative of a pre-Contact native Hawaiian habitation zone based upon both relative and absolute dating techniques. It was determined that the site (SIHP 50-03-04-627) had been previously disturbed by modern cultivation practices and that only the stratigraphically deepest features remain.

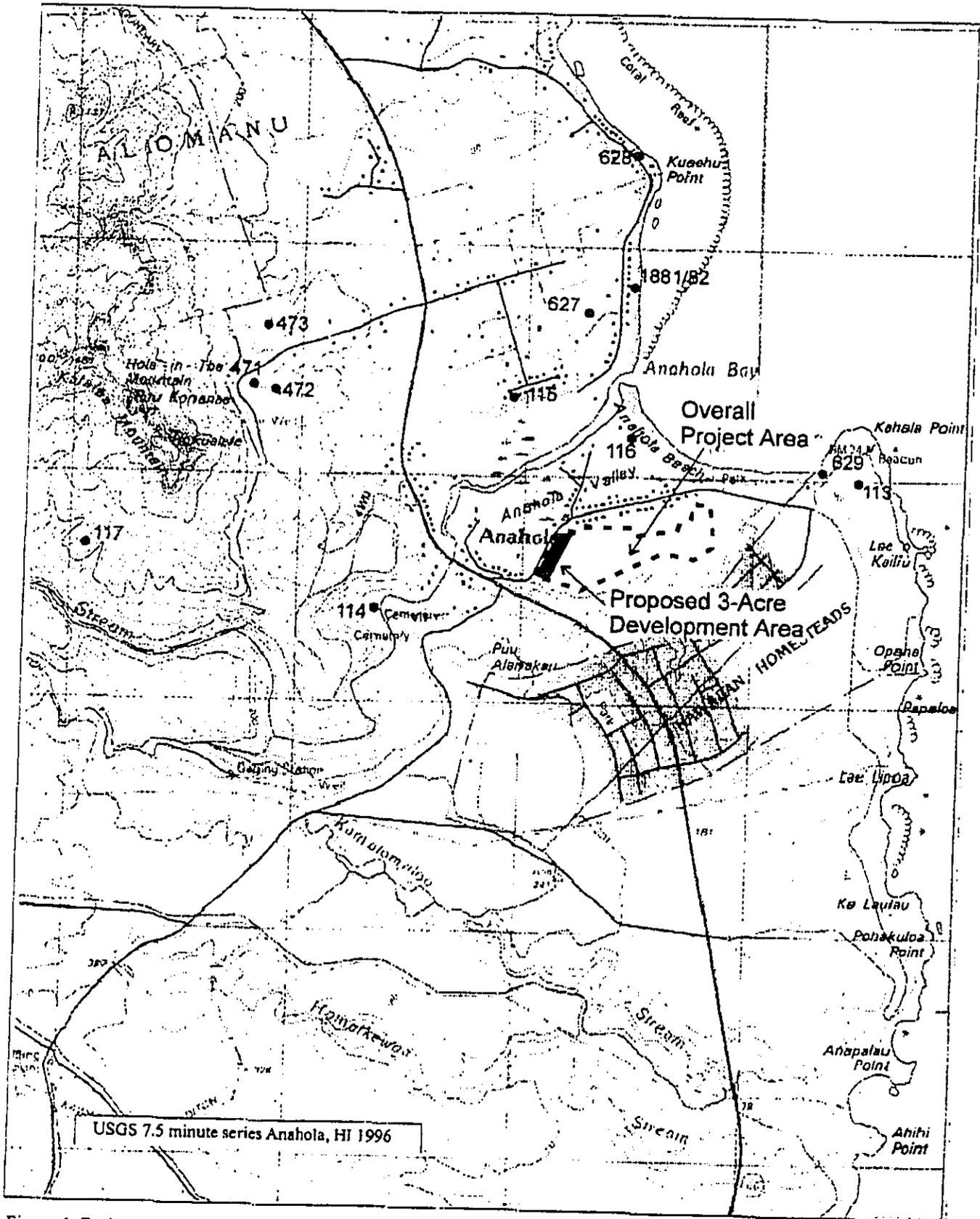


Figure 1. Project location and previously recorded archaeological sites in the area.

A recent archaeological inventory survey was conducted on a relatively small parcel at the Anahola Beach Park (McGerty and Spear 1999). The survey consisted of the excavation of 6 backhoe trenches distributed within a 43 by 12-meter area. No surface or subsurface cultural materials were identified during the survey. There have been no archaeological studies conducted within the current project area.

Historical Context

Historical records describe how during the conquest of the Hawaiian Islands by Kamehameha I, the ruling chief of Kaua'i (Kaumuali'i) avoided personal defeat through a peaceable transfer of power. Kaumuali'i's established a will that left Kaua'i to Kamehameha upon his death. Although subject to Kamehameha during the remainder of his life, Kaumuali'i retained leadership over the island. Kamehameha died five years before Kaumuali'i.

Upon Kaumuali'i's death in 1824 his agreement to Kamehameha was honored, rather than the traditional reassignment of lands to local chiefs, the O'ahu powers selected and installed Kaumuali'i's nephew (Kahalai'a) as the new chief of Kaua'i. The O'ahu chief Kalanimoku was sent to Kaua'i to inform the local chiefs. The local chiefs rebelled, and a bloody one-sided battle ensued. Well-armed and well-trained warriors were sent to Kaua'i from O'ahu and Maui to support Kalanimoku. The ill-prepared farmers of Kaua'i were easily defeated, and Kauai became under the direct rule of the young king (Kamehameha III). Kaikiohewa was appointed governor and the lands were redivided with the best tracts going to the "loafers and hangers-on (*palaualelo*) of O'ahu and Maui" (Kamakau 1992:269). "Thus, the old order of political power on Kaua'i is dissolved and displaced by a new society of *konohiki* (land managers) who descend from O'ahu and Maui lines" (Silva 1995:4).

This sociopolitical transformation was affirmed and codified by the *Mahele* of 1848. The *ahupua'a* of Anahola appears to have been land retained by the crown, with several small *kuleana* awards. Although no within the current study area, these *kuleana* awards shed some light on former land use. *Mahele* records indicate that the general lower Anahola river valley was extensively used for *kalo* cultivation, with the surrounding *kula* planted in *noni* and *wauke* (Dixon et al. 1997) The current study area is along the southern alluvial margin of the river valley (see Figure 1) and could have been under cultivation for any of these three crops. Handy and Handy (1972:423) describe the general area of Anahola River as follows:

There are old abandoned terraces along its banks far upstream. There are old *lo'i* from two to four miles inland along Anahola River and its tributary Ka'alaua Stream, and below their point of juncture there are many *lo'i* on the flats along the river banks as it meanders through its wide gulch. The delta is three-fourths mile wide, and this was all terraced.

Alexander's 1849 description of Anahola Valley as being "chequered with *kalo* patches, & studded with houses" (1991:123), indicates a traditional settlement pattern. This however, appears to have been interrupted by 1865 when Brigham reported that "Anahola is abrupt in places and very red from the soil; few trees except the *pandanus* were seen" (Lydgate 1991:136). This transition of the landscape may have resulted from deforestation associated with a wildfire and the subsequent establishment of a "Wood Station" at Moloa'a Bay (McGerty and Spear 1999:7). By the 1900s much of the Anahola Valley was used for the cultivation of rice (Joesting 1984) and pineapples, both of which declined in importance during the 1930s. Following this the lands in the valley were used for small-scale cattle grazing and family gardens.

Oral-Historical Information

During the inventory fieldwork, Robert Rechtman had the opportunity to speak with Solomon (Kolomona) Fernandez, a longtime resident of the immediate project area. Kolomona recalled that when he was young (1950s, and 1960s) portions of the current study area (from Anahola Road back into the current pasture) were under non-irrigated *kalo* cultivation. He had no knowledge of earlier land use practices.

PROJECT EXPECTATIONS

Given the amount of archaeological research in the immediate vicinity of the project area, and the comprehensive historical and cultural background developed for Anahola (Dixon *et al.* 1997), the following set of expectations concerning potential findings can be generated. The Anahola Valley was developed agriculturally during both pre-Contact and Historic Periods. Valley bottomlands were utilized for both fishponds and *lo'i*, as well as for *noni* and *wauke* production. Residential and ceremonial activities were focused along the shoreline area of Anahola Bay, in selected areas along the river, and on the slopes above the Anahola River drainage. Long-term habitation and agricultural practices occurred in the coastal plains and changed little during the early 1800s. The following sequence describes agricultural practices in Anahola subsequent to the *Mahele*:

Cash-crop agriculture and cattle ranching gradually replaced traditional subsistence pursuits on the land, and labor from outside Hawai'i was also brought in to the sugarcane and pineapple plantations, many of these individuals eventually marrying into local families. Taro pondfields and terraces were converted to rice production in the valley bottom and *kula* land once planted in traditional tree crops became the locus of vegetable farming for markets outside the district. (Dixon *et al.* 1997:19)

Given the extensive agricultural development that occurred at Anahola Bay from the earliest settlements on Kaua'i, it should be expected that the lands adjacent to the Anahola River drainage would have been utilized for subsistence activities. The previously recorded habitation structures and *heiau* situated on the surrounding slopes indicate that the valley area was a primary residential locus that included long-term residential habitation and ceremonial activities. The oral-historical information collected suggests that the immediate study area was in taro cultivation during the recent past.

FIELDWORK

On January 17, 2000, Robert B. Rechtman, Ph.D., Mathew R. Clark, B.A., Scott Green, B.A., Richard C. Rudolph, B.A., and Dennis S. Dougherty, B.A. conducted a 100%-coverage on-foot surface reconnaissance of the study parcel. In addition, five backhoe trenches were excavated on proposed Lots 3, 4, 5, and 6 (Figure 2); proposed lots with existing residences were avoided so as to not disturb residents.

Methods

The survey strategy included a visual inspection of the entire surface of the study parcel. Based on observations made during this activity, five locations for subsurface testing were selected that were distributed over the proposed house lot development area. A backhoe was used to excavate the roughly five-meter long trenches, one bucket-width wide, at the five selected locations. The width of the backhoe bucket used was 90 centimeters. The soil removed during backhoe excavation was visually examined for cultural material and the stratigraphy visible in the walls of the trenches was recorded and described.

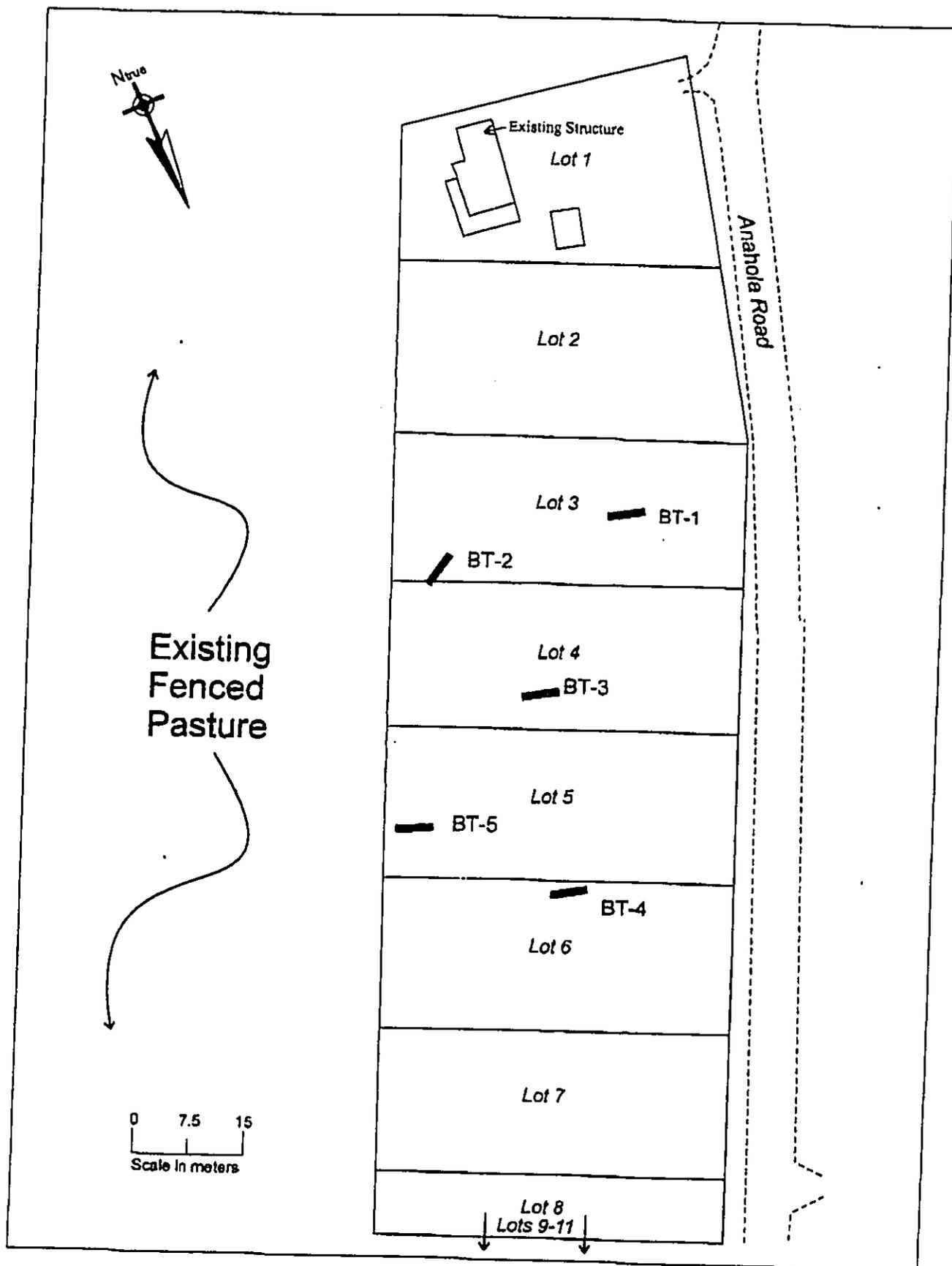


Figure 2. Portion of project area showing locations of backhoe trenches.

Findings

No surface features or surface manifestations of cultural deposits were observed during the reconnaissance. The stratigraphy recorded in Trenches 1, 4, and 5 consists of a simple two layer stratigraphic sequence (Figures 3, 4, and 5). Layer I is dark reddish brown (5YR 3/4) fine clayey silt alluvium that extended to a depth of 164 centimeters below ground surface (cmbs) in Trench 1, 58 cmbs in Trench 4, and 63 cmbs in Trench 5. Layer III is yellow (10YR 7/6) sand integrated with shell fragments that extended from the base of Layer I to the bottom of the excavation, 300 cmbs in Trench 1, 100 cmbs in Trench 4, and 105 cmbs in Trench 5. These two stratigraphic Layers were thicker in the southern portion of the project area and decreased in thickness progressing toward the coast. The water table was encountered in Trench 1 at a depth of 220 cmbs. Stratigraphic Layer III is interpreted as a prehuman beach deposit. Stratigraphic Layer I is interpreted as precontact and modern disturbed and reworked agricultural soils.

Two of the backhoe trenches (Trench 2 and Trench 3) provided potential information relative to these former land use practices. The profiles of Trench 2 (Figures 6 and 7) reveal a trough-like depression within Stratigraphic Layer I and an associated greenish black (GleyI 2.5/10Y) sandy clay, dubbed Layer II. This same Layer II was observed in Trench 3 in three isolated pockets in the north wall profile (Figure 8). A small charcoal sample was recovered from the trough area above the water table in the south wall profile of Trench 2 (see Figure 7). This sample was AMS dated by Beta Analytic, Inc. (Appendix A) and assigned a 2 Sigma calibrated range of A.D. 1520-1950. However, given the intercept date (A.D. 1650) and the stratigraphic association from which the sample was recovered, it is likely that the date range can be narrowed to A.D. 1520-1800. The source of the charcoal is unclear. It could have been deposited as a result of agricultural activity at the location of its discovery, or it could have been transported from some distance to its depositional location by water flowing in the trough-like depression.

The soil features (trough and associated gley) observed in Trenches 2 and 3 seem to represent what remains of a former *lo'i* system that was severely disturbed during modern times. If historical accounts are accurate the irrigated *kalo* fields in the Anahola Valley seemed to have fallen out of use by A.D. 1865. Reworking the area for other agricultural uses and for cattle grazing resulted in the demise of the pondfields. Twentieth-century reuse of the area for non-irrigated *kalo*, as indicated by the informant, served to further destroy the evidence of the earlier landuse. Therefore, it can be concluded that a former irrigated field system once existed on the parcel, and that historic and recent land use, both inconsistent (ranching and habitation) and semi-consistent (non-irrigated *kalo* cultivation) with the earlier use occurred and severely impacted the former pondfields. The extremely limited subsurface expression of the pre-modern agricultural use is assigned SIHP Site 50-30-04-877.

Findings

No surface features or surface manifestations of cultural deposits were observed during the reconnaissance. The stratigraphy recorded in Trenches 1, 4, and 5 consists of a simple two layer stratigraphic sequence (Figures 3, 4, and 5). Layer I is dark reddish brown (5YR 3/4) fine clayey silt alluvium that extended to a depth of 164 centimeters below ground surface (cmbs) in Trench 1, 58 cmbs in Trench 4, and 63 cmbs in Trench 5. Layer III is yellow (10YR 7/6) sand integrated with shell fragments that extended from the base of Layer I to the bottom of the excavation, 300 cmbs in Trench 1, 100 cmbs in Trench 4, and 105 cmbs in Trench 5. These two stratigraphic Layers were thicker in the southern portion of the project area and decreased in thickness progressing toward the coast. The water table was encountered in Trench 1 at a depth of 220 cmbs.

Two of the backhoe trenches (Trench 2 and Trench 3) provided potential information relative to former land use practices. The profiles of Trench 2 (Figures 6 and 7) reveal a trough-like depression within Stratigraphic Layer I and an associated greenish black (Gley 2.5/10Y) sandy clay, dubbed Layer II. This same Layer II was observed in Trench 3 in three isolated pockets in the north wall profile (Figure 8). A small charcoal sample was recovered from the trough area above the water table in the south wall profile of Trench 2 (see Figure 7). This sample was AMS dated by Beta Analytic, Inc. (Appendix A) and assigned a 2 Sigma calibrated range of A.D. 1520-1950. The source of the charcoal is unclear. It could have been deposited as a result of agricultural activity at the location of its discovery, or it could have been transported from some distance to its depositional location by water flowing in the trough-like depression.

The soil features observed in Trenches 2 and 3 can be interpreted in one of three ways: One, that the trough and associated gley represent what remains of an ancient *lo'i* system; two, that the trough and associated gley are the poorly developed result of a recent irrigated pondfield; or three, that an older (perhaps pre-Contact) system existed in the area, which was later disturbed by historic and modern land use, and the area was subsequently put back into *kalo* production during recent times. Given the oral testimony, the known history of land use, and the radiocarbon results, the latter interpretation seems the most plausible. Therefore, it can be concluded that a former irrigated field system once existed on the parcel, and that historic and recent land use, both inconsistent (ranching and habitation) and consistent (*kalo* cultivation) with the earlier use occurred. The limited subsurface expression of the agricultural use is assigned SHIP Site 50-30-04-877.

(SUPERSEDED)

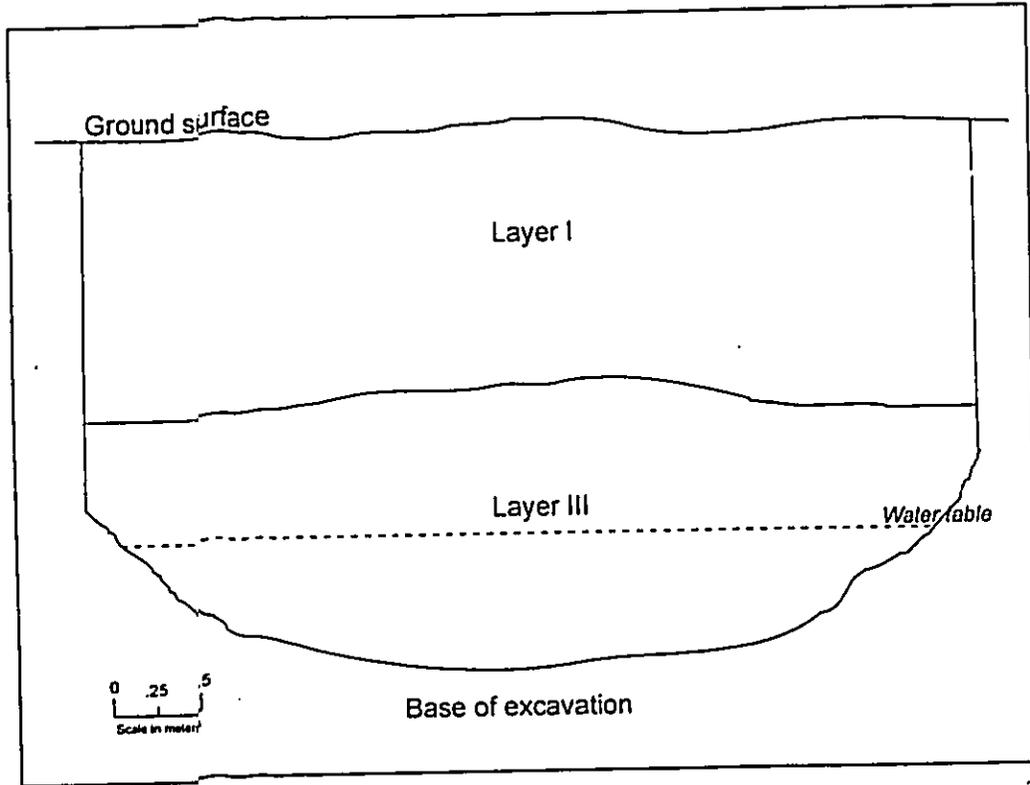


Figure 3. Trench 1, south wall profile.

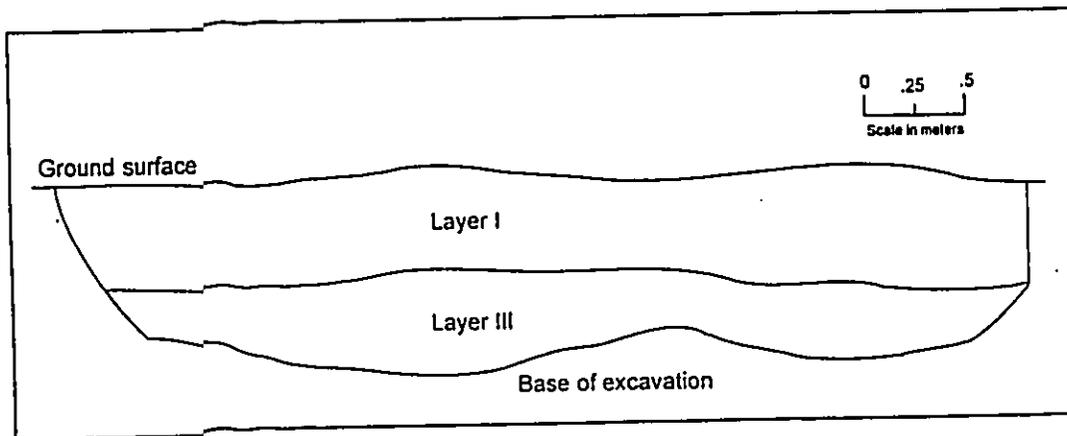


Figure 4. Trench 4, southwest wall profile.

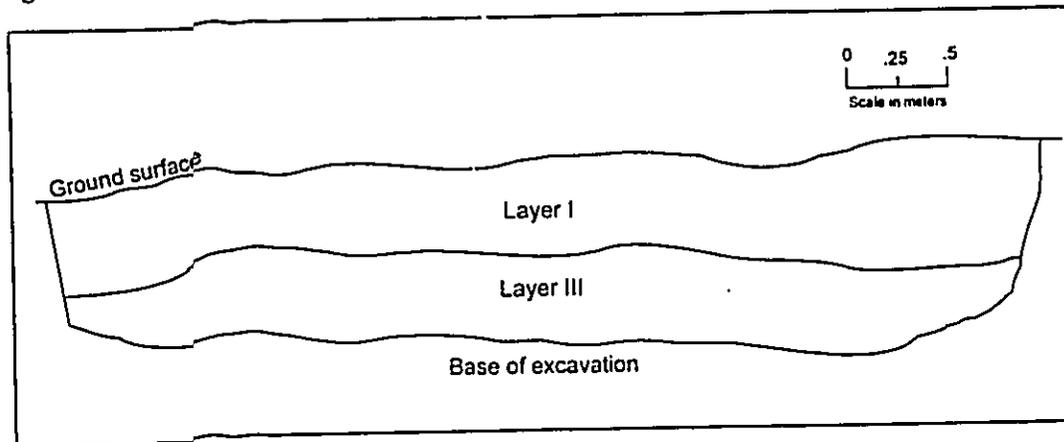


Figure 5. Trench 5, south wall profile.

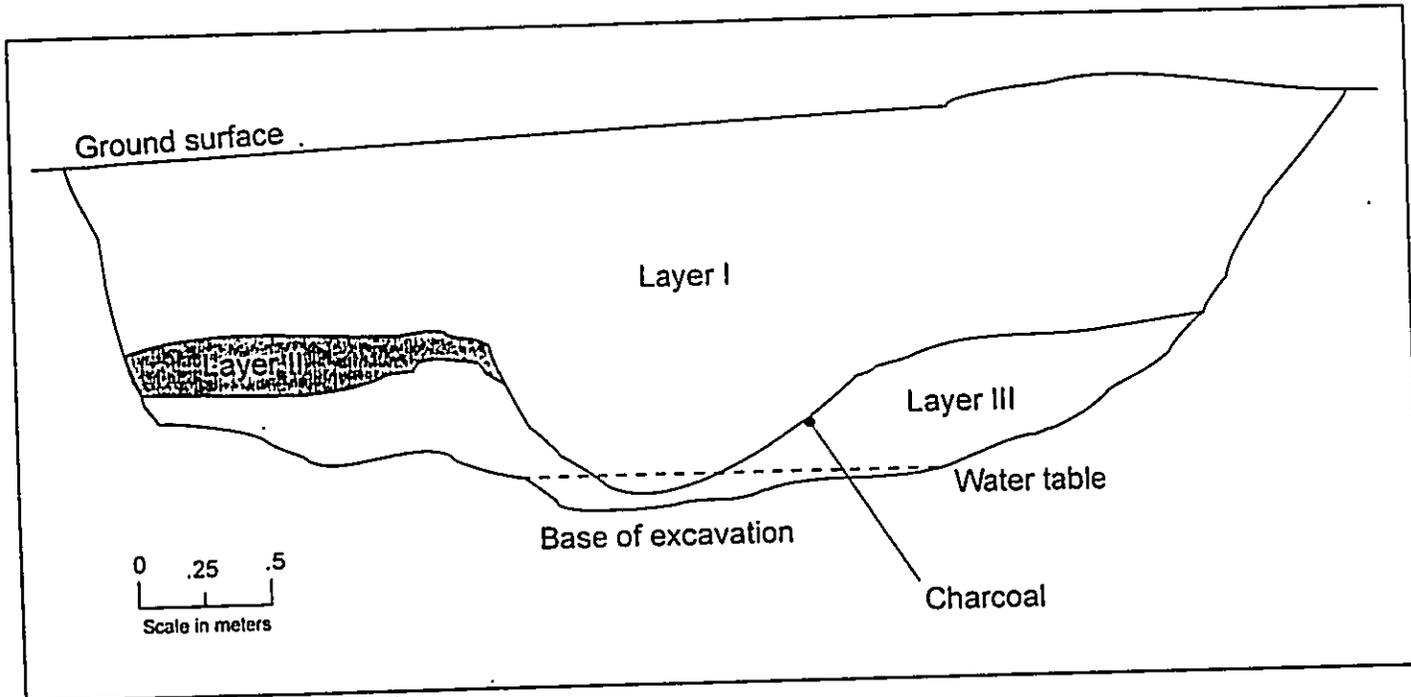


Figure 6. Trench 2, north wall profile.

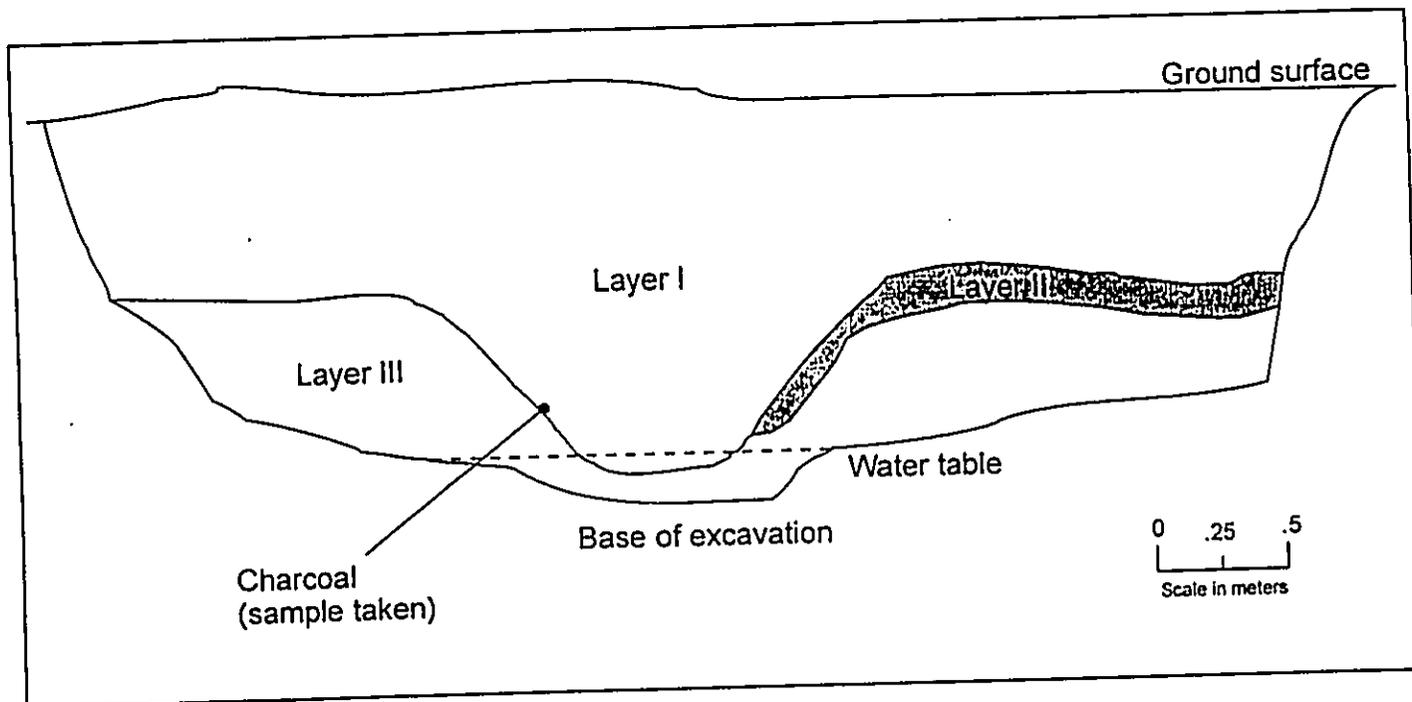


Figure 7. Trench 2, south wall profile.

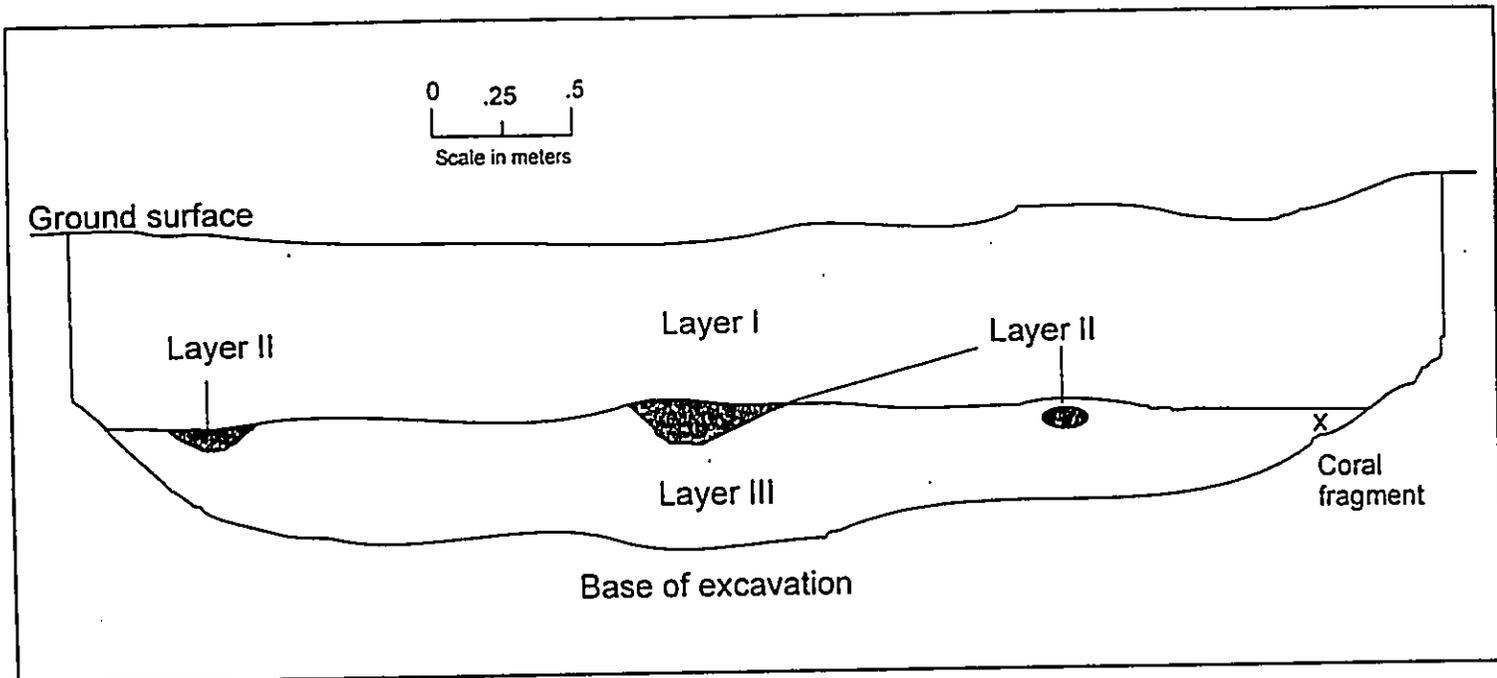


Figure 8. Trench 3, north wall profile.

SIGNIFICANCE EVALUATION AND RECOMMENDATION

The site recorded on the property is assessed for its significance based on criteria established and promoted by the DLNR-SHPD and contained in the *draft Hawai'i Administrative Rules 13§13-284-6*, dated 1998. This significance evaluation should be considered as preliminary until DLNR-SHPD provides concurrence. For a resource to be considered significant it must possess integrity of location, design, setting, materials, workmanship, feeling, and association and meet one or more of the following criteria:

- A) Be associated with events that have made an important contribution to the broad patterns of our history;
- B) Be associated with the lives of persons important in our past;
- C) Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value;
- D) Have yielded, or is likely to yield, information important for research on prehistory or history;
- E) Have an important traditional cultural value to the native Hawaiian people or to another ethnic group of the state due to associations with traditional cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity.

Despite the questionable integrity of Site 877, its presence and potential antiquity have been documented within the proposed houselot area of the overall subject property. What remains of this site is evaluated as significant under Criterion D for having yielded important information. Further, as the inventory survey did result in the collection of sufficient information, it is recommended that no further archaeological work need be conducted within the proposed houselot area prior to development. However, in the unlikely event subsurface cultural deposits or human burials are inadvertently discovered during construction activities, such activities should be immediately suspended in the vicinity of the discovery, and DLNR-SHPD notified as outlined in the *Draft Hawai'i Administrative Rules 13§13-284*.

Further, if at a future date the 35-acre Lot 12 is to be developed, it is recommended that subsurface testing be done in an attempt to identify any other manifestations of Site 877 that may have survived the ravages of more recent land use practices.

SIGNIFICANCE EVALUATION AND RECOMMENDATION

The site recorded on the property is assessed for its significance based on criteria established and promoted by the DLNR-SHPD and contained in the *draft Hawai'i Administrative Rules 13§13-284-6*, dated 1998. This significance evaluation should be considered as preliminary until DLNR-SHPD provides concurrence. For a resource to be considered significant it must possess integrity of location, design, setting, materials, workmanship, feeling, and association and meet one or more of the following criteria:

- A) Be associated with events that have made an important contribution to the broad patterns of our history;
- B) Be associated with the lives of persons important in our past;
- C) Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value;
- D) Have yielded, or is likely to yield, information important for research on prehistory or history;
- E) Have an important traditional cultural value to the native Hawaiian people or to another ethnic group of the state due to associations with traditional cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity.

Despite the questionable integrity of Site 877, its presence and potential antiquity have been documented. What remains of this site is evaluated as significant under Criterion D for having yielded important information. Further, as the inventory survey did result in the collection of sufficient information, it is recommended that no further archaeological work need be conducted prior to development. However, in the unlikely event subsurface cultural deposits or human burials are inadvertently discovered during construction activities, such activities should be immediately suspended in the vicinity of the discovery, and DLNR-SHPD notified as outlined in the *Draft Hawai'i Administrative Rules 13§13-284*.

SUPERSEDED

APPENDIX A—Radiocarbon Data

BETA**BETA ANALYTIC INC.**

DR. M.A. TAMERS and MR. D.G. HOOD

UNIVERSITY BRANCH
4985 S.W. 74 COURT
MIAMI, FLORIDA, USA 33155
PH: 305/867-5167 FAX: 305/863-0964
E-MAIL: beta@radiocarbon.com**REPORT OF RADIOCARBON DATING ANALYSES**

Dr. Bob Rechtman

Report Date: 4/5/01

Rechtman Consulting

Material Received: 3/26/01

Sample Data	Measured Radiocarbon Age	¹³ C/ ¹² C Ratio	Conventional Radiocarbon Age(*)
Beta - 154226 SAMPLE: RC-0045-1 ANALYSIS: AMS-Advance delivery MATERIAL/PRETREATMENT: (charred material): acid/alkali/acid 2 SIGMA CALIBRATION :	40 +/- 40 BP	-12.3 o/oo	250 +/- 40 BP
Cal AD 1520 to 1580 (Cal BP 430 to 380) AND Cal AD 1630 to 1680 (Cal BP 320 to 270) Cal AD 1770 to 1800 (Cal BP 180 to 150) AND Cal AD 1940 to 1950 (Cal BP 10 to 0)			

Dates are reported as RCYBP (radiocarbon years before present, "present" = 1950 A.D.). By International convention, the modern reference standard was 95% of the C14 content of the National Bureau of Standards' Oxalic Acid & calculated using the Libby C14 half life (5568 years). Quoted errors represent 1 standard deviation statistics (68% probability) & are based on combined measurements of the sample, background, and modern reference standards.

Measured C13/C12 ratios were calculated relative to the PDB-1 international standard and the RCYBP ages were normalized to -25 per mil. If the ratio and age are accompanied by an (*), then the C13/C12 value was estimated, based on values typical of the material type. The quoted results are NOT calibrated to calendar years. Calibration to calendar years should be calculated using the Conventional C14 age.

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-12.3;lab. mult=1)

Laboratory number: Beta-154226

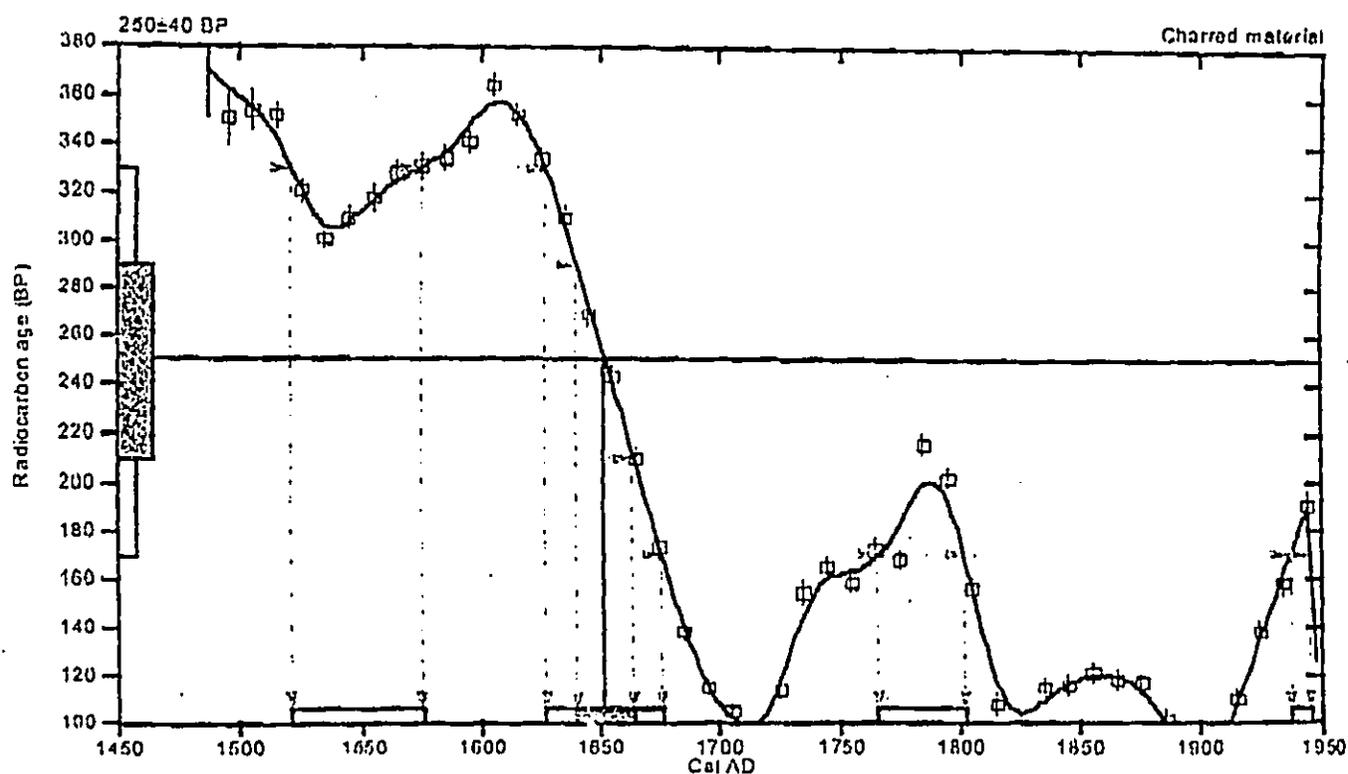
Conventional radiocarbon age: 250 ± 40 BP

2 Sigma calibrated results: Cal AD 1520 to 1580 (Cal BP 430 to 380) and
(95% probability) Cal AD 1630 to 1680 (Cal BP 320 to 270) and
Cal AD 1770 to 1800 (Cal BP 180 to 150) and
Cal AD 1940 to 1950 (Cal BP 10 to 0)

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 1650 (Cal BP 300)

1 Sigma calibrated result: Cal AD 1640 to 1660 (Cal BP 310 to 290)



References:

Database used

Calibration Database

Editorial Comment

Stuiver, M., van der Plicht, H., 1998, *Radiocarbon* 40(3), p. xii-xiii

INTCAL98 Radiocarbon Age Calibration

Stuiver, M., et al., 1998, *Radiocarbon* 40(3), p. 1041-1083

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, *Radiocarbon* 35(2), p. 317-322

Beta Analytic Inc.

1953 SW 77 Court, Miami, Florida 33135 USA • Tel: (305) 667-5167 • Fax: (305) 663-0964 • E-Mail: beta@radiocarbon.com

REFERENCES CITED

- Alexander, W.
1991 A Tour of Kauai in 1849, Private journal of William DeWitt Alexander. In *The Kauai Papers*, p.121-135. Kaua'i Historical Society, Līhu'e.
- Bennett, W. C.
1931 *Archaeology of Kauai*. B. P. Bishop Museum Bulletin 80, Honolulu.
- Dixon, B., P. Conte, V. Nagahara, and W. K. Hodgins
1997 An Archaeological inventory Survey of the Anahola Subdivision G and G-1, (TMK:4-8-12:6, 4-8-13:15-16, and 4-8-18:26), Anahola Ahupua'a, Kawaihau District, Kaua'i. State Historic Preservation Division.
- Handy, E.S.C, and E. Handy
1972 *Native Planters in Old Hawaii; Their Life, Lore, and Environment*. B. P. Bishop Museum Bulletin 233, Honolulu.
- Joesting, E.
1984 *Kaua'i the Separate Kingdom*. Published by University of Hawai'i Press and Kaua'i Museum Association, Ltd.
- Kamakau, S. M.
1992 *Ruling Chiefs of Hawaii*. The Kamehameha Schools Press, Honolulu (revised edition).
- Kikuchi, W.
1979 Site Survey, Hawaiian Homes Farmlands, Anahola, Kaua'i. MS. On file at DLNR-SHPD, Kapolei.

1983 Cursory Survey of Agricultural Terraces at the Reservoir Site, Anahola Farm Plots, Anahola, Kawaihau, Kaua'i. MS. On file at DLNR-SHPD, Kapolei.
- Lydgate, H.
1991 A Visit to Kauai in 1865, Journal of William T. Brigham. In *The Kauai Papers*, p.121-135. Kaua'i Historical Society, Līhu'e.
- McGerty, L., and R. Spear
1999 An Archaeological Inventory Survey of Anahola Beach Park, Kawaihau, Kaua'i, Hawai'i (TMK: 4-8-14:6). SCS Project 165-1. Prepared for Department of Public Works, Division of Parks and Recreation, Līhu'e, Kaua'i.
- McMahon, N.
1992 Inadvertent Discovery of Human Skeletal Remains. Letter Report on file DLNR-SHPD, Kapolei.
- Silva, C.
1995 A Historical and Cultural Report of Hā'ena State Park, Halele'a, Kaua'i. Prepared for DLNR-State Parks Division.