



STATE OF HAWAII
 DEPARTMENT OF LAND AND NATURAL RESOURCES
 LAND DIVISION
 P.O. BOX 621
 HONOLULU, HAWAII 96809

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

FEB 10 1999

REF:PB:LT

File No.: KA-2915

Mr. Gary Gill, Director
 Office of Environmental Quality Control
 236 S. Beretania St., Suite 702
 Honolulu, Hawaii 96813

Dear Mr. Gill:

SUBJECT: Final Environmental Assessment and Finding of No Significant Impact (FONSI) for Papaa Bay Ranch Improvements; TMK: 4-9-05: por. 13; 4-9-06: por. 05, 11 at Kawaihau, Kauai

The Department of Land and Natural Resources has reviewed the comments received during the thirty-day public comment period which ended on January 7, 1999. We hereby issue a Finding of No Significant Impact (FONSI). Please publish this notice in the February 23, 1999 OEQC Bulletin.

Enclosed is a completed OEQC Bulletin Publication Form and four copies of the final environmental assessment. If you have questions, please call Lauren Tanaka at 587-0385.

Aloha,

Dean Uchida
 Dean Uchida, Administrator

OFFICE OF ENVIRONMENTAL QUALITY CONTROL

99 FEB 10 P4:21

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Enclosures

FEB 23 1999

FILE COPY

1999-02-23- KA- FEA- Papaa Bay
Ranch Improvements

ENVIRONMENTAL ASSESSMENT

**IN SUPPORT OF
CONSERVATION DISTRICT USE
PERMIT APPLICATION**

FOR

MANDALAY PROPERTIES HAWAII LLC

**TO INSTALL LANDSCAPING AND IRRIGATION,
TO RELOCATE TREES, AND TO CONSTRUCT A DRIVEWAY**

FOR PROPERTY LOCATED AT LOT A-1-A, PAPAA BAY RANCH

PAPAA, KAUAI, HAWAII

KAUAI TAX MAP KEY NOS. (4) 4-9-05:13 (por.), (4) 4-9-06:05 (por.) & 11

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INFO
SERIES

**CONSERVATION DISTRICT USE PERMIT APPLICATION
FOR
MANDALAY PROPERTIES HAWAII LLC**

ENVIRONMENTAL ASSESSMENT

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- Exhibit "A" - Description of Parcel
- Exhibit "B" - Location Map
- Exhibit "C" - Master Tax Map
- Exhibit "D" - Zoning Map
- Exhibit "E" - Kauai General Plan Map
- Exhibit "F" - Landscape Plan
- Exhibit "G" - Driveway Grading Plan
- Exhibit "H" - Botanical Resources Assessment
- Exhibit "I" - Avifaunal And Feral Mammal Survey Report
- Exhibit "J" - Special Management Area Minor Permit SMA(M)-99-10
- Exhibit "K" - Archaeological Inventory Survey Of Papa'a Bay Ranch/State Historic Preservation Division Comments
- Exhibit "L" - State DLNR Comments/Applicant Response
- Exhibit "M" - U. S. Army Corps. Comments/Applicant Response
- Exhibit "N" - State Commission On Water Resource Management (DLNR) Comments/Applicant Response

- Exhibit "O" - State Division of Conservation and Resource Enforcement (DLNR) Comments/Applicant Response
- Exhibit "P" - State Division of Forestry & Wildlife (DLNR) Comments/Applicant Response
- Exhibit "Q" - State Department of Transportation Comments/Applicant Response
- Exhibit "R" - State Department of Health Comments/Applicant Response
- Exhibit "S" - State Department of Hawaiian Home Lands Comments/Applicant Response
- Exhibit "T" - Department of Water (County of Kauai) Comments/Applicant Response
- Exhibit "U" - State Office of Hawaiian Affairs/Applicant Response
- Exhibit "V" - Engineering Branch - Land Division (DLNR) Comments/Applicant Response

BELLES GRAHAM PROUDFOOT & WILSON

MAX W. J. GRAHAM, JR. (926-0)
4334 Rice Street, Suite 202
Lihue, Kauai, Hawaii 96766-1388
Telephone No.: (808) 245-4705

Attorney for Applicant
MANDALAY PROPERTIES HAWAII LLC

DEPARTMENT OF LAND AND NATURAL RESOURCES

OF THE

STATE OF HAWAII

In the Matter of the Application)
)
Of) ENVIRONMENTAL ASSESSMENT;
) EXHIBITS "A"-"V"
MANDALAY PROPERTIES HAWAII LLC)
for a Conservation District Use Permit to)
install landscaping and irrigation, to relocate)
trees, and to construct a driveway on real)
property situated at Papaa, Kauai, Hawaii,)
and further identified by Kauai Tax Map Key)
Nos. (4) 4-9-05:13 (por.) and (4) 4-9-06:05)
(por.) & 11.)
_____)

ENVIRONMENTAL ASSESSMENT

Comes now, MANDALAY PROPERTIES HAWAII LLC, a Hawaii limited liability company (hereinafter referred to as "Applicant"), by and through its attorneys, Belles Graham Proudfoot & Wilson, and respectfully submits the following Environmental Assessment pursuant to the requirements contained in the Hawaii Revised Statutes ("HRS") Chapters 343

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and 344, and of the Hawaii Administrative Rules ("HAR") Title 11, Chapter 200, and Title 13, Chapter 5.

I. APPLICANT.

The Applicant is Mandalay Properties Hawaii LLC, a Hawaii limited liability company.

II. APPLICANT'S ADDRESS AND TELEPHONE.

The Applicant's address and telephone is:

c/o Mandalay Pictures
5555 Melrose Avenue
Hollywood, California 90038-3197

Telephone No.: (323) 956-2400

All communications having to do with this Environmental Assessment should be made to the Applicant's attorney or the Applicant's consultant at the following address:

Max W. J. Graham, Jr., Esq.
Belles Graham Proudfoot & Wilson
4334 Rice Street, Suite 202
Lihue, Kauai, Hawaii 96766

Avery H. Youn, Architect
2980 Ewalu Street, Unit 1
Lihue, Kauai, Hawaii 96766

Telephone: (808) 245-4705 (Ext. 238)

Telephone: (808) 246-9414

III. APPROVING AGENCY.

The Approving Agency is the following:

State of Hawaii
Department of Land and Natural Resources
P. O. Box 621
Honolulu, Hawaii 96813

IV. CONSULTED AGENCIES.

The governmental agencies which were consulted or which reviewed and/or provided comment with regard to the Applicant's proposal included: the Kauai County Planning Department; The Kauai County Department of Water; the State Department of Land and Natural Resources; the State Department of Health; the State Department of Hawaiian Home Lands; the State Department of Transportation; the State Office of Hawaiian Affairs; the Division of Conservation and Resource Enforcement (DLNR); the Division of Forestry & Wildlife (DLNR); the Commission On Water Resource Management (DLNR); the Historic Preservation Division (DLNR); and the U. S. Army (Corps of Engineers).

V. OWNERSHIP OF THE SUBJECT PROPERTY.

The Applicant is the owner of the property which is the subject matter of this Environmental Assessment ("Parcel"). The Parcel is more fully described in Exhibit "A", attached hereto.

VI. DESCRIPTION OF SUBJECT PROPERTY.

The Parcel is Lot A-1-A of the Papaa Bay Ranch located at Papaa, County of Kauai, State of Hawaii, is designated by Kauai Tax Map Key Nos. (4) 4-9-05:13 (por.) and (4) 4-9-06:5 (por.) & 11, and contains approximately 67.460 acres.

The general location of the Parcel is shown on the Map attached hereto and incorporated herein as Exhibit "B". The Parcel is shown in more detail on the Master Tax Map attached as Exhibit "C" and the Zoning Map which is attached as Exhibit "D".

The Parcel is a portion of the Papaa Bay Ranch (shown on the Master Tax Map), which is owned by the Applicant, contains a total of 172.931 acres, and is composed of the following parcels:

Tax Map Parcel	Land Area (Acres)	State Land Use Classification	Allocation [1] (Acres)		County Zoning	General Plan	Special Management Area
			Ag.	Cons.			
4-9-05-06	17.010	Ag.	17.010	----	Ag.[2]	Ag.[2]	No
4-9-05-10	1.438	Ag.	1.438	----	Open	Open	No
4-9-05-13	112.849	Ag./Cons.	79.387	33.462	Open/Cons.	Open	Portions
4-9-06-05	28.246	Ag./Cons.	12.300	15.946	Open/Cons.	Open	Portions
4-9-06-07	0.281	Ag.	0.281	----	Open	Open	No
4-9-06-08	0.276	Ag.	0.276	----	Open	Open	No
4-9-06-09	0.294	Ag.	0.294	----	Open	Open	No
4-9-06-11	5.642	Cons./Ag.	2.400	3.242	Cons./Open	Open	Yes
4-9-07-01	5.636	Ag.	5.636	----	Open	Open	No
4-9-07-08	1.259	Ag.	1.259	----	Open	Open	No
Totals	172.931		120.281	52.650			

VII. LAND USE CLASSIFICATIONS.

A. The Parcel has the following land use classifications:

1. State Land Use Commission. A 23.1 acre portion of the Parcel is located within the State Land Use Commission ("SLUC") Agricultural District and a 44.4 acre portion of the Parcel is located in the SLUC Conservation District, Limited Subzone, and General Subzone, as shown on Exhibit "D".

2. County General Plan. As shown on Exhibit "E", attached hereto and incorporated herein, the Parcel is located within the Open Classification of the General Plan for the County of Kauai ("Kauai General Plan").

3. Special Management Area. The Conservation District portion of the Parcel is located within the Special Management Area ("SMA"), as shown on Exhibit "D".

VIII. REQUESTED LAND USE PERMIT.

The Applicant has filed a Conservation District Use Application (hereinafter referred to as "CDUA") with the Department of Land and Natural Resources (hereinafter referred to as "DLNR") for the issuance of a Conservation District Use Permit (hereinafter referred to as "CDUP") for the following purposes:

A. The Applicant proposes to install landscaping and irrigation on the Parcel pursuant to HAR Sections 13-5-22(c) L-4 (C-1) and L-7 (B-1), and 13-5-25(a).

B. The Applicant proposes to relocate five (5) trees on the Parcel pursuant to HAR Section 13-5-22(b) P-12 (C-1), 13-5-22(a), and 13-5-25(a).

C. The Applicant proposes to construct a driveway on the Parcel pursuant to HAR Section 13-5-2(c) L-7 (B-1) and 13-5-25(a).

IX. PROPOSED DEVELOPMENT.

The portion of the Parcel located in the Conservation District has two distinct topographic characteristics. The eastern portion, which is located in front of the sandy beach which forms Papaa Bay, and runs from either side of Papaa Stream to the rocky cliffs on the southern portion of the Parcel, is relatively flat. This portion will be referred to as the "Meadow". A portion of the Parcel located at the southeasterly end (which forms the southern boundary of Papaa Bay) is a rocky cliff that rises sharply from sea level to approximately 100-120 feet at the top. This portion of the Parcel will be referred to as the "Cliffside".

The Applicant intends to landscape both the Meadow and the Cliffside. Within the Meadow, the Applicant intends to install approximately: fifty (50) coconut palm trees, four (4) beach heliotrop trees, six (6) kamani trees, and various naupaka bushes along the shoreline; and

twenty-five (25) coconut palm trees, four (4) beach heliotrop trees, and naupaka bushes on the west (mauka) side of the Meadow. The Applicant intends to install approximately forty (40) coconut palm trees on the west side of the Papaa Stream and forty (40) coconut palm trees on the east side of the Papaa Stream, running parallel to the stream. The Applicant also intends to install approximately one hundred fifty (150) coconut palm trees and various naupaka bushes and hala trees on the Cliffside. The location of the landscaping is shown on the Landscape Plan, which is attached hereto as Exhibit "F".

In order to provide water for the landscaping, the Applicant intends to install an underground irrigation system constructed of PVC pipe. The irrigation will utilize drip lines and sprinklers.

In addition, the Applicant intends to relocate five (5) trees (four (4) coconut palm trees and one (1) beach heliotrop tree) from their present locations to locations closer to the area of the new landscaping.

Finally, the Applicant intends to construct a driveway, as shown on the Papaa Ranch Exhibit Showing Proposed Driveways In Conservation Zone attached hereto as Exhibit "G". The paved portion of the driveway will be approximately 250 feet in length and will be constructed of a crushed coral or gravel base covered with asphalt pavement (ten (10) feet wide and two (2) inches thick). The driveway will be located solely within the General Subzone. The paved portion of the driveway will be located on an existing unpaved agricultural road alignment. From there, the driveway will follow the alignment of existing unpaved agricultural road alignments to the Cottages (as shown on Exhibit "G"). The remaining portion of the driveway within the Conservation District will not be graded or paved.

The proposed landscaping, irrigation system, tree relocation, and driveway will be collectively referred to as the "Improvements".

X. SUBJECT PROPERTY ANALYSIS.

A. Location. The Parcel is Lot A-1-A of the Papaa Bay Ranch located at Papaa, Kawaihau, Kauai, Hawaii. The Conservation District portion of the Parcel is unimproved and vacant, except for a Bathhouse structure (shown on the Zoning Map).

B. Agricultural Use. Because of its location (close to the ocean) and topography, the Parcel is not suitable for agricultural use. The Applicant's proposed use of the Parcel will have no negative impacts on its availability for future agricultural use.

C. Technical Characteristics. The portion of the Parcel located within the Conservation District has three (3) topographic characteristics. As previously described, the Cliffside rises sharply and has steep slopes. The Meadow is relatively flat. The portion of the Parcel located to the north of the Papaa Stream ("North Area") rises gently to an elevation of approximately 120 feet above mean sea level. No activities or plan within the North Area, which is presently overgrown with ironwood trees, kamani trees, java plum trees, and non-endangered species of grasses and weeds. The Meadow is a generally well-kept lawn, with naupaka, coconut palms, and kamani trees located around its fringes. The Cliffside is presently overgrown with ironwood trees and non-endangered species of grasses and weeds.

The Applicant intends to plant additional coconut palm trees, naupaka bushes, and beach heliotrop trees to compliment the existing vegetation within the Meadow. The Applicant intends to plant additional coconut palm trees and naupaka bushes to fill in the bare portions of the Cliffside.

The Meadow is located for the most part at 0-10 feet above mean sea level. As noted, the North Area has elevations which rise from approximately mean sea level at the Papaa Stream to elevations of 120 feet above mean sea level. The Cliffside rises from sea level to 120 feet above mean sea level.

The Papaa Stream forms the geographic break between the Meadow and the North Area. The Papaa Stream is a perennial stream. The flow of water within the Papaa Stream will not be disturbed by the proposed Improvements.

The existing drainage pattern of the Parcel will not be disturbed by the Improvements. Presently, the North Area drains into the ocean and the Papaa Stream. The Cliffside drains into the ocean. The Meadow is subject to drainage from the higher elevated lands of the Papaa Bay Ranch, and either absorbs such drainage or allows such drainage to flow into the Papaa Stream or the ocean.

None of the areas within the Conservation District in which the proposed uses will take place have characteristics which would identify them as wetlands.

Almost all of the eastern boundary of the Parcel is defined by the shoreline fronting Papaa Bay. The shoreline is a sandy beach in front of the Meadow, and is composed of rocks and boulders in front of the Cliffside.

The proposed use will not have any increase or effect on traffic, sanitation and waste disposal, or refuse. The source of irrigation water for the landscaping will be an existing, private well and stream diversion system (from Papaa Stream) located on the Papaa Bay Ranch.

A draft Archaeological Inventory Survey Of Papa'a Bay Ranch (prepared by Scientific Consultant Services, Inc.) was submitted to the State Historic Preservation Division

("SHPD"). Comments to the draft report were provided by SHPD, and a final Survey is being prepared. Both the Survey and SHPD comments are attached hereto as Exhibit "K".

None of the work proposed by Applicant within the Conservation District will affect any of the archaeological sites identified in the Survey. If the presence of any sites is discovered during the proposed work, the State Office of Historic Sites will be notified and work immediately will be halted until an appropriate resolution is reached in accordance with all applicable laws, rules and regulations.

D. Economic Characteristics. There will not be any significant beneficial or adverse economic effects resulting from the proposed action, except the short-term employment benefits during the course of installing and constructing the Improvements.

E. Social Characteristics. A public pedestrian easement to Papaa Bay is located down and along the Cliffside, as shown on the Landscape Plan (Exhibit "F"). The pedestrian easement will be undisturbed by the proposed use.

F. Drainage. The limited amount of additional drainage from the proposed development of the Parcel will not appreciably affect, nor overburden, the drainage system. The installation of landscaping will also serve to stabilize the soil (especially on the Cliffside) and reduce soil erosion and soil run-off.

G. Traffic Impact. The proposed use will have no impact on existing traffic conditions along Papaa Road, Kuhio Highway or elsewhere in the immediate area.

H. Availability of Public Services and Facilities. The proposed installation and construction of the Improvements on the Parcel will not unreasonably burden public agencies to provide additional necessary urban amenities, services and/or facilities.

1. Schools. Kapaa Intermediate and Kapaa High School are located approximately eight (8) and six (6) miles, respectively, from the Parcel. The proposed use on the Parcel will not increase the number of students attending these schools, and will not adversely impact the capacity of the schools.

2. Wastewater Disposal. There are no County sewage facilities in this area. All dwellings on the Papaa Bay Ranch will utilize Individual Wastewater Systems (septic systems with leach fields) as approved by the Department of Health, State of Hawaii ("DOH") for disposal of waste water. There will be no dwellings or septic systems located within the Conservation District portion of the Parcel. The proposed use will have no impact on any existing or planned Individual Wastewater Systems located on the Papaa Bay Ranch.

I. Solid Waste Disposal. Refuse collection is provided by the County of Kauai to the Papaa Bay Ranch, or is handled privately by the Applicant. The proposed use will have no impact on such services.

J. Water. The irrigation water for the landscaping will be supplied by a private water system owned and operated by Applicant on the Papaa Bay Ranch. The source of the water system is a well (State Well No. 1019-03) and water diverted from the Papaa Stream pursuant to a Registration Of Stream Diversion Works And Declaration Of Water Use filed May 24, 1989, with the Commission of Water Resource Management ("Water Commission"), Department of Land and Natural Resources. The diversion structure will not be modified, nor will additional water be diverted, unless the Water Commission issues the necessary permits.

K. Electricity and Telephone. Electric and phone facilities are presently located on Papaa Road and Kuhio Highway. These facilities have been extended within the Papaa

Bay Ranch. The existing electric facilities, as well as the capacity of the Citizens Utilities Co. (Kauai Electric Division), is sufficient to service the electrical needs of the water system which supplies the irrigation water.

L. Police and Fire Protection. This area is currently served by the Kapaa Police Sub-Station and the Kapaa Fire Station located approximately seven (7) and eight (8) miles, respectively, from the Parcel. The proposed use will not in and of itself create any demand for an expansion of either the police or fire services.

XI. IMPACTS UPON RESOURCES OF THE AREA.

A. Botanical Resources and Wildlife. The proposed use will have no significant impact on any existing wildlife or vegetation in the area. There are no known botanical resources within the area of the Parcel which either need to be protected or which would be endangered by the use. Applicant has attached as Exhibit "H" a Botanical Resources Assessment prepared by Char & Associates (Botanical Consultants) which conclude that there are no threatened or endangered species or plants considered a none or vulnerable species within the Papaa Bay Ranch. Applicant has also attached as Exhibit "I" an Avifaunal And Feral Mammal Survey Report prepared by Prof. Phillip L. Bruner which reported the presence of endangered native wildbirds and landbirds (Nene, Common Moorhen, Koloa) on the Papaa Bay Ranch. These birds were found in the upper pasture areas and wetlands near the Papaa Stream. Most of the proposed Improvements will not be installed or constructed in these locations. Care will be taken along the Papaa Stream area not to disturb any such birds during the installation of the landscaping and irrigation. Once installed, the landscaping and irrigation will have no impact on any such birds.

B. Historical Resources. The Applicant is not aware of any archaeological, cultural or historical resources on the surface of the Parcel in which the use will take place which will be affected by the proposed work. As noted in Section X.C., a draft Archaeological Survey has been prepared and submitted to the State Historic Preservation Division, which has responded with comments. A final Archaeological Survey is being prepared based on these comments and will be submitted to SHPD. None of the activities proposed in this Application will affect the archaeological sites identified in the Archaeological Survey. Should any surface or subsurface cultural features be encountered during the work, the Applicant will seek archaeological consultation and will preserve and/or salvage any significant remains or artifacts. In the event of inadvertent burial discovery, the Applicant will cease all construction activity and immediately contact the Historical Preservation Division of the Department of Land and Natural Resources.

C. Air Quality/Noise. The proposed use will have no impact on the air quality and ambient noise levels in the area. Air quality and ambient noise levels may be effected at a very minimal level during the installation and construction phase. All vehicles or equipment used by the Applicant during installation will be properly muffled, housed and maintained to reduce any noise impacts or emission impacts. The Environmental Protection Agency (EPA) and State of Hawaii air quality standards will not be exceeded.

D. Recreational Resources. A pedestrian access easement is located down and along the Cliffside. This provides public access to Papaa Bay. Applicant's proposed use will not effect the use of the pedestrian easement or recreational uses of Papaa Bay.

E. Scenic Resources. The area in which the proposed use will take place is not located within any scenic corridors or viewplanes identified in the Comprehensive Zoning Plan

or General Plan of the County of Kauai, or in any State plans applicable to Kauai. The installation and construction of Improvements on the Parcel will be compatible with the adjacent uses and compatible with the scenic characteristics of the surrounding area. Because of its location, the landscaping and driveway on the Parcel will not be visible from any public streets. The landscaping will enhance the beauty of this area.

F. Community Concerns. The Aliomanu Estates Subdivision is located immediately to the south of the Papaa Bay Ranch. The Applicant has provided the Aliomanu Estates Community Association (hereinafter referred to as "AECA") with a copy of the Environmental Assessment for its comments.

G. Future Development/Cumulative Impacts. The proposed installation and construction of the Improvements will have no impact on any future development of the Papaa Bay Ranch or any future development in the surrounding area, and will have no result in any cumulative impacts.

XII. COMPATIBILITY WITH APPLICABLE LAWS.

The Applicant's proposed installation and construction of the Improvements on the Parcel will be compatible with HRS Chapter 183C and HAR Chapter 13-5, HRS Chapter 205, the Hawaii State Plan (HRS Chapter 225), the Hawaii State Functional Plans, and all other applicable laws, ordinances, or regulations. The proposed development will have no substantial negative environmental impacts on the Parcel or the surrounding area.

XIII. COMPLIANCE WITH CDUA CRITERIA.

The proposed installation and construction of the Improvements on the Parcel will comply with the following criteria, as set forth in the HAR Title 13, Department of Land and Natural Resources, Subtitle 1 Administration, Chapter 5, Conservation District (13-5-30):

(1) Whether the proposed land use is consistent with the purpose of the conservation district.

The proposed use will result in a minimal disturbance to the existing physical environment and social area, and as such is consistent with the intent to conserve, protect and preserve the natural resources of the conservation district.

(2) Whether the proposed land use is consistent with the objectives of the subzone of the land on which the use will occur.

The proposed use consists of land uses for landscaping purposes and driveway construction which are permitted in the Limited Subzone and General Subzone. The proposed use will not adversely impact existing watersheds, marine, plant, and wildlife sanctuaries, significant historic, archaeological, geological, and volcanological features and sites, and other designated unique areas within this subzone.

(3) Whether the proposed land use complies with provisions and guidelines contained in HRS Chapter 205A, entitled "Coastal Zone Management", where applicable.

The proposed use will be located in the Special Management Area ("SMA"). The installation of landscaping and accessory irrigation is an exempt activity pursuant to Section 1.4H(2)(h) of the Special Management Area Rules and Regulations of the County of

Kauai, and will not have any direct adverse impact on the Parcel. The Planning Director of the County of Kauai, by letter dated September 3, 1998 (a copy of which is attached as Exhibit "J"), issued Special Management Area Minor Permit SMA(M)-99-10 for the construction of the driveway within the portion of the Parcel located in the Special Management Area, which includes the Conservation District.

(4) Whether the proposed land use will cause substantial adverse impact to existing natural resources within the surrounding area, community or region.

The proposed use will not adversely impact the existing and surrounding environment, as it will have a beneficial impact on the surrounding environment.

(5) Whether the proposed land use, including buildings, structures and facilities, is compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels.

Because of its minimal impact on, and enhancement of, the physical and natural environment, the proposed use is compatible with the locality and surrounding areas.

(6) Whether the existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon, whichever is applicable.

The natural beauty and open space characteristics of the area will be preserved and enhanced by the proposed landscaping.

(7) Whether the Subdivision of land will be utilized to increase the intensity of land uses in the conservation district.

The proposed use will not result in a subdivision of land that would intensify the land use in the Conservation District.

(8) Whether the proposed land use will be materially detrimental to the public health, safety and welfare.

The proposed use will not be detrimental to public health, safety, and welfare.

XIV. SIGNIFICANCE CRITERIA.

The proposed installation and construction of the Improvements on the Parcel will comply with the following criteria as set forth in Title 11, Chapter 200, Section 11-200-12 of the EIS Administrative Rules of the Office of Environmental Quality Control:

(1) Whether the proposed action involves an irrevocable commitment to loss or destruction of any natural or cultural resource.

Due to the absence of any known natural or cultural resources within the location of the proposed use, there will be no irrevocable commitment to loss or destruction of such resources.

(2) Whether the proposed action curtails the range of beneficial uses of the environment.

The proposed use will have a minimal impact on, and will enhance, the existing vegetation currently growing on the otherwise vacant Parcel that is not now being

used for other beneficial purposes and will not, therefore, curtail the range of existing or future beneficial uses of the environment on or adjacent to the parcel in question.

(3) Whether the proposed action conflicts with the State's long-term environmental policies or goals and guidelines as expressed in HRS Chapter 344, and any revisions thereof and amendments thereto, court decisions, or executive orders.

The proposed use will take place in the Conservation District but will not have any adverse impacts on the environment or otherwise create any adverse effects to the public health, safety, and welfare. As a result, the proposed use will not conflict with the State's long-term policies or goals as articulated in HRS Chapter 344, court decisions, or executive orders.

(4) Whether the proposed action substantially affects the economic or social welfare of the community or state.

The proposed use is consistent with those uses currently existing on the Parcel and abutting parcels in the immediate vicinity and will not substantially effect the economic or social welfare of the community or state.

(5) Whether the proposed action substantially affects public health.

The proposed use will comply with all applicable laws, rules and regulations of the Department of Health of the State of Hawaii and will not substantially affect public health.

(6) Whether the proposed action involves substantially secondary impacts, such as population changes or affects on public facilities.

The proposed use is both minimal and reasonable and will not involve substantial secondary impacts on public facilities.

(7) Whether the proposed action involves a substantial degradation of environmental quality.

The proposed use will be in conformity with all applicable laws, rules and regulations of the County of Kauai and State of Hawaii and is a minimal and reasonable use of the Parcel that will not involve a substantial degradation of environmental quality.

(8) Whether the proposed action is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions.

The proposed use will have no negative impact on the environment, does not involve a commitment for larger actions, and will not combine with other or future uses or development to create a cumulative impact.

(9) Whether the proposed action affects a rare, threatened, or endangered species, or its habitat.

The proposed use will have no permanent effect on any rare, threatened, or endangered species, or its habitat on the Parcel.

(10) Whether the proposed action affects air or water quality or ambient noise levels.

The proposed use will be in accordance with all applicable laws of the County of Kauai and the State of Hawaii, and with the exception of noise that normally and

customarily is associated with the installation of landscaping and irrigation, the construction of the driveway, and the relocation of five (5) trees during those hours of the day authorized by law and for the limited period of time during such work, the proposed action will not unreasonably affect air, water quality or noise levels.

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

Portions of the Parcel where the Improvements will be installed and constructed are located within Flood Zone VE (Tsunami Zone), Elevation 12, as shown on the County of Kauai's Flood Insurance Rate Map 150002-0070C, and within the Drainageway adjacent to Papaa Stream. The landscaping will have little, if any, contributory impact on flooding on or around the Parcel.

(12) Whether the proposed action substantially affects scenic vistas and viewplanes identified in County or State plans or studies.

The proposed landscaping will not be installed within scenic vistas and viewplanes identified in county or state plans or studies. In addition, the landscaping will enhance the appearance of the area.

(13) Whether the proposed action requires substantial energy consumption.

The proposed landscaping and irrigation will only require minimal electrical energy consumption to operate the pumps necessary to provide the irrigation water.

XV. AGENCY COMMENTS.

The Applicant has received comments from the following agencies and has provided responses as noted.

A. Department of Land and Natural Resources. The Department of Land and Natural Resources, in its letter dated November 30, 1998, to the Applicant, asked the Applicant to clarify and provide further information concerning certain sections of the Conservation District Use Permit Application ("CDUA") and the draft Environmental Assessment. The Applicant responded in a letter dated January 19, 1999, together with attachments. Both of these letters are attached hereto as Exhibit "L".

B. U.S. Army Corps. The Department of the Army provided comments to the Applicant in a letter dated December 4, 1998. The Applicant responded in a letter dated February 5, 1999. Both of these letters are attached hereto as Exhibit "M".

C. Commisison On Water Resource Management. The State Commission on Water Resource Management (DLNR) provided comments to the Applicant in a letter dated December 17, 1998. The Applicant responded in a letter dated February 5, 1999. Both of these letters are attached hereto as Exhibit "N".

D. Division of Conservation and Resource Enforcement. The State Division of Conservation and Resource Enforcement (DI.NR) provided comments to the Applicant in a letter dated January 6, 1999, in which it stated that based on a field inspection nothing was noted that might be a bar to the approval of the Applicant's proposal. The Applicant responded in a letter dated February 2, 1999. Both of these letters are attached hereto as Exhibit "O".

E. Division of Forestry & Wildlife. The State Division of Forestry & Wildlife (DLNR) stated in a letter dated December 2, 1998, that it had no objection to the CDUA. The Applicant responded in letters dated January 12, 1999, and February 4, 1999. All letters are attached hereto as Exhibit "P".

F. Department of Transportation. The State Department of Transportation stated in a letter dated December 11, 1998, that the proposed activity would not impact State transportation facilities. The Applicant responded in letters dated January 12, 1999, and February 4, 1999. All letters are attached hereto as Exhibit "Q".

G. Department of Health. The State Department of Health stated that it had no comments to offer in its letter dated December 8, 1998. The Applicant responded in letters dated January 12, 1999, and February 4, 1999. All letters are attached hereto as Exhibit "R".

H. Department of Hawaiian Home Lands. The State Department of Hawaiian Home Lands stated in a letter dated December 23, 1998, that it had no comment to offer. The Applicant responded in letters dated January 12, 1999, and February 4, 1999. All letters are attached hereto as Exhibit "S".

I. Department of Water. The Department of Water of the County of Kauai stated in a letter dated December 9, 1998, that it had no objection to the proposed CDUA, but noted that there was no County water service available to the Subject Property. The Applicant responded in letters dated January 12, 1999, and February 4, 1999. All letters are attached hereto as Exhibit "T".

J. Office of Hawaiian Affairs. The State Office of Hawaiian Affairs stated in a letter dated December 21, 1998, that an archaeological survey and report should be completed

as part of the CDUA. The Applicant responded in a letter dated February 4, 1999. Both letters are attached hereto as Exhibit "U".

K. Engineering Branch - Land Division. The Engineering Branch - Land Division of DLNR by letter dated December 4, 1998, recommended that the proposed work follow the Kauai County's flood ordinance standards. The Applicant responded in a letter dated February 5, 1999. Both letters are attached hereto as Exhibit "V".

XVI. CONCLUSION.

The Applicant respectfully requests that the DLNR:

1. Find that Applicant's proposed installation and construction of the Improvements will not have any significant environmental impacts.
2. Find that the Applicant need not prepare an Environmental Impact Statement in this case.
3. Issue a "Finding Of No Significant Impact" in this matter, as that term is defined by Title 11, Department of Health, Chapter 200, Environmental Impact Statement (EIS) Rules, Subchapter 2(11-200-2).

DATED: Lihue, Kauai, Hawaii, February 5, 1999.



MAX W. J. GRAHAM, JR.
Attorney for Applicant
MANDALAY PROPERTIES HAWAII LLC

EXHIBIT "A"

13.	58° 59'	78.00	feet along Lot 10, Aliomanu Estates, File Plan 2023;
14.	79° 58' 30"	223.90	feet along Lot 10, Aliomanu Estates, File Plan 2023;
15.	92° 59'	379.91	feet along Lot 10, Aliomanu Estates, File Plan 2023;
16.	123° 58' 30"	114.00	feet along Lot 11, Aliomanu Estates, File Plan 2023;
17.	154° 16'	286.70	feet along Lot 11, Aliomanu Estates, File Plan 2023;
18.	105° 41'	16.00	feet along Lot 11, Aliomanu Estates, File Plan 2023;
19.	87° 06'	190.10	feet along Lot 11, Aliomanu Estates, File Plan 2023;
20.	60° 16'	171.20	feet along Lot 11, Aliomanu Estates, File Plan 2023;
21.	Thence along Papaa Road on a curve to the left with a radius of 30.00 feet, the chord azimuth and distance being: 165° 31' 30" 57.89 feet;		
22.	215° 48'	177.73	feet along the remainder of Lot 27 (Lot 27-A);
23.	247° 51'	578.78	feet along the remainder of Lot A-1 (Lot 27-A);
24.	154° 00'	374.70	feet along the remainder of Lot A-1 (Lot 27-A);
25.	55° 00'	196.86	feet along the remainder of Lot A-1 (Lot 27-A);
26.	81° 01'	399.40	feet along Papaa Road and Lot 25;
27.	128° 29'	247.50	feet along Lot 25;



- 28. 235° 59' 173.90 feet along Lot 1-B-1-B;
- 29. 145° 59' 637.00 feet along Lot 1-B-1-B;
- 30. 207° 19' 200.10 feet along the remainder of Lot 24-A;
- 31. 197° 12' 589.80 feet along the remainder of Lot 24-A;
- 32. 260° 04' 1,594.40 feet along the remainder of Lot 24-A, to the point of beginning and containing an AREA of 67.460 Acres more or less.

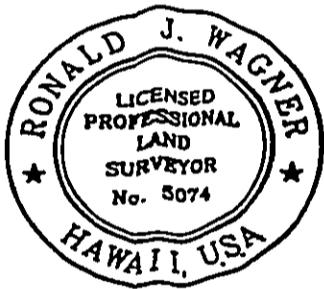
TOGETHER, HOWEVER with easements "U" for use area purposes containing 44,391 square feet and easement "V", 40.00 feet wide for view area purposes affecting Lots 10 and 11, Aliomanu Estates, File Plan 2023.

SUBJECT, HOWEVER to the following:

- Easements for ocean view purposes
- "OV-1" 20,299 square feet
 - "OV-2" 18,511 square feet
 - "OV-3" 18,620 square feet
 - "OV-4" 18,229 square feet
 - "OV-5" 31,450 square feet

SUBJECT, ALSO, HOWEVER to a beach access easement, 10.00 feet wide containing an area of 1,690 square feet.

WAGNER ENGINEERING SERVICES INC.



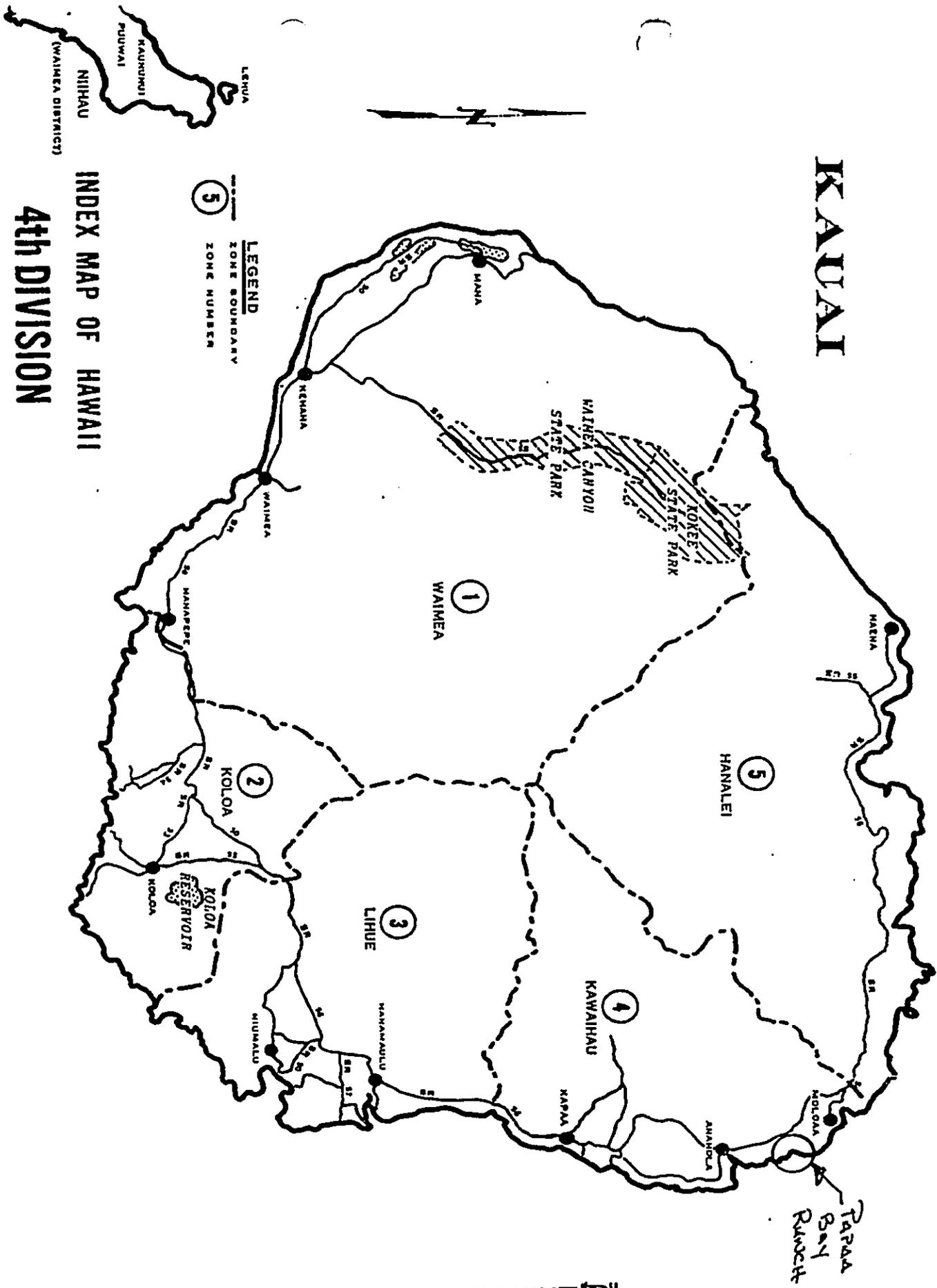
June 26, 1998
 Amended September 22, 1998
 P.O. Box 851
 Hanalei, Hawaii 96714

A handwritten signature in cursive script that reads "Ronald J. Wagner".

Ronald J. Wagner
 Licensed Professional Land
 Surveyor Certificate No. 5074

EXHIBIT "B"

KAUAI



LEGEND
--- ZONE BOUNDARY
⑤ ZONE NUMBER

INDEX MAP OF HAWAII
4th DIVISION

EXHIBIT "B"

EXHIBIT "C"

MASTER
TAX MAP KEY
(TMK)

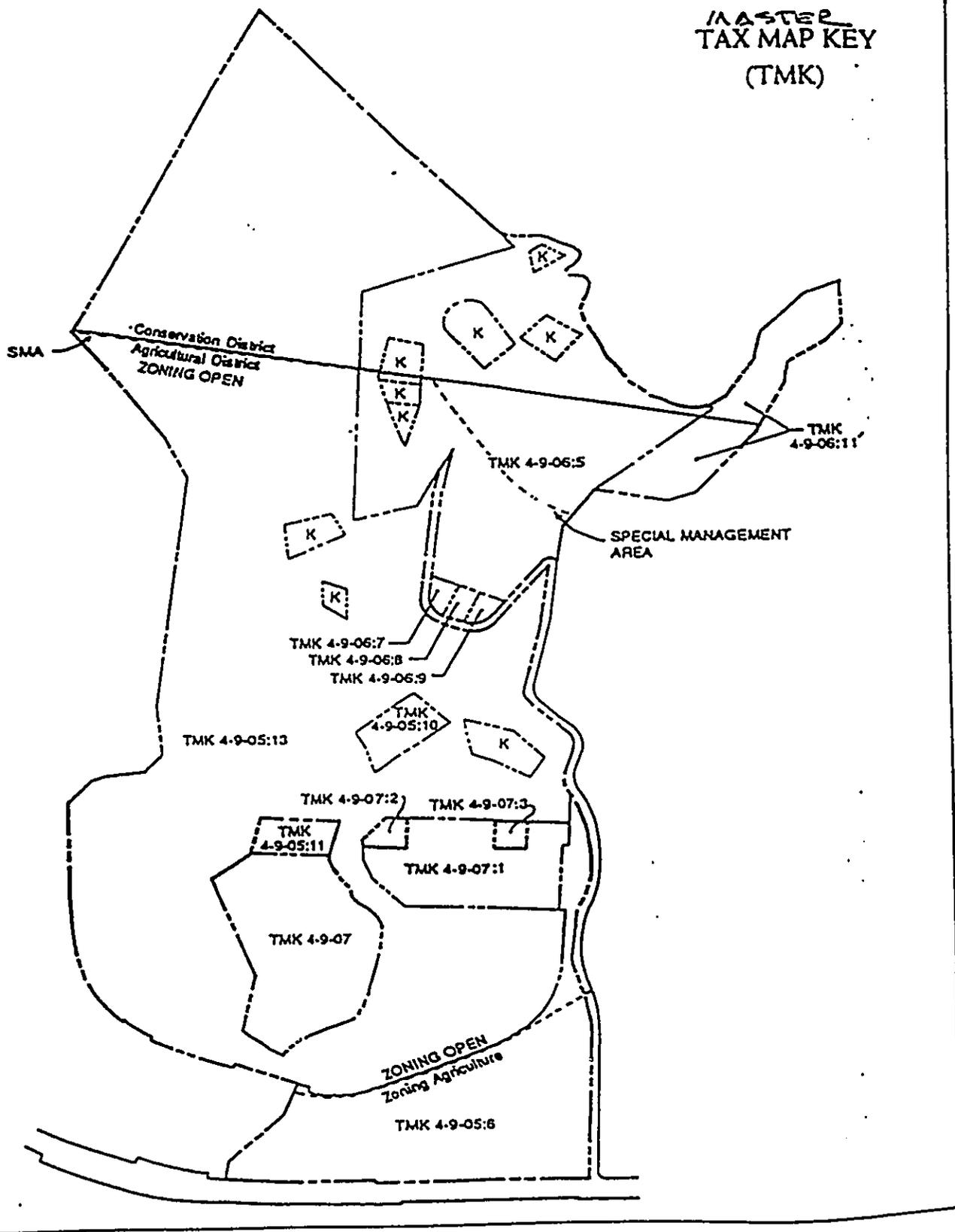
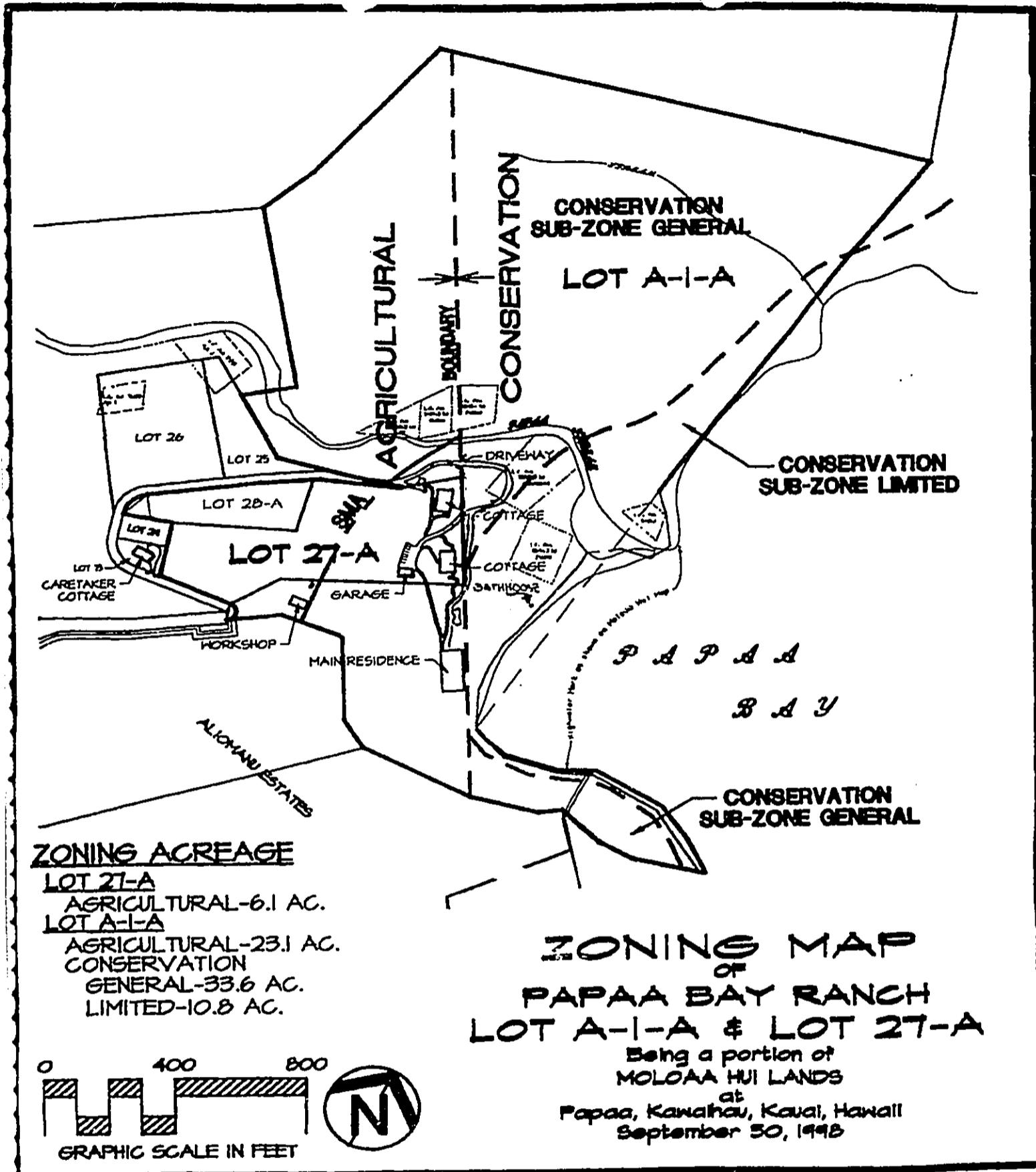


EXHIBIT "C"

EXHIBIT "D"

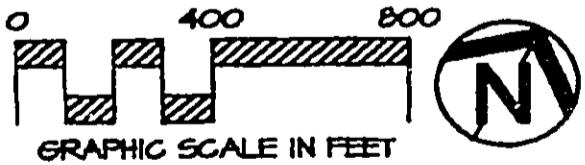


ZONING ACREAGE

- LOT 27-A
AGRICULTURAL-6.1 AC.
- LOT A-1-A
AGRICULTURAL-23.1 AC.
CONSERVATION
GENERAL-33.6 AC.
LIMITED-10.8 AC.

ZONING MAP
OF
PAPAA BAY RANCH
LOT A-1-A & LOT 27-A

Being a portion of
MOLOAA HUI LANDS
at
Papaa, Kauhau, Kauai, Hawaii
September 30, 1998

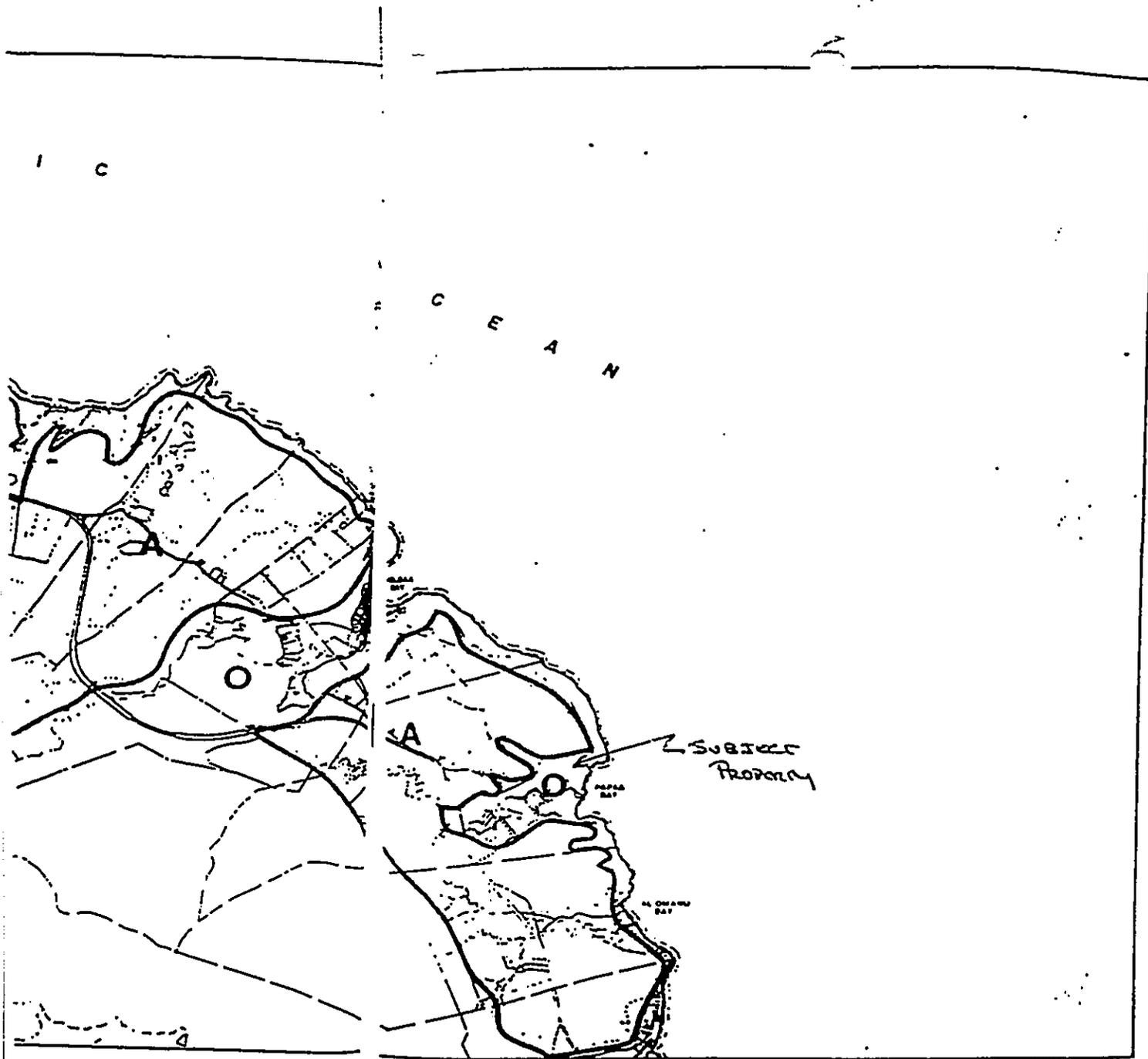


TMK:(4) 4-4-06:05, 07, 11

PROJECT NO. 1551

EXHIBIT 'D'

EXHIBIT "E"



NORTH SHORE

USE
ZONES

KAUAI GENERAL PLAN

- | | | | | |
|---------------|----|-------------------|-----|-------------------|
| LEGEND | O | OPEN | UMU | URBAN MIXED USE |
| | A | AGRICULTURAL | R | RESORT |
| | RR | RURAL RESIDENTIAL | PF | PUBLIC FACILITIES |
| | UR | URBAN RESIDENTIAL | | |

EXHIBIT "E"

EXHIBIT "F"

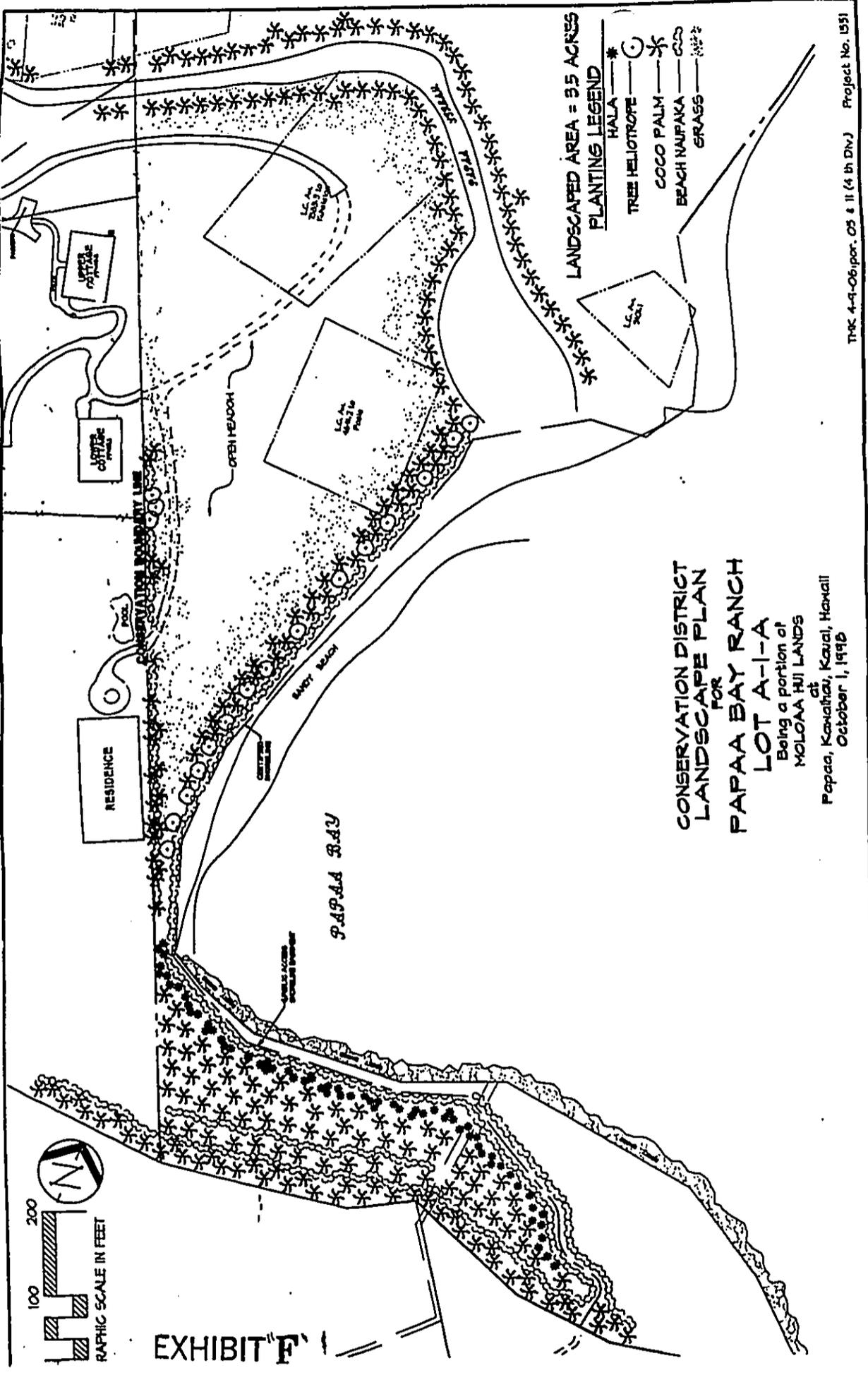
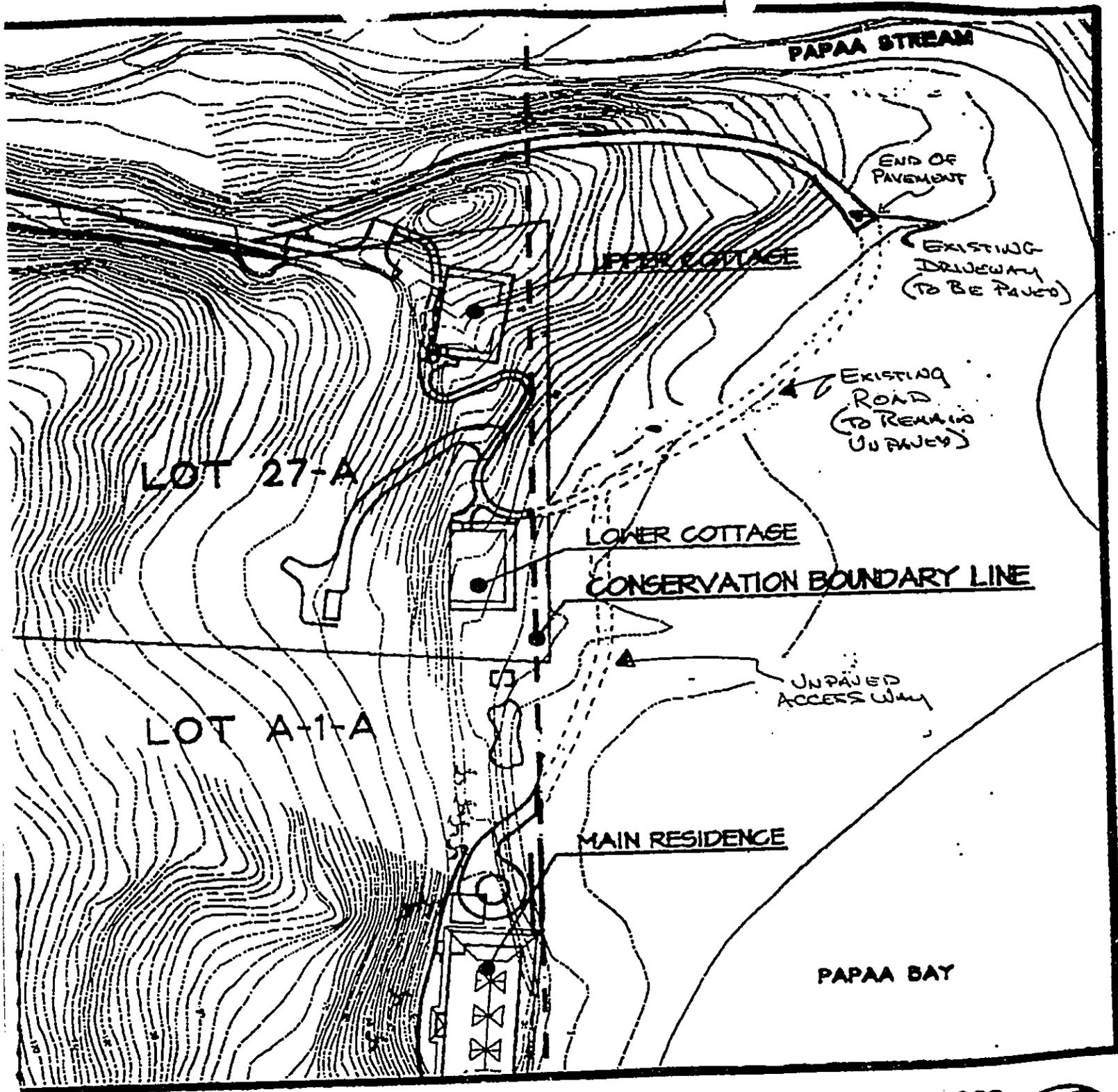


EXHIBIT 'F'

**CONSERVATION DISTRICT
LANDSCAPE PLAN
FOR
PAPAA BAY RANCH
LOT A-1-A**
Being a portion of
MOLOAA HI LANDS
at
Papaa, Kawaihau, Kaula, Hawaii
October 1, 1998

THK 4-4-06/por. 05 & 11 (4 th Div.) Project No. 1531

EXHIBIT "G"



PAPAA RANCH
 EXHIBIT SHOWING PROPOSED DRIVEWAYS
 IN CONSERVATION ZONE

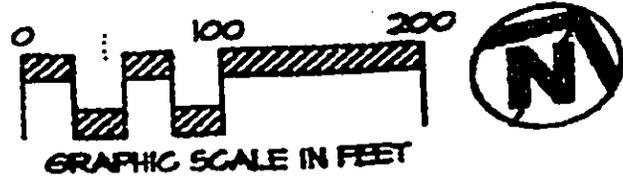


EXHIBIT "G"

EXHIBIT "H"

BOTANICAL RESOURCES ASSESSMENT
PAPA'A BAY RANCH DUE DILIGENCE STUDY
KAWAIHAU DISTRICT, ISLAND OF KAUA'I

by

Winona P. Char
CHAR & ASSOCIATES
Botanical Consultants
Honolulu, Hawai'i

Prepared for: BELT COLLINS HAWAII

July 1996

EXHIBIT "H"

BOTANICAL RESOURCES ASSESSMENT
PAPA'A BAY RANCH DUE DILIGENCE STUDY
KAWAIHAU DISTRICT, ISLAND OF KAUA'I

INTRODUCTION

The Papa'a Bay Ranch property, located on the northeastern portion of Kaua'i, is situated between Kuhio Highway and the ocean. The property consists of a single, small valley nearly a mile long and one third of a mile wide; elevation ranges from sea level along Papa'a Bay to about 200 ft. above mean sea level at the highway (Belt Collins & Associates 1989). The valley floor which is bisected by Papa'a Stream is largely pasture land with scattered stands of trees, primarily Java plum. Along the sides of the valley, the slopes are relatively steep and covered with dense ironwood forest in most places. Naupaka shrubland is found on the rugged coastal slopes along the northern half of the property. The "meadows", a level, grassy open space area, is located behind the crescent-shaped sandy beach on the south half of the parcel.

A reconnaissance-level survey was made on 14 June 1996 to assess the botanical resources found on the Papa'a Bay Ranch property; a team of two botanists conducted the study. The primary objective of the survey was to identify areas which might harbor threatened and endangered species, and sensitive native plant-dominated communities.

Topographic maps and a black and white aerial photograph of the property were examined prior to the field study to familiarize the botanists with the distribution of the vegetation cover types, reference points and boundaries, and access. A walk-through survey

method was used. Areas containing native plants, such as the coastal sections and the steep slopes of the valley, were more intensively investigated. Notes were made on plant associations and distributions, substrate types, exposure, disturbances, topography, etc.

DESCRIPTION OF THE VEGETATION

Four vegetation types or plant communities are recognized on the Papa'a Bay Ranch site and are described below. The plant names, used in the discussion follow the most recent treatment of the Hawaiian flora by Wagner et al. (1990).

1. Coastal vegetation -- Two subtypes of the coastal vegetation can be recognized on the property based on substrate type and disturbance. On the sandy, crescent-shaped beach and on the fine sandy loam soils behind the beach, the "meadows" area, the vegetation is periodically maintained. Along the front of the beach are low mats of the purplish-pink flowered beach morning glory or pohuehue (Ipomoea pes-caprae). Behind the beach morning glory is a belt of beach naupaka shrubs (Scaevola sericea) and scattered plantings of various salt-spray tolerant trees which include ironwood (Casuarina equisetifolia), hala (Pandanus tectorius), tree heliotrope (Tournefortia argentea), coconut (Cocos nucifera), sea grape (Coccoloba uvifera), and false kamani or tropical almond (Terminalia catappa). Besides the beach morning glory, beach naupaka, and hala, other native species found on the sandy beach are pa'u o Hi'iaka (Jacquemontia ovalifolia) and beach pea or mohihihi (Vigna marina).

The "meadows" area which is periodically mowed is primarily a mixture of Bermuda grass or manienie (Cynodon dactylon), St. Augustine grass (Stenotaphrum secundatum), Guinea grass (Panicum

maximum), wedelia (Wedelia trilobata), and smaller, weedy herbaceous species. Where the "meadows" abuts Papa'a Stream and the water is brackish, water hyssop or 'ae'ae (Bacopa monnieri), a native species, and seashore paspalum (Paspalum vaginatum) form low, creeping mats along the waters' edge.

The second variant of the coastal vegetation is found along the northern half of the property. A band of windswept vegetation, 3 to 10 ft. tall, composed primarily of naupaka shrubs covers the coastal slopes; in places this band of naupaka shrubland may be 300 to 400 ft. wide. The inland boundary of the beach naupaka shrubland is delineated by a low thicket of Christmas berry (Schinus terebinthifolius) and koa haole (Leucaena leucocephala) shrubs or ironwood forest. Where the soil is stony and shallow, beach naupaka is replaced by a low mat of 'ilima (Sida fallax), maunaloa (Canavalia cathartica), pa'u o Hi'iaka, beach morning glory, and beach pea. A wave-swept, boulder beach is found along the shoreline. At least a half a dozen green sea turtles or honu (Chelonia mydas), a threatened species, were observed along this portion of the shoreline.

2. Pasture land -- This vegetation type covers most of the relatively level valley floor and the gently rolling slopes at the base of the valley walls. Pasture land vegetation covers the most area on the subject property and is composed of a mixture of various pasture grass species. Along the level areas near the stream or at the base of slopes where the soil is moister, California grass (Brachiaria mutica) forms extensive, almost monodominant, cover. In other places, pangola grass (Digitaria pentzii) is dominant. In most places though, the grass cover is a patchwork of California grass, pangola grass, Hilo grass (Paspalum conjugatum), Digitaria sp., Guinea grass, and sour grass (Digitaria insularis). Sensitive plant or puahilahila (Mimosa pudica), a creeping herb with prickly stems, is locally

common.

Scattered along the edges of the grassy pasture land are shrubs of lantana (Lantana camara) and pluchea or sourbush (Pluchea symphytifolia) shrubs, and Java plum trees (Syzygium cumini). Large clumps of elephant grass or Napier grass (Pennisetum purpureum) line the banks of Papa'a Stream where it crosses the pasture land on the valley floor.

3. Ironwood forest -- Ironwood, a native of Australia, forms dense forests, 30 to 60 ft. tall, on the steep valley walls and ridges to the north and south of the property. These areas have slopes 21% or greater and, in most places, the soils have been classified as Badland (Belt Collins & Associates 1989). Understory vegetation is typically sparse because the "needles" from the ironwood trees tend to form a thick carpet on the ground which persists for a long time; the "needles" are also suspected of having allelopathic exudates which suppress the growth of other species (Gagne and Cuddihy 1990).

Along the margins of the forest, however, other plant species become more abundant. Java plum trees especially are common along the edges of the forest. Also occasionally encountered are clumps of Guinea grass and sour grass; small shrubs of nettle-leaved vervain (Stachytarpheta urticifolia); white thunbergia vines (Thunbergia fragrans); shrubs of koa haole, lantana, pluchea, and Christmas berry; and smaller herbaceous species such as Sida rhombifolia, Asiatic pennywort (Centella asiatica), sensitive plant, etc.

On the property's northern boundary is a severely eroded ridge with large, virtually barren areas. A few small ironwood trees, 2 to 5 ft. tall, and widely scattered clumps of golden beardgrass or manienie 'ula (Chrysopogon aciculatus), 'uhaloa (Waltheria

indica), and Jamaica vervain (Stachytarpheta jamaicensis) manage to survive here.

4. Koa haole shrubland -- This vegetation type is found in the area fronting the highway and occupies only a small portion of the property. The area appears to have been bulldozed and leveled at one time, but is now overgrown with koa haole shrubs which form a dense cover 15 to 18 ft. tall. Filling in the matrix between the shrubs are dense mats of California grass. Scattered through this shrubland are smaller thickets of Christmas berry shrubs. Wait-a-bit or Mysore thorn (Caesalpinia decapetala), a woody climber with recurved prickles on young branches and leaves, forms almost impenetrable thickets in a few places.

DISCUSSION

The vegetation on the Papa'a Bay Ranch property is dominated by introduced or alien species such as the various pasture grasses, ironwood and Java plum trees, koa haole and lantana shrubs, etc. Introduced or alien species are all those plants which were brought to the Hawaiian Islands by humans, intentionally or accidentally, after Western contact, that is, Cook's discovery of the islands in 1778. Native plants are dominant only in the coastal vegetation, that is, the beach naupaka shrubland along the northern coastal area. This is not surprising as the property has been used for grazing for a long time. After more than a millenium of human occupation, few remnants of native vegetation occur within the coastal and lowland zones of the Hawaiian Islands (Cuddihy and Stone 1990).

Table 1 lists all the native species encountered during the field study. Almost all of the plants are more or less restricted to the coastal vegetation. None of the plants, however, is a listed,

proposed, or candidate threatened and endangered species (U.S. Fish and Wildlife Service 1994a, 1994b, 1994c); nor is any plant considered a species of concern or rare and vulnerable (Wagner et al. 1990). The beach naupaka shrubland along with its associated species is found throughout the Hawaiian archipelago.

In summary, the botanical resources should not constrain any future uses of the property. Other factors such as steep and eroded slopes and low lying areas along the stream may limit use of some portions of the property.

TABLE 1. Native plants found on Papa'a Bay Ranch site, Kaua'i.

Scientific name	Common name	*Status
MONOCOTS		
PANDANACEAE (Screw pine family)		
Pandanus tectorius S. Parkinson ex Z	hala, puhala	I
POACEAE (Grass family)		
Chrysopogon aciculatus (Retz.) Trin.	golden beardgrass, manie- nie 'ula, pi'ipi'i	I?
DICOTS		
CONVOLVULACEAE (Morning-glory family)		
Ipomoea pes-caprae (L.) R. Br.	beach morning glory, pohuehue	I
Jacquemontia ovalifolia ssp. sandwicensis (A. Gray) K. Robertson	pa'u o Hi'iaka	E
FABACEAE (Pea family)		
Mucuna gigantea (Willd.) DC	sea bean, ka'e'e	I
Vigna marina (J. Burm.) Merr.	beach pea, mohihihi, lemuomakili, nanea	I
GOODENIACEAE (Goodenia family)		
Scaevola sericea Vahl	beach naupaka, naupaka kahakai	I
MALVACEAE (Mallow family)		
Hibiscus tiliaceus L.	hau	I?
Sida fallax Walp.	'ilima	I
Thespesia populnea (L.) Sol. ex Correa	milo	I?
MENISPERMACEAE (Moonseed family)		
Cocculus trilobus (Thunb.) DC	huehue, hue, hue'ie, 'inalua	I

TABLE 1. Native plants (continued).

Scientific name	Common name	*Status
PAPAVERACEAE (Poppy family)		
Argemone glauca (Nutt. ex Prain) Pope	native poppy, pua kala, kala, naule	E
SCROPHULARIACEAE (Figwort family)		
Bacopa monnieri (L.) Wettst.	water hyssop, 'ae'ae	I
STERCULIACEAE (Cacao family)		
Waltheria indica L.	'uhaloa, hi'aloa, kanakaloa	I?
THYMELAEACEAE ('Akia family)		
Wikstroemia uva-ursi A. Gray	'akia, kauhi	E

*Status

- E = endemic = native only to the Hawaiian Islands.
- I = indigenous = native to the Hawaiian Islands and also elsewhere throughout the Pacific and/or tropics.
- I? = questionably indigenous = data not clear if dispersal by natural or human-related mechanisms, but weight of evidence suggests probably indigenous.

LITERATURE CITED

- Belt Collins and Associates. 1989. Land use analysis for Papa'a Ranch, Kauai. Prepared for The Martha A. Gerbode Testamentary Trust. July 1989.
- Cuddihy, L.W. and C.P. Stone. 1990. Alteration of native Hawaiian vegetation: effects of humans, their activities and introductions. Cooperative National Park Resources Studies Unit, University of Hawai'i, Manoa.
- Gagne, W.C. and L.W. Cuddihy. 1990. Vegetation. pp 45-114. In Wagner et al. (eds.), Manual of the flowering plants of Hawai'i. Vol. 1. University of Hawai'i and B.P. Bishop Museum Press, Honolulu. B.P. Bishop Museum Special Publication 83.
- U.S. Fish and Wildlife Service. 1994a. Endangered and threatened wildlife and plants; Determination of endangered and threatened status for 24 plants from the island of Kauai, HI. Final rule. Federal Register 59(38): 9304-9329. February 25, 1994.
- _____. 1994b. Endangered and threatened wildlife and plants. 50 CFR 17.11 & 17.12. August 20, 1994.
- _____. 1994c. Plants, Hawaiian Islands, Listed, proposed or candidate species under the U.S. Endangered Species Act, Updated: December 15, 1994. Unpublished list, Pacific Islands Office, Honolulu.
- Wagner, W.L., D.R. Herbst, and S.H. Sohmer. 1990. Manual of the flowering plants of Hawai'i. 2 vols. University of Hawai'i and B.P. Bishop Museum Press, Honolulu. B.P. Bishop Museum Special Publication 83.

EXHIBIT "I"

AVIFAUNAL AND FERAL MAMMAL SURVEY REPORT
FOR PAPAA BAY RANCH, KAUAI

Prepared for
Belt Collins and Associates

by

Phillip L. Bruner
Assistant Professor of Biology
Director, Museum of Natural History
Environmental Consultant - Faunal (Bird & Mammal) Surveys
BYU-H
Laie, Hawaii

15 July 1996

EXHIBIT "I"

INTRODUCTION

The purpose of this report is to provide the findings of a bird and mammal field survey of Papaa Bay Ranch, Kauai (Fig. 1). The survey was conducted on the 11-13 July 1996. Also included are references to pertinent literature as well as unpublished faunal reports from similar habitat on nearby lands. The objectives of the field survey were to:

- 1- Document what bird and mammal species occur on the property or may likely be found there given the type of habitats available.
- 2- Provide some baseline data on the relative (estimated) abundance of each species.
- 3- Determine the presence or likely occurrence of any native fauna particularly any that are considered "Endangered" or "Threatened".
- 4- Locate and note any habitats that might be important to native wildlife.

GENERAL SITE DESCRIPTION

Figure One indicates the location of the property. The topography of this site contains relatively flat pasture lands and rolling hills. Papaa Stream was flowing and appears to be permanent. Another smaller spring fed stream on the north end of the site was mostly dry except near the ocean. Habitats included: pasture land and lawns; second growth forests with Ironwood and Java Plum the dominant trees and the understory a mixture of Lantana, Guava and Christmas Berry; wetlands in the stream drainage and both sandy and rocky coastal habitats.

Weather during the survey was mostly clear with a few passing showers the 11th of July. Winds were from the east at 15-25 mph.

STUDY METHODS

The entire site was traversed on foot. Field observations were made with binoculars and by listening for vocalizations. All birds seen or heard were tallied. Mammal observations were limited to visual sightings and tracks. No trapping of mammals was attempted nor deemed necessary. The relative (estimated) abundance figures given in this report (Table 1) were derived from census data obtained at count stations (Fig.1). Published and unpublished reports of birds

known from this region of the island were also consulted in order to acquire a more complete picture of the possible species that might be expected (Bruner 1985, 1990, 1993; Pratt et al. 1987; Hawaii Audubon Society 1993).

Scientific names used in this report follow those given in Hawaii's Birds (Hawaii Audubon Society 1993); Field guide to the birds of Hawaii and the tropical Pacific (Pratt et al. 1987) and Mammal species of the World (Honacki et al. 1982).

RESULTS AND DISCUSSION

Native Land Birds:

Two Nene (Nesochen sandvicensis) were seen on 12 July 1996. This species is endangered. Nene have recently been released on Kauai as part of the US Fish and Wildlife Service recovery plan for this species. The two Nene were banded. One bird had a white plastic band with the letters VF on its right leg and a metal USFW band on its left leg. The other Nene had an orange band with the letters YZ on its left leg and a metal USFW band on its right leg. They were fairly tame and could be approached to within 15 feet. These birds were not seen on other days of the survey so they apparently move around between this property and other locations. Nene are open country birds that are not confined to wetland habitats.

The Short-eared Owl or Pueo (Asio flammeus) is the only other native land bird that might occur on this property. None were recorded on this survey. Pueo are listed as an endangered species on Oahu by the State of Hawaii Division of Forestry and Wildlife. This species forages in pastures, agricultural fields, second growth and native forest. They are more diurnal than the introduced Common Barn Owl (Tyto alba) with which they are sometimes confused by those unfamiliar with the proper identification of both species.

Native Waterbirds:

Three species of native waterbirds were recorded on the property. Five pairs of the endemic and endangered Common Moorhen or Alae Ula (Gallinula chloropus sandvicensis) were found along Papaa Stream. This species is rather shy and usually retreats to the cover of shoreline vegetation when approached. Their distinctive loud call is given when threatened or to keep in vocal contact with their mate. They are aggressive towards other moorhens. Each pair maintained their foraging territories along the stream.

One pair of the endemic and endangered Koloa Maoli or Hawaiian Duck (Anas wyvilliana) was also seen entering and leaving the stream mauka of the waterfall across from the existing ranch house. Koloa are commonly found along streams on Kauai. This pair was seen on the 11th and 12th of July.

Two indigenous Black-crowned Night Heron or Auku'u (Nycticorax

nycticorax) were tallied on the survey. One was seen on the exposed rocky intertidal shelf near Papaa Stream and the other was observed upstream near the waterfall. They are the only native waterbird which is not presently listed as endangered. This species is very opportunistic and forages in a wide variety of wetland habitats.

Migratory birds:

Migratory shorebirds winter in Hawaii between the months of August through April. Some juveniles will stay over the summer as well (Johnson and Johnson 1993). Of all the shorebirds species which winter in Hawaii, the Pacific Golden-Plover (Pluvialis fulva) is the most abundant. Plover prefer open areas such as exposed intertidal reef, rocky shorelines, mud flats, lawns, plowed fields and pastures. Johnson et al. (1981, 1989) have shown that plover are extremely site-faithful on their wintering grounds and most establish foraging territories which they defend vigorously. Such behavior makes it possible to acquire a fairly good estimate of the abundance of plover at specific locations. These populations likewise remain relatively stable over many years (Johnson et al. 1989). This species is not endangered or threatened. None were recorded on the survey due to the time of year. They undoubtedly occur on the pastures and open lawn areas of the property during the "winter months". Another migrant which utilizes open habitats is the Ruddy Turnstone (Arenaria interpres). They are not territorial nor are they endangered or threatened. The

Wandering Tattler (Heteroscelus incanus) and the Sanderling (Calidris alba) are two other migrants that might be expected along the shoreline fronting the property.

Seabirds:

No nesting seabirds were observed. The presence of predators such as cats and dogs make this area unsuitable for nesting or roosting seabirds. Several species can be seen offshore including: Red-footed Booby (Sula sula); Great Frigatebird (Fregata minor); Laysan Albatross (Diomedea immutabilis); Wedge-tailed Shearwater (Puffinus pacificus) and the threatened Newell's Shearwater (Puffinus newellii). Juveniles of these latter two species are attracted to lights and often collide with power lines and cars. The problem is particularly acute on Kauai. The State of Hawaii Department of Land and Natural Resources Division of Forestry and Wildlife have been actively working for the last 18 years to salvage downed birds (Job Progress Report 1995). They even publish a pamphlet designed to help developers and others address the problem.

Exotic (Introduced) Birds:

A total of 16 species of exotic birds were recorded during the field survey (Table 1). The most abundant birds were: Zebra Dove (Geopelia striata); House Finch (Carpodacus mexicanus); Japanese White-eye (Zosterops japonicus); and Common Myna (Acridotheres tristis).

Based on the location of the site and type of habitats available as well as information provided in Bruner 1985, 1990, 1993; Pratt et al 1987 and Hawaii Audubon Society 1993, the array of exotic species recorded on this survey conform to expectations. The only species not accounted for which likely occur in this area are: Greater Necklaced Laughing-thrush (Garrulax pectoralis); Western Meadowlark (Sturnella neglecta) and Nutmeg Mannikin (Lonchura punctulata).

Feral Mammals:

Three "feral" cats were observed on the survey. No trapping was conducted in order to assess the relative abundance of mammals.

Records of the endemic and endangered Hawaiian Hoary Bat (Lasiurus cinereus semotus) are limited, however, this species does occur on Kauai (Tomich 1986; Kepler and Scott 1990). No bats were found on this survey despite two evenings of observations. I have seen bats at several locations on either side of this property over the last five years.

CONCLUSION

A brief field survey such as this one can provide only a limited perspective of the wildlife which occur in the area. The number and relative abundance of each species may vary throughout the year and from one year to the next due to available food resources and

reproductive success. Species which are migratory will normally be found between August and May. Exotic species sometimes prosper only to later disappear or become a less significant part of the ecosystem (Williams 1987; Moulton et al. 1990). The following comments summarize the findings of this survey.

1- Endangered native waterbirds and landbirds were found on the property. The Nene prefer the pasture lands and the Common Moorhen and Koloa utilize the wetland resources of Papaa Stream. In addition, the non-endangered Black-crowned Night Heron also occurs at this site.

2- No migratory birds were observed which was not unexpected given the time of year. Migrants are on their arctic breeding grounds during July. Pacific Golden-Plover, Ruddy Turnstone, Wandering Tattler and Sanderling are likely to winter on this property.

3- The 16 introduced species found on the survey represent the typical array one would expect in this sector of the island. Some introduced species were not found but likely occur in the area.

4- Feral mammals observed were limited to cats. Rats, mice and on occasion the endangered insectivorous Hawaiian Hoary Bat likely also utilize the resources of this site.

5- Three habitats on the property are utilized by native birds. The wetlands along Papaa Stream provide food and cover for Common Moorhen, Koloa and Black-crowned Night Heron. The pasture lands and lawns are used by Nene and migrants. The coastal intertidal is also used by migrants and the Black-crowned Night Heron.

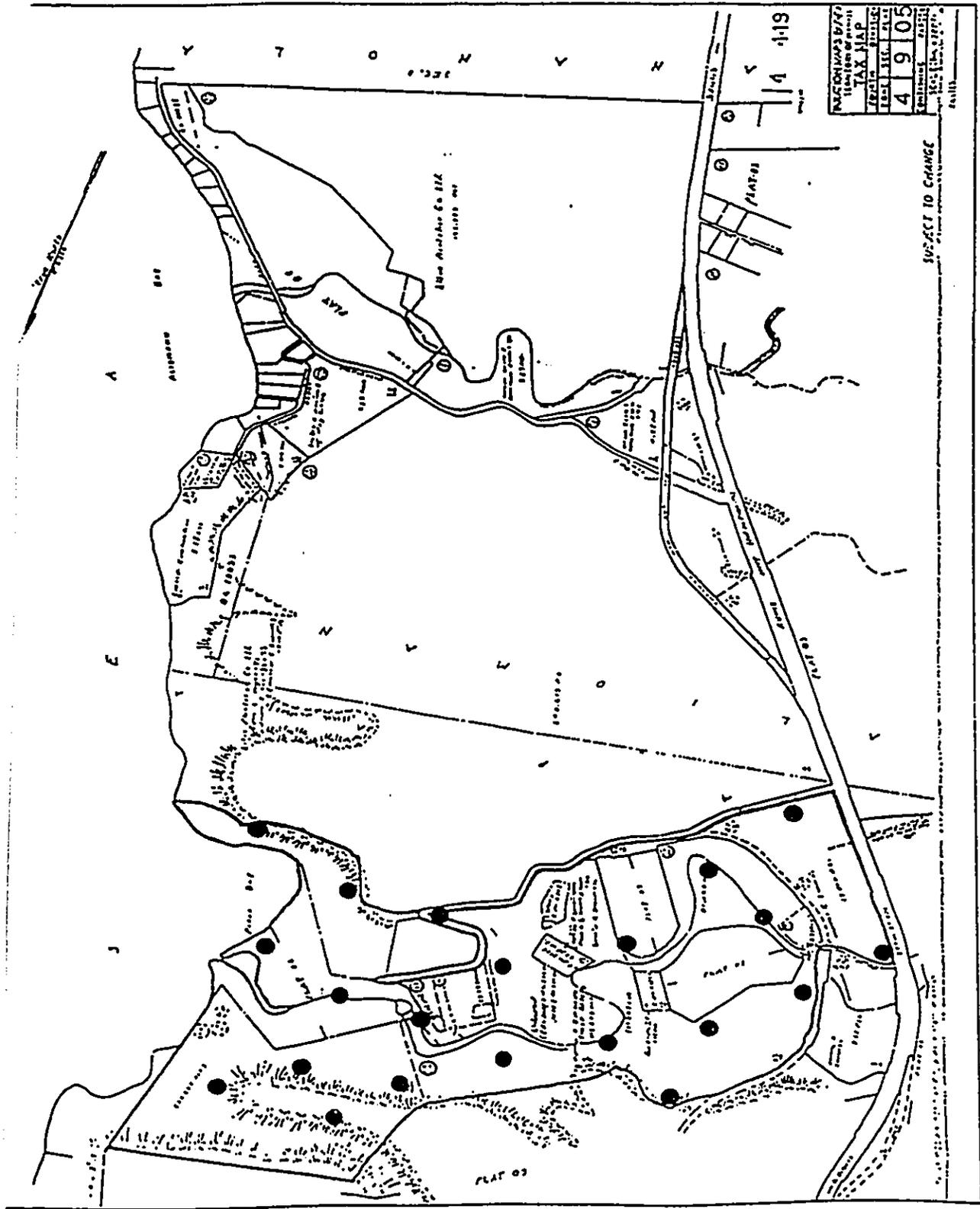


Fig. 1. Location of Papaa Bay Ranch, Kauai. Solid circles indicate the site of census stations.

Introduced birds recorded at Papaa Bay Ranch, Kauai.

COMMON NAME	SCIENTIFIC NAME	RELATIVE ABUNDANCE*
Ring-necked Pheasant	<u>Phasianus colchicus</u>	U
Cattle Egret	<u>Bubulcus ibis</u>	C
Feral chicken	<u>Gallus gallus</u>	C
Spotted Dove	<u>Streptopelia chinensis</u>	C
Zebra Dove	<u>Geopelia striata</u>	A
Barn Owl	<u>Tyto alba</u>	R= 1
Common Myna	<u>Acridotheres tristis</u>	A
Northern Mockingbird	<u>Mimus polyglottus</u>	R= 1
White-rumped Shama	<u>Copsychus malabaricus</u>	U
Hwamei	<u>Garrulax canorus</u>	U
Northern Cardinal	<u>Cardinalis cardinalis</u>	C
Red-crested Cardinal	<u>Paroaria coronata</u>	C
Japanese White-eye	<u>Zosterops japonicus</u>	A
Chestnut Mannikin	<u>Lonchura malacca</u>	R= 5
House Finch	<u>Carpodacus mexicanus</u>	A
House Sparrow	<u>Passer domesticus</u>	R= 10

*(see page 12 for key to symbols)

KEY TO TABLE 1

* Relative abundance

A= abundant (more than 10 birds on count stations in appropriate habitat)

C= common (5-10 birds on a count station in appropriate habitat)

U= uncommon (less than 5 birds on a count station in appropriate habitat)

R= recorded (seen on only one or two count stations or between stations,
number which follows is total recorded).

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EXHIBIT "J"

MARYANNE W. KUSAKA
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PLANNING DEPARTMENT

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September 3, 1998

Max W.J. Graham Jr.
Belles Graham Proudfoot & Wilson
Watumull Plaza
4334 Rice St., Suite 202
Lihue, HI 96766-1388

SUBJECT: Special Management Area Minor Permit SMA(M)-99-10
Driveway, Cart Path, and Flagstone Path
TMK: 4-9-06: 5 (por.) and 4-9-05: 13 (por.)
Papaa Bay, Kauai

Based on the information submitted, we have completed our review and assessment of the subject proposal and hereby issue a special Management Area Minor Permit authorizing, as represented, the construction of a driveway, cart path, and flagstone path.

Approval of the application is subject to the following conditions:

1. The applicant shall execute the Grant of Pedestrian Access Easement with the County of Kauai prior to construction of the improvements specified in this permit.
2. The applicant shall be responsible for obtaining permits, clearances, and approvals from all applicable agencies including the State Department of Land and Natural Resources for those portions of the work that may encroach into the Conservation District.

Also, please be informed that other permits or conditions from other agencies may be required. The applicant is responsible for resolving those conditions with the other respective agency(ies).

A handwritten signature in cursive script, appearing to read "Dee M. Crowell".

DEE M. CROWELL
Planning Director

EXHIBIT "J"

Kapule Building • 4444 Rice Street, Suite 473 • Lihue, Kauai, Hawaii 96766
AN EQUAL OPPORTUNITY EMPLOYER

EXHIBIT "K"

SCS Project Number 153-2

**AN ARCHAEOLOGICAL INVENTORY SURVEY OF
PAPA'A BAY RANCH
(TMK: 4-09-05: 6, 10, 13; 4-9-06: 5, 7, 8, 9, 11
AND 4-9-07: 1, 7, 8)
PAPA'A, KAWAIHAU DISTRICT,
KAUA'I ISLAND, HAWAII**

Prepared by:
James Powell, B.A.
and
Robert L. Spear, Ph.D.

Prepared for:
Applied Planning Systems
on behalf of
Mandalay Properties Hawaii LLC
October 1998

SCIENTIFIC CONSULTANT SERVICES Inc.

711 Kapiolani Blvd. Suite 777 Honolulu, Hawaii 96813

EXHIBIT "K"

ABSTRACT

At the request of Applied Planning Systems on behalf of Mandalay Properties Hawaii LLC., Scientific Consultant Services, Inc. (SCS), conducted an archaeological Inventory Survey of approximately 172 acres located in Papa'a, Kawaihau, Kaua'i Island, Hawai'i (TMK: 4-09-05: 6, 10, 13; 4-9-06: 5, 7, 8, 9, 11 and 4-9-07: 1, 7, 8). The survey was completed in August, 1998.

Background research conducted prior to survey indicated that historical ranching activities had impacted a majority of the project area. Ranching operations were thought to have potentially destroyed any archaeological sites, including relatively shallow subsurface deposits, particularly those occurring on the upper slopes and plateau areas. Thus, it appeared highly unlikely that significant historic sites could have survived the intensive landscape modifications which had occurred on the parcel, these modifications due to much of the project area being open to grazing lands and second, the many cleared areas on the parcel. It was predicted that a majority of archaeological sites would occur within Papa'a Stream Valley and a small ravine off the main stream channel.

Seven archaeological sites were identified within the project area, a majority of these occurring on the surface within the drainages and near the coastline and one site, a distinctive cultural layer, appearing in subsurface contexts. Initially all of the identified archaeological sites (50-30-03-979, 980, 982 through 986) were significant under criteria "D" (have yielded or are likely to yield information important for research on prehistory or history). However, since sufficient information has been gathered in the form of mapping and recording, Sites 982, 984, and 985 are considered no longer significant. The remaining sites, 979, 980, 983, and 986 are still considered significant under criteria D.

Sites 980 and 983 are also significant under criteria "E" (having traditional cultural significance to an ethnic group). Site 980 is significant under this criteria because of the presence of a possible burial. Site 983, the "Turtle Rock", is included under this criteria because it is a significant cultural feature.

Four of the identified archaeological sites (979, 980, 983, and 986) are recommended to be preserved in place. If development takes place in the coastal area near Site 986, a Monitoring Plan will be required should excavations be planned that exceed a depth of two feet below the ground surface. The purposed work areas (house location and such) are located within a natural buffer zone and do not contain archaeological deposits.

The possible burial area Feature D at Site 980 is planned for preservation, however if any future development is planned for this location or other identified sensitive areas, SHPD representatives must be first notified as subsurface testing will be required.

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INTRODUCTION

At the request of Applied Planning Systems on behalf of Manadaly Properties Hawaii LLC., Scientific Consultant Services, Inc. (SCS) conducted an archaeological Inventory Survey of approximately 172 acres located in Papa`a Ahupua`a, Kawaihau District, Island of Kaua`i, Hawai`i (TMK: 4-09-05: 6, 10, 13; 4-9-06: 5, 7, 8, 9, 11 and 4-9-07: 1, 7, 8; Figures 1 and 2). Jim Powell (Field Assistant) completed the fieldwork in August 1998. The project occurred under the overall direction of Robert L. Spear, Ph.D.

PHYSICAL SETTING

PROJECT AREA

The project area is located in the *ahupua`a* of Papa`a on the northeastern coast of Kaua`i in the traditional District (*moku*) of Ko`olau. (see Figures 1 and 2). Papa`a Stream courses through the center of Papa`a Valley, one of the major landforms within the project area. A small drainage is present on the (east) side of Papa`a valley which appears to be spring fed. Papa`a Stream itself is sustained by spring waters and from rain waters originating in a mountain ridge to the east of the project area. The stream extends from this *mauka* location for approximately three miles, its terminal point being the ocean.

Papa`a Ahupua`a consists of several distinctive physiographic and environmental zones with further subdivisions possible for two of the zones. One physiographic zone of Papa`a Ahupua`a contains uplands, steep slope lands cut by widely spaced erosional gullies, and major drainages consisting of deep ravines, the drainages terminating at the coastline. Plateaus have been formed between the large valleys. Interior forests dominate vegetation in upland areas. The valleys themselves form another distinctive zone. A majority of the valleys are deep and narrow V-shaped cuts, these incised cuts typically characteristic of rapidly moving, intermittent water. Intermittent streams also meander along valley floors and terminate at the coastline. Another zone is comprised of the coastline or coastal headlands.

The coastal zone contains calcareous sand beaches, the matrices primarily derived from shell, weathered rock, and an extensive fringing reef. The reef itself encloses a shallow reef flat approximately 300 to 1000 feet (91 to 305 m) wide. A wide, shallow reef fringes the northwest

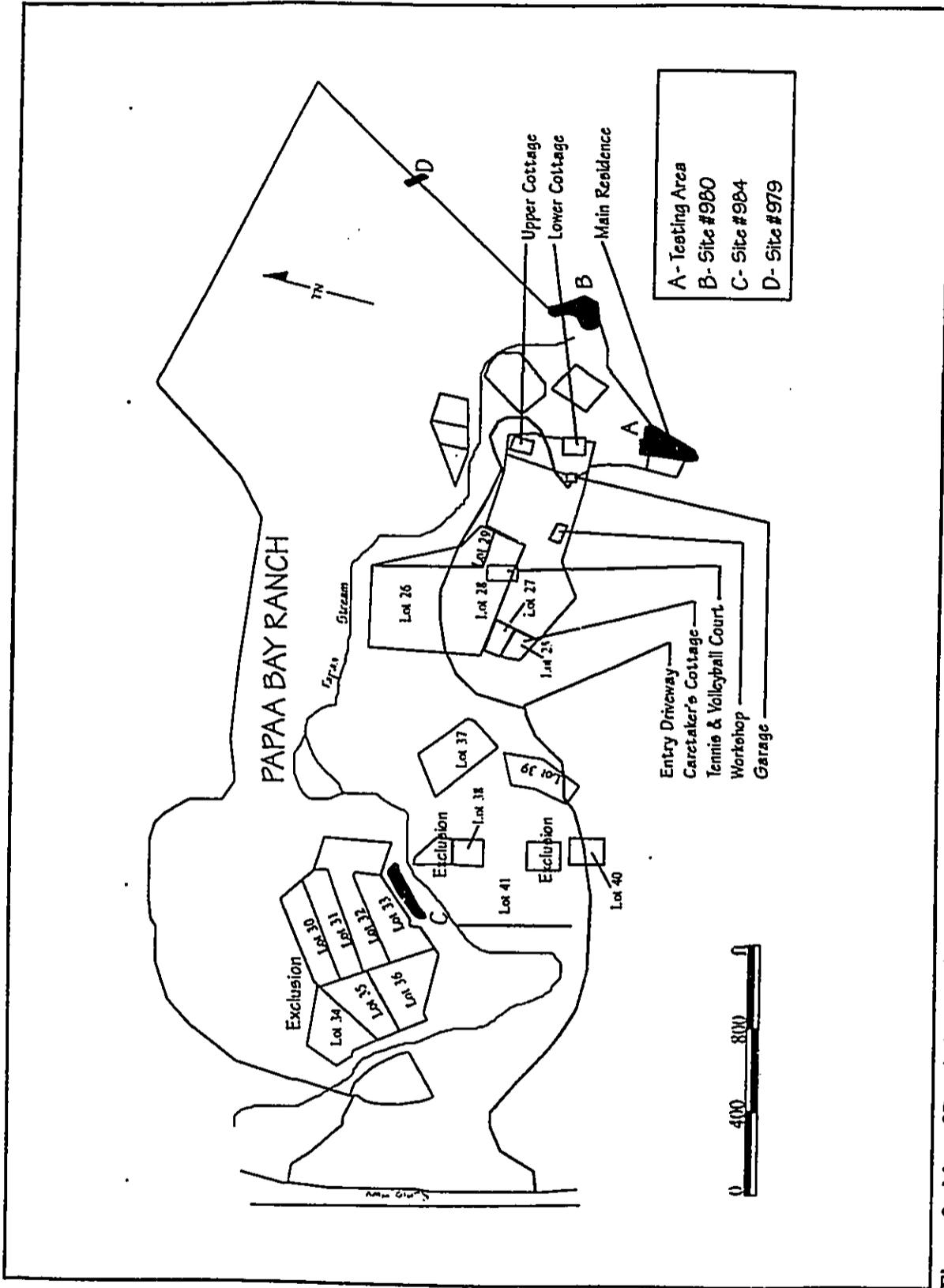


Figure 2: Map of Papa'a Bay Project Parcel, Boundaries, and Archaeological Sites.

side of Papa`a Bay. The beach sand extends 100 to 250 ft. (30 to 76 m) inland along the coast and terminates its *mauka* extent at the base of low, coastal cliffs. In some areas of the project parcel, the coastal cliffs descend directly into the ocean and/or extensive beachrock.

SOILS

Soils identified in the project area consist of the Lihue-Puhi association. This soil series consists of deep, nearly level to steep well-drained soils that have a fine textured or moderately fine textured subsoil (Foote *et al.* 1972).

Lihue silty clay is predominate within the valleys and composes the narrow floodplains adjacent to the streams. This soil is characterized as being a well-drained soil that developed in material weathered from basic igneous rock. Lihue Silty Clay (LhC) is commonly found on slopes consisting of an 8 to 15 percent grade. A small pocket of Lihue silty clay, located on a 0 to 15 percent slope (LhB), was identified on the south side of Papa`a Stream. In another instance, Lihue silty clay was identified near Papa`a Stream, occurring on a slope with a grade of 15 to 25 percent (LhD) (*ibid.*:83). The steep slopes descending to the sea consist of Badland (BL), a steep or very steep, nearly barren land. The soil-forming material is generally composed of both soft and hard saprolite. In these lands classified as barren, runoff is typically very rapid and geological erosion is active.

Lihue Silty Clay (LhE2) was identified in a side ravine of a Papa`a Valley. This soil series commonly occurs on very steep land. The silty clay occurs in gulches and on mountainsides, with slope gradients 25 to 40 percent. Runoff and geologic erosion is active. Along the shoreline, Mokuleia Fine Sandy sediment (Mr), Beach sand (BS) and Hanalei Silty Clay (HrB, 0 to 6 percent slope) have also been identified.

The Lihue-Puhi soil series is typically associated with lands utilized for pineapple cultivation, pasture, truck crops, orchards, wildlife habitat, and homesites, at least during the 20th century.

VEGETATION

The project area consists mainly of Papa`a Valley, table land areas, and the coastline. Major portions of the valley and table lands have been modified by 20th century ranching

activities. Remnants of previous cultivation were evident and included feral stands of banana (*Musa sp.*; *maia*), sugar cane (*Saccharum officinarum*), papaya (*Carica papaya*), *ki* (*Cordyline fruticosa*) and coconut palms (*Cocos nucifera*). The side ravine of Papa`a Valley contained thick vegetation including ginger (*Hedychium coronarium*), guava (*Psidium sp.*), various introduced tall grasses, vines, abundant *noni* (*Morina citrifolia*), and prominent Java plum (*Syzygium cumini*). Feral *kalo* (*Colocasia esculenta*) was also found. Christmas berry (*Schinus terebinthifolius*), lantana (*Lantana sp.*), *naupaka-kahakai* (*Scaevola sericea* Vahl.), tree heliotrope (*Messerschmidia argentea* [L.f.] Johnston), *koa haole* (*Leucaena leucocephala*), and cat's claw (*Macfadyena unguis-cati*) were also found. A ring of ironwood trees (*Casuarina equisetifolia* L.), planted as a wind break and to filter salt from the air, extended around the edge of the coastal cliffs and into more *mauka* areas.

TRADITIONAL AND HISTORIC SETTING

LAND UTILIZATION

Political Boundaries

Throughout the Hawaiian Islands, large political districts (*moku*) were formed as the population expanded about 600 years ago (Kamakau 1991:54, 55). Kaua`i consisted of six *moku*: Kona, Puna, Ko`olau, Halele`a, Napali, and Waimea (see Figure 1). Further traditional land divisions within the *moku* were *ahupua`a* which ideally incorporated all the natural resources necessary for traditional subsistence strategies and typically ran from the mountains to the coastline. The current project area is located in the *ahupua`a* of Papa`a. This *ahupua`a* originally occurred within the *moku* of Ko`olau, the district having been renamed Kawaihau District. During late prehistoric and early historic times, twelve *ahupua`a* were present within the district. These *ahupua`a* are listed below along with a literal translation of *ahupua`a* names (Pukui *et. al.* 1974).

Anahola, (hourglass);
`Aliomanu, (no translation found);
Papa`a, (secure enclosure);
Moloa`a, (matted roots);
Lepeuli, (no translation found);
Waipake, (singing water or water sound);

Pila`a, (beach);
Wai`akalua, (pit shadow of water);
Kahili, (feather standard);
Ka`aka`anui, (rolling coconut);
Kilauea, (spewing, much spreading); and
Namahana (the twins).

Ko`olau District is roughly a triangular area bordered on the northwest by the *moku* of Halelea and on the south and southwest by the *moku* of Puna. The irregular boundaries were formed by the upland mountain ranges that physically separate Ko`olau District from Halelea District, and the flat plateau lands of Anahola Ahupua`a that separate Ko`olau District from Puna District. The coastline occurs on the northeast side of Ko`olau District and extends through the project area in a southeastern direction.

Traditional Land Use

Historical texts as well as archaeological investigations have both assisted archaeologists in further understanding the prehistory of the Hawaiian Islands. Traditional legends listed in the many historical texts revealed no references for the project area nor the Papa`a area in general. In addition, there is a lack of description pertaining to the eastern side of Kaua`i Island by the early foreign explorers to Hawaii. Most information on traditional land use has thus been gleaned from archaeological data and from general archaeological patterns of land use within the Hawaiian Islands.

The traditional Hawaiian economy was typically based on agricultural production and marine exploitation as well as raising livestock and collecting plants and birds. Extended household groups supposedly settled in various *ahupua`a*. Here, they were able to harvest from both the land and the sea. Ideally, this allowed each *ahupua`a* to be self-sufficient by supplying needed resources from many different environmental zones.

Many streams and river valleys in the various *ahupua`a* contained agricultural features (structures such as terraces, alignments, walls, and *auwai* or ditches), these occurring in lower valley reaches near stream meanders. The meanders consist of alluvial floodplains and terraces that could be modified to take advantage of the stream flow (Kirch 1985; Earle 1978:31, 155). A majority of farming activities (taro cultivation) presumably occurred in lower portions of the

valleys (such as Papa'a Valley) where the broader alluvial flat lands provided more land amenable to cultivation. Settlement pattern data indicates that habitation presumably occurred on the dry colluvial areas near the base of the valley walls, these areas lying on somewhat flat terrain. Dry land cultivation (taro, sweet potato) presumably occurred in colluvial areas near the base of valley walls and on flat, valley slopes. Traditional and early historic habitation likely occurred in dry expanses along the coastline, on table lands or plateaus, and within stream valleys, situated above the streams themselves.

The Māhele And Beyond

Western culture brought, among other things, foreign animals, plants, and foreign concepts to the Hawaiian Islands. While a complex issue, many scholars believe that in order to protect Hawaiian sovereignty from foreign powers, Kamehameha III was forced to establish laws changing the traditional Hawaiian economy to that of a market economy. Among other things, foreigners demanded private ownership of land to ensure their investments. Once lands were made available and private ownership was instituted, native Hawaiians were able to claim plots on which they were cultivating and living.

Papa'a Ahupua'a became government land but was still subject, as were all lands, to the rights of native tenants. In general, when native tenants provided information to the Land Commission that they had utilized a particular parcel, they were issued a Land Commission Award (LCA) number and finally, a Royal Patent number. The Royal Patent number did not convey title to the parcel but stated that the government's interest in the land was settled (Chinen 1971). According to the census of 1847, twenty-three people resided in Papa'a Ahupua'a (Schmitt 1969:229).

The following place names are derived from land records for Papa'a Ahupua'a (see also Pukui *et al.* 1974):

Keomau, Mai, Kahai, Kapoho, Auahanui, Kaala (general)
Awapuhi, Kapoo, Ahuhanui, Aualaiki, Keokea, Kamookahi (lo'i)
Kaloiwai, Kahoomakua (loko)
Kamoana (pali'ili)
Papa'a (brook).

Eleven LCAs were awarded in the vicinity of the project area (Figure 3). Several LCAs that provided descriptions of particular land claims included features such as *loko wai*, *lo`i*, *kula*, *niu*, *`ulu*, *wauke*, *noni*, and house lots occurring on specific parcels.

Eight LCAs consisting of nine individual parcels were located along the riverbank of Papa`a Stream. Four parcels were located below Papa`a Falls on the north side of the stream, two LCAs were located on the south side of the stream, and three parcels were not located (see Figure 3). LCA 7583:1 and 2, belonging to Kuheleloa, and LCA 4558:1, awarded to Wi, were located above Papa`a Falls on the north and south of the stream, respectively. The Native Register specified awarded *lo`i* plots in every Papa`a claim, with some registered gardens of *noni*, *poulu*, *wauke*, orange trees, and one coconut tree. Five of the claimants refer to *kula* lands and five mention owning house lots. Two claimants, Puako and Kauula, died in 1848 before their claims were awarded. Their lands reverted to the *konohiki*. Adamu was chosen *konohiki* of Papa`a in 1847 but by January 1848, he had been replaced by Kuheleloa. Between 1848 and 1850, Puolo gave up his land in Papa`a. In summary, it can be said that traditional Hawaiian agriculture was being practiced during the mid-1800s, presumably a continuation of pre-Contact practices. Agricultural activity was mostly concentrated near the streams.

Due to the shift to private land ownership brought about by the Mahele, other agricultural ventures, including the formation of plantations, quickly appeared throughout the islands (Joesting 1984). By 1877 there were eight plantations on Kaua`i alone, these situated in Koloa, Lihu`e, Kilauea, Hanalei, Puhi, `Ele`ele, Kapa`a, and Kawaihau (Takaki 1983:17). Intensive sugar cane and pineapple cultivation, ranching activities, and other historic-period activities quickly changed the cultural landscape of the island. These activities, including sugar cane production, continue to this day.

PREVIOUS ARCHAEOLOGY

The earliest archaeological study of Kaua`i was accomplished by T.G. Thrum in 1906 and was focused on Kaua`i *heiau* sites. Four *heiau* were recorded near the current project area. Wendell Bennett's island-wide survey of Kaua`i (1931) yielded six archaeological sites in the *ahupua`a* of Papa`a. These sites are described below in Bennett's terms:

Site 119. Kaluakehulu Heiau, at the base of Kahahei *pali* (the first *pali* to the south of the south branch of Papa'a Stream, (inland marked with red dirt on top). Thrum (1906) describes this *heiau* as "A large L-shaped *heiau* with thick high walls at the base of Kahahei *pali*: still standing." There are in the pineapple fields some walls said to be very old. One is 40 feet long, and the other runs about 80 feet perpendicular to it."

Site 120. Pohakuokalani Heiau, probably on the talus slopes back of the pineapple fields, just north of Kahahei *pali* (Site 119). The site is fairly well-raised so as to have an extensive view. It is a single-terrace platform *heiau* with partly crumbled walls. The north edge is built up 8 feet near the front, but only 4 feet at the back, due to the rising slope of the ground. The platform is level. To the south, the ground is on a level with the platform for quite a ways. At the south edge there is a side wall 3 feet wide that begins a short way back from the front edge, and increases in height from 1 to 2 feet. Across the back there is a terrace 2 feet high faced with stones, that extends beyond the *heiau* to the south for 18 feet, and serves as a front for house sites. The south side wall does not quite meet this terrace but leaves a passage; 15 feet south of the side-wall are two house sites, with stone faced terraces, 5 feet wide on their front and north sides. They are located one behind the other and the north terrace wall meets the extension of the back terrace of the *heiau*.

Site 121. Walled enclosure, in the pineapple fields half way between the forest line and the government road, on the first main branch of Papa'a stream to the south. This enclosure measures 132 by 236 feet with walls 3 feet wide and 2 to 3 feet high. The pineapples grow in and around it and many of the stones have been recently uncovered.

Site 122. Taro terraces, oven, and house sites, around the *heiau* described in Site 123. The general plan of this little valley includes the *heiau*, an oven, stone walls, some house sites, taro terraces, and ditches. One ditch seems to have come from a small reservoir, 25 by 15 feet, blocked with stones. It is not large enough to hold any great supply of water. The ditch is unlined and shallow and about 3 feet across. The other ditch line comes from the end of an L-shaped wall and is lined with stones, not regularly now, but apparently so at one time. The L-shaped wall cuts across the stream and seems to have been used to direct the course of the water into the ditch. It is built of modern split stone. The taro terraces are single lines of fairly good-sized stones. The oven stands over 6 feet high, built of large, roughly hewn stone. The stones

overlap and are chinked to make the top part arch over, but are of one thickness only. There is an opening on the streamside. The oven probably is not very old.

Site 123. Heiau, within the forest line on one of the north branches of Papa`a stream. In a valley called Kihe (back of pineapple field number 3) is the *heiau*. It consists of two divisions: the lower division is a dirt-paved structure with walls adjusted to the slope of the ground. The north or seaward wall is 5 feet wide and 3 feet high on the inside, and 10 feet high on the outside. The south wall, extending for 20 feet with a height of 5 feet on the inside, continues westward and in from the east side for 20 feet, and from there on a foot stone-faced terrace 4 feet high marks the front edge of the upper division. The west wall of the lower division, 5 feet wide and 3 feet high, is built up on the outside as three steps. The lowest step continues around the corner and extends along the front side of the *heiau* without change in height; the two lower steps extend along the western side of the structure to an indefinite termination. The second division of the *heiau*, 4 feet above the first division, is surrounded by walls 2 feet wide, 4 feet high on the inside, and heights on the outside determined by the slope of the ground; like the lower division it has no stone paving. Three poorly paved rooms inside the lower section are divided by walls 2 to 3 feet high and about 1.5 feet wide. Facing the sea in front of the northwest corner of the *heiau* is a paved house platform and a house site, outlined with a single row of stones, both of which are connected by a rocky slope to the lowest step of the *heiau* walls. Off the northwest corner of the *heiau* is the oven described under Site 122.

Site 124. Papa`a Heiau, at Kawaipapa, Papa`a at the junction of a side road and the government highway. Thrum describes this as, "A walled *heiau* 60 by 80 feet in size; Kamohoalii its deity." It had been converted into a cattle pen and the internal divisions destroyed. It is of irregular shape with an entryway cut in the wall facing inland. The walls have been restored as shown by the split stone found all through them. The corners are square. The regular walls are 5 feet wide and about 4 feet high.

During fieldwork for the current project, no attempt was made to locate these sites identified by Bennett during his 1931 survey of Kaua`i Island, a majority of the sites presumably having been destroyed or significantly altered. Moreover, none of these sites occurred within the current project area.

Few archaeological studies have been conducted within Papa`a Ahupua`a itself. Two archaeological field inspections were conducted in the project area by Hawaii-based archaeological firms: PHRI (Rosendahl 1992) and CSH (Hammatt 1996). Both inspections consisted of brief reconnaissance of portions of the parcel, inspections presumably conducted for due diligence purposes. Rosendahl (1992) identified discrete arrangements of coral fragments at three locations along the coast. Rosendahl concluded that these three areas represented natural geological formations that may have had cultural significance. Hammatt (1996) identified three archaeological sites during field reconnaissance. These include a cultural layer occurring along the shoreline on the north side of Papa`a Bay, a wall remnant located perpendicular to the coast just north of Papa`a Bay on a fairly steep slope, and a plantation-era (19th-20th century) irrigation ditch running along the south side of the Papa`a Valley slope. This ditch apparently had not been utilized for many years and was filled with sediment.

Both letter reports recommended archaeological monitoring for any grubbing and grading activities that would occur in the project area. The majority of sites listed above were relocated during the current survey and further, are thought to represent historic-period activities. One site, the exposed cultural layer (Hammatt 1996), has an indeterminate temporal affiliation.

SETTLEMENT MODEL AND EXPECTED FINDINGS

Based on the limited amount of archaeological work that has been conducted on the currently discussed project parcel, combined with the limited availability of archival information pertaining to the project area, a known, typical Hawaiian valley settlement pattern (see Kirch 1985) is deemed necessary to extrapolate a settlement model for Papa`a Ahupua`a. The model includes *kalo* cultivation occurring along the lower reaches of the main stream, within alluvial floodplain soils, and extending into upper Papa`a Stream. Tree crops (*`ulu*, *wauke*, *niu*) and dryland crops, may have been grown in the drier portions of the lower valley gulch bottoms and along the sandy coastal fan. Permanent and temporary habitation was presumably located in the drier sections of the lower valley and along the coastline. This simplified model of Hawaiian settlement was tested during the present research.

During modern times, tablelands were cultivated first for pineapple, then utilized for ranching endeavors (pastureland), both of which heavily impacted the lands above Papa`a Stream. Lands contained within Papa`a Ahupua`a were utilized for ranching purposes from the

1930s. Within the project area, evidence of these ranching activities, modern agricultural pursuits, and traditional agricultural activities would be expected. Terrace construction, walls, rock mounds, modified outcrops, and metal/rock-lined *'auwai* could be present. Areas between the ravines, but above the streambed, may contain additional features, such as terracing for dry land agriculture and walls, platforms, and enclosures denoting habitation. Walls and linear rock mounds delineating property boundaries (*'ili* walls) were also thought to be present.

METHODOLOGY

FIELD METHODS

This Inventory Survey was conducted solely within the Papa'a Bay Ranch area (see Figure 2). Systematic survey of the entire 172 acre parcel included survey of tablelands, heavily vegetated areas in the side ravines, along the edge of the sea cliffs and within the shoreline area. In addition, all of the cliff boundary areas were surveyed. Two fieldcrew members conducted pedestrian survey of the project area. Each survey sweep across the parcel covered a swath of some 60-90 meters. Special attention was accorded to eroded banks along the shoreline and areas along stream beds. Overgrown sections along Kuhio Highway were also carefully examined to determine the presence or absence of an old railroad bed.

Several attempts were made to interview long-time residents of the area in hopes of receiving information concerning the presence of burials or sacred sites in the project area. One informant, Mr. Ben Ida, lived in the vicinity of Papa'a for at least six decades. Mr. Ida reported that while growing up, he spent many years fishing near the project area. When questioned about the presence of burials or sacred sites in the area, he reported knowing of a sandy area near Papa'a Point that contained human burials (State Site No. 50-30-03-980, Feature F).

FIELDWORK RESULTS

While Papa'a Valley itself is not to be developed, the possibility of impacting cultural resources during construction in the shoreline area necessitated survey. Papa'a Stream and a side ravine were surveyed (see Figure 2). The stream functioned as a gravitational drainage of water coursing across the tablelands and running downslope to the coastline.

The aforementioned small, side ravine, which was fed by spring water, contained Java plum (*Syzygium cumini*), *ki* (*Cordyline fruticosa*), and some *noni* or mulberry (*Morinda citrifolia*). Cat's claw (*Macfadyena unguis-cati*) was also present within the ravine. An active spring was identified within the ravine and feral *kalo* (*Colocasia esulenta*) was identified in several places along its water course. Ginger (*Zingiber zerumbet*), *kalo*, and *maia* (banana) were also growing near the spring. No prehistoric or historic sites were identified within this small ravine.

The shoreline along the small bay, adjacent to the ravine, contained modern debris including wood planks, pieces of plastic, glass floats, tar, and other materials related to boating activities and fishing. It is possible that the small drainage, a branch of Papa'a Stream, was utilized during pre-Contact times due to the presence of the natural spring. In addition, the presence of the feral *kalo* plants presumes that taro was cultivated within the area in the past. Thus, the natural spring may have provided irrigation to cultivated plants, among others, as it flowed to the coastline. However, it should be noted that no Land Commission Awards were distributed for the side ravine. None of the informants interviewed mentioned knowledge of the natural spring.

The edge of the plateau and the sea cliffs were surveyed for prehistoric and historic sites. These sections of the project area are referred to as Badlands (Foote *et al.* 1972:28) and consist of very steep slopes descending to the sea and eroded, nearly barren land. Ironwood (*Casuarina equisetifolia*) trees have been planted in these areas to both retain soil and filter ocean breezes. Some portions of the Badlands were severely eroded and in many instances, large boulders were left pedestaled.

IDENTIFIED SITES

The following provides a description of the seven historic sites that were identified within the project area during this inventory survey phase of archaeological investigations:

State Site No. 50-30-03-979 (Temporary Site #1) Curbstone Trail

This trail originates at the coastline, near a small bay north of Papa'a Bay. It was identified by an alignment of basalt boulders and rocks that run parallel to and abut the stream embankment (Figures 4 and 5). The trail follows the stream for approximately 14 meters upstream and then begins to meander away from the stream and proceed up a valley slope hill.

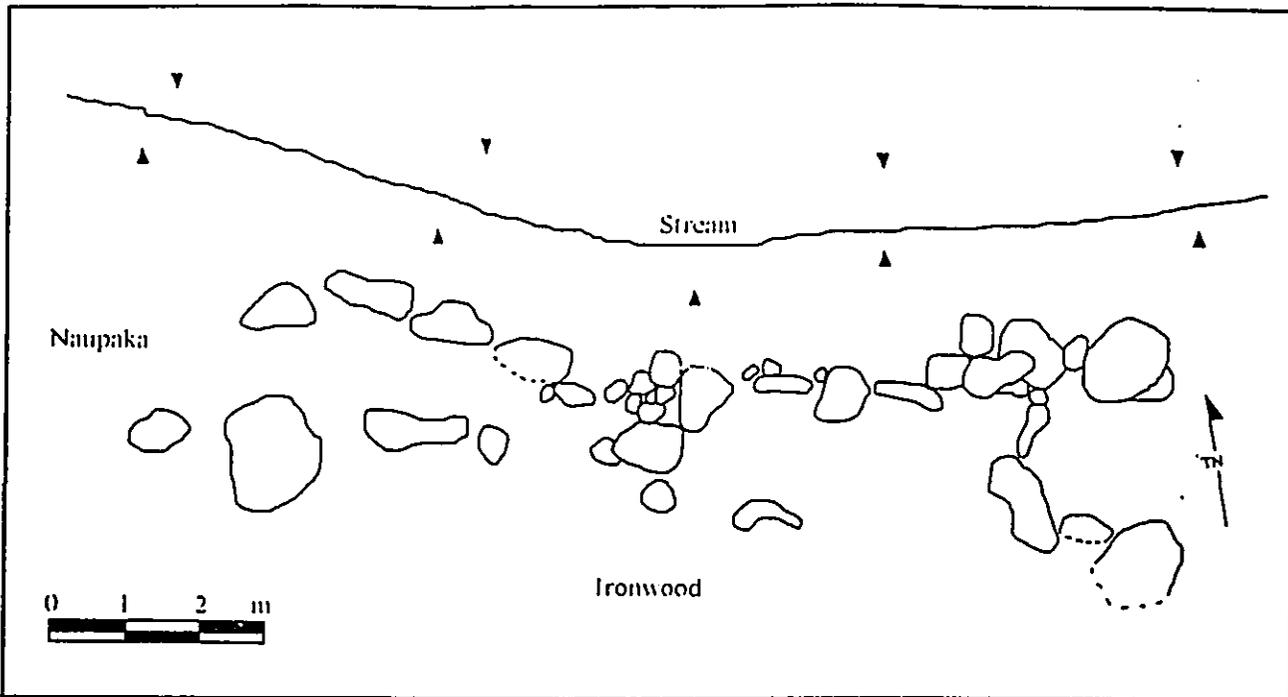


Figure 4: Planview Map of Trail Site 50-30-03-979.



Figure 5: Photograph of Trail Site 979. View to West.

The trail terminates on the hill. The width of the trail ranges from 0.60 m to 1.0 m. Exposed bedrock and terracing, the latter composed of several basalt rocks, gives the trail a stair-step quality in several locations.

The upvalley destination of the trail remains unknown. The trail was presumably used to access the coast and by extension, coastal resources, near the small, unnamed bay. Additionally, it is unknown when the trail was constructed and initially utilized.

State Site No. 50-30-03-980 (Temporary Site #2) Papa`a Point Area

This site occurs on the northern point that defines Papa`a Bay. The point is a natural basalt bluff having a coastal cliff that rises approximately 700 feet (213 m) above sea level. A flat area occurs on the top of the bluff (Figure 6). This area has been listed as a site due to the presence of the 10+ coral fragments scattered on the surface of the bluff's flat area as well as other features consisting, a trail, a firepit, and concrete foundations, among other features. The coral fragments appear to have eroded from a soil concentration along the western side of the point. Importantly, this area contained the highest concentration of cultural remains on the property. Some of the archaeological features were identified during survey while others were identified during an interview with a long time local fisherman, Mr. Ben Ida.

Feature A - Trail Terracing.

This terracing is found on the east side of Papa`a Point. The feature consists of seven meters of terracing and is composed of small (0.20 m) basalt cobbles. This terracing supports a stable, earthen path that runs from the beach area to the top of the point. The trail presumably functioned as a transportation feature to promote access from upper elevational areas to coastal resource zones. The construction age of the trail and terracing is unknown.

Feature B - Firepit.

A firepit was observed eroding out of the beach sand on the northeast side of Papa`a Point (Figure 7). The pit appeared to contain only a small concentration of charcoal and measured 0.60 m wide by 0.23 m deep. One charcoal sample was acquired from the feature and submitted to Beta Analytic for dating. The sample (Beta No. 122218) returned a modern date (125.9 yrs. +/- 1.0% modern). Thus, the firepit appears to be a recent construction.



Figure 6: Photographic Overview of Site 980. View to Southeast.



Figure 7: Photograph of Site 980, Feature B Fire Pit. View to Southwest.

Feature C - Concrete Bunkers/Slabs.

Feature C consists of concrete remnants of an army bunker or pillbox (Figure 8). The concrete bunkers are approximately 0.15 m thick, 0.60 m wide, and 1.4 m long. According to our informant, Mr. Ben Ida, the two slabs of concrete lying on the beach at the high tide line are remains from a former army installation. These concrete remnants were part of a bunker that occurred toward the base of the cliff defining Papa'a Point. The feature components were presumably constructed at the beginning of WW II. Mr. Ida recalled speaking with soldiers at this location and also participating in target practice with them.



Figure 8: Photograph of Site 980, Feature C Concrete Bunker Remnants.
View to West.

Feature D - Reported Interment.

According to Mr. Ida, Hawaiian graves are present within the sandy area at the base of Papa'a Point, along the southeastern side of the point. The presence of burials in this location was also confirmed by Mr. Russell Wellington, the caretaker of the ranch. No observable indicators of burials or graves though, were identified during inventory survey.

Feature E - Fish Trap/Pond.

Feature E was described by Mr. Ida. The natural shape of the flat reef below Papa'a Point may have been modified to allow for the harvesting of fish that became trapped on the reef during tidal changes (Figure 9). One of the meanings of the word "papa" is "flat", as in flat reef or landform. The fact that LCA # 5101 occurs in this section of the reef suggests that the fish trap/pond proved resourceful for local inhabitants of the area. If determined to be a cultural feature, it remains unknown as to precisely when the reef was modified. Due to the presence of LCA #5101, it is suggested that the reef may have been modified prior to, or during, Māhele times.

Mr. Ida further described how marine resources were obtained from the feature. He stated that a *ki* (*Cordyline fruticosa*) leaf was hung across the reef, along the west and south opening of the natural pool, to prevent fish from escaping as the tide went out. Locals would then harvest the trapped fish with nets and spears. Due to the rough surf occurring at the time of this inventory survey, the field crew was unable to determine if the walls and openings of the pool had been modified to increase the efficiency of this process.



Figure 9: Photograph of Site 980, Feature E Fish Trap/Pond. View to Northwest.

State Site No. 50-30-03-982 (Temporary Site #4) Rock/Boulder Alignments

A series of rock alignments were identified along an east-facing ridge immediately south of Site 50-30-03-979. Several small terrace or step-like alignments run down a steep slope. These alignments enclosed an area of large, naturally-situated boulders and bedrock (Figures 10 and 11). The site is eight meters long on all four of its square sides, the site axis' aligning north to south and east to west. The site lies at an elevation of approximately 50 ft. (15 m) above sea level. The steepness of the slope provides few flat spaces typical of areas suitable for occupation. No excavation was conducted because of the extremely shallow soil deposit in this feature. The aforementioned natural spring near Site 50-30-03-979 occurs less than 100 m away from this site.

Although the function of this site is unclear, given the excellent view of the off shore resources, including fish schools and turtles feeding on the reef, this site may have been utilized as a fishing look-out.

State Site No. 50-30-03-983 (Temporary Site #5) Turtle Rock

This site, identified during survey and also noted by Mr. Ida, consists of a natural, large, fine-grained basalt boulder occurring in the central portion of the property and adjacent to a small rock alignment. The large rock itself is naturally shaped like a turtle and supposedly contains much *mana*. The boulder is 3.5 m long and 2.2 m wide. The east end of the boulder, lying above the surface, bears the likeness of a turtle head (Figure 12). The thickness of the turtle head is 0.32 m, the body being 0.92 m. A short, single-course alignment of seven basalt cobbles, measuring 1.8 m long, was identified along the south side of the turtle rock. The function and temporal affiliation of the alignment is unknown at present.

Artifact #1 Mochi Bowl.

A round, basalt mochi bowl was recently recovered by a worker (Kurt) while clearing brush from the south side of the caretakers house. It is carved from a single piece of basalt. The possible bowl measures 0.90 m wide and is 0.62 m high (Figure 13). The bowl portion is 0.60 m across and extends to 0.28 m deep. The origin of the historic bowl is unknown but it was recovered near the turtle head rock formation.

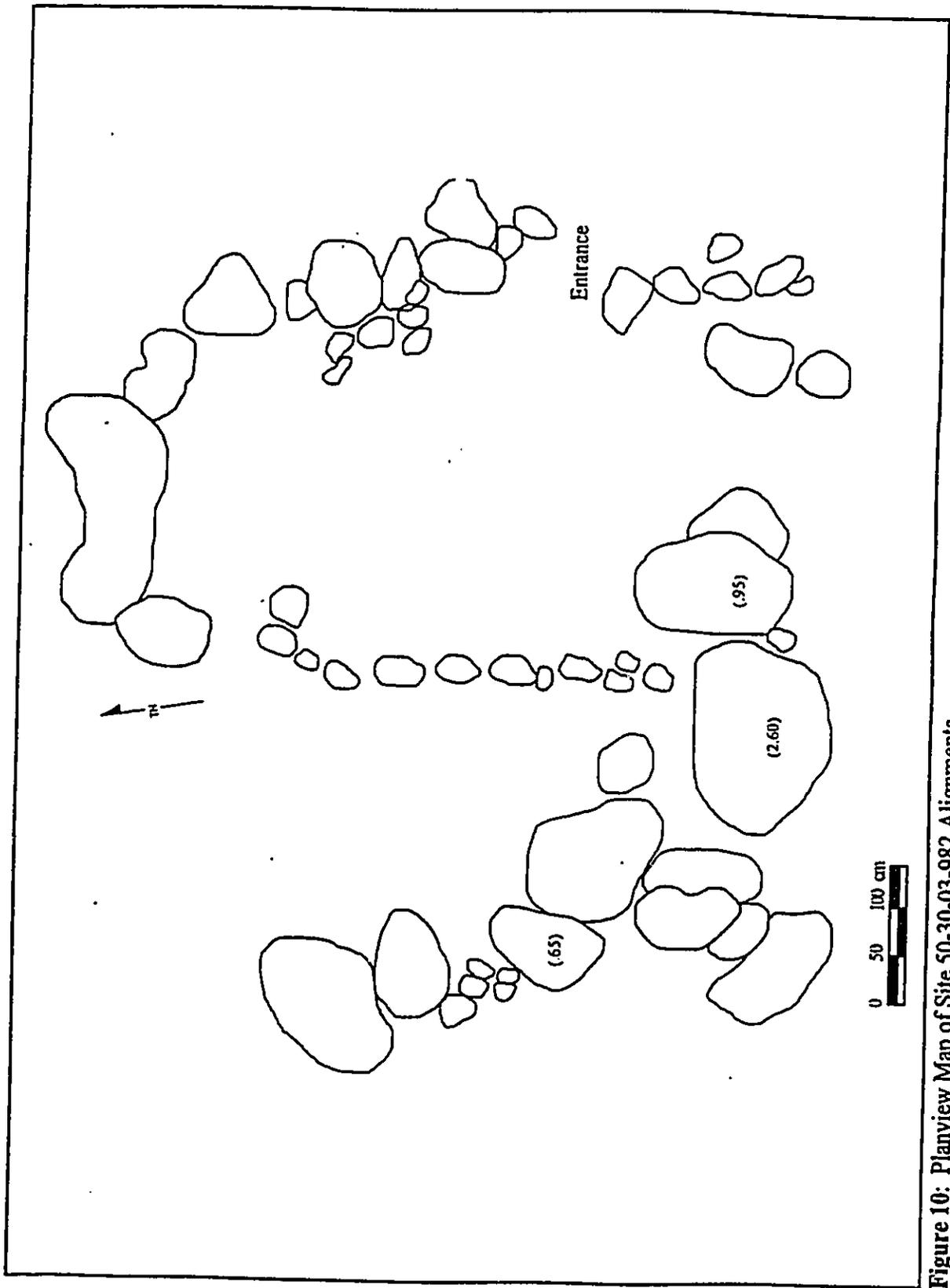


Figure 10: Planview Map of Site 50-30-03-982 Alignments.



Figure 11: Photograph of Site 982 Alignments.
View to South.



Figure 12: Photograph of Site 50-30-03-983 Turtle Rock. View to
Southwest.

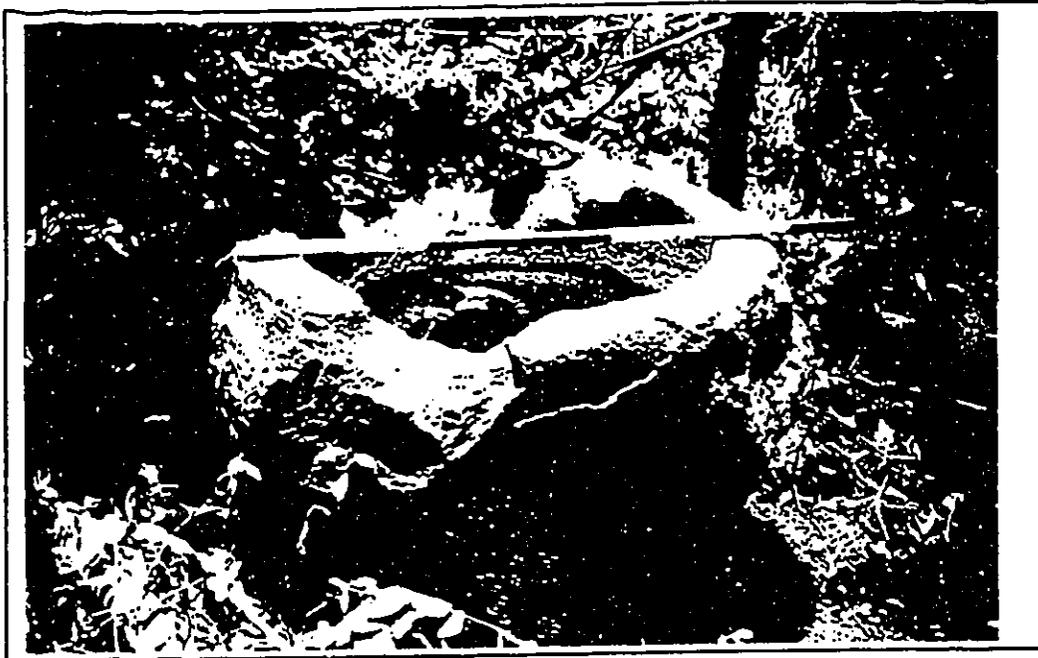


Figure 13: Photograph of Site 983, Artifact #1 Mochi Bowl. View to West.

State Site No. 50-30-03-984 (Temporary Site #6) Alignments

This site is located on a bluff along the northern bank of Papa`a Stream, on the narrow strip of land between the Kalahui Exclusion area and Papa`a Stream. The area contains a concentration of large basalt boulders which have been exposed by erosional action of the stream. The spaces between some of the larger boulders have been filled by low, single course walls of basalt cobbles. The combination of boulders and cobbles has created at least one enclosed space (Figure 14), herein assigned as Feature B (see below). A second, similar alignment of basalt cobbles that connect larger boulders extends in an east to west alignment for 25 m. At its western extent, this single course wall proceeds south and connects with a larger boulder at Feature C. Feature C consists of a series of naturally placed, large boulders that creates a western edge or boundary to the site. These boulders rest on level ground (10 m) before the ground steeply descends toward Papa`a Stream, the stream approximately 20 m from the flat area. Feature D, a shelter, occurs along this steep stream bank.

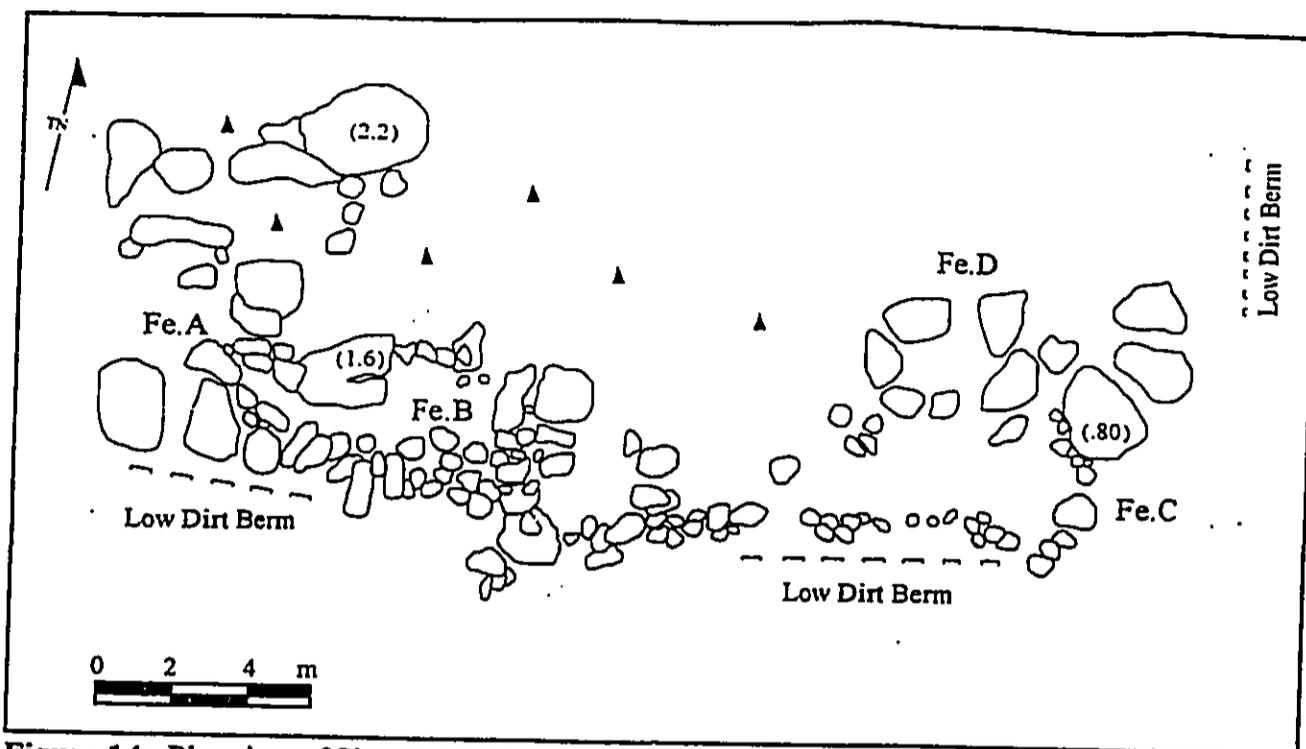


Figure 14: Planview of Site 50-30-03-984 Alignments, Walls, and Shelter.

Site 984 Features

Feature A

Feature A consists of a single placement of rocks that come together to form a narrow point (Figure 15). At the point, a solitary, waterworn stone has been wedged and suspended above the ground. Two basalt slabs have been set upright on the north side of the site. Two flat stones occur immediately to the west of the waterworn upright.

Feature B

To the west of this narrow niche (Feature A), the enclosed area opens behind a large boulder. Two walls define the area (see Figure 14). The first wall (to the south) is composed of four stones placed between two larger boulders. These stones, with flat surfaces, are tightly fitted against one another. The second wall, which is oriented in a north-south direction, defines the western flank of Feature B. The northern end of the wall connects with an alignment of stones that extends along the northern edge of the site. The northern border has been impacted by bulldozer push, soil and rocks pushed to the feature's outside edge from fields to the north.



Figure 15: Photograph of Feature A Alignment Site 984. View to West.

The disturbance has caused some damage to the alignment, including upright stones being laid in a horizontal position and larger boulders pushed on and over lower portions of the border. The walls and enclosure area may define a habitation or animal pen area, although this is purely speculative at present.

Feature C

This feature consists of a large, flat-topped boulder measuring 2.5 m long, 2.0 m wide, and rises to 0.80 m high (see Figure 14). The boulder forms the northwest corner of Site 984. The boulder occurs near an overhang (north side) under which some twenty large glass bottles have been deposited. A majority of the bottles were recovered in good condition. Several of these bottles are briefly described below:

- Dark brown-Sakura Beer bottle; embossed flower on the shoulder of the bottle; some Japanese characters.
- Green-No distinctive markings
- Light green- Net contents 21 oz.
- Light Brown- Dai Nippon Brewery. A five pointed star on the base with the numbers "11" and "7" on either side of the star.

A majority of these bottles appear to have been of recent manufacture and deposition and were not collected.

Feature D

Feature D occurs 30.0 meters to the south of Feature C, along a steep embankment. It is at this location that three large boulders have formed a natural shelter (see Figure 14). The floor of the shelter is triangular in shape and roughly measures 2 m long, 2 m wide, and 2.5 m high. The shelter slopes steeply from the back chamber to the entrance. Much sediment has been deposited within the shelter. Several smaller rocks have been stacked at the back of the shelter and along its northern side in an attempt to seal the larger openings between the large boulders. The entrance itself is approximately 1.0 m high and only 0.90 m wide across its base. The inside of the shelter and talus slope is littered with historic artifacts. These artifacts include:

- Ceramic fragments- mostly porcelain decorated with blue on white designs.
- soda bottles- Lihue Soda Co. and Kapa`a Soda.
- 2 ½" metal ring.
- 1 ½" thick solid metal box 3.5" square.
- clear glass chimney for a kerosene light, broken.
- top from a metal can, small.
- small medicine/perfume bottle.
- glass side of a Kapa`a Soda bottle fashioned into a knife.

This feature occurs approximately 15 m from a natural pool formed in Papa`a Stream and has been utilized in recent times.

Given the types and age of the identified artifacts, this site is interpreted as being a rest area for field-hands and is presumed to be related to agricultural or ranching activities.

State Site No. 50-30-03-985 (Temporary Site #7) Slaughter House

This site is located near the Papa`a Ranch property boundary along Kuhio Highway and the neighboring Thronas parcel. The site consists of a well-preserved, historic period slaughterhouse and measures 4.0 m long, 3.3 m wide, and 3.3 m high. The structure consists of a concrete base, which is 0.40 m thick and a wooden second story (Figure 16). The concrete base height is approximately 1.8 m. No construction date for the feature is known but it is clearly associated with historic period ranching activities.

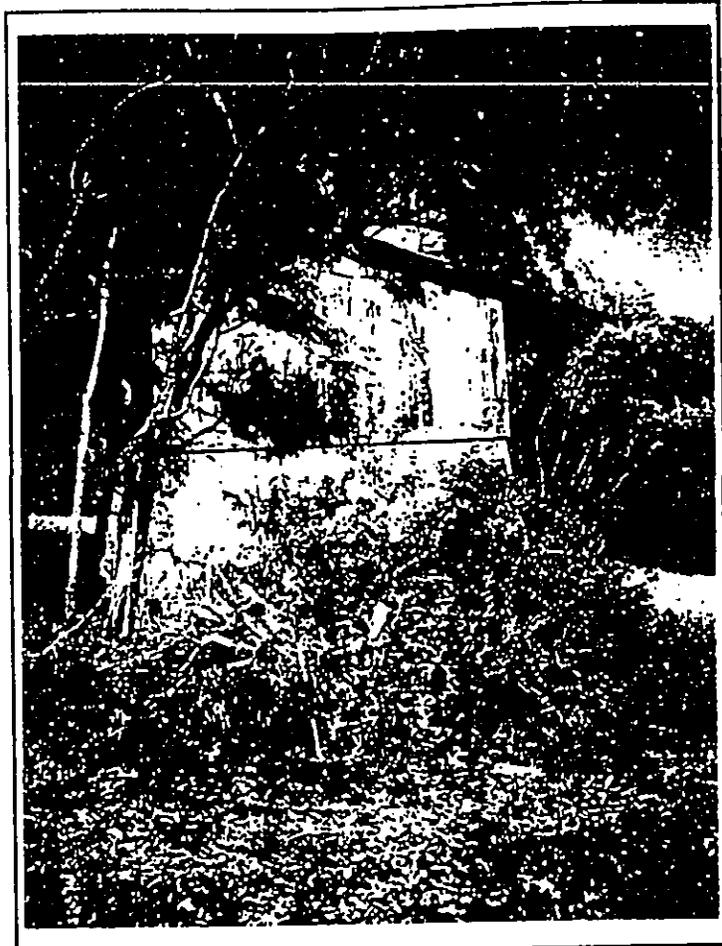


Figure 16: Photograph of Site 50-30-03-985 Slaughterhouse. View to North.

State Site No. 50-30-03-986 (Temporary Site #8) Remnant Subsurface Habitation Layer (Cultural Deposit)

This site consists of a buried cultural layer, as evidenced by the presence of midden and artifacts. The layer was identified in subsurface contexts along the shoreline of Papa'a Bay. Remnants of this cultural deposit were recorded in Test Trenches #1, #2, #3, #5, and #7 (see below). This site was identified during limited excavations on the project parcel.

RESULTS OF TEST EXCAVATIONS

Fifteen trenches were mechanically excavated by a backhoe equipped with a 3 ft. bucket (Figure 17). The trenches averaged 3.0 m long, 1.2 m wide, and 1.8 m deep. These trenches were placed in locations most likely to be impacted by future construction. Locations were determined by the planned locations of the main house, swimming pool and guest houses. Also considered were the areas most likely to contain subsurface evidence of past human activity. The area chosen for excavation was a lower elevation, sandy strip of land between the future houses and the beach.

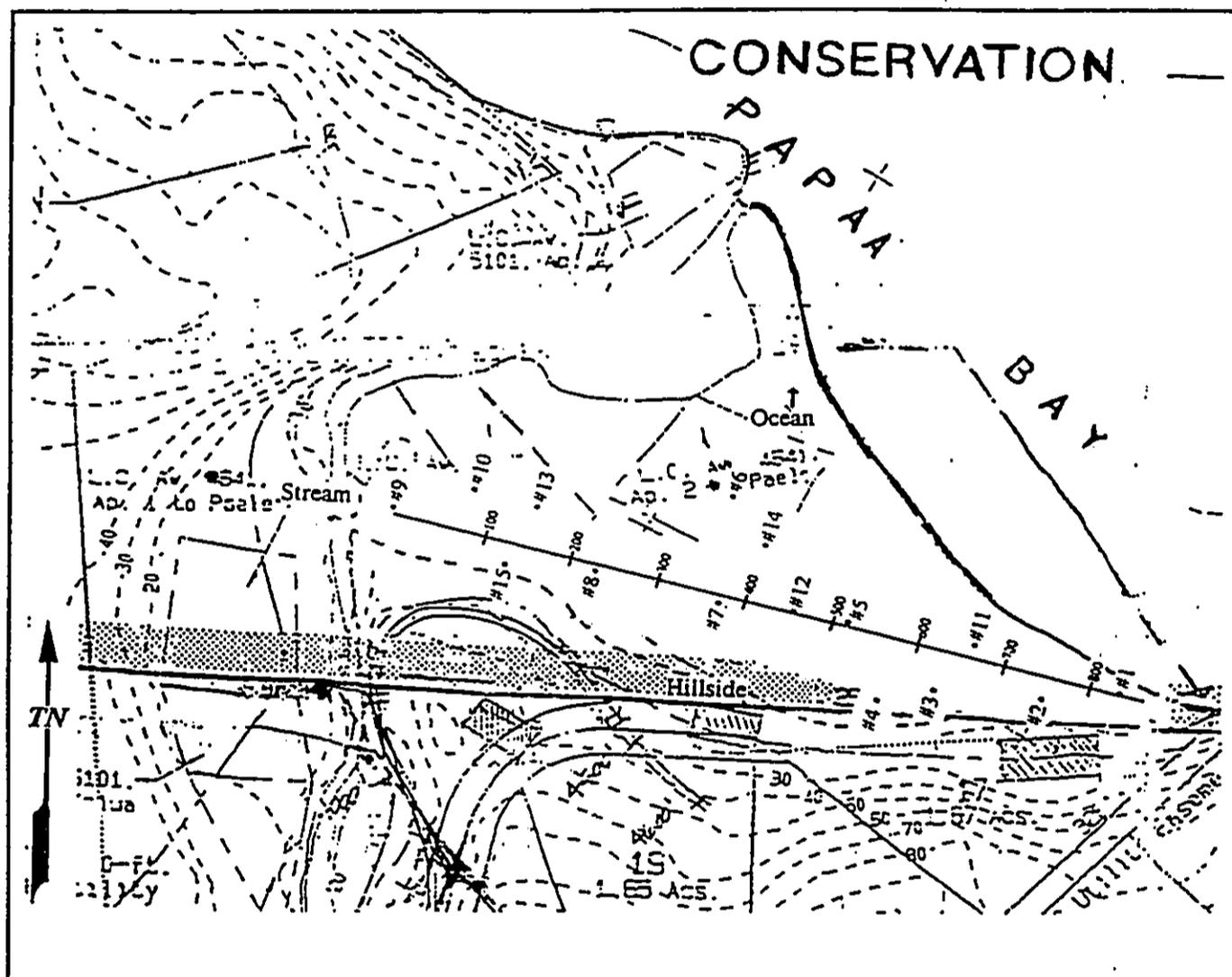


Figure 17: Planview of Test Trench Locations (#1-#15) within the Papa'a Bay Project Area

The excavation area was bordered on the north by Papa'a Stream, on the east by Papa'a Bay, on the west by a bench cut into the hillside, and on the south by a ridge that rises steeply to an elevation of some 70 ft. (21 m). The area itself measured approximately 1000 ft. (328 m) long and varies in width from 40 ft. (12 m) on its southern flank to 150 ft. (47 m) at its northern end. The elevation of the area was approximately 5 to 10 ft. (1.5-3.0 m) above sea level.

Five different types of sedimentary layers were identified during subsurface testing. However, the majority of the trenches contained only two soil types: Type I and Type III.

General Soil Types

- I - A brownish/red topsoil fill mix with intrusions of pebble and cobble-sized rocks
- II - A gray to black sand, coloration indicating a cultural layer
- III - Sterile beach sand (yellow/tan coloration)
 - III A - reddish colored beach sand
 - III B - coral rubble intrusive in beach sand
- IV - Dark tan clay/gleyed lagoonal deposit
- V - Grey/white reef sand found at sea level

The cultural layer (Site 50-30-03-986) was identified, albeit sparingly, within Trenches #1, #2, #3, #5, and #7. Examples of extreme sediment erosion were identified within Trenches #6, #9 and #15.

Trench #1

Trench #1 was of most interest to this investigation. This trench was the first to expose the only cultural layer (Site 986) identified during subsurface testing (Figures 18 and 19). The layer consisting of limited concentrations of midden and artifacts and extending through several other trenches (see below). The fact that the trench was located in an area least likely to suffer from human and natural impact presumably contributed to its preservation. Shell midden observed in Layer II included *pipipi* (*Nerita* sp.), with other midden being *kukui* and charcoal. The shells of freshwater *opihi* (*Cellana* sp.) were also observed. A single polished basalt flake was collected. A posthole was also observed within Layer II, intruding into Layer III.

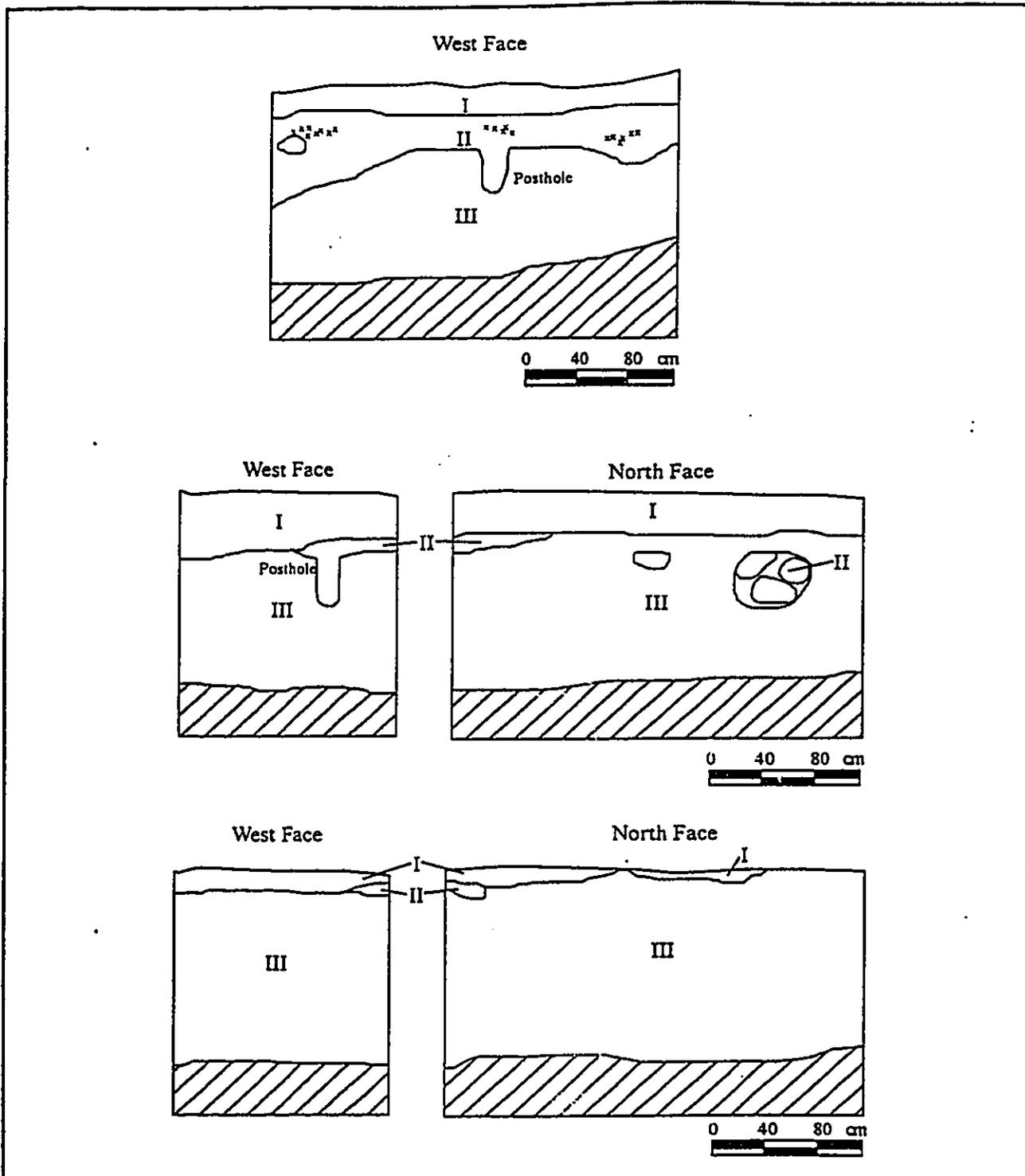


Figure 18: Stratigraphic Profile Trench #1 West Face; Trench #2 West and North Faces; Trench #3 West and North Faces.



Figure 19: Photograph of Trench #1 Profile, West Face.

Trench #2

Like Trench #1, Trench #2 exhibited a thin cultural layer that was identified by the presence of black and gray coloration above the common Layer III beach sand (see Figure 18; Figure 20). The trench also yielded the possible remains of a posthole measuring 0.18 m wide and 0.40 m long.

Trench #3

Trench #3, to the north, was placed west of the baseline and against the bench in the area of the proposed pool. The trench yielded a thin (0.10 m) cultural layer at the west end of the trench (see Figure 18; Figure 21). This layer also sits above the Layer III beach sand and is covered by fill.

Trench #4

Like Trench #3, Trench #4 also occurred against the bench to the west and south of the proposed guest house location. Trench #4 exposed a short lens of ash on its north and west faces (Figure 22). This layer occurred within Layer I fill sediment.

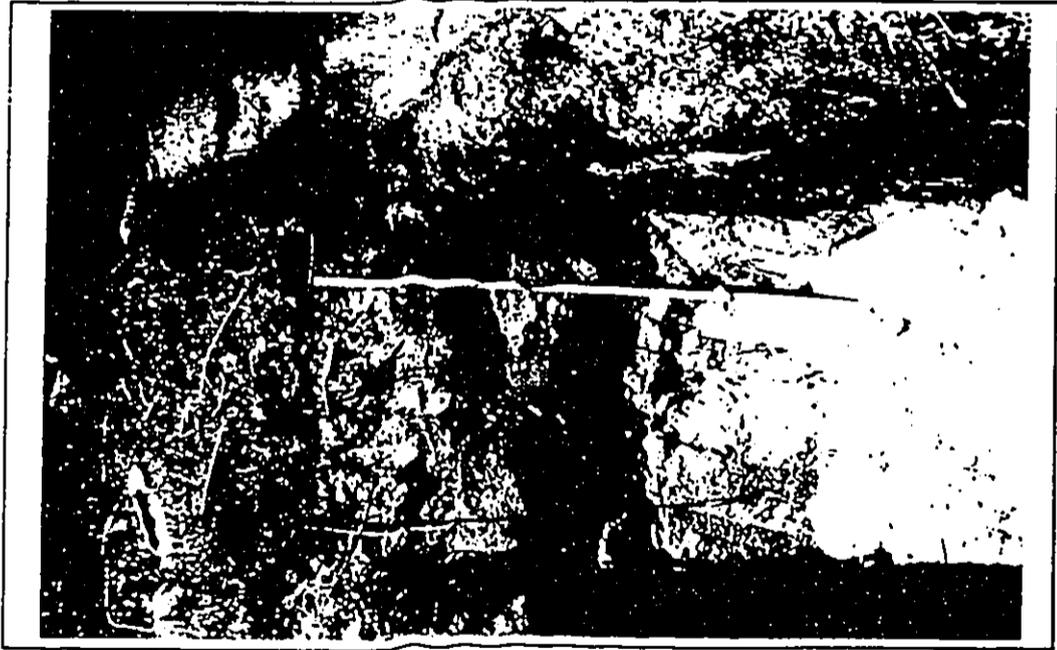


Figure 20: Photograph of Trench #2 Profile, West and North Faces.



Figure 21: Photograph of Trench #3 Profile, West and North Faces.

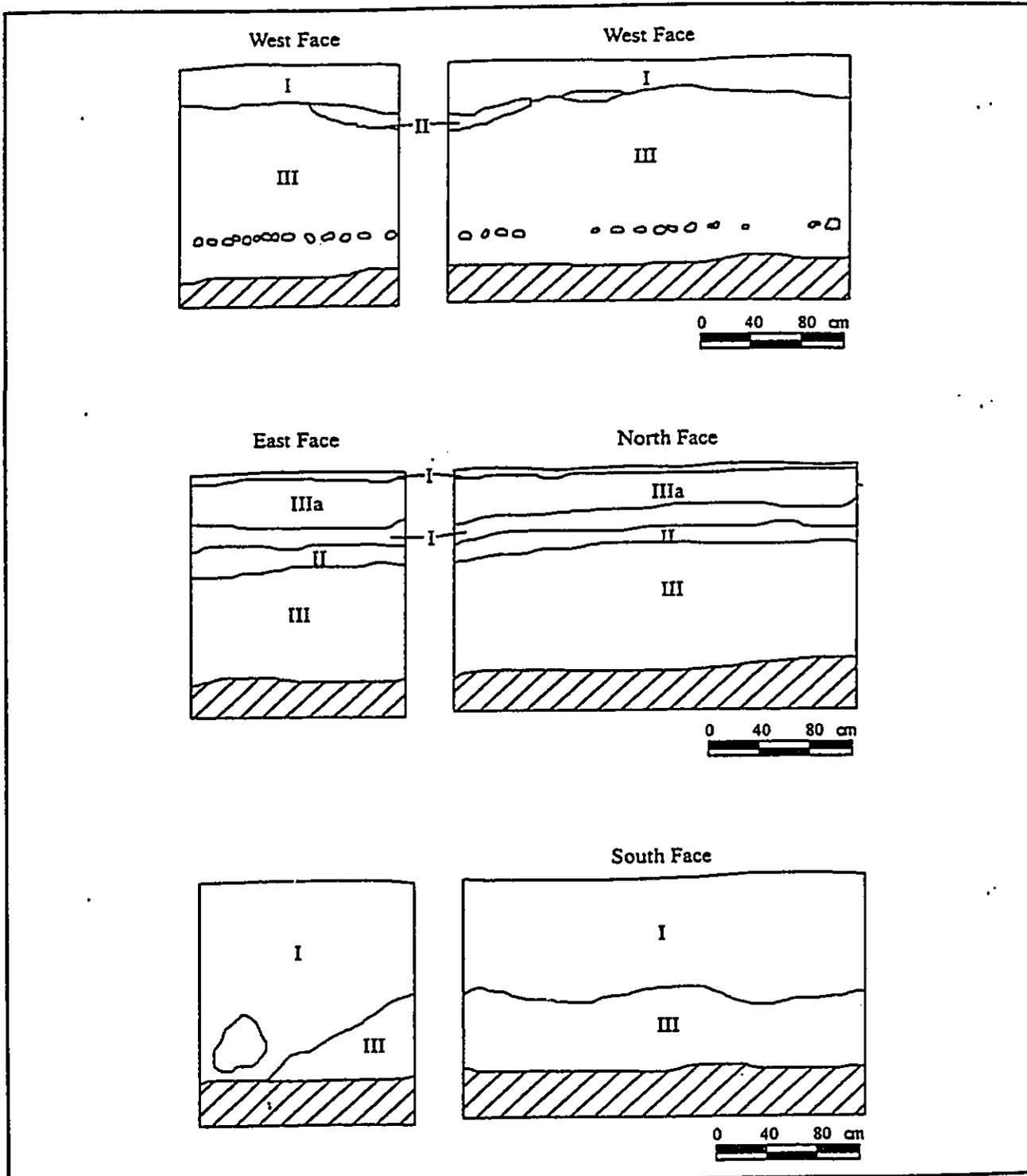


Figure 22: Stratigraphic Profile Trench #4 West Face; Trench #5 East and North Face; Trench #6 South Face.

Trench #5

Trench #5 was excavated east of the baseline, adjacent to the beach vegetation line. Layer II was observed in profile and was the thickest layer observed in any of the trenches (see Figure 22; Figure 23). However, the layer was also the leanest in terms of yielding charcoal and/or midden.

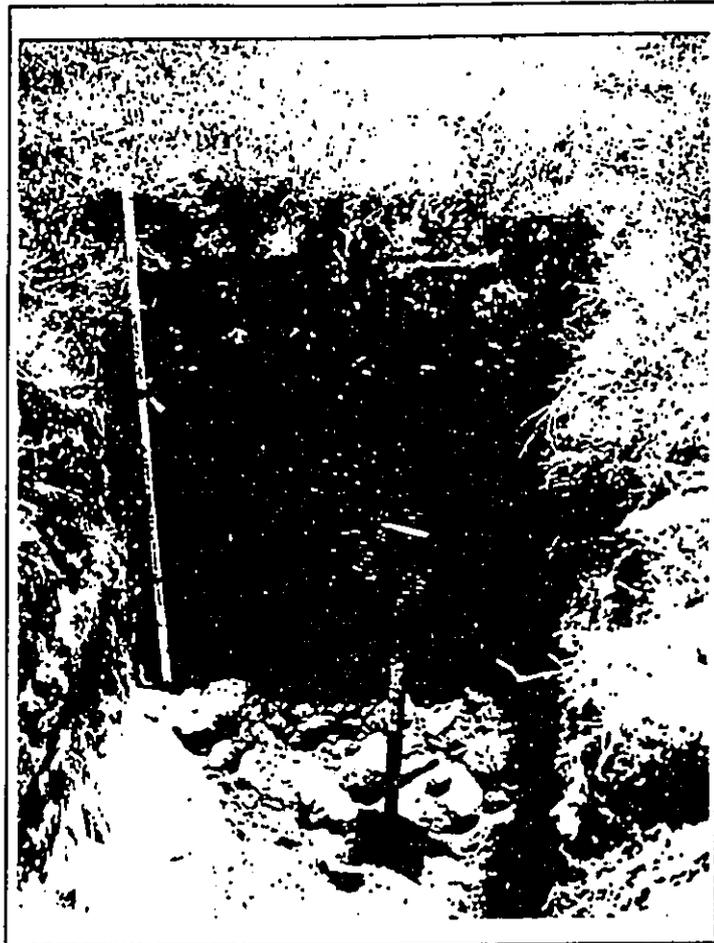


Figure 23: Photograph of Trench #5 North Face.

Trench #6

Trench #6 contained deep Layer I sediments or fill (see Figure 22). The layer revealed the intensive surface modifications that occurred on the parcel in the past. Trench #6 failed to yield any cultural materials.

Trench #7

Located near the baseline and east of the proposed guest houses, this trench revealed only a minimal amount of cultural indices. A cultural lens occurred on the east face of the trench and was evidenced by a small pit occurring between Layer I and Layer III, intruding into Layer III (Figures 24 and 25). No midden, charcoal or artifacts were recovered from the pit however. It is possible that at one time, Layer II extended across this entire area, very close to the surface, but had been removed by prior ranching and farming activities.

Trench #8

This trench did not yield cultural material nor reveal a cultural layer. Layer I through Layer III, although present, were culturally sterile (see Figure 24; Figure 26).

Trench #9

Trench #9 was the northernmost trench excavated and the closest trench to the stream. As seen in profile, the trench contained only fill layers (see Figure 24; Figure 27). The fill consisted of a coral, basalt, sand, and topsoil mix. A large conch shell (0.35 m) was embedded within this matrix and appears to have been naturally deposited.

Trench #10

The layers within this trench are characterized by 1.5 m of fill lain over coral reef (Figures 28 and 29). This layering is attributed to a flood occurring in 1991/1992. Apparently, flood waters carrying debris cascaded down the stream channel, diverting off the north bank of the stream, and covered this low-lying area with mud, topsoil, and rock. This sediment and debris accumulation was later graded by Kobayashi Co., the larger rocks used to reinforce the south side of the stream bank. No significant cultural resources were noted within the trench.

Trench #11

This trench was excavated within the southern half of the test area, east of the baseline. The trench exposed what appeared to be a naturally occurring lens of reddish beach sand and a small concentration of charcoal flecking (Layer IIIa; Figure 30). The "reddish" sediment appears to be the result of runoff from the hillside immediately to the west. The charcoal was likely accumulated as stream runoff crossed a cultural layer and was redeposited against the *mauka* side of the beach dune.

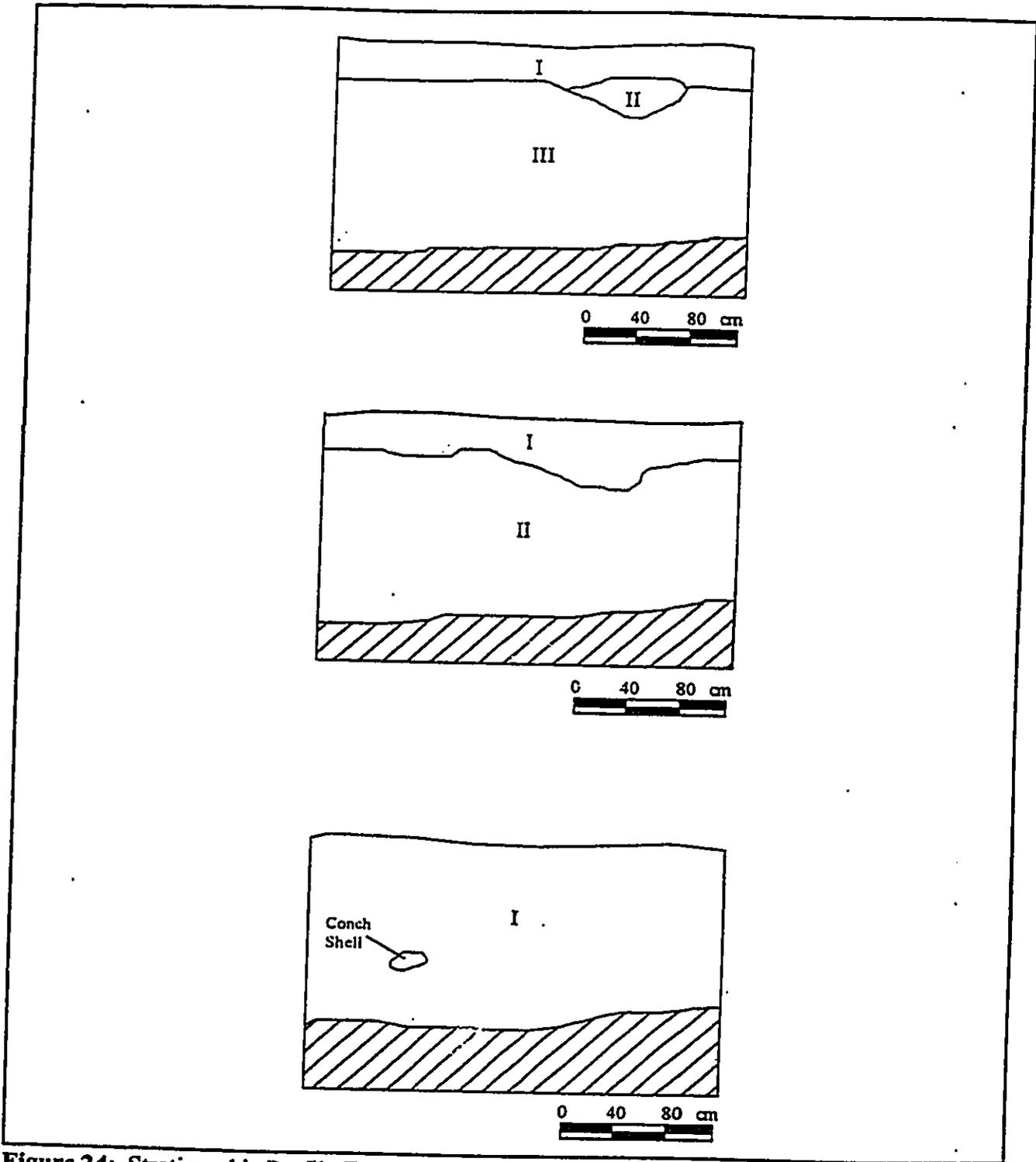


Figure 24: Stratigraphic Profile Trench #7 West Face; Trench #8 East Face; Trench #9 West Face.



Figure 25: Photograph of Trench #7 West Face.



Figure 26: Photograph of Trench #8 East Face.

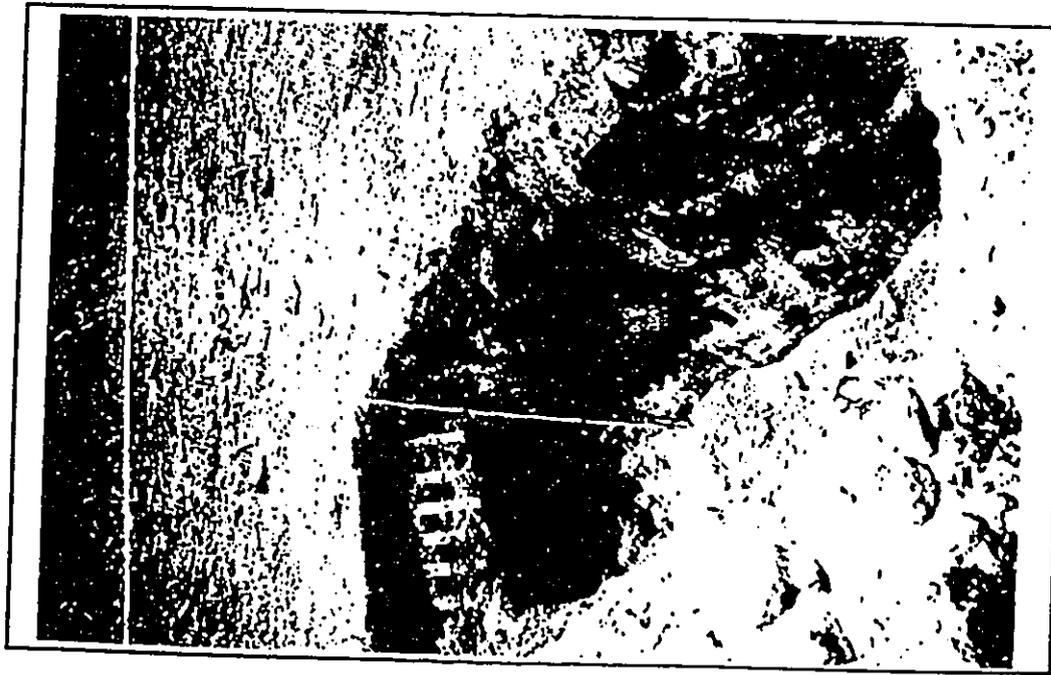


Figure 27: Photograph of Trench #9 West and East Face.



Figure 28: Photograph of Trench #10 Northeast Face.

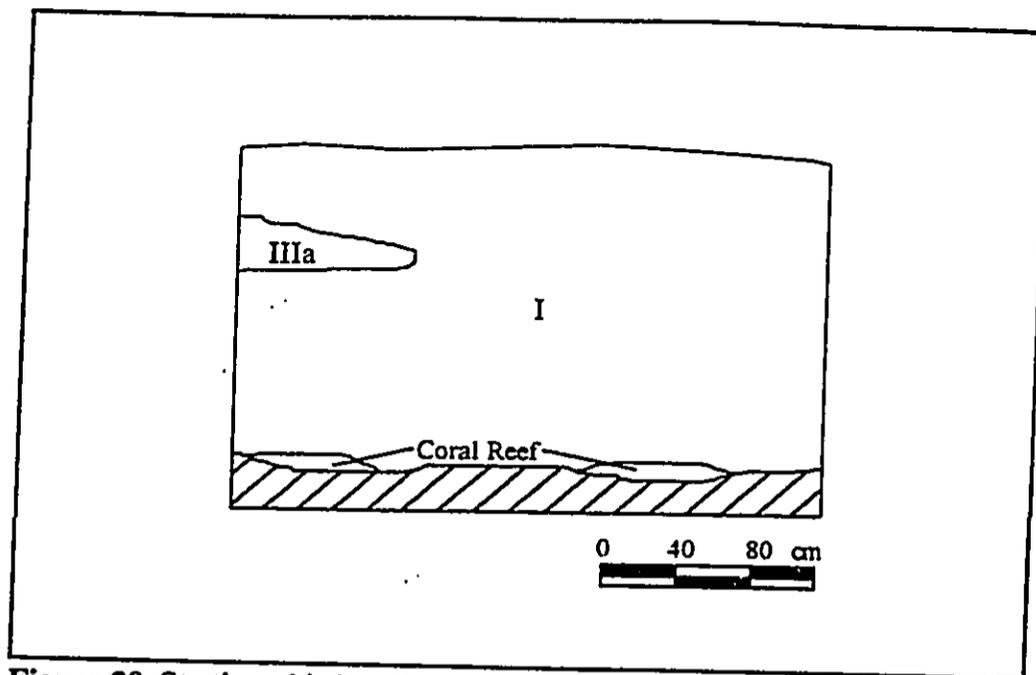


Figure 29: Stratigraphic Profile Trench #10 Northeast Face.

Trench #12

Trench #12 revealed more sediment typical of the flood impact area (see above). This trench showed the deep intrusion of the Layer I fill/topsoil mix deposited by the 1991/1992 flood (see Figure 30; Figure 31). No cultural materials were identified within this trench.

Trench #13

This trench exposed a layer that would normally have been thought to be found in the area behind the beach dune and near the stream. This stratigraphic layer (IV), consisted of a thick, clay lagoonal deposit (see Figure 30). No cultural materials were identified within this trench.

Trench # 14

Trench #14 also contained the thick deposit of Layer I sediments deposited by the 1991/1992 flood. The trench also yielded a layer of reddish colored beach sand similar to that identified within Trench #11 (Figures 32 and 33). No cultural materials were identified within this trench.

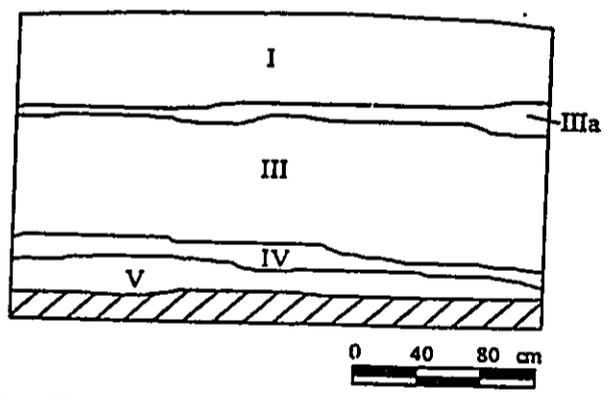
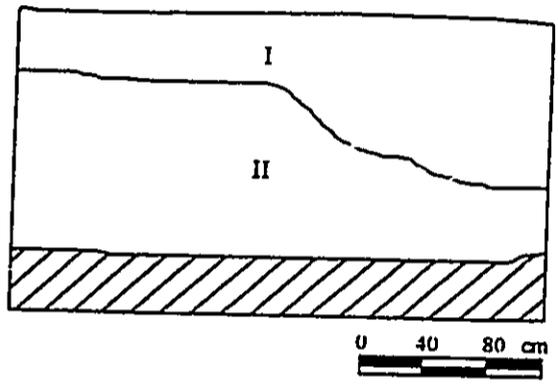
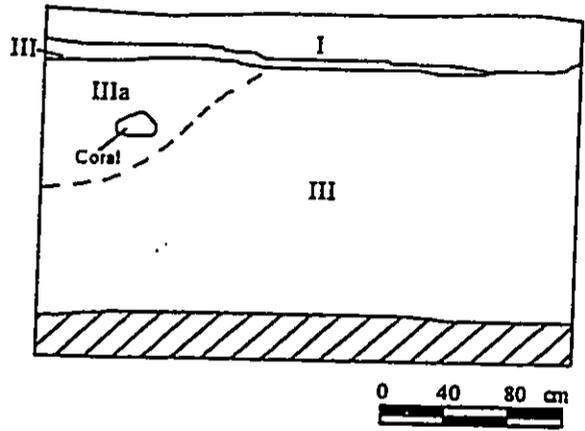


Figure 30: Stratigraphic Profile Trench #11 Northwest Face; Trench #12 East Face; Trench #13 West Face

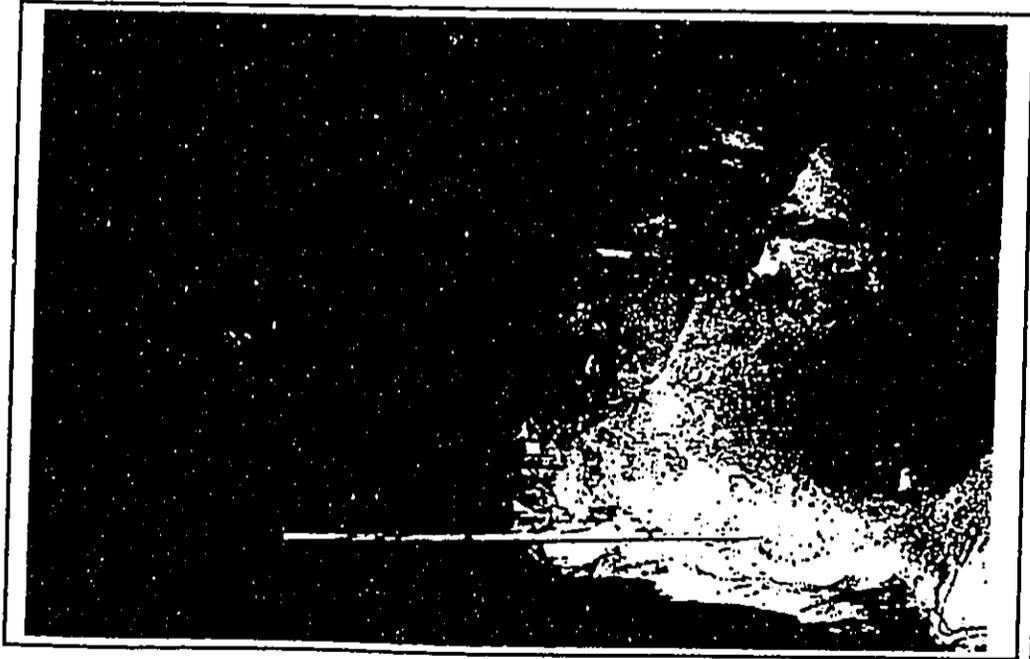


Figure 31: Photograph of Trench #12 Northeast Face.

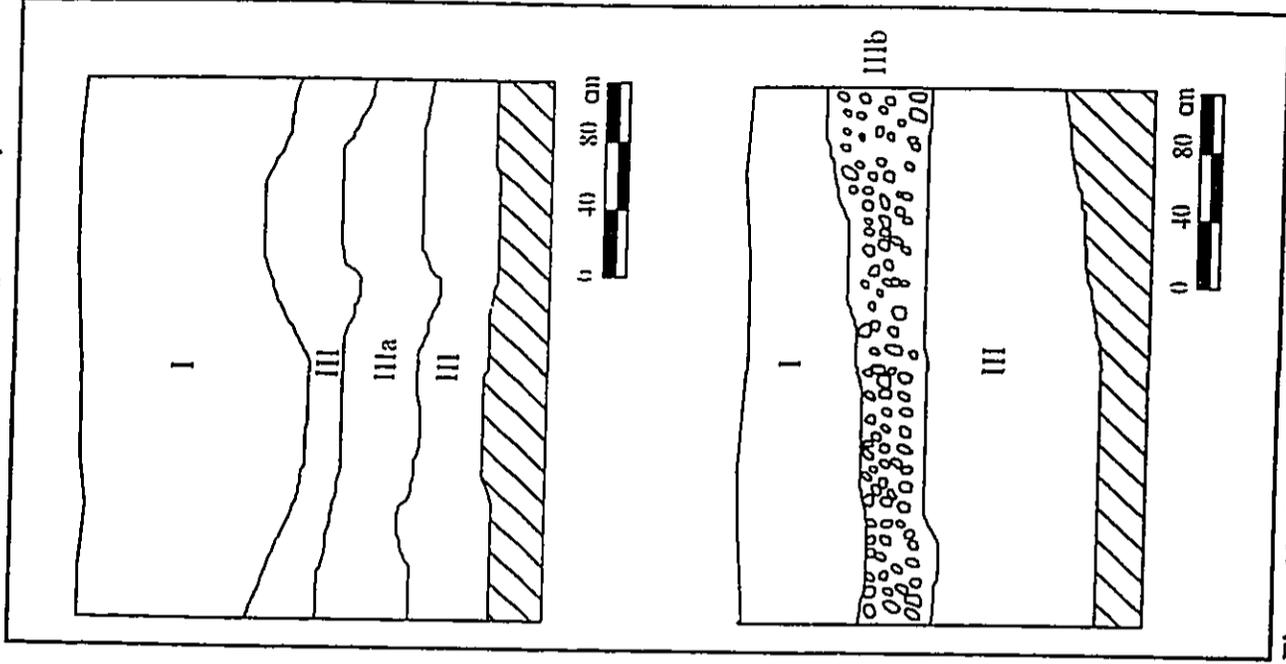


Figure 32: Trench #14 West Face; Trench #15 Northwest Face.

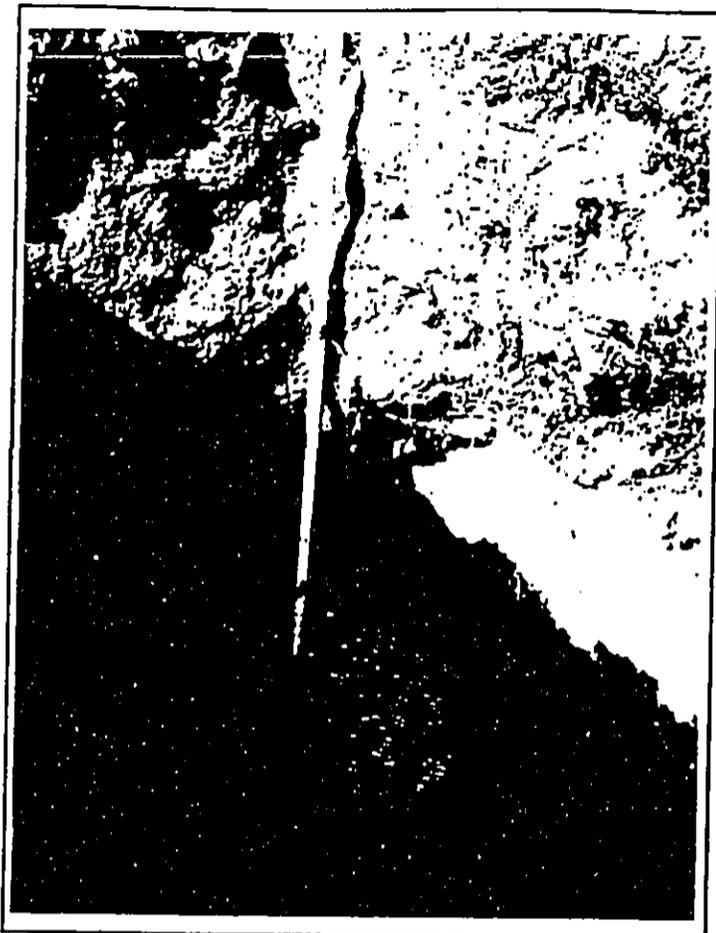


Figure 33: Photograph of Trench #14 Northeast Face.

Trench #15

Trench #15, excavated against the slope below the proposed location of the northernmost guest house, left little doubt as to the natural depositional forces occurring within this compact valley. A layer of coral rubble, labeled Layer III b, was exposed, this suggesting the impact of a tidal wave (in 1967/1968) (see Figure 32; Figure 34). This wave presumably moved a large amount of coral and beach sand usually found just offshore and deposited the sediments against the hillside. No sign of cultural layers were found within this trench.

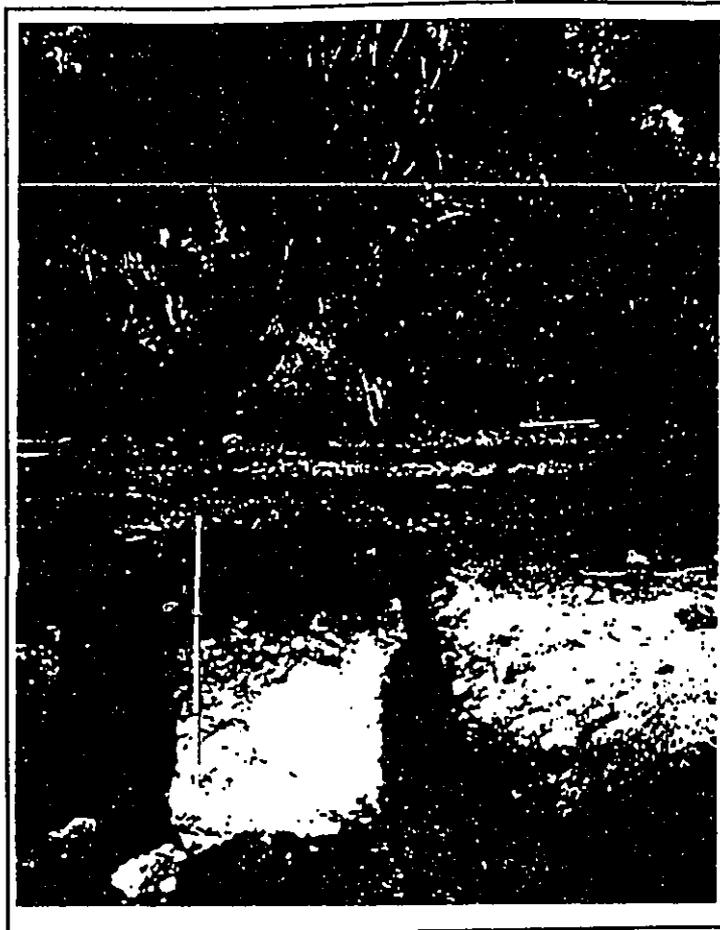


Figure 34: Photograph of Trench #15 Southwest Face.

RADIOCARBON DATING

One charcoal sample was submitted for dating purposes, this sample acquired from Site 50-30-03-980, Feature B. More succinctly, the sample was acquired from Layer II at 0.25-0.40 mbs. The sample was chosen as it appeared to have a high quantity of datable charcoal and would also provide a date for the lower portion of the Feature B firepit. Briefly, the sample (Beta No. 122218) returned a modern date (125.3 yrs +/- 1.0% modern). Thus, the charcoal, and by extension the fire pit feature, appear to be modern in origin. No other samples were submitted for dating.

DISCUSSION AND RECOMMENDATIONS

A general land utilization pattern for the Papa`a Stream valley may be offered, this pattern taking into account sites identified during this Inventory Survey phase of investigations. Briefly, cultivation occurred in the lower portions of Papa`a valley and along the flanks of the stream where alluvial terraces could be modified to take advantage of the stream flow. A majority of traditional farming activities were likely situated in the lower portions of the valley where broad, alluvial flat lands occurred. Traditional and early historic habitation likely occurred on dry colluvial areas near the base of the stream or above, on the dry, flat slopes. Dry land cultivation occurred in colluvial areas at the base of the stream walls and on the flat slopes above.

Prehistoric and early historic habitation is interpreted to have occurred mainly along the bottom of the stream valleys and along the coastline. *Kalo* (taro) was presumably grown on terraces in the lower valley zone. The small side ravine of Papa`a Ahupua`a had the greatest potential for containing remnants of traditional agriculture. A spring and feral cultivators indicate some previous subsistence activities occurred in the area. However, only a trail and feral *kalo* was identified. This ravine is not scheduled to be part of future development.

Seven archaeological sites were identified within the project area. A majority of these sites occur on the surface within the drainages and near the coastline. One site, a distinctive cultural layer, appeared in subsurface context. Initially all of the identified archaeological sites (979, 980, 982 through 986) were significant under criteria "D" (have yielded or are likely to yield information important for research on prehistory or history). However, since sufficient information has been gathered in the form of mapping and recording, Sites 982, 984, and 985 are considered no longer significant. The remaining sites, 979, 980, and 983 through 986 are still considered significant under criteria D.

Sites 980 and 983 are also significant under criteria "E" (having traditional cultural significance to an ethnic group). Site 980 is significant under this criteria because of the presence of a possible burial. Site 983, the "Turtle Rock", is included under this criteria because it is a significant cultural feature.

Four of the significant archaeological sites (979, 980, 983, and 986) will be preserved in place. The possible burial area Feature D at Site 980 is planned for preservation, however if any future development is planned for this location or other identified sensitive areas, SHPD representatives must be first notified as subsurface testing will be required. If development takes place in the coastal area near Site 986, a Monitoring Plan will be required should excavations be planned that exceed a depth of two feet below the ground surface.

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EDUARD J. CAYETANO
GOVERNOR OF HAWAII



STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Kakuhānua Building, Room 555
801 Kamehale Boulevard
Honolulu, Hawaii 96807

January 12, 1999

MICHAEL D. WILSON, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY
GILBERT COLOMA-ACARAN
TIMOTHY E. JOHNS

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

Ms. Elizabeth Pestana
SCS
711 Kapiolani Blvd., Suite 777
Honolulu, Hawaii 96813

LOG NO: 22777 ✓
DOC NO: 9901RC15

Dear Ms Pestana:

**SUBJECT: Historic Preservation Review – An Archaeological Inventory
Survey of Papa'a Bay Ranch, Papa'a, Kawaihau District, Kaua'i
TMK: 4-805: 6, 10, 13; 4-9-08: 5, 7, 8, 9, 11**

This letter reviews the survey report which you sent to us on December 5, 1998 (Powell & Spear 1998. Inventory Survey of Papa'a Bay Ranch Kawaihau District, Kaua'i Island, Hawaii. SCS ms.). This survey work covered over 172 acres.

It appears that the surface survey covered the entire project area. However, at this point, we are uncertain whether subsurface testing has adequately identified all the historic sites in the project area – particularly former lo'i. Also, one site described needs to be split, with more sites resulting. Information on some sites is not sufficient to establish whether they are indeed historic sites. Thus, we must conclude that the report needs revision before we can evaluate whether all historic sites have been identified. (See attachment for details.)

Additionally, the background section needs additional clarification in order for us to understand what sites were considered likely to be in the project area. The site descriptions (maps, surface descriptions, subsurface descriptions, oral historical evidence, function and chronology) also require additional information. Please see the attachment again for details.

We are unable to evaluate site significance recommendations or mitigation proposals until the above information is clarified.

If you have any questions, please feel free to contact our office. Ross Cordy (692-8025) is our contact for this review.

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

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Page 2

c. Roland Harper, Peter Taylor Inc., 4414 Kukui Grove St, Ste. 104, Lihue, HI 96766
Planning Department, County of Kauai

E. Pestana
Page 3

ATTACHMENT
NEEDED REVISIONS
ARCHAEOLOGICAL INVENTORY SURVEY OF PAPA'A BAY RANCH
SCS

General Introductory Comments

1. Figure 2 does not clearly show the project area in relation to the sea. Typically, we require a portion of a USGS quad showing the project location. Figure 1 is too general; Figure 2 is too specific. Please add a USGS quad portion.

Historical Background

In general, this section is clear. It needs some references, some work on the map, and some clarification of Mahele patterns.

1. p. 7, para. 1. Please include references for your conclusions on habitation locations.

2. p. 7, para. 1. Please include references for your conclusions on dryland agricultural locations.

3. p. 8, para 2 on the Mahele. We have pointed out in several prior reviews to your firm that the Mahele records which match best to tax map and kuleana parcels are the Awards Books. They usually note specifically for each kuleana piece (apana) what the land was used for (lo'i, house, kula, etc.). If you had used those records, your firm could have matched us to each parcel on Figure 3. The least detailed Mahele source is the Native Register, which is the only source that you have used in this report. You need to make it clear in this paragraph for all 11 awards in Papa'a, what each parcel was used for -- as best as possible. You seem to conclude that all plots were lo'i. Is this indeed the case, or was each claim for lo'i and sometimes kula and house lot. In other words, are you saying that each kuleana piece shown on the maps are lo'i parcels? You need to distinguish -- as best as possible -- where the lo'i were, the houses were and the dryland fields were from these Mahele records. Please re-write and clarify. Also, we urge that you use the Awards Books (or at least the Native Testimonies) to clarify this matter, if it cannot be clarified from the Native Register.

a. p. 8, para 2, lines 4-5. The Wi (a) in the text actually is shown below the falls on Figure 3. Which is correct?

b. p. 8, para. 2, line 6. The Native Register did not award anything. These were the initial claims made by people. Awards came several years later (and are listed in the Awards Books or on the separate Royal Patent documents).

4. Figure 3. The LCA numbers need to be legible, including the apana number. The project border needs to be clearly labeled.

5. Prior archaeology, pp. 8-11. So what was the settlement pattern as shown by the Bennett information? You need to summarize this. Are all the sites in the upper valley, or are they on

E. Pastana
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the upper valley floor? Are the heiau on high points. It would be useful to place these locations on a map of the ahupua'a/project area.

6. p. 12, Summary.

a. Is this a typical valley pattern? If the stream valley is one with very narrow upper valley tributaries with no stream flats (as is common in some Kaua'i areas), then it technically would not be a typical valley -- rather more a gulch pattern (a variant of the valley) with no lo'i in the upper valley. Depending on the answer, you might need to alter your wording.

b. para 1, line 5. Is this kalo cultivation irrigated lo'i cultivation or dryland? You must be more specific.

c. You might clarify where these areas of lo'i, tree crops/dryland, and houses are relative to a map of the project area, or make a map showing likely site pattern areas. It is difficult for the reader to visual this just with the very general text.

Site Descriptions

1. It is stated on page 14 that 7 sites were found. Figure 2, the site location map, shows only 3 sites. You need a site location map that clearly shows the locations of all sites. Note: For the subsurface habitation site, you need to estimate the site borders on this map. Also, the shore and the project borders must be clear on Figure 2.

2. Site 979 (trail), pp. 14-16.

a. Figure 4 does not seem to show any trail, only scattered rocks. The map needs improvement, minimally labeling.

b. p. 16, para. 2. It says here the up valley destination of the trail is unknown, but the prior paragraph says the trail ends on the hill. Which is correct?

c. related to chronology of the trail. What did your informants say? Is it actively used today, or does it seem to be an old abandoned trail? We are concerned about this, because many trails up bluffs today are modern trails providing access to roads, while in the past trails may have simply gone up the valley floor on the dry terrain at the base of the valley walls. If these are modern trails, they may not be historic sites.

3. Site 980 (complex), pp. 16-19.

a. Introductory para. Here it says that the site is on a bluff, yet as one reads about each feature, clearly many are on the shore and one is on the reef flat. Revise text. This raises another problem. This site covers a vast area, including different environmental locations (bluff, sand shore, reef flat). It needs to be split into separate sites. Such lumping is just no longer acceptable for management purposes. The features on the bluff should be one site (if they are adjacent to each other). Those on the sand shore should be another -- or separate sites if they are apart. The fishpond/fish trap should be another site. Please revise accordingly.

b. There is currently no plan map for this site. When it is split into smaller sites, plan maps may be appropriate. Minimally, they all go on the site location map.

E. Pestana
Page 5

c. If Feature B is modern, it is not a historic site. Thus, it should not be listed as a site. You can discuss it here. But, it drops out of site tables, and the significance evaluations and recommendations.

d. Feature A. See our comment above under 979, item c.

e. Feature C. This description needs to be improved. You found two concrete slabs that are the remnants of a single bunker according to your informant. Thus, your feature is not a concrete bunker as indicated in the heading. What did the bunker look like based on your informant's information? Was it concrete? If so, what happened to it. Note: Because this site lacks integrity, it would not be significant.

f. Feature D. More oral information is needed for this site description to be acceptable. What was your informant's basis for concluding these were graves? Did they see bones erode out, were they told by elders (who)? How many graves are involved? You must estimate the borders based on the informant's information. This is a traditional cultural place without archaeological or other visible information.

g. Feature E. Is this a natural feature or man-made in part? Saying unusual rough surf prevented an evaluation is not sufficient. Did you go back and evaluate the feature later? What did your informant call this -- a fish trap or a fishpond, or a fishing hole -- and where did he get this information from? You cannot just conclude that because a LCA is present that it was a fish trap or fishpond. What do the LCA records say for LCA 5101? What are the dimensions of this feature? At present, this seems to be a traditional cultural place and needs better documentation.

4. Site 982, pp. 20-22

a. Figure 10 does not show what is described in the text. We do not see a series of rock alignments. You need to label the figure better. You need to describe the dimensions of the features better in the text.

b. Your interpretation of this site as a possible fishing look-out is stretching interpretation. You need to provide other examples of such look-outs to justify your interpretation (with references) or provide oral information. The site description sounds more agricultural (dryland).

5. Site 983, pp. 20 and 22. Turtle Rock

a. It is not clear if this rock was described as a traditional cultural place by your informant. Did your informant so identify this rock? What story goes with it? Where did he get this information?

b. What is the basis for your claim that the rock "supposedly contains much mana"?

c. Does the alignment join the boulder? Is it clearly associated with the boulder? If it is man-made and is associated, then you have archaeological evidence supporting use of the rock and a likely religious function.

6. Site 984, pp. 23-26.

a. It is not clear from the text if this site is on a flat or slope.

b. The text says that the walls are single course high, while Figure 15 seems to show multiple courses. Which is correct? The caption of the photo could provide more information to help the reader understand the site.

E. Pastana
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c. p. 26. Conclusion on site function. What evidence makes you conclude that this is a rest area? What evidence makes you conclude that it was used by field-hands. Based on the artifacts, what is the age of the site. If it is modern, it is not a site.

7. Site 985, pp. 28-27.

a. You need to establish an age for this structure to determine if it is older than 50 years. If it is older and since it is architectural, the description is not sufficient for architectural sites and would need further documentation. (as mitigation or here). Does you informant have age or information on who used it?

8. Site 986, pp. 27, Subsurface Habitation Deposit

a. Although you describe all 15 test units later, you need to summarize your information on this site somewhere. This would be the best location.

b. What is the estimated area of this site, show on map too.

c. What do the layers look like and range of depths?

d. Summarize features, artifacts, food remains within layer.

e. Why were not controlled excavations done to try to date this site? This seems to be one of the most important sites in the project area, yet no attempt seems to have been made to date it.

f. Under the individual excavation descriptions, be sure that each trench with cultural deposits has its layers fully discussed in the text.

9. Concern About Missing Sites. Your background review indicates that irrigated kalo fields were present in the project area. We are concerned that subsurface remnants of these fields still might be present. Such sites can contain extremely important information on prehistory. No attempt seems to have been made to test for such sites. If they were documented by the Mahele, surely they have not disappeared? Or do you think massive bulldozing occurred and destroyed them? This point needs discussion.

10. Discussion, pp. 44

a. The first paragraph and a half acceptably (although briefly) describe your anticipated patterns. But you need to describe how your findings evaluated and changed those anticipated patterns. Did you find irrigated kalo fields on the valley floor? Did you find habitations along the base of the valley walls? What you describe so far seems to indicate that for precontact/early historic times, you found evidence for a buried habitation site near the sand shore, burials on the sand shore at the base of the north point, a rock that may have religious meanings (the turtle) and a fishing area on the reef. For later times, you have not described any general settlement pattern, but you have a slaughterhouse and bottles at one site and the mochi pounding stone.. The trails may or may not be modern. Please revise this section to address the different time periods -- expectations and what you found.

Significance Evaluations

1. We will not review the evaluations at present, but these will need to be presented in table format -- as is standard practice in Hawaiian archaeology. Please revise accordingly.

EXHIBIT "L"



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P.O. BOX 621
HONOLULU, HAWAII 96809

NOV 30 1998

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT
WATER RESOURCE MANAGEMENT

REF:PB:LT

File No.: KA-2915
Acceptance Date: 11/20/98
180-Day Exp. Date: 04/17/99

Mr. Max W.J. Graham, Jr., Esq.
Belles Graham Proudfoot & Wilson
4334 Rice St., Suite 202
Lihue, Kauai, Hawaii 96766

RECEIVED
DEC 2 1998

BELLES GRAHAM
PROUDFOOT & WILSON

Dear Mr. Graham, Jr.:

NOTICE OF ACCEPTANCE AND PRELIMINARY ENVIRONMENTAL DETERMINATION
Conservation District Use Permit Application #KA-2915

This acknowledges our receipt and acceptance for processing the application for a Departmental Permit to construct a driveway and to perform landscaping and irrigation improvements on lands located at Papaa Bay; TMK: 4-9-05: por. 13, 4-9-06: por. 05 and 11, Anahola, Kauai.

According to the information submitted, the proposed land use actions will involve landscaping of the eastern and southern boundaries of the property with native trees and bush and the installation of an underground irrigation system.

A portion of an existing unimproved driveway will be realigned and used to provide access to the two proposed residences presently under construction on the portion of the parcel designated Agricultural by the State Land Use Commission.

Please provide clarification and detailed information for the following sections of the application and the draft environmental assessment (EA):

1. Section V. of the application: "...approximately 550 feet of roadways and accessways will be eliminated."

"This portion of the driveway...will require approximately 168 cu. yds. of excavation and 225 cu. yds. of fill."

2. Section VII. of the application: "...all of these improvements, with the exception of the bathhouse, some of the landscaping and a portion of the driveway, will occur outside of the Conservation District."

EXHIBIT "L"

3. Section IX. of the draft EA: Please provide details of driveway grading plan i.e., does it follow the path of the existing road or is it to be relocated?
4. Sections X. And XI. should be supplemented with more data and analysis of the potential impacts of the proposed actions. What is the topography of the proposed project areas? Will scenic vistas and viewplanes identified in county or state plans be affected by the proposed actions? What construction practices are to be used to mitigate soil erosion and sedimentation? How will the developments impact Papaa Stream and the shoreline? What is the mitigation plan for those impacts?

After reviewing the application, we find that:

1. The proposed uses are identified land uses within the Limited "L" and General "G" subzones of the Conservation District, in accordance with section 13-5-22, Hawaii Administrative Rules;
2. Pursuant to section 13-5-40, Hawaii Administrative Rules, a public hearing will not be required; and
3. In accordance with Title 11, Chapter 200, Hawaii Administrative Rules, a draft environmental assessment was submitted to the Office of Environmental Quality Control (OEQC) for publication in the December 8, 1998 OEQC bulletin. A Finding of No Significant Impact (FONSI) is anticipated

Compliance with the provisions of section 205A, Hawaii Revised Statutes, relating to the Special Management Area (SMA) requirements of the County of Kauai is one of the requirements for obtaining CDUP approval.

We note that a copy of the Special Management Area Minor Permit dated September 3, 1998 issued by the County of Kauai Planning Department was submitted with the application. If you have any questions, please call Lauren Tanaka at (808) 587-0385, Planning Branch of the Land Division.

Aloha,



MICHAEL D. WILSON

copies to: Kauai Board Member
Kauai District Land Office
USFWS, Corps
DOT, DOH, DHHL, OP, OHA
County of Kauai Plng. Dept., DPW, DW

bcc: DAR/DOCARE/DOFAW/HPD
SP/CWRM/Land - Engineering

**BELLES GRAHAM
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ATTORNEYS AT LAW

WATUMULL PLAZA
4334 RICE STREET, SUITE 202
LIHUE, KAUAI, HAWAII 96766-1388

TELEPHONE NO: (808) 245-4705
FACSIMILE NO: (808) 245-3277
E-MAIL: mail@kauai-law.com

ASSOCIATE
PAMELA P. RASK

OF COUNSEL
JONATHAN J. CHUN
JERILYNN ONG HALL

MICHAEL J. BELLES
MAX W.J. GRAHAM, JR.
DAVID W. PROUDFOOT
DONALD H. WILSON
Federal I.D. No. 99-0317663

January 19, 1999

Mr. Timothy E. Johns, Director
Department of Land and Natural Resources
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

Via Fax (808-587-0455) & Mail

RE: **Conservation District Use Permit Application**
Property: Papaa Bay Ranch, Papaa, Kauai, Hawaii
Kauai TMK Nos. (4) 5-9-05:13 (por.), (4) 5-9-06:05 (por.) & 11
Owner: Mandalay Properties Hawaii LLC

Dear Mr. Johns:

In the letter from Michael D. Wilson to me dated November 30, 1998, he asked that I expand on several areas of the Conservation District Use Application ("CDUA") submitted in this matter by Mandalay Properties Hawaii LLC ("Mandalay"). I am responding to the points raised in his letter as follows:

1. **Elimination of Roadways.** Section V of the CDUA states that approximately 550 feet of roadways and access ways will be eliminated. The property which is the subject of this CDUA (referred to herein as the "Conservation District") is part of a larger property known as the Papaa Bay Ranch. The Conservation District contains approximately 52.65 acres while the entire Papaa Bay Ranch (including the Conservation District) contains approximately 172.931 acres. The prior owners used the entire property for pasture, agriculture, and residential purposes, and constructed various roads within the Ranch (including the Conservation District) to accommodate such uses.

There are approximately 950 feet of existing gravel roadways within the Conservation District. Mandalay intends to utilize these roadways to gain access to the residences (described below) and intends to re-surface portions of these roadways with asphalt paving. A portion of the existing roadway within the Conservation District (approximately 200 feet) will be removed and the area grassed.

LIHUE1\25744\1\28003.1\MWG

Mr. Timothy E. Johns, Director
Department of Land and Natural Resources
January 19, 1999
Page 2

2. **Driveway Grading.** Since initial submittal of the CDUA, the new driveway alignment proposed in the Conservation District has been eliminated, and the existing roadway will now be utilized instead. Therefore, Mr. Wilson's request to clarify cubic yards of excavation and fill for the new driveway is no longer pertinent, since it will not be constructed. A portion of the existing roadway, however, will be re-surfaced with asphalt paving. This will require approximately 120 cubic yards of base course and 60 cubic yards of asphalt paving.

Similarly, Mr. Wilson's request to provide driveway details is no longer necessary since we are not constructing the new driveway.

3. **Improvements.** In Section VII of the CDUA, Mandalay discussed and distinguished the improvements being made within those portions of the Papaa Bay Ranch in the Agricultural District, and those improvements within the Conservation District. A summary of that discussion follows:

a. **Agricultural District.** Mandalay is constructing a number of improvements within those portions of the Papaa Bay Ranch, located in the Agricultural District and outside of the Conservation District, including the following: a new Main Residence (to be constructed on the site of the old residence); a swimming pool; two Cottages; a new Garage; a new Utility Shed; a new Caretaker Cottage; a new Workshop; a new entry driveway; and new landscaping (collectively referred to as "Ranch Improvements"). The Ranch Improvements are shown on the enclosed Overall Site Plan (attached to the CDUA as Exhibit "G").

b. **Conservation District.** Within the Conservation District, Mandalay proposes to: re-surface a portion of the existing roadway; plant new landscaping; and install an underground irrigation system for the new landscaping. The portion of the roadway to be re-surfaced is shown on the enclosed Papaa Ranch Exhibit Showing Proposed Driveways In Conservation Zone. The location of the landscaping within the Conservation District is shown on the Landscape Plan attached to the Environmental Assessment as Exhibit "F", a copy of which is enclosed. (It should be noted that the Landscape Plan attached to the CDUA as Exhibit "H" also shows the proposed landscaping within the Conservation District. However, this diagram was a preliminary one which does not show the full extent of Landscaping Plan as shown on Exhibit "F" of the Environmental Assessment.)

The nature of the landscaping in the Conservation District and its impact is discussed in Paragraph IX of the Environmental Assessment. As shown on the enclosed Landscaping Plan, Mandalay intends to install Coconut Palm Trees, Beach Heliotrope Trees, Kamani Trees, and Naupaka Bushes in the makai portion of the Conservation District, in the area paralleling the banks of Papaa Stream and on the mauka boundary of the Conservation District. The landscaping along the shoreline will serve a dual purpose of providing privacy for users of the Papaa Bay Ranch while

CORRECTION

THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

Mr. Timothy E. Johns, Director
Department of Land and Natural Resources
January 19, 1999
Page 2

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Mr. Timothy E. Johns, Director
Department of Land and Natural Resources
January 19, 1999
Page 3

providing both privacy and a partial visual screen of the improvements within the Papaa Bay Ranch from the beach area. The landscaping along the Papaa Stream will enhance the visual appearance of that area. The landscaping along the mauka boundary of the Conservation District will serve to partially screen the Driveway, the Cottages, the Swimming Pool and the Main Residence. The portion of the Conservation District between the mauka boundary and the shoreline and Papaa Stream (designated "Open Meadow" on the Landscaping Plan) is predominantly level. In addition to the installation of the landscaping, Mandalay intends to remove approximately 200 feet of the existing roadway and to re-grass and irrigate the Open Meadow.

The southern portion of the Conservation District (which runs in a east to west direction) is a cliff that rises from sea level to approximately 120 feet above sea level. This area will be referred to as the "Cliffside". Mandalay plans to install approximately 150 Coconut Palm Trees, Naupaka Bushes, Hala Trees, and other vegetation along the Cliffside, as shown on Landscaping Plan. This area is presently vegetated with Ironwood Trees and scrub grasses. The landscaping will consist of native materials that will beautify this entire area. The landscaping will also help to stabilize the soil on the Cliffside.

Finally, reference was made to an existing "Bathhouse" within the Conservation District. The location of the Bathhouse is shown on the enclosed Zoning Map, which was attached to the Environmental Assessment as Exhibit "D", although there it is referred to as a "Gazebo". In any event, this is a wooden one-room structure (with plumbing), approximately 18 feet by 11 feet 3 inches in size, containing an area of 202.5 square feet, built on a concrete slab, with an asphalt shingle roof. To the best of our knowledge, it was constructed in the 1960s, prior to the creation of the SLUC Districts, and is a legal, non-conforming structure. Mandalay intends to continue using it for bathhouse purposes related to beach activities.

4. Description of Conservation District/Analysis of Impacts. With regard to the specific questions Mr. Wilson raised concerning the Conservation District, Mandalay provides the following additional information:

a. What is the topography of the proposed project areas? With regard to this issue, reference should be made to the Topography Map (attached to the CDUA as Exhibit "E"), which is enclosed, and the Landscaping Plan, which is also enclosed. The portion of the Conservation District located to the north of the Papaa Stream is a sloped area that rises to heights of approximately 120 feet above mean sea level. No development activities are proposed within this area. The portion of the Conservation District to the south of the Papaa Stream (referred to as the "Open Meadow") are predominantly level and near sea level. In the area near the mauka boundary of the Open Meadow, the land begins rising again. The area on the south side of the Conservation District (referred to as the "Cliffside"), runs in an east and west direction and rises from sea level to approximately 120 feet

Mr. Timothy E. Johns, Director
Department of Land and Natural Resources
January 19, 1999
Page 4

above sea level. The Cliffside forms the southern boundary of Papaa Bay. To the south of the Cliffside is an adjacent property on a plateau which has been developed as an agricultural subdivision known as the Aliomanu Estates Subdivision.

b. Will scenic vistas and viewplanes identified in county or state plans be affected by the proposed actions? The Conservation District is not located within any scenic corridors as defined by Section 8-9.7 of the Comprehensive Zoning Ordinance of the County of Kauai or by the Kauai General Plan, or by any state plans. The appearance of the area will be improved over that which exists today by the installation of plant materials that are native to, and compatible with, this shoreline area (including palm trees, naupaka, hala trees, beach heliotrop and grass). The landscaping will not interfere with any scenic views towards the ocean from any public areas or roadways.

c. What construction practices are to be used to mitigate soil erosion and sedimentation? How will the developments impact Papaa Stream and the shoreline? What is the mitigation plan for those impacts? Mandalay will follow the provisions of the Kauai County Grading Ordinance, using Best Management Practices, to prevent any erosion or sedimentation.

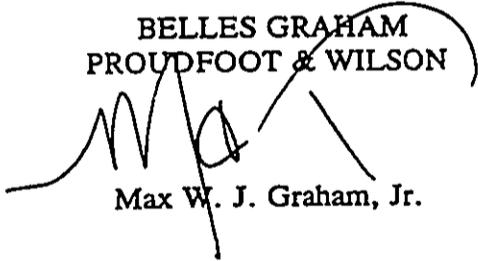
The public access to the shoreline is along a well defined, existing path. No landscaping will be placed within the easement area, and as a result the proposed development will have no impact on the public's access to the shoreline and Papaa beach.

The landscaping will be made up of vegetation which is common to, and compatible with, the area. As a result, the landscaping will serve to beautify the area, and enhance the use and enjoyment of Papaa beach by members of the public.

If you have any further questions, please be sure to contact me.

Sincerely yours,

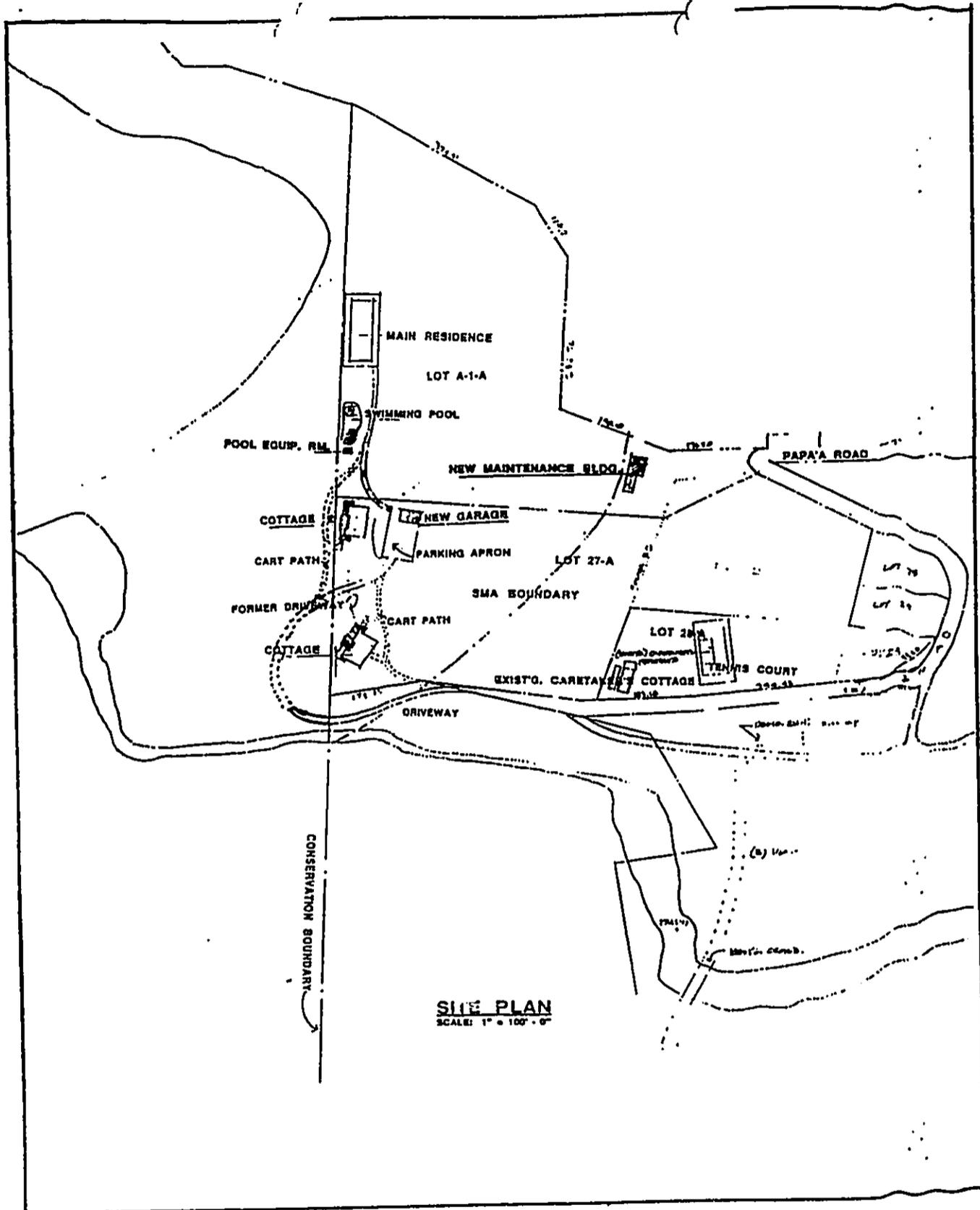
BELLES GRAHAM
PROUDFOOT & WILSON



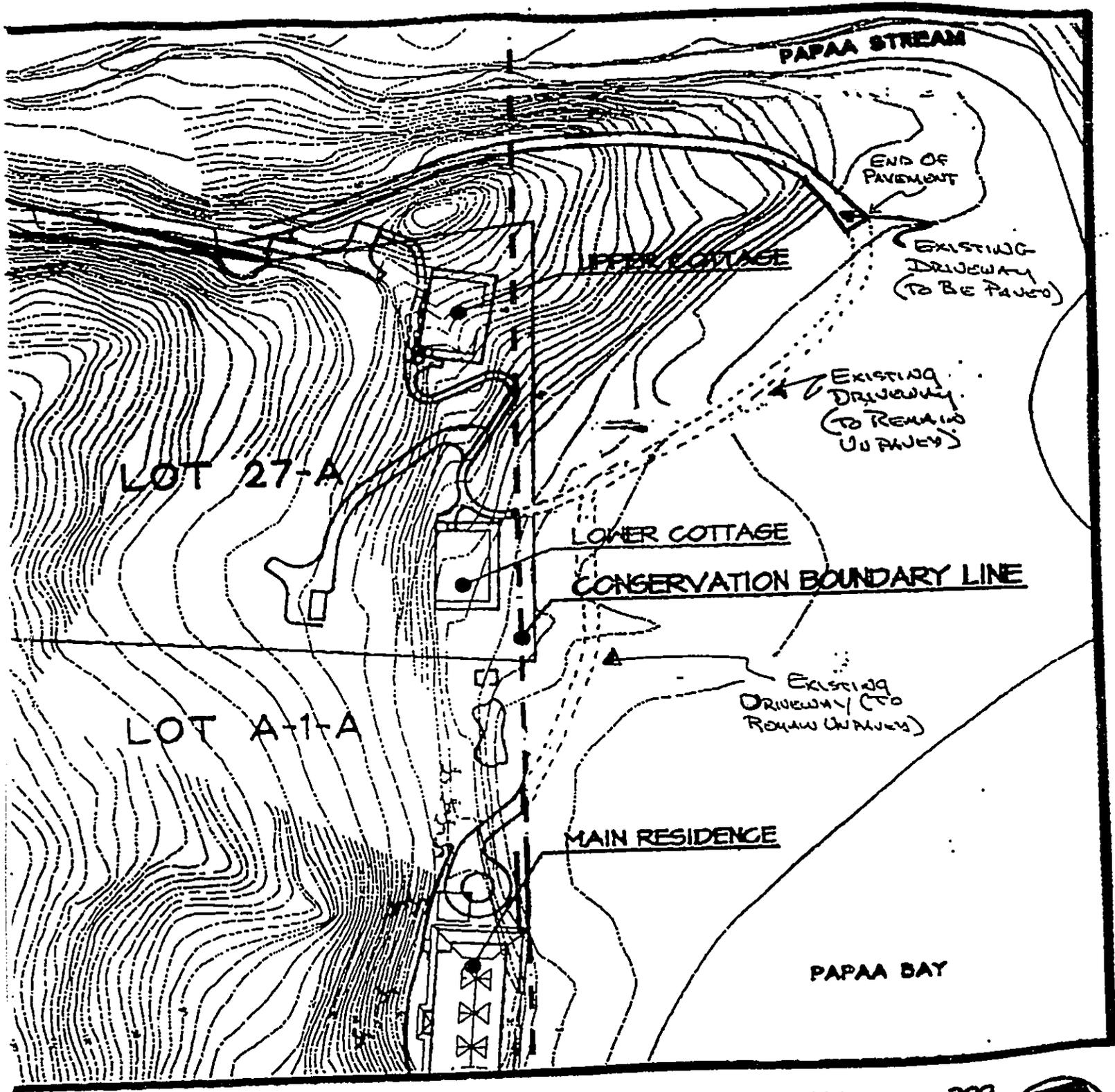
Max W. J. Graham, Jr.

MWJG:jlj
Enclosures
cc: Mr. Avery H. Youn (w/o encls.)

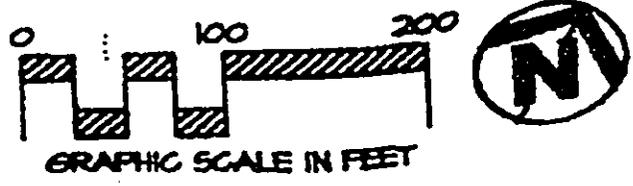
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OVERALL SITE PLAN
 EXHIBIT G
 (CDU A)



PAPAA RANCH
 EXHIBIT SHOWING PROPOSED DRIVEWAYS
 IN CONSERVATION ZONE



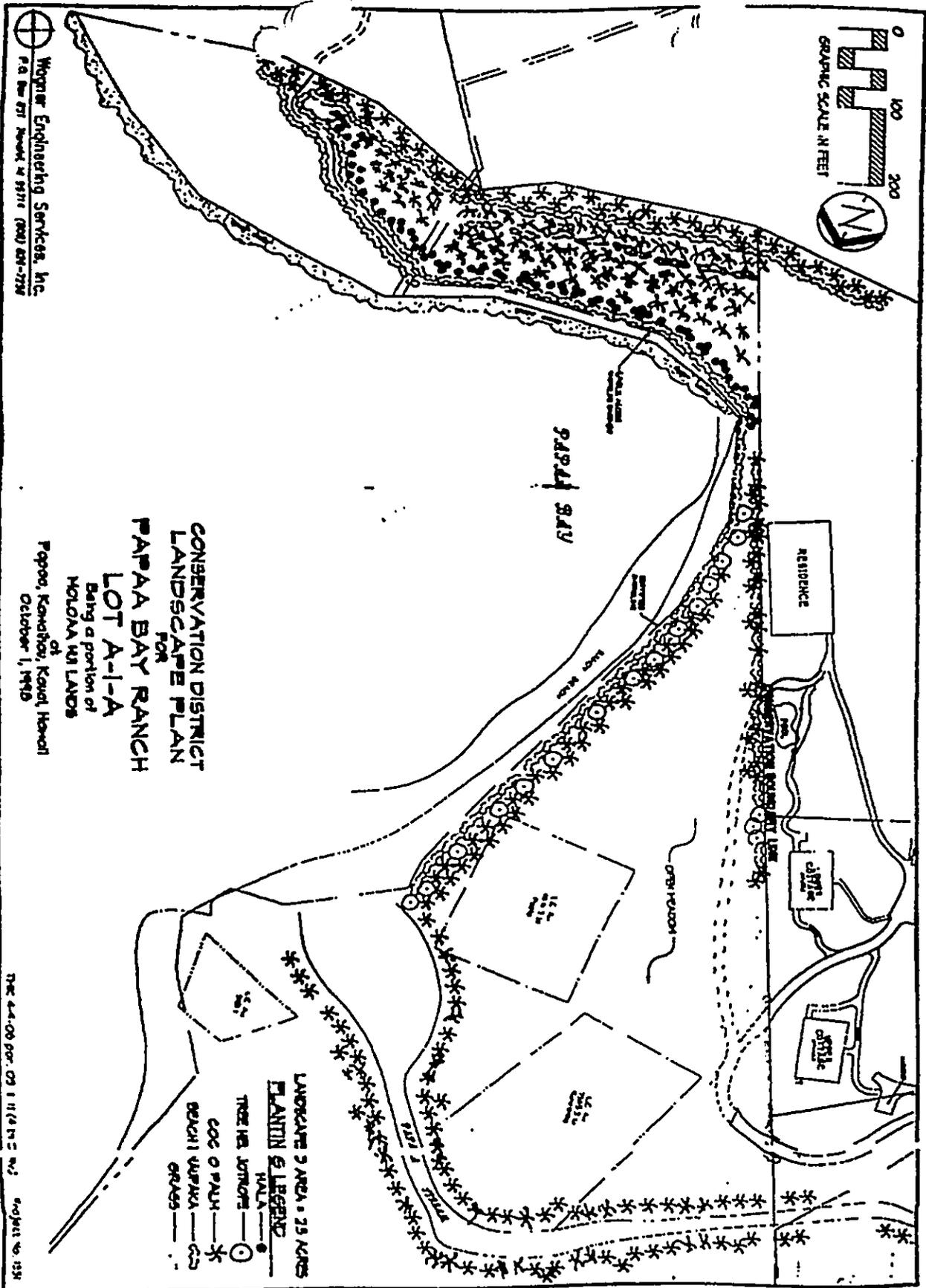
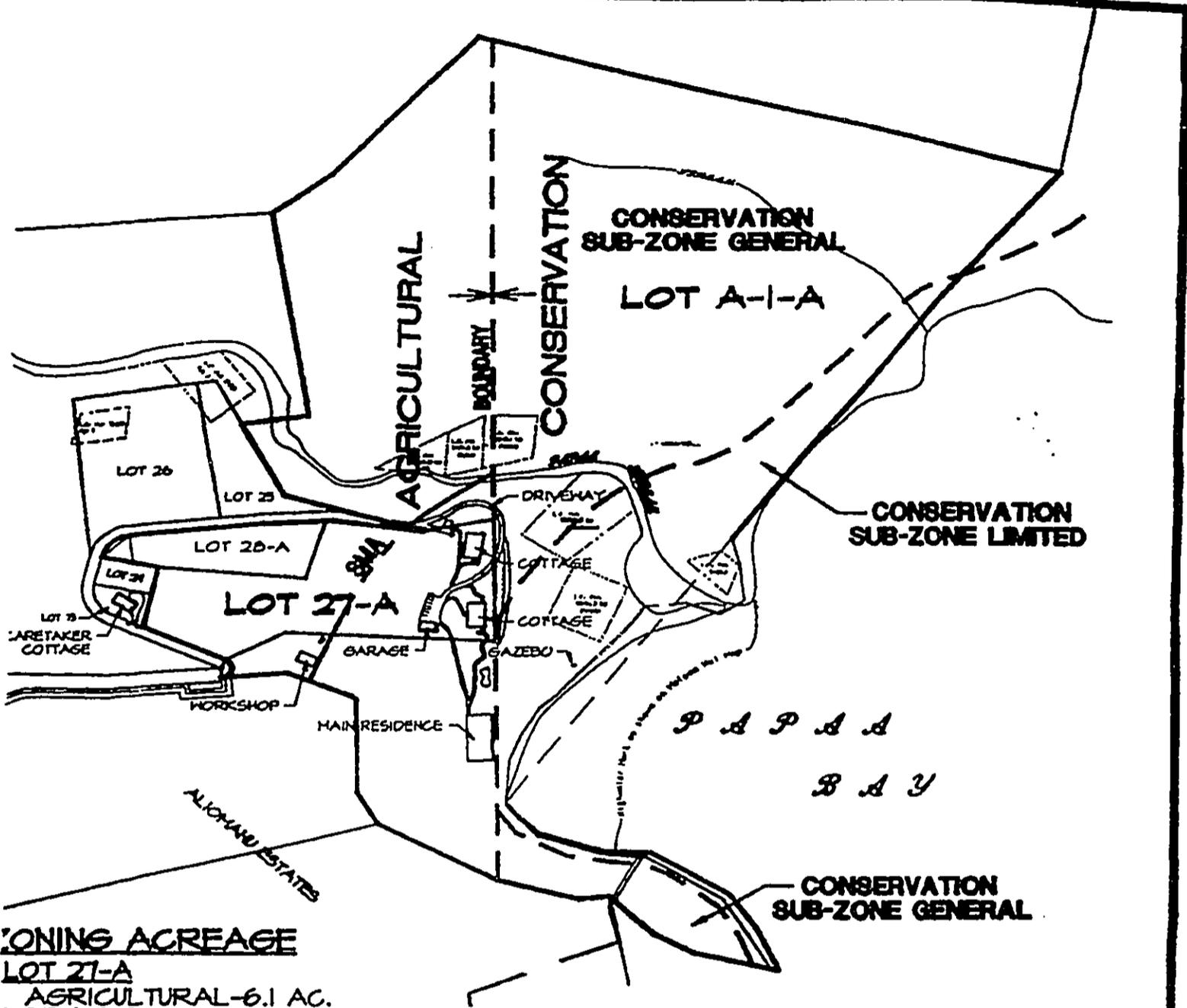


EXHIBIT F

(Environment Assessment)



ZONING ACREAGE
 LOT 27-A
 AGRICULTURAL-6.1 AC.
 LOT A-1-A
 AGRICULTURAL-23.1 AC.
 CONSERVATION
 GENERAL-33.6 AC.
 LIMITED-10.8 AC.



ZONING MAP
 OF
PAPA A BAY RANCH
LOT A-1-A & LOT 27-A
 Being a portion of
 MOLOAA HUI LANDS
 at
 Papaa, Kauhau, Kauai, Hawaii
 September 30, 1998

TK:(4) 4-9-06:05, 07, 11

PROJECT NO. 1551

EXHIBIT "D"
 (ENVIRONMENTAL ASSESSMENT)

EXHIBIT "M"

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



MICHAEL D. WILSON
CHAIRPERSON

ROBERT G. GIRALD
DAVID A. NOBRIGA
LAWRENCE H. MIKE
RICHARD H. COX
HERBERT M. RICHARDS, JR.

TIMOTHY E. JOHNS
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

December 17, 1998

TO: Dean Y. Uchida, Administrator
Land Division

FROM: Timothy E. Johns, Deputy Director *Timothy E. Johns*
Commission on Water Resource Management

SUBJECT: Conservation District use Permit Application KA-2915 and
Draft Environmental Assessment

RECEIVED
DIVISION OF
LAND MANAGEMENT
DEC 22 10 27 AM '98

Thank you for the opportunity to review the subject document. Our comments related to water resources are marked below.

In general, the CWRM strongly promotes the efficient use of our water resources through conservation measures and use of alternative non-potable water resources whenever available, feasible and when there are no harmful effects to the ecosystem. Also, the CWRM encourages the protection of water recharge areas which are important for the maintenance of streams and the replenishment of aquifers.

- [] We recommend coordination with the county government to incorporate this project into the county's 20-year Water Use and Development Plan, which is subject to regular updates.
- [] We recommend coordination with the Land Division of the State Department of Land and Natural Resources to incorporate this project into the 20-year State Water Projects Plan, which is subject to regular updates.
- [] We are concerned about the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.
- [] A Well Construction Permit would be required before this well(s) is constructed and/or a Pump Installation Permit would be required before ground water is pumped from the well(s) for this project.
- [] The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the CWRM would be required prior to use of this source.
- [] Groundwater withdrawals from this project may affect streamflows. This may require an instream flow standard amendment.
- [X] If the applicant proposes to expand the amount of water being diverted from Papa Stream beyond the date of adoption of the interim instream flow standard, the applicant must petition to amend the interim instream flow standard (Hawaii Administrative Rules §13-189-45). In addition, if the applicant modifies the existing diversion structure, the applicant must obtain a stream diversion works modification permit (Hawaii Administrative Rules §174C-93).
- [X] If the proposed project alters the bed and banks of a stream channel, the project may require a stream channel alteration permit pursuant to Hawaii Revised Statutes 174C-71.
- [X] OTHER:
The application refers to a private water system to service the residences and workshop. However, the application does not state the location of the well (TMK), the State Well No. or well name, or the existing pump capacity.
Our records show that well construction permits were approved for Pacific Ocean Properties for two (2) wells (Well Nos. 1019-06 & 07) at TMK 4-9-05:13 on February 20, 1997. However, the permits were never fully executed by obtaining the drilling contractor's signature. Drilling work may not proceed without a validated permit. These permits are due to expire on February 20, 1999 and may be subject to earlier revocation because Standard Condition 10, requiring the start of work within six (6) months, has not been met.
A well construction permit was recently approved for Mandalay Properties Hawaii, LLC for a well at TMK 4-9-05:8 on November 19, 1998. This permit is also invalid at this time since a fully executed original permit has not been submitted to the Commission.
We have record of an existing well at TMK 4-9-8:05 that was drilled in 1973 and pump tested at a rate of 23 gallons per minute. We do not have any record of the installed pump capacity.

If there are any questions, please contact David Higa at 587-0249.

EXHIBIT 'M'

**BELLES GRAHAM
PROUDFOOT & WILSON**

MICHAEL J. BELLES
MAX W.J. GRAHAM, JR.
DAVID W. PROUDFOOT
DONALD H. WILSON

Federal I.D. No. 99-0317663

ATTORNEYS AT LAW

WATUMULL PLAZA
4334 RICE STREET, SUITE 202
LIHUE, KAUAI, HAWAII 96766-1388

TELEPHONE NO: (808) 245-4705
FACSIMILE NO: (808) 245-3277
E-MAIL: mail@kauai-law.com

ASSOCIATE
PAMELA P. RASK

OF COUNSEL
JONATHAN J. CIUN
JERILYNN ONO HALL

February 5, 1999

Mr. Ed Sakoda
Acting Deputy Director
Commission On Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

RE: Conservation District Use Permit Application KA-2915
Property: Papaa Bay Ranch, Papaa, Kauai, Hawaii
Kauai TMK Nos. (4) 4-9-05:13 (por.), (4) 4-9-06:05 (por.) & 11
Owner: Mandalay Properties Hawaii LLC

Dear Mr. Sakoda:

In response to the comments received from the Commission On Water Resource Management dated December 17, 1998, with regard to the above Application, I am providing the following information:

1. The Applicant does not presently plan to expand the amount of water being diverted from Papaa Stream beyond that presently registered (See enclosed Registration of Stream Diversion Work). The Applicant understands that it will have to obtain permits if it intends to amend the interim instream flow standard or modify the existing diversion structure. The existing diversion structure is not located within the Conservation District.

2. The Applicant has no plans to alter the bed and/or banks of the Papaa Stream channel as part of the work proposed in the Conservation District Use Permit Application. The Applicant understands that it will be required to obtain a stream channel alteration permit if it decides to undertake any such work in the future.

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Mr. Ed Sakoda
Acting Deputy Director
Commission On Water Resource Management
February 5, 1999
Page 2

3. As set forth in the enclosed Registration of Well, the existing well is State Well No. 1019-03, is located on Kauai Tax Map Key No. (4) 4-9-06:05, and has a pump capacity of 25 gallons per minute. The existing Well is not located within the Conservation District.

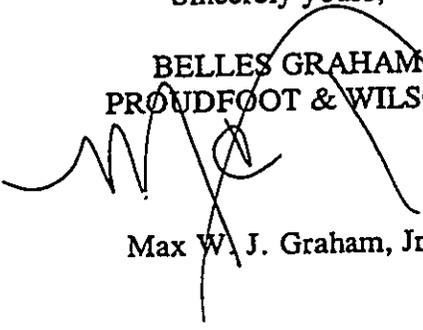
4. The prior owner of the Papaa Bay Ranch initially had plans to subdivide the property. As a result, its agent, Pacific Ocean Properties, obtained well construction permits for Well Nos. 1019-06 & 07, to be constructed on Kauai Tax Map Key No. (4) 4-9-05:13. The Applicant, Mandalay Properties Hawaii LLC, later purchased the Papaa Bay Ranch property and has no intention of following the subdivision plans of the former owner. As a result, the Applicant does not intend to construction Well Nos. 1019-06 & 07. Instead, the Applicant has applied for a separate well construction permit to construct a well on Kauai Tax Map Key No. (4) 4-9-05:06. That permit was issued November 19, 1998, for Well No. 1019-08. The new Well will not be located within the Conservation District.

For further detail concerning water uses on the Papaa Bay Ranch, I have enclosed the following materials: Water System Study, prepared by Aqua Engineers, Inc., February 1998; and Water Resources Irrigation, prepared by John F. Mink, September 7, 1984.

I hope this answers the questions raised in your letter. Please be sure to contact me or our consultant, Avery H. Youn, Architect (808-246-9414), if you have any further questions.

Sincerely yours,

BELLES GRAHAM
PROUDFOOT & WILSON


Max W. J. Graham, Jr.

MWJG:jlg
Enclosures

cc: Mr. David Higa
Mr. Timothy E. Johns, Director, DLNR

LIHUE1\25744\1\28584.1\MWG

Form 0810-2



RECEIVED

99 MAY 24 8:24

DIV. OF WATER & LAND DEVELOPMENT

STATE OF HAWAII
COMMISSION ON WATER RESOURCE MANAGEMENT
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF WATER RESOURCE MANAGEMENT

REGISTRATION OF STREAM DIVERSION WORKS
AND
DECLARATION OF WATER USE

INSTRUCTIONS: Please type or print. If information is not available or not applicable, indicate as N/A. Fill out as completely as possible, sign, and mail form to the Division of Water Resource Management, P.O. Box 333, Honolulu, Hawaii 96808. Phone: 548-3800 or 548-7500 for assistance.

MULTI-SOURCE SYSTEMS: For a system of two or more diversion structures, submit a single package to describe the complete system. Include a single location map (or a set of maps if required) showing all diversion structures and measurement points, and a separate copy of this form for each structure and measurement point. On forms describing diversion structures, complete parts A, B, C, and E. On forms describing measurement points, complete parts A, B, and F.

STREAM NAME: Papaa Stream ISLAND: Kauai
DIVERSION STRUCTURE NAME: N/A
DIVERSION SYSTEM NAME: N/A

A. DIVERSION WORKS OPERATOR

Firm name: Papaa Ranch
Contact person: Larry Mendonca
Address: P.O. Box 124
Anahola, Kauai
Zip: 96703 Phone: _____

B. OWNER OF DIVERSION WORKS SITE

Firm name: Hawaiian Trust Co Ltd as Ancillary Trustee of Harsha A. Gerbode Trust
Contact person: Joan Baumgart
Address: P.O. Box 3170
Honolulu, HI
Zip: 96802 Phone: 538-4565

C. STREAM DIVERSION LOCATION

Tax Map Key: 4-9-006-005 Town, Place, District: Moloka Hui Lands, Kauaihanu, Kauai, HI
Attach USGS "Quad" map (scale 1:24,000), tax map, or other map showing the diversion location.

D. STREAM DATA

Streamflow at diversion site is: Perennial (water is always flowing) Intermittent (channel is sometimes dry)
Is streamflow gaged? Yes No
If yes, provide gage name, and show location on map. Name: _____
Average flow before diversion: 2 mgd gpm cfs

E. DIVERSION STRUCTURE DATA

Year constructed: 1964 Elevation (above sea level): Approx. 70 ft.
Diversion structure is: Concrete Wood Pipe Other (describe): Ramp
Approx 10,000 gal per day
Diverted flow is: Controlled Uncontrolled
Divertable capacity is: _____ mgd gpm cfs

Submit an "as-built" drawing and dated photograph of the diversion works, if available.

... (continued over)

For Official Use Only:

Date received: _____ Date accepted: _____ Hydrologic Unit: _____
Field checked by: _____ Date: _____ Latitude: _____ State Diversion No.: _____
Comments: _____ Longitude: _____

References: Hawaii Revised Statutes, Chapter 179C.
Hawaii Administrative Rules, Chapters 13-167 to 13-171.

F. DECLARATION OF WATER USE

NOTE: The purpose of the Declaration of Water Use is to obtain information necessary for the management of the State's water resources. The Declaration does not confer a legal right to water or its use.

Location and name of measurement point (show on location map): _____
 Water use data are recorded: Continuously Daily Other: _____
 Method of measurement (check box and describe below): Weir Rating flume Other
 Description: _____

Quantity of Use (report gaged or estimated monthly water use from the diversion described on the reverse side of this form, for the calendar years 1983 through 1987):

WATER USE, IN _____ (unit of measurement)

	1983	1984	1985	1986	1987
January					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					
ANNUAL					

Typical times of usage: _____

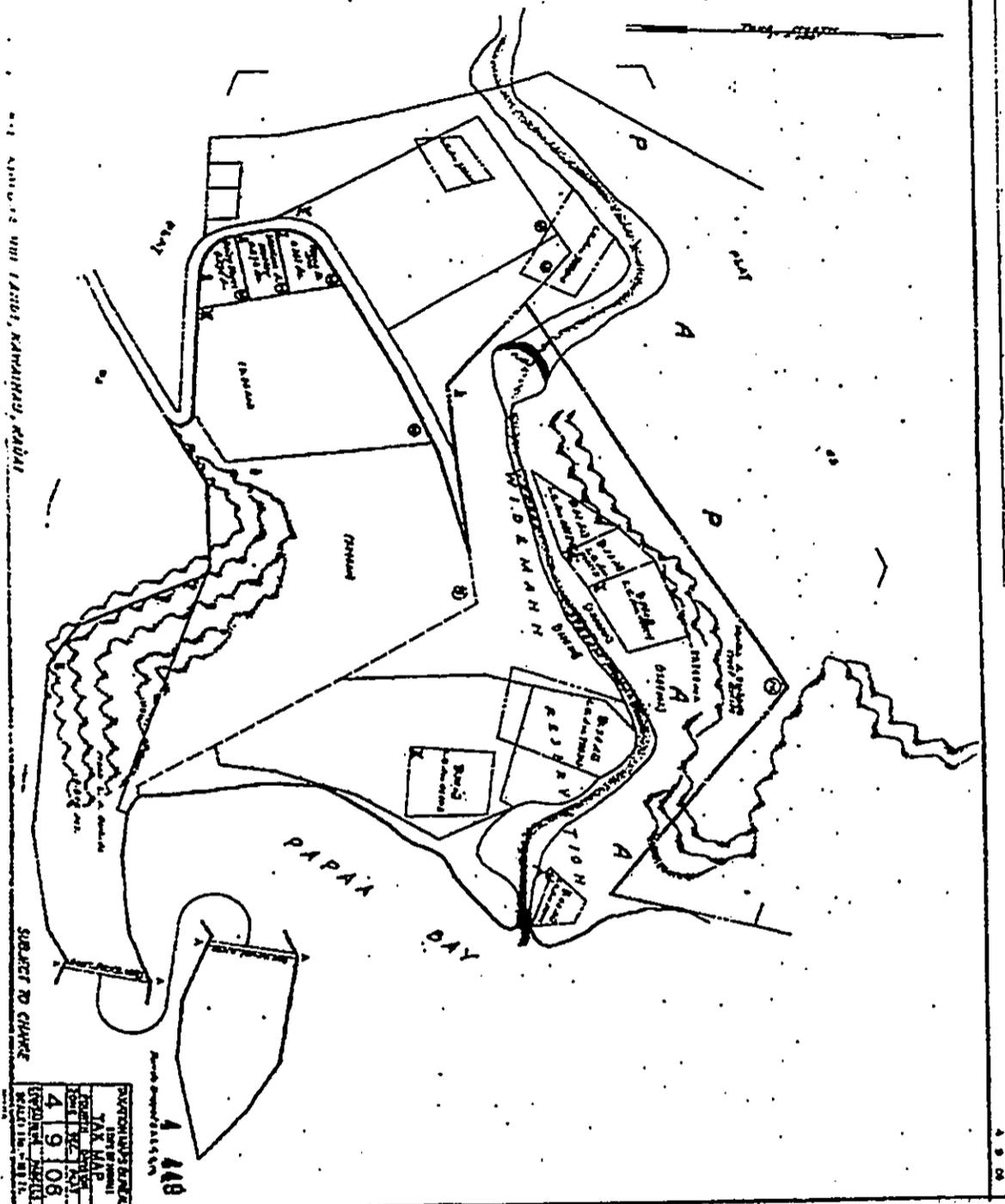
Type of Use (check all category boxes that apply and provide additional information as indicated):

<p>Category</p> <p><input type="checkbox"/> Municipal (including resorts, hotels, institutions)</p> <p><input type="checkbox"/> Domestic (systems serving 25 people or less)</p> <p><input type="checkbox"/> Irrigation</p> <p><input type="checkbox"/> Industrial</p> <p><input type="checkbox"/> Military</p> <p><input checked="" type="checkbox"/> Other</p>	<p>Additional Information</p> <p>Number of service connections: _____</p> <p>Acres Irrigated: _____</p> <p>Crop(s): <input type="checkbox"/> Sugar <input type="checkbox"/> Pineapple <input type="checkbox"/> Other (specify): _____</p> <p>Non-Crop: <input type="checkbox"/> Landscape <input type="checkbox"/> Golf Course <input type="checkbox"/> Other (specify): _____</p> <p>Method: <input type="checkbox"/> Drip <input type="checkbox"/> Furrow <input type="checkbox"/> Sprinkler</p> <p><input type="checkbox"/> Cooling <input type="checkbox"/> Manufacturing <input type="checkbox"/> Mill <input type="checkbox"/> Other (specify): _____</p> <p>Specify (livestock, hydroelectric, aquaculture, etc.): <u>Livestock</u></p>
---	--

Location of Use (Describe the location of water use, relative to the diversion, and indicate on location map. If water is used by others, submit a list of their names and addresses.):

I declare that the contents of the above Declaration of Water Use are, to the best of my knowledge and belief, true, correct, and complete.

Water User's Signature: Gertrude Ancillary Trust Date: 5/22/88
 Printed Name: Gertrude Ancillary Trust
 Firm or Title (Diversion Operator, etc.): Ancillary Trustee



SUBJECT TO CHANGE

NOVEMBER 1987
TAX MAP
REVISED
DATE
4 9 08
WATER RESOURCES
SECTION
4 448

4 448

Submitted contingent upon approval of Bank of America, Trustee of the Martha A. Gerbode Trust

99 MAY 19 9:43

Form 0810-1



DIV. OF WATER & LAND DEVELOPMENT

STATE OF HAWAII COMMISSION ON WATER RESOURCE MANAGEMENT DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF WATER RESOURCE MANAGEMENT

REGISTRATION OF WELL AND DECLARATION OF WATER USE

INSTRUCTIONS: Please type or print. If information is not available or not applicable, indicate as N/A. Fill out as completely as possible, sign, and file form with the Division of Water Resource Management, P.O. Box 378, Honolulu, Hawaii 96808. Phone 548-3648 or 548-7343 for assistance.

BATTERY OF WELLS: For a battery of wells, on the surface, in a tunnel, or in a shaft, submit a registration form for each well together with a single map or plot plan showing layout of wells.

STATE WELL NO.: 1019-03 ISLAND: Kauai
WELL NAME OR DESIGNATION: Papaa Ranch
SOURCE OR STATION NAME (For a battery of wells):

A. WELL OPERATOR

Firm name: Hawaiian Trust / Papaa Ranch
Contact person:
Address: 111 S. King Street
Honolulu, Hawaii
Zip: 96813 Phone:

B. OWNER OF WELL SITE

Hawaiian Trust Co Ltd as Ancillary Trustee of the Martha A. Gerbode Trust
Firm name:
Contact person: Joan Baumgart
Address: P.O. Box 3170
Honolulu, HI
Zip: 96802 Phone: 538-6565

C. WELL LOCATION

Tax Map Key: 4-9-006-005 Town, Place, District: Molokai, Hoi Yards, Kauai, HI
Attach USGS "Quad" map (scale 1:24,000), tax map, or other map showing the well location.

D. WELL DATA

For drilled wells, submit "as-built" drawing, drill log, and pump test results, and complete items below. For tunnels and shafts, submit construction drawings, plot plan, or sketch map.

Ground elevation (Mean sea level): Approx 3 ft
Reference point (Used to measure depth to water):
Elevation: N/A
Descriptor: N/A
Year drilled or constructed: 1973
Well contractor: Rosko Morse Company
Casing diameter: 4 in
Solid casing depth (below ground): 30 ft
Perforated casing depth (below ground): 30-65 ft
Total depth of well: 65 ft
Maximum recorded chloride: 81 mg/l ppm 1974
Minimum recorded chloride: N/A ppm
Maximum chloride in 1987: N/A ppm
Minimum chloride in 1987: N/A ppm

E. INSTALLED PUMP DATA

Pump type: [] Vertical shaft [x] Submersible [] Centrifugal [] Other (specify):
Power: [] Diesel, ___ HP [] Gas, ___ HP [x] Electric, ___ HP [] Other (specify):
Pump capacity: 25 gallons per minute
Pump installation contractor: Rosko Morse Company

... (continued over)

For Official Use Only:

Date received: Date accepted: Latitude: Hydrologic Unit:
Field checked by: Date: Longitude: State Well No.:
Comments:

F. DECLARATION OF WATER USE

NOTE: The purpose of the Declaration of Water Use is to obtain information necessary for the management of the State's water resources. The Declaration does not confer a legal right to water or its use.

Water use data are recorded: Daily Weekly Monthly
 Other (Describe): N/A
 Method of measurement: Flow Meter Orifice
 Other (describe): Float Gage on Holding Tank

Quantity of Use (Report measured or estimated monthly water use from the well described on the reverse side of this form, for the calendar years 1983 through 1987. For a battery of wells which are not individually measured, but which are connected to a single meter or other measuring device, report total use from the battery.):

WATER USE, IN GALLONS x 1000

	1983	1984	1985	1986	1987
January	50	50	40	40	40
February	50	50	40	40	40
March	50	50	40	40	40
April	50	50	40	40	40
May	50	50	40	40	40
June	50	50	40	40	40
July	50	50	40	40	40
August	50	50	40	40	40
September	50	50	40	40	40
October	50	50	40	40	40
November	50	40	40	40	50
December	50	40	40	40	50
ANNUAL	600	580	480	480	500

Minimum day's use: 1,000 gallons Maximum day's use: 15,000 gallons
 Typical times of usage: 24 hours per day

Type of Use (Check all category boxes that apply and provide additional information as indicated.):

Category	Additional Information
<input type="checkbox"/> Municipal (including resorts, hotels, bus routes)	
<input checked="" type="checkbox"/> Domestic (systems serving 25 people or less)	Number of service connections: <u>4 (2 Domestic) (2 Backup Irrigation)</u>
<input checked="" type="checkbox"/> Irrigation	(Well is used as a backup to stream) Acres irrigated: <u>5 to 10</u> Crop(s): <input type="checkbox"/> Sugar <input type="checkbox"/> Pineapple <input checked="" type="checkbox"/> Other (specify): <u>Orchid</u> Non-Crop: <input checked="" type="checkbox"/> Landscape <input type="checkbox"/> Golf Course <input type="checkbox"/> Other (specify): _____ Method: <input checked="" type="checkbox"/> Drip <input type="checkbox"/> Furrow <input checked="" type="checkbox"/> Sprinkler
<input type="checkbox"/> Industrial	<input type="checkbox"/> Cooling <input type="checkbox"/> Manufacturing <input type="checkbox"/> Mill <input type="checkbox"/> Other (specify): _____
<input type="checkbox"/> Military	
<input checked="" type="checkbox"/> Other	(Well is used as a backup to stream) Specify (livestock, agriculture, etc.): <u>Livestock</u>

I declare that the contents of the above Declaration of Water Use are, to the best of my knowledge and belief, true, correct and complete.
 Water User's Signature: Hawaiian Trust Company, Limited, Trustee of Martha A. Garbade Ancillary Trust Date: 5/12/89
 Printed Name: Hawaiian Trust Company, Limited Trustee of the Martha A. Garbade Ancillary Trust
 Firm or Title (Well Operator, etc.): Ancillary Trustee

WATER SYSTEM STUDY
PAPA'A RANCH PROPERTY
TMK 4-9-05:13, 4-9-06:5,7,9&11, 4-9-07:1&8
PAPA'A, KAUAI

Prepared by

Aqua Engineers, Inc.
P.O. Box 368
Lawai, HI 96765

Phone: (808) 332-7381

February 1998

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SECTION	TITLE	PAGE
1.0	General Information	1
2.0	Physical Characteristics of Area	1
3.0	Existing Water System Description	1
4.0	Proposed Water System Improvements	3
5.0	Water Quality Evaluation	6
6.0	Wastewater Disposal System Evaluation	7

LIST OF EXHIBITS

1. Site Plan
2. Well Capacity Test Data and Illustration
3. Photographs of Well Pump and Irrigation Pump
4. Photographs of Drinking Water Tank
5. Photographs of Irrigation Water Tank
6. Drinking Water Test Results
7. Estimated Cost Breakdown

1.0 GENERAL INFORMATION

PROJECT DESCRIPTION AND LOCATION

The subject site is located on the northeastern shore of Kauai, consisting of approximately 154 acres of land extending from Papa'a Bay to Kuhio Highway.

There are two residences located on the lot, one for the caretaker which is in the middle of the property, and the other where the current owner resides, located on the beach fronting Papa'a Bay. A Site Plan is provided as Exhibit 1.

2.0 PHYSICAL CHARACTERISTICS OF AREA

2.01 CLIMATE

The average annual rainfall in the area is approximately 50 inches and the average monthly temperature ranges from 69 degrees to 76 degrees Fahrenheit.

2.02 TOPOGRAPHY

The project site elevation ranges from approximately 160 feet above mean sea level to sea level. Papa'a Stream runs through the valley center of the property toward Papa'a Bay.

3.0 EXISTING WATER SYSTEM DESCRIPTION

3.01 AVAILABLE WATER SOURCES

EXISTING ON-SITE WELL

A 4" diameter well (State Well No. 1019-03) was constructed in 1973. It is located about 200 feet below the main pool. Previous studies verified that the well was drilled to a depth of 65 feet (about 20 feet below sea level) and is fitted with blank casing to 30 feet and perforated casing from 30 to 65 feet. On December 15, 1997 the well was measured and found to be 46 feet deep.

A one horsepower submersible pump was installed on December 9, 1997 to replace the pump that failed on December 6th. The new pump delivers water at a rate of 12 gallons per minute (gpm) to the drinking water storage tank, approximately 75 feet above the well head.

On December 15, 1997 the well was tested to measure its capacity. The test consisted of measuring the amount of available water above the pump while varying the amount of water pumped from the well. An air compressor and gauge was used to measure the level of available water and the discharge stop cock (valve) was used to vary the pump's flow rate.

The test determined that the well is capable of supplying 12 gallons per minute while maintaining six feet of water above the pump. See Table 1 for test data.

EXISTING ON-SITE IRRIGATION PUMP

An 18 hp, engine-driven pump is used to deliver water at a rate of 80 gpm from the main pool to the irrigation water storage tank which is approximately 80 feet above the pump discharge.

COUNTY DEPARTMENT OF WATER SUPPLY SYSTEM

The closest County of Kauai owned water line ends nearby in the Aliomanu Estates subdivision. We were informed by a Department of Water (DOW) representative, in a telephone conversation on August 8, 1997, that until their issues with the Department of Hawaiian Home Lands (DHHL) water system are settled, no new water meter services will be issued.

The DOW representative explained that they currently do not have adequate storage to support additional water meters. However, if a policy is agreed upon between DOW and DHHL to determine how water will be allocated, then new meter services may be granted. The policy is projected to be completed by March 1998.

In order to receive a meter, DOW will require construction drawings of the proposed service connection for their approval and will require that the service is in place before the meter is installed.

A \$2600.00 facility reserve charge and the cost to install the meter and service lateral to the Papa'a Property will be charged by the DOW. The DOW will also impose a \$13,500 fee that will be refunded to the Aliomanu Estates developer to cover a portion of the costs to install the water line to the Aliomanu Estates subdivision.

3.02 EXISTING DISTRIBUTION PIPING AND STORAGE TANKS

DRINKING WATER SYSTEM

The distribution piping used throughout the property is 2" polypropylene tubing (poly). According to the existing caretaker the tubing has become very brittle and requires frequent repairs. Drinking water is only available at the owner's residence, beach cabana and the caretaker's residence.

The existing 5,000 gallon water tank is constructed of corrugated steel and appears to be structurally sound. However, the roof is in very poor condition, and dirt and roofing debris have accumulated and settled on the bottom of the tank. Another 800 gallon fiberglass tank is connected to the system for additional storage.

IRRIGATION SYSTEM

Most of the distribution piping appears to be polyvinylchloride (pvc). Because the system was installed in many increments, it is difficult to determine how the system is connected. Water for irrigation is available at the caretaker's residence and small orchard, the garage area, stable area and pasture area. A temporary poly line was installed to provide water for landscaping around the owner's residence, but it is currently not in use.

The existing 10,000 gallon irrigation storage tank is constructed of redwood and uses a plastic liner to hold the water. The liner is torn which has reduced the capacity of the storage tank to 5,500 gallons. The roof is in very poor condition and the tank walls show signs of dry rot.

4.0 PROPOSED WATER SYSTEM IMPROVEMENTS

4.01 WELL PUMP

Based on the County of Kauai water usage standard of allocating 500 gallons per day (gpd) of water per residence, 2000 gpd will be required to supply the four proposed residences. The present well pump delivering 12 gpm with a run-time of 16 hours per day is capable of producing 11,520 gpd of water.

It is recommended that a backup pump be purchased and stored to be available in case the existing pump fails. The polypropylene tubing from the well to the drinking water storage tank should also be replaced with new pvc pipe.

The cost for the spare pump (\$1,000) and installation of the new piping (\$4,000) would be approximately \$5,000.

4.02 IRRIGATION PUMP

The County of Kauai water usage standard estimates that 2,000 gpd per acre is required for park landscaping. Based on this amount the proposed 14,000 gallon irrigation storage tank will provide enough water to landscape 6.5 acres and supply 1,000 gallons of water for use at the garage and for the pasture.

Duke Wellington explained that there will be less than 20 horses in the pasture and irrigation will not be required since there is sufficient area available for the horses to graze. Water will need to be supplied for the horses to drink. Because of the pasture's close proximity to Papa'a stream, a portable pump could be used in case of emergency to irrigate grass for feed.

We recommend that the existing well pump be used to supply water to both the drinking water system and the irrigation system. An electric pump has the benefit of utilizing automatic controls that will operate the pump whenever the irrigation tank requires water.

If it is decided that more than 6.5 acres of land will need to be landscaped, we recommend that a permanent electric motor driven pump be installed to replace the existing engine-driven pump. The existing supply line from the main pool of Papa'a Stream to the irrigation tank will also require replacement. A larger pipe and straighter run would reduce the amount of friction and increase the amount of water supplied by the pump.

The cost for the new pump (\$2,500), electrical controls and installation (\$1,500), and installation of the new pipeline (\$6,000) would be approximately \$10,000.

4.03 DISTRIBUTION PIPING UPGRADES

A new two-inch pvc pipeline should be installed for the three proposed residences that will be located on the lower portion of the property near Papa'a Bay. The existing polypropylene tubing was not installed properly and the material is unreliable. Approximate cost for the piping and installation would be \$6,000.

A new two-inch pvc pipeline should be installed to supply water to the small orchard and garage area if landscaping is planned there. A new pipeline will ensure reliable service and maximum pressure from the storage tank. Approximate cost for the piping and installation would be \$3,000.

Either a new two-inch or three-inch pvc pipeline should be installed to supply water for landscaping on the lower portion of the property near Papa'a Bay. The existing temporary two-inch polypropylene tubing has been repaired several times. Approximate cost for the piping and installation would be \$7,000.

4.04 DRINKING WATER STORAGE RESERVOIR

The existing tank appears to be structurally sound and can be renovated by cleaning the inside, installing a new roof and painting the outside. However, we recommend that a new storage reservoir be installed to ensure the quality of water.

We feel that 5,000 gallons of storage is unnecessary if supplied water from the County system or a backup pump is purchased. A 3,000 gallon tank will provide adequate storage from the County system and limit the cycling of the well pump. The tank would be equipped with a level switch to control the operation of the well pump so that it only operates when the tank level reaches a predetermined height. The cost of the reservoir (\$3500) and float controls (\$1000) will be approximately \$4500.

4.05 DRINKING WATER PRESSURE BOOSTER SYSTEM

Water to the owner's residence is at 41 pounds per square inch (psi) of pressure and the caretaker's residence has 31 psi of pressure. Both amounts are above the Uniform Plumbing Code's minimum of 15 psi, but most people prefer their water pressure around 55psi.

A hydropneumatic tank and booster pump can be installed to provide a higher, more comfortable system pressure. The cost of the hydropneumatic tank, booster pumps and associated piping would be approximately \$3500.00.

4.06 IRRIGATION WATER STORAGE RESERVOIR

The existing tank needs to be replaced. Because of the poor overall condition of the tank it is not cost effective to replace the internal plastic liner. We recommend that a new 14,000 gallon metal tank with vinyl liner be installed. The approximate cost for the tank and installation would be \$30,000.

4.07 DISINFECTION EQUIPMENT

Prior to the County water meter being installed, an automatic chlorine injection system should be installed at the well to disinfect the drinking water. Currently, chlorine is added manually into the storage tank. This method is unreliable because the dosage is inconsistent and there is inadequate mixing within the tank to completely expose the chlorine. Approximate cost would be \$2000.

As an additional safety measure an ultraviolet disinfection unit is recommended at each residence to ensure bacteria-free water. The benefits of the system are that no addition of chemicals is required and the system is completely automatic. The cost of each unit, including installation, will be approximately \$2000.

4.08 ADDITIONAL WATER FILTRATION

Prior to the County water meter being installed, an individual canister filter should be installed at each residence to remove bad taste, odor, sediment and debris from the drinking water. The cost of each unit, including installation, will be approximately \$150. The caretaker's residence currently has a small canister filter installed on his supply line to remove dirt and rust.

5.0 WATER QUALITY

5.01 DRINKING WATER SYSTEM

The water from the drinking water well was sampled and tested on December 10, 1997, the results are provided as Exhibit 6.

The test found coliform bacteria present in the well water which indicated that the water had been in contact with soil. Coliform bacteria is found in the feces of warm-blooded animals and is used as an indicator for potential pathogen contamination. Because the coliform bacteria is filtered out as it passes through the groundwater formations we assumed that either the sample was taken improperly or the work to replace the well pump the previous day had contaminated the well.

On January 21, 1998 we took another sample of the well water from a newly installed sample point at the discharge of the well and no fecal coliform bacteria was found.

The results of the other tests: Ammonia-Nitrogen, pH, Salinity, Lead, Total Dissolved Solids and Nitrate-Nitrite were all safely below the

maximum contaminant levels of the State of Hawaii, Department of Health as listed in the Hawaii Administrative Rules, Title 11, Chapter 20, "Rules Relating to Potable Water Systems", Docket No. R-12-97.

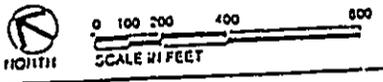
5.02 IRRIGATION SYSTEM

The water from Papa'a Stream was sampled and tested for indicator bacteria by the Department of Health on November 5, 1997. The results indicated that both fecal coliform and clostridia perfringens bacteria were present and comparable to other freshwater areas on the island. The most probable source of the bacteria contamination is from runoff which carries the fecal material from warm-blooded animals into the stream.

6.0 WASTEWATER DISPOSAL SYSTEM

Septic systems will be required for all new residences because the property is located in a critical wastewater disposal area. The wastewater disposal system must meet the requirements of the State Department of Health's Title 11, Chapter 62. Current rules require that the septic systems must be installed at least 50 feet from Papa'a Stream, at least 50 feet from the ocean vegetation line and have 3 foot separation from the ground water.

On-site treatment systems using septic tanks or cesspools are commonly used in the area and throughout the island. Odors or other public health issues are not a concern for this project.



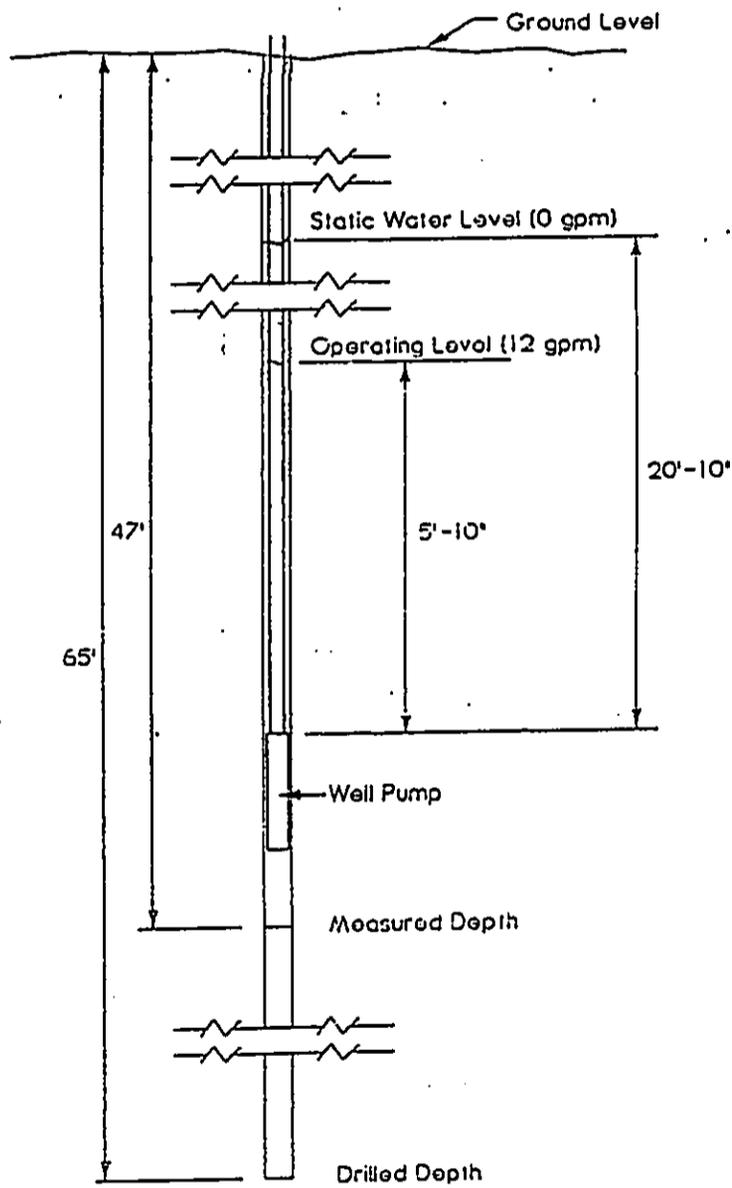
LEGEND
 [Symbol] Excluded Property
 Note: Location of site improvements based on site observations and photographs and should be considered approximate.

SITE LOCATION PLAN
 *Papea Bay Ranch Phase I
 Preliminary Site Assessment
 Prepared by D&L Collins Hawaii • July 1996

Table 1 - Well Capacity

Level of Available Water Above Pump (ft)	Amount of Gallons Pumped (gpm)
20.8	0
2.3	16
5.8	12
12.7	10

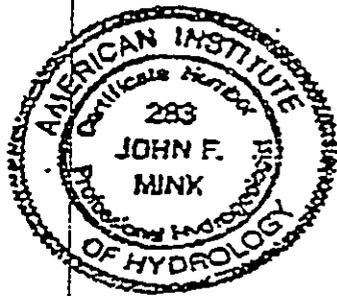
* 5.8 feet was decided to be the operating level of the well because it provided enough distance should the tide fluctuate.



WATER RESOURCES
IRRIGATION
PAPAA RANCH

John F. Mink
for
Papaa Ranch

September 7, 1984



Post-it Fax Note	7671	Date	9/22/99	# of pages	12
To	Frank Supon	From	JMC		
Company	Papaa Ranch, Corp.	Co.	Papaa Ranch		
Project #		Phone #	521-5361		
Fax #	1-742-2412	Fax #			

PAPAA RANCH WATER RESOURCES

Papaa Ranch fills the valley of Papaa Stream between the main highway and the sea, except for two parcels whose approximate locations are shown on the attached map. Total area of the ranch is somewhat over 100 acres, of which more than 60 are suitable for ranching. About 30 acres seem to be adaptable for irrigated pastures. The distance over the long dimension of the ranch from the sea coast to the highway is about 4000 feet while the average width is 1500 feet.

Average annual rainfall at Papaa is 45 inches, which is marginal with respect to maintenance of vigorous pasturage. The driest months are June and September, but normally the annual rainfall minimum extends from May into October. During these months, and especially toward the end of the period in August and September, irrigation of pasturage would be highly beneficial.

The entire ranch is underlain by lava formations of the Koloa volcanic series, a dense and massive rock that fills much of the region between Hanalei and Koloa. The upper 25 feet of the formation is weathered to a softer material capped by a few feet of soil and sub-soil. Near the stream channel uncompactd alluvial sediments have been deposited. Ground water as a basal lens permeates the Koloa formation below an elevation of approximately 3 feet above sea level and as perched water at higher elevations. Basal water is fresh groundwater that floats on sea water; perched

groundwater is fresh water resting on an impermeable formation beyond the reach of sea water.

The ranch is the valley of a single main watercourse formed by the confluence of three streams at its northern boundary along the highway. Total drainage area above the highway is about 2.5 square miles while below another 0.3 square miles is added. These drainage areas result in runoff through the ranch averaging approximately 2 mgd (million gallons per day). This runoff, however, is not uniformly distributed; most of it occurs during the winter months when storms often give rise to flooding. In the late summer the perennial flow of the stream derives from seepage of perched groundwater from the Koloa formation. Depending on the intensity of the summer drought, the seepage may drop to just a few gallons per minute, as is now being experienced.

The most voluminous groundwater resource is basal water. It occurs throughout the ranch but is not necessarily developable everywhere. The Koloa formation does not usually constitute a good aquifer, but under favorable conditions it will yield several hundred gallons per minute to a well. Because of the heterogeneity of its rocks, not all drilling attempts could be guaranteed to result in production wells. The small well serving as a drinking water supply taps the basal water, and evidently the large permanent "main" pool in the stream below the ranch house expresses the water table of the same aquifer.

Some perched groundwater occurs in Koloa rocks,

especially upstream of and at a significantly higher elevation than the main pool. The spring in the Hau tree grove about 1500 feet upstream of the main pool is perched water. This seepage also provides the trickle of water at the small water fall above the main pool. Perched water is neither as ubiquitous nor as voluminous as the basal water.

Water Development

At present water is being produced from three sources on the ranch. The one with the least yield is the seepage in the Hau grove at an elevation of about 70 feet. Water is pumped from a pool there using a 10 HP centrifugal pump for one to one and a half hours per day against a head of about 50 psi (116 feet). On the order of 10,000 gallons each day may be pumped in this way. The pool can be sucked dry, but it refills overnight. Similar seepage downstream just above the main pool is extracted with a 3 HP centrifugal pump.

The other two water yielding sites exploit the basal aquifer. A small diameter well (4 inch casing) was drilled in 1973 on the south bank of the stream about 200 feet below the main pool. The well (State no. 1019-03) is 65 feet deep (about 30 feet below sea level) and is fitted with blank casing to 30 feet and perforated casing from 30 to 65 feet. It probably contains a 25 gpm submersible pump, perhaps of one HP or less. The well provides domestic water and fulfills this duty by operating only several times a week. Salinity of the water is low; the latest reading on record (in 1974)

showed 81 mg/l chloride, which is just one third of the recommended upper limit for drinking. The well can be used more frequently, daily and virtually continuously if needed.

The remaining groundwater production site is the main pool in the stream channel opposite the ranch house. It accumulates water by acting like an infiltration gallery. Even in the severest drought its volume is not appreciably reduced. Its maximum depth has not been sounded, but it should be in order to get a better understanding of infiltration and volume parameters. The pool is the most promising economically feasible method for providing a supply of irrigation water.

A rough test on the capacity of the pool to continuously yield water was run by Larry on 8/31/84. The test, though not definitive because it was not closely controlled, suggested that the pool is capable of producing on the order of 100 to 150 gpm continuously over a normal pumping day of eight hours. The test lasted from 08:00 to 18:00 with a few interruptions. In the first 3 to 4 hours the 10,000 gallon redwood tank was filled, and thereafter water was diverted to direct irrigation. After 10 hours of pumping the pool level had receded only 6 to 8 inches. By the next morning full recovery had taken place.

Simple calculations show that most of the pumped water originated as seepage. The drawdown volume, based on 8 inches of pool recession, would account for only 3000 gallons, and the trickle over the small waterfall for no more than 1000

gallons. Total volume pumped must have exceeded 30,000 gallons.

Potential Water Development

Substantial water resources suitable for irrigation and domestic useage exist on the ranch. The principal aquifer is the Koloa formation in which basal water occurs. The secondary aquifer carries perched water, also in the Koloa formation. Perched water is insufficient to satisfy irrigation requirements but could be important as a supplement to the basal water.

The basal aquifer can be exploited with drilled wells or an infiltration gallery. The existing drilled well is successful but has limited yield; a natural infiltration gallery, the main pool, already exists in the stream channel. A new drilled could be located in the pasture area but the cost would be high. The alternative is to pump the main pool and push the water through about 2000 feet of pipe to sprinklers in the mid and upper reaches of the ranch.

The normal cost of drilling is approximately \$400 per foot, which includes casing but not a pump. A well in the pasture area would have to be about 200 to 250 feet deep, therefore costing about \$40,000 to \$50,000. The pump would add another \$5000 or so, giving a total cost in the neighborhood of \$50,000 for a 150 gpm well. None of these figures are exact; they are based on highly informal estimates and may differ considerably from formal quotations.

NOTE:
PRICES NO
LONGER
VALID

*transmission
int.*

Water taken from the pool would have to be pumped 150 feet vertically in addition to 2000 feet horizontally to reach the pastures. A 20 HP pump would deliver up to 150 gpm against the total demand head of such a system. Along with the pump, at least 2000 feet of 3 inch PVC pipe would be needed. The total demand head is the sum of the difference in elevation between the pool and the pastures (say 150 feet), the pipe losses, sprinkler pressure and miscellaneous head losses. At 150 gpm, approximate head loss in 2000 feet of 3 inch PVC pipe is about 71 feet, sprinkler pressure would be about 50 psi (116 feet), and miscellaneous losses might amount to 25 feet, giving a total demand head of 362 feet. These figures are not design parameters, but merely preliminary calculations for estimating the pump and pipe sizes for an irrigation system.

Informal, non-binding cost estimates by suppliers for pump and pipe are as follows (FOB Honolulu):

20 HP centrifugal pump TDH 300+ feet air cool diesel..	\$3200
3 inch class 160 PVC pipe..	\$112/100 ft.

*No Lower
VALID*

Thus the pump plus 2000 feet of pipe would cost about \$5440. To this would have to be added pipe joints, sprinklers, smaller distribution pipes and miscellaneous items, amounting to, perhaps, several thousand more dollars. In any event, utilizing the main pool as the source of irrigation water manifestly is the least cost alternative.

If the pool could sustain output of 150 gpm for 8 hours each day, 24 acres could be irrigated with an average application of 3000 gallons per acre per day, which would sustain pasturage. The average does not mean that this amount would be applied each day; usually applications would be at higher instantaneous rates at intervals of many days. Irrigation might be needed in normal years only for the period July through September.

Assuming 100 days of irrigation per year, the energy cost of pumping would total \$2000 to \$2500 per year. The estimate is obtained by assuming the electrical equivalent of the diesel engine priced at \$.20/kilowatt-hr. A 20 HP motor operating 8 hours each day would require the equivalent of 120 KWH, equal to a cost of \$24/day. Perhaps cost based on diesel fuel usage would be less.

None of the above material and energy requirements and costs are firm. They have been derived merely to provide magnitudes. The irrigation system could not be efficiently designed using only these estimates.

A further caveat is applicable to the sources of irrigation water. Drilled wells in the Koloa formation cannot be guaranteed to yield a specified quantity of water because of the heterogeneity of the subsurface. The best likelihoods are proffered, but a particular well may yield more or less water. With respect to the main pool as a reliable source of water, the test run last week was informative only in a general way. Before investment is made in designing and

constructing a system using the pool as the water source, a controlled test needs to be conducted in which rates of flow and drawdown of the water table are carefully measured.

Nevertheless, all evidence gathered in the reconnaissance investigation suggests that an adequate supply of groundwater is available for irrigating the pastures of Papaa Ranch. The next step should be to prove the reliability of the pool, followed by laying out a ground plan for an irrigation system.

Verification Test Groundwater Source

Papaa Ranch

October 18, 1984

John F. Mink

I returned to Papaa Ranch on October 16 to conduct a second pumping test on the main pool in the stream below the ranch house to repeat the first test run by Larry on August 31. The results of the verification were virtually the same as those reported by Larry.

During both tests the gasoline driven centrifugal pump discharged an average of 43 gpm to the full 10,000 gallon tank. The first test went on for 10 hours, the second for 5 hours. Reduction in pool level was approximately 8 inches and 5 inches, respectively. The small waterfall yielded a steady 8 gpm. Thus the groundwater inflow into the pool averaged about 30 gpm under this relatively mild pumping stress. Recovery of pool level was complete overnight. Both tests were conducted under the worst conditions of a sustained drought. There is no doubt that the main pool is a reliable groundwater source.

Results of the two tests reflect the poorest case scenario. For this condition, a 120 gpm pump utilized continuously 8 hours each day would permit full recovery of the pool overnight. However, yield of a somewhat larger pump could be sustained most of the time over the same period. A

OCT 22 '97 08:47 BELT COLL

LANDS P.12-85 14)

150' gpm pump, as suggested in my earlier memo, should be installed.

Recommendation: Plan an irrigation system based on a 150 gpm pump withdrawing water from the main pool for 4 to 8 hours each day when irrigation is needed. Larry has already made some inquiries regarding equipment and construction needs and probable costs. The system should be designed by and its construction supervised by an irrigation engineer.

John G. Smith

OCT 22 '97 08:44 BELT COL

S. 1111. 222 599-3232

Canada P. 10/19/97 40/



EXHIBIT "N"



LD

4770

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96858-5440

REPLY TO
ATTENTION OF

December 4, 1998

Operations Branch

Mr. Michael D. Wilson, Director
Department of Land and Natural Resources
P.O. Box 621
Honolulu, HI 96809

DEC 8 8 30 AM '98

Dear Mr. Wilson:

This responds to your letter dated June 24, 1998 requesting our review and comments on Conservation District Use Application (CDUA) KA-2915 involving construction of a driveway and other improvements on lands located at Papaa Bay, Kauai. Based on the information provided in the CDUA and environmental assessment it is not possible to determine if any of the work proposed will occur in the wetlands adjacent to Papaa Stream or if the low lying Meadow is a wetland subject to our jurisdiction.

The applicant should be advised to have a qualified consultant conduct a wetland delineation, to determine if any of the work will occur in the wetland, and if it will, to apply for a Department of the Army permit from the Corps of Engineers.

If you have any questions concerning these comments please contact Mr. William Lennan of my staff at 438-9259 extension 13 and mention File Number 990000072.

Sincerely

George P. Young
George P. Young, P.E.
Chief, Operations Branch

EXHIBIT "N"

**BELLES GRAHAM
PROUDFOOT & WILSON**

ATTORNEYS AT LAW

WATUMULL PLAZA
4334 RICE STREET, SUITE 202
LIHUE, KAUAI, HAWAII 96766-1388

TELEPHONE NO: (808) 245-4705
FACSIMILE NO: (808) 245-3277
E-MAIL: mail@kauai-law.com

ASSOCIATE
PAMELA P. RASK

OF COUNSEL
JONATHAN J. CHUN
JERILYNN ONO HALL

MICHAEL J. BELLES
MAX W.J. GRAHAM, JR.
DAVID W. PROUDFOOT
DONALD H. WILSON
Federal I.D. No. 99-0317663

February 5, 1999

Mr. George P. Young, P.E.
Chief, Operations Branch
Department of the Army
U. S. Army Engineering District, Honolulu
Fort Shafter, Hawaii 96858-5440

RE: Conservation District Use Permit Application #KA-2915
to construct a driveway, and perform landscaping irrigation
improvements on Kauai TMK Nos. (4) 4-9-05:13 (por.), and
(4) 4-9-06:05 (por.) & 11, located at Papa'a Bay, Papaa, Kauai, Hawaii

Dear Mr. Young:

Thank you for your letter dated December 4, 1998, regarding the above-identified Conservation District Use Permit Application ("CDUA"). Your letter raises the question if any of the proposed work will occur in the wetlands adjacent to Papaa Stream or if the low lying meadow is a wetland under the jurisdiction of your Department.

Please be informed that there are no known or documented wetland designations adjacent to Papaa Stream or at the meadow. Please note further that no development of structures will occur near Papaa Stream nor at the meadow. The existing roadway will only be used to gain access to the main residence and cottages that are presently under construction (outside of the Conservation District). The existing roadway is at an elevation higher than the stream bed, and historically, has never been known to flood or be subjected to ponding or accumulation of water from either the ocean or Papaa Stream.

Please be assured that we will conduct a wetland determination and comply with Corps. of Engineers requirements if necessary.

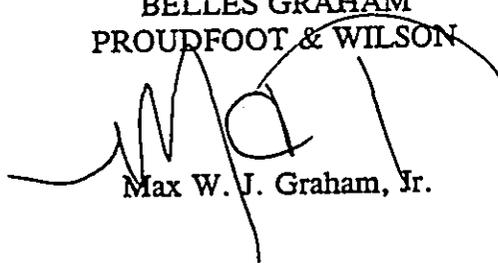
LIHUE1\25744\1\28618.1\WVG

Mr. George P. Young, P.E.
February 5, 1999
Page 2

Again, thank you for your comments and should there be any further concerns or questions, please contact me or our architectural consultant, Avery H. Youn, at (808) 246-9414.

Sincerely yours,

BELLES GRAHAM
PROUDFOOT & WILSON



Max W. J. Graham, Jr.

MWJG:jljg

cc: Mr. Timothy E. Johns, Chairman, BLNR
Mr. Avery H. Youn

LIHUE1\25744\1\28618.1\MWG

EXHIBIT "O"

State of Hawaii
Department of Land and Natural Resources
Division of Conservation and Resources Enforcement

January 6, 1999

MEMORANDUM

TO: Dean Uchida, Administrator
Land Division

FROM: Patricia Edwards,⁷⁶ Acting Investigator
Division of Conservation and Resources Enforcement

SUBJECT: Site Visit/Field Inspection Report 2915-KA

RECEIVED
DIVISION OF
LAND MANAGEMENT
JAN 6 4 13 PM '99

1. CASE DATA

- a. FILE NO: 2915-KA
- b. INITIATOR: MANDALAY PROPERTIES
- c. LOCATION: TMK:(4)4-9-05:13, 4-9-06:05,11 PAPAA BAY, ANAHOLA, KAUAI
- d. SUMMARY: CONSTRUCTION OF A DRIVEWAY, LANDSCAPING AND IRRIGATION IMPROVEMENTS.

2. FINDINGS

- a. Site visit/field inspection conducted on 12/16/98 by DOCARE Officer Brad Akana. There was no indication that any project work had been undertaken within the Conservation District as of this date.
- b. There was no indication of any discrepancy in the applicant's description of the site conditions/situation.
- c. Nothing was noted that might be a bar to approval of the applicant's proposal.

EXHIBIT "O"

**BELLES GRAHAM
PROUDFOOT & WILSON**

MICHAEL J. BELLES
MAX W.J. GRAHAM, JR.
DAVID W. PROUDFOOT
DONALD H. WILSON

Federal I.D. No. 99-0317663

ATTORNEYS AT LAW

WATUMULL PLAZA
4334 RICE STREET, SUITE 202
LIHUE, KAUAI, HAWAII 96766-1388

TELEPHONE NO: (808) 245-4705
FACSIMILE NO: (808) 245-3277
E-MAIL: mail@kauai-law.com

ASSOCIATE
PAMELA P. RASK

OF COUNSEL
JONATHAN J. CHUN
JERILYNN ONG HALL

February 2, 1999

Ms. Patricia Edwards
Acting Investigator
Department of Land and Natural Resources
Division of Conservation and Resources Enforcement
State of Hawaii
1151 Punchbowl Street, Room 325
Honolulu, Hawaii 96813

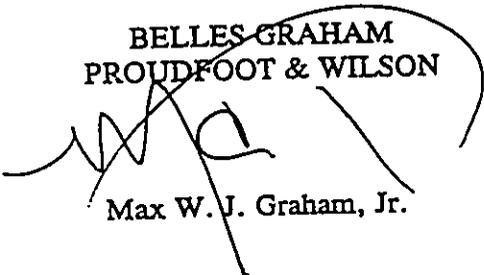
RE: **Conservation District Use Permit Application #KA-2915
to construct a driveway, and perform landscaping irrigation
improvements on Kauai TMK Nos. (4) 4-9-05:13 (por.), and
(4) 4-9-06:05 (por.) & 11, located at Papa'a Bay, Papaa, Kauai, Hawaii**

Dear Ms. Edwards:

Thank you very much for taking the time to review the above Application. We greatly appreciate your comments.

Sincerely yours,

BELLES GRAHAM
PROUDFOOT & WILSON


Max W. J. Graham, Jr.

MWJG:jljg

LIHUE1\25744\1\28572.1\MWG

EXHIBIT "P"

Division of Forestry & Wildlife

1151 Punchbowl Street, Rm. 325 • Honolulu, HI 96813 • (808) 587-0166 • Fax (808) 587-0160

December 2, 1998

MEMORANDUM

TO: Lauren Tanaka, Planner
Land Division

THRU: Dean Uchida, Administrator
Land Division

FROM: *for* Michael G. Buck, Administrator
Division of Forestry and Wildlife

Paul J. Conroy

SUBJECT: CDUP Application, File #KA-2915, and Draft EA to construct driveway, landscape and do irrigation improvements on TMK (3) 4-9-05:13, and (3) 4-9-06:05 & 11, respectively at Papa'a Bay, Kauai, Hawaii.

We have reviewed this proposal with respect to its impacts on the natural resources and endangered species in particular and have no objections to this CDUP, File #KA-2915 by Mandalay Properties, Hawaii LLC on 172.931 acres, subzoned limited and general of the State Conservation District.

Attachment

C: Kauai DOFAW Branch

DEC 1 3 30 1998

EXHIBIT "P"

**BELLES GRAHAM
PROUDFOOT & WILSON**

ATTORNEYS AT LAW

WATUMULL PLAZA
4334 RICE STREET, SUITE 202
LIHUE, KAUAI, HAWAII 96766-1388

TELEPHONE NO: (808) 245-4705
FACSIMILE NO: (808) 245-3277
E-MAIL: mail@kauai-law.com

ASSOCIATES
PAMELA P. RASK
OF COUNSEL
JERILYNN ONO HALL

MICHAEL J. BELLES
MAX W.J. GRAHAM, JR.
DAVID W. PROUDFOOT
DONALD H. WILSON

Federal I.D. No. 99-0317663

January 12, 1999

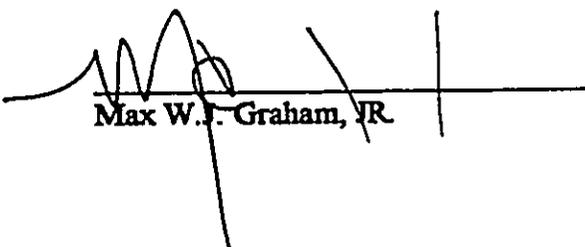
To: Division of Forestry & Wildlife
1151 Punchbowl Street, Rm. 325
Honolulu, Hawaii 96813

Attn: Michael G. Buck, Administrator

Re: Conservation District Use Permit Application, File #KA-2915 to construct
a driveway, and Perform Landscaping Irrigation Improvements on TMK
(3) 4-9-05: 13, and (3) 4-9-06: 05 & 11, located at Papa'a Bay, Anahola,
Kauai, Hawaii.

Thank you for taking the time to review the above application. We greatly appreciate
your comments.

Submitted by,


Max W. J. Graham, JR.

**BELLES GRAHAM
PROUDFOOT & WILSON**

ATTORNEYS AT LAW

WATUMULL PLAZA
4334 RICE STREET, SUITE 202
LIHUE, KAUAI, HAWAII 96766-1388

TELEPHONE NO: (808) 245-4705
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ASSOCIATE
PAMELA P. RASK

OF COUNSEL
JONATHAN J. CHUN
JERILYNN ONO HALL

MICHAEL J. BELLES
MAX W.J. GRAHAM, JR.
DAVID W. PROUDFOOT
DONALD H. WILSON

Federal I.D. No. 99-0317663

February 4, 1999

Mr. Michael G. Buck, Administrator
Department of Land and Natural Resources
Division of Forestry & Wildlife
1151 Punchbowl Street, Room 325
Honolulu, Hawaii 96813

RE: **Conservation District Use Permit Application #KA-2915
to construct a driveway, and perform landscaping irrigation
improvements on Kauai TMK Nos. (4) 4-9-05:13 (por.), and
(4) 4-9-06:05 (por.) & 11, located at Papa'a Bay, Papaa, Kauai, Hawaii**

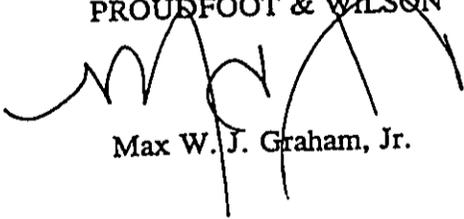
Dear Mr. Buck:

In my letter to you on the above-entitled matter dated January 12, 1999, the subject matter heading contained the incorrect tax map key numbers for the Subject Property. Please note that the correct tax map key numbers for the property which is the subject matter of the Conservation District Use Permit Application are Kauai Tax Map Key Nos. (4) 4-9-05:13 (por.) and (4) 4-9-06:05 (por.) & 11.

I apologize for any inconvenience this might have caused you.

Sincerely yours,

BELLES GRAHAM
PROUDFOOT & WILSON


Max W. J. Graham, Jr.

MWJG:jljg

cc: Mr. Avery Youn

LIHUE1\25744\1\28573.1\WWG

EXHIBIT "Q"

BENJAMIN J. CAYETANO
GOVERNOR

LD



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

4878
KAZU HAYASHIDA
DIRECTOR
DEPUTY DIRECTORS
BRIAN K. MINAAI
GLENN M. OKIMOTO

IN REPLY REFER TO:

STP 8.8932

December 11, 1998

TO: THE HONORABLE MICHAEL D. WILSON, CHAIR
BOARD OF LAND AND NATURAL RESOURCES
DEPARTMENT OF LAND AND NATURAL RESOURCES

FROM: KAZU HAYASHIDA *KH*
DIRECTOR OF TRANSPORTATION

SUBJECT: CONSERVATION DISTRICT USE PERMIT APPLICATION, KA-2915
MANDALAY PROPERTIES HAWAII LLC
CONSTRUCT A DRIVEWAY, LANDSCAPE, AND IRRIGATION
IMPROVEMENTS, PAPAA BAY, ANAHOLA, KAUAI
TMK: 4-9-5: POR. 13; 4-9-6: POR. 5, 11

98 DEC 17 AM 9:25
RECEIVED
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

Thank you for your memo requesting our comments on the subject application.

The proposed activity will not impact our State transportation facilities.

We appreciate the opportunity to provide comments.

98 DEC 16 P 3: 25
RECEIVED
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

EXHIBIT "Q"

MICHAEL J. BELLES
MAX W.J. GRAHAM, JR.
DAVID W. PROUDFOOT
DONALD H. WILSON
Federal I.D. No. 99-0317663

**BELLES GRAHAM
PROUDFOOT & WILSON**

ATTORNEYS AT LAW
WATUMULL PLAZA
4334 RICE STREET, SUITE 202
LIHUE, KAUAI, HAWAII 96766-1388

ASSOCIATE
PAMELA F. RASK
OF COUNSEL
JERILYNN ONO HALL

TELEPHONE NO: (808) 245-4705
FACSIMILE NO: (808) 245-3277
E-MAIL: mail@kauai-law.com

January 12, 1999

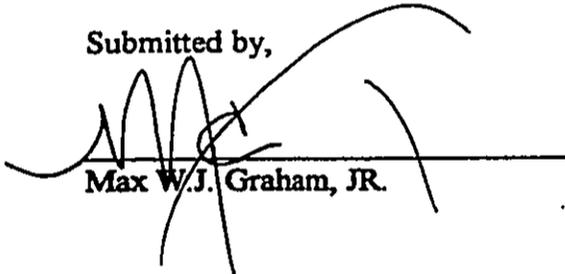
To: State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Attn: Kazu Hayashida
Director of Transportation

Re: Conservation District Use Permit Application, File #KA-2915 to construct
a driveway, and Perform Landscaping Irrigation Improvements on TMK
(3) 4-9-05: 13, and (3) 4-9-06: 05 & 11, located at Papa'a Bay, Anahola,
Kauai, Hawaii.

Thank you for taking the time to review the above application. We greatly appreciate
your comments.

Submitted by,


Max W.J. Graham, JR.

**BELLES GRAHAM
PROUDFOOT & WILSON**

MICHAEL J. BELLES
MAX W.J. GRAHAM, JR.
DAVID W. PROUDFOOT
DONALD H. WILSON
Federal I.D. No. 99-0317663

ATTORNEYS AT LAW
WATUMULL PLAZA
4334 RICE STREET, SUITE 202
LIHUE, KAUAI, HAWAII 96766-1388

TELEPHONE NO: (808) 245-4705
FACSIMILE NO: (808) 245-3277
E-MAIL: mail@kauai-law.com

ASSOCIATE
PAMELA F. RASK

OF COUNSEL
JONATHAN J. CHUN
JERILYNN ONO HALL

February 4, 1999

Mr. Kazu Hayashida, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

RE: **Conservation District Use Permit Application #KA-2915
to construct a driveway, and perform landscaping irrigation
improvements on Kauai TMK Nos. (4) 4-9-05:13 (por.), and
(4) 4-9-06:05 (por.) & 11, located at Papa'a Bay, Papaa, Kauai, Hawaii**

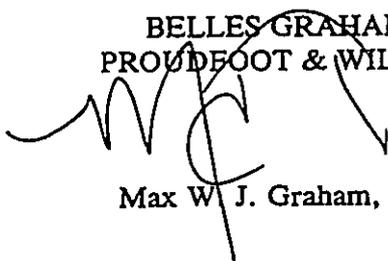
Dear Mr. Hayashida:

In my letter to you on the above-entitled matter dated January 12, 1999, the subject matter heading contained the incorrect tax map key numbers for the Subject Property. Please note that the correct tax map key numbers for the property which is the subject matter of the Conservation District Use Permit Application are Kauai Tax Map Key Nos. (4) 4-9-05:13 (por.) and (4) 4-9-06:05 (por.) & 11.

I apologize for any inconvenience this might have caused you.

Sincerely yours,

BELLES GRAHAM
PROUDFOOT & WILSON


Max W. J. Graham, Jr.

MWJG:jlg
cc: Mr. Avery Youn

LIHUE1\25744\1\28577.1\MWG

EXHIBIT "R"

LD

4794

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



LAWRENCE MIIKE
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801

In reply, please refer to:

December 8, 1998

98-254/epo

TO: The Honorable Michael D. Wilson, Chairperson
Department of Land and Natural Resources

FROM: Lawrence Miike *Lawrence Miike*
Director of Health

SUBJECT: CONSERVATION DISTRICT USE APPLICATION

DEC 9 10 39 AM '98

Applicant: Mr. Max Graham, Jr.
File No.: KA-2915
Request: Papaa Bay Ranch Improvements
Location: Anahola, Kauai
TMK: 4-9-05: por. 13

Thank you for allowing us to review and comment on the subject request. We do not have any comments to offer at this time.

DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII

98 DEC 9 AIO: 57

RECEIVED

EXHIBIT "R"

**BELLES GRAHAM
& PROUDFOOT & WILSON**

MICHAEL J. BELLES
MAX W.J. GRAHAM, JR.
DAVID W. PROUDFOOT
DONALD H. WILSON

Federal I.D. No. 99-0317663

ATTORNEYS AT LAW

WATUMULL PLAZA
4334 RICE STREET, SUITE 202
LIHUE, KAUAI, HAWAII 96766-1388

TELEPHONE NO: (808) 245-4705
FACSIMILE NO: (808) 245-3277
E-MAIL: mail@kauai-law.com

ASSOCIATE
PAMELA F. RASK
OF COUNSEL
JERILYNN GNO HALL

January 12, 1999

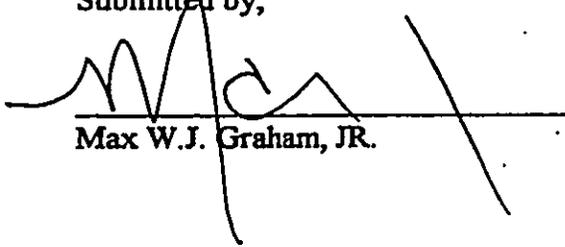
To: State of Hawaii
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Attn: Lawrence Miike
Director of Health

Re: Conservation District Use Permit Application, File #KA-2915 to construct
a driveway, and Perform Landscaping Irrigation Improvements on TMK
(3) 4-9-05: 13, and (3) 4-9-06: 05 & 11, located at Papa'a Bay, Anahola,
Kauai, Hawaii.

Thank you for taking the time to review the above application. We greatly appreciate
your comments.

Submitted by,


Max W.J. Graham, JR.

**BELLES GRAHAM
PROUDFOOT & WILSON**

ATTORNEYS AT LAW

WATUMULL PLAZA
4334 RICE STREET, SUITE 202
LIHUE, KAUAI, HAWAII 96766-1388

TELEPHONE NO: (808) 245-4705
FACSIMILE NO: (808) 245-3277
E-MAIL: mail@kauai-law.com

ASSOCIATE
PAMELA P. RASK

OF COUNSEL
JONATHAN J. CHUN
JERILYNN ONO HALL

MICHAEL J. BELLES
MAX W.J. GRAHAM, JR.
DAVID W. PROUDFOOT
DONALD H. WILSON
Federal I.D. No. 99-0317663

February 4, 1999

Mr. Lawrence Miike, Director
Department of Health
State of Hawaii
P. O. Box 3378
Honolulu, Hawaii 96801

RE: Conservation District Use Permit Application #KA-2915
to construct a driveway, and perform landscaping irrigation
improvements on Kauai TMK Nos. (4) 4-9-05:13 (por.), and
(4) 4-9-06:05 (por.) & 11, located at Papa'a Bay, Papaa, Kauai, Hawaii

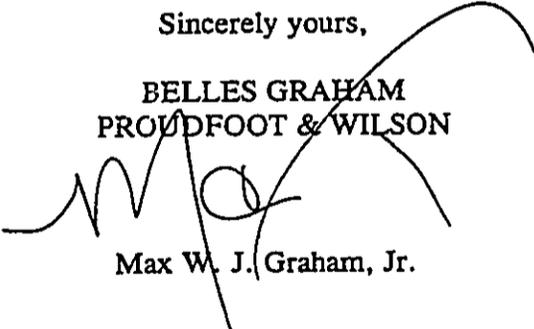
Dear Mr. Miike:

In my letter to you on the above-entitled matter dated January 12, 1999, the subject matter heading contained the incorrect tax map key numbers for the Subject Property. Please note that the correct tax map key numbers for the property which is the subject matter of the Conservation District Use Permit Application are Kauai Tax Map Key Nos. (4) 4-9-05:13 (por.) and (4) 4-9-06:05 (por.) & 11.

I apologize for any inconvenience this might have caused you.

Sincerely yours,

BELLES GRAHAM
PROUDFOOT & WILSON


Max W. J. Graham, Jr.

MWJG:jlj
cc: Mr. Avery Youn

LIHUE1\25744\1\28576.1MWG

EXHIBIT "S"

LD

5016

BENJAMIN J. CAYETANO
GOVERNOR
STATE OF HAWAII



KALI WATSON
CHAIRMAN
HAWAIIAN HOMES COMMISSION

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

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

December 23, 1998

To: Honorable Michael D. Wilson, Chairperson
Board of Land and Natural Resources

From: *for* Kali Watson, Chairman *(Signature)*
Hawaiian Homes Commission

Subject: Conservation District Use Permit Application #KA-2815
to Construct a Driveway, and Perform Landscaping and
Irrigation Improvements, TMK 4-9-5: 13 por., &
4-9-6:11, 5 por., Papaa Bay, Anahola, Kauai, Dated
November, 1998

RECEIVED
DIVISION OF
LAND MANAGEMENT
DEC 29 3 44 PM '98

Thank you for the opportunity to review the subject application.
The Department of Hawaiian Home Lands has no comment to offer.

If you have any questions, please call Daniel Ornellas at
586-3836.

RECEIVED
98 DEC 29 P 1: 38
DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII

EXHIBIT "S"

**BELLES GRAHAM
PROUDFOOT & WILSON**

MICHAEL J. BELLES
MAX W.J. GRAHAM, JR.
DAVID W. PROUDFOOT
DONALD H. WILSON
Federal I.D. No. 99-0317663

ATTORNEYS AT LAW
WATUMULL PLAZA
4334 RICE STREET, SUITE 202
LIHUE, KAUAI, HAWAII 96766-1388

TELEPHONE NO: (808) 245-4705
FACSIMILE NO: (808) 245-3277
E-MAIL: mail@kauai-law.com

ASSOCIATE
PAMELA F. RASK
OF COUNSEL
JERILYNN ONO HALL

January 12, 1999

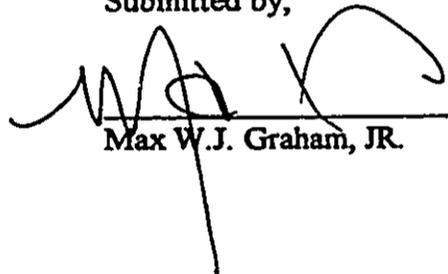
To: State of Hawaii
Department of Hawaiian Home Lands
P.O. Box 1879
Honolulu, HI 96805

Attn: Kali Watson, Chairman
Hawaiian Homes Commission

Re: Conservation District Use Permit Application, File #KA-2915 to construct a driveway, and Perform Landscaping Irrigation Improvements on TMK (3) 4-9-05: 13, and (3) 4-9-06: 05 & 11, located at Papa'a Bay, Anahola, Kauai, Hawaii.

Thank you for taking the time to review the above application. We greatly appreciate your comments.

Submitted by,



Max W.J. Graham, JR.

**BELLES GRAHAM
PROUDFOOT & WILSON**

MICHAEL J. BELLES
MAX W.J. GRAHAM, JR.
DAVID W. PROUDFOOT
DONALD H. WILSON

Federal I.D. No. 99-0317663

ATTORNEYS AT LAW

WATUMULL PLAZA
4334 RICE STREET, SUITE 202
LIHUE, KAUAI, HAWAII 96766-1388

TELEPHONE NO: (808) 245-4705
FACSIMILE NO: (808) 245-3277
E-MAIL: mail@kauai-law.com

ASSOCIATE
PAMELA P. RASK

OF COUNSEL
JONATHAN J. CHUN
JERILYNN ONO HALL

February 4, 1999

Mr. Kali Watson, Chairman
Hawaiian Homes Commission
State of Hawaii
Department of Hawaiian Home Lands
P. O. Box 1879
Honolulu, Hawaii 96805

RE: **Conservation District Use Permit Application #KA-2915
to construct a driveway, and perform landscaping irrigation
improvements on Kauai TMK Nos. (4) 4-9-05:13 (por.), and
(4) 4-9-06:05 (por.) & 11, located at Papa'a Bay, Papaa, Kauai, Hawaii**

Dear Mr. Watson and Commission Members:

In my letter to you on the above-entitled matter dated January 12, 1999, the subject matter heading contained the incorrect tax map key numbers for the Subject Property. Please note that the correct tax map key numbers for the property which is the subject matter of the Conservation District Use Permit Application are Kauai Tax Map Key Nos. (4) 4-9-05:13 (por.) and (4) 4-9-06:05 (por.) & 11.

I apologize for any inconvenience this might have caused you.

Sincerely yours,

BELLES GRAHAM
PROUDFOOT & WILSON

Max W. J. Graham, Jr.

MWJG:jlg
cc: Mr. Avery Youn

LIHUE\25744\1\28574.1\WWG

EXHIBIT "T"

LD

DEPARTMENT OF WATER
County of Kauai

"Water has no Substitute - Conserve It!"

Dec 10 9 28 AM '98

December 9, 1998

Mr. Michael D. Wilson, Chairperson
Dept. of Land & Natural Resources
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Wilson:

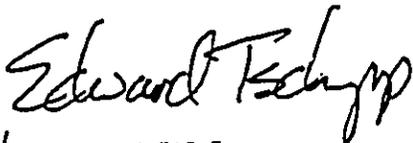
RE: Conservation District Use Permit (CDUP) Application KA-2915 to
Construct a Driveway and Perform Landscaping and Irrigation
Improvements on Lands Located at Papaa Bay, Anahola, Kauai, TMK:4-9-
05:por. 13 and 4-9-05:por. 5 & 11

We have no objection to this proposed CDUP application to construct a
driveway, and perform landscaping and irrigation improvements on the subject
parcels.

However, the applicant is made aware that presently, there is no County water
service available to the above subject parcels.

If you have any questions, please call Edward Doi at 245-5417.

Sincerely,



for/ Ernest Y. W. Lau
Manager and Chief Engineer

ED:ls
C:\..ls\wilson

DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII

98 DEC 11 9:28

RECEIVED

EXHIBIT "T"

**BELLES GRAHAM
ROUDFOOT & WILSON**

ATTORNEYS AT LAW

WATUMULL PLAZA
4334 RICE STREET, SUITE 202
LIHUE, KAUAI, HAWAII 96766-1388

TELEPHONE NO: (808) 245-4705
FACSIMILE NO: (808) 245-3277
E-MAIL: mail@kauai-law.com

ASSOCIATE
PAMELA F. RASK
OF COUNSEL
JERILYNN ONO HALL

MICHAEL J. BELLES
MAX W.J. GRAHAM, JR.
DAVID W. PROUDFOOT
DONALD H. WILSON

Federal I.D. No. 99-0317663

January 12, 1999

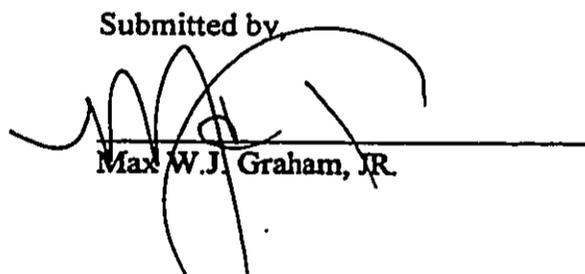
To: Department of Water
County of Kauai
P.O. Box 1706
Lihue, Hawaii 96766-1706

Attn: Ernest Y.W. Lau
Manager and Chief Engineer

Re: Conservation District Use Permit Application, File #KA-2915 to construct
a driveway, and Perform Landscaping Irrigation Improvements on TMK
(3) 4-9-05: 13, and (3) 4-9-06: 05 & 11, located at Papa'a Bay, Anahola,
Kauai, Hawaii.

Thank you for taking the time to review the above application. We greatly appreciate
your comments.

Submitted by


Max W.J. Graham, JR.

**BELLES GRAHAM
PROUDFOOT & WILSON**

MICHAEL J. BELLES
MAX W.J. GRAHAM, JR.
DAVID W. PROUDFOOT
DONALD H. WILSON
Federal I.D. No. 99-0317663

ATTORNEYS AT LAW
WATUMULL PLAZA
4334 RICE STREET, SUITE 202
LIHUE, KAUAI, HAWAII 96766-1388

TELEPHONE NO: (808) 245-4705
FACSIMILE NO: (808) 245-3277
E-MAIL: mail@kauai-law.com

ASSOCIATE
PAMELA P. RASK

OF COUNSEL
JONATHAN J. CHUN
JERILYNN ONO HALL

February 4, 1999

Mr. Ernest Y. W. Lau
Manager and Chief Engineer
Department of Water
County of Kauai
P. O. Box 1706
Lihue, Kauai, Hawaii 96766

RE: **Conservation District Use Permit Application #KA-2915
to construct a driveway, and perform landscaping irrigation
improvements on Kauai TMK Nos. (4) 4-9-05:13 (por.), and
(4) 4-9-06:05 (por.) & 11, located at Papa'a Bay, Papaa, Kauai, Hawaii**

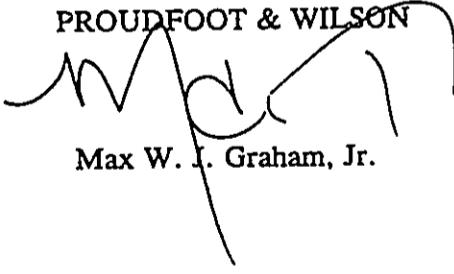
Dear Mr. Lau:

In my letter to you on the above-entitled matter dated January 12, 1999, the subject matter heading contained the incorrect tax map key numbers for the Subject Property. Please note that the correct tax map key numbers for the property which is the subject matter of the Conservation District Use Permit Application are Kauai Tax Map Key Nos. (4) 4-9-05:13 (por.) and (4) 4-9-06:05 (por.) & 11.

I apologize for any inconvenience this might have caused you.

Sincerely yours,

BELLES GRAHAM
PROUDFOOT & WILSON


Max W. J. Graham, Jr.

MWJG:jlj
cc: Mr. Avery Youn

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EXHIBIT "U"

LD

4972

PHONE (808) 594-1888



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

RECEIVED

FAX (808) 594-1885

98 DEC 23 P 1: 50

DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII

December 21, 1998

Honorable Michael D. Wilson, Chairperson
State of Hawaii
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

RECEIVED
DIVISION OF
LAND MANAGEMENT
DEC 23 3 56 PM '98
PA # 198

Re: Conservation District Use Permit Application and Environmental Assessment, #K98-2915
to construct a driveway, and perform landscaping and irrigation improvements on lands
located at Papaa Bay, Anahola, Kauai; TMK: 4-9-05: por. 13 and 4-9-06: por. 05, 11

Dear Mr. Wilson:

Thank you for the opportunity to comment on Mandalay Properties Hawaii LLC's conservation district use permit application (CDUP). The applicant proposes to construct a driveway, and install landscaping and irrigation improvements in the Conservation District at Papaa Bay, Anahola, Kauai.

Our only comment is that the application is incomplete until such time as the archaeological survey and report are completed and attached to the application. At that time, we would appreciate the opportunity to review and comment on the report.

If you have any questions, please contact Lynn Lee, EIS Planner at 594-1936.

Sincerely,

Colin Kippen
Deputy Administrator

C. Sebastian Aloor
Land and Natural Resources
Division Officer

cc: Board of Trustees
Kauai Community Affairs Office

EXHIBIT "U"

**BELLES GRAHAM
PROUDFOOT & WILSON**

MICHAEL J. BELLES
MAX W.J. GRAHAM, JR.
DAVID W. PROUDFOOT
DONALD H. WILSON

Federal I.D. No. 99-0317663

ATTORNEYS AT LAW

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ASSOCIATE
PAMELA P. RASK

OF COUNSEL
JONATHAN J. CHUN
JERILYNN ONO HALL

February 5, 1999

Mr. Colin Kippen, Deputy Administrator
Mr. C. Sebastian Aloat, Division Officer
Department of Land and Natural Resources
Office of Hawaiian Affairs
State of Hawaii
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

RE: Conservation District Use Permit Application (File #KA-2915)
Property: Papaa Bay Ranch, Papaa, Kauai, Hawaii
Kauai TMK Nos. (4) 4-9-05:13 (por.), (4) 4-9-06:05 (por.) & 11
Owner: Mandalay Properties Hawaii LLC

Dear Messrs. Kippen and Aloat:

Thank you for your letter dated December 21, 1998, concerning the above-identified Conservation District Use Permit Application ("CDUA"). Consistent with your comments, a draft Archaeological Inventory Survey of Papa'a Bay Ranch dated October, 1998 was prepared for the Papaa Bay Ranch by Scientific Consultant Services, Inc. I previously sent you a copy of the draft report. This report was submitted to the State Historic Preservation Division ("SHPD") of the Department of Land and Natural Resources on December 5, 1998. SHPD has in turn provided comments to the draft report. On the basis of the comments, a final draft of the Archaeological Report is being prepared and will be submitted to SHPD.

The development proposed in the Conservation District is not intensive, and when plans were submitted to the County of Kauai for grading, building and SMA permits to construct a driveway, two cottages, a main residence, swimming pool and garage, a requirement of the clearinghouse process was that the Applicant needed to perform additional archaeological work.

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Mr. Colin Kippen, Deputy Administrator
Mr. C. Sebastian Aloat, Division Officer
Department of Land and Natural Resources
February 5, 1999
Page 2

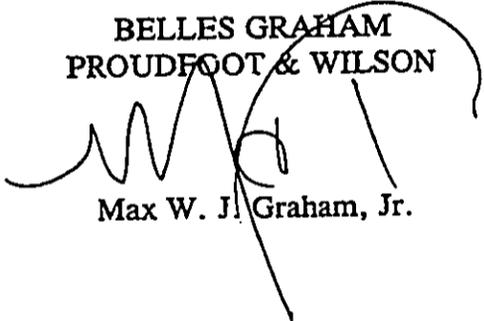
The nature of the archaeological work prescribed for the project did not require that it be performed prior to construction of any of the buildings, because grading, building and SMA permits have already been issued. The two cottages are already completed and the driveway constructed except for that portion within the Conservation District. An amendment to the initial plans have been made whereby the existing roads within the Conservation District will be used instead to provide access to the cottages and main residence, thus further minimizing development in the Conservation District.

Please note that none of the work proposed under the CDUA will disturb the sites identified in the Archaeological Report.

I hope this addresses your concerns. If you have any questions, please contact me or our architectural consultant, Avery H. Youn, at (808) 246-9414.

Sincerely yours,

BELLES GRAHAM
PROUDEFOOT & WILSON



Max W. J. Graham, Jr.

MWJG:jlg

cc: Mr. Avery H. Youn

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EXHIBIT "V"

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Land Division
Planning Branch
Honolulu, Hawaii
NOV 30 1998

REF:PB:LT

In reply, please refer to:
File No.: KA-2915
180-Day Exp. Date: 4/17/99
Suspense Date: 21 days

MEMORANDUM

TO: Aquatic Resources; Conservation and Resources
Enforcement; Forestry & Wildlife; Historic
Preservation; Land - Engineering Branch; Commission
on Water Resource Management

FROM: Dean Uchida, Administrator *Uchida*
Land Division

SUBJECT: REQUEST FOR COMMENTS
Conservation District Use Permit (CDUP) Application
#KA-2915 and Draft Environmental Assessment

APPLICANT: Mandalay Properties, Hawaii LLC
c/o Max W. Graham, Jr., Esq.
Belles Graham Proudfoot & Wilson
2334 Rice Street, Suite 202
Lihue, Kauai, Hawaii 96766-1388

REQUEST: Construction of a Driveway, Landscaping and
Irrigation Improvements

LOCATION/
TMK's: Papaa Bay, Anahola, Kauai
4-9-05: por. 13, 4-9-06: por. 05, 11

PUBLIC HEARING: Yes _____ No X

Attached is a CDUP application, a draft environmental assessment,
and a copy of our notice of acceptance.

DOCARE: Please conduct a field inspection on the proposed project.

We would appreciate your review and comments within 21 days from
the date of this memo. Should you require additional time or
information, please call Lauren Tanaka at 587-0385, Planning Branch
of the Land Division.

Attachments

(X) Comments Attached

Signed: *Andrew M. Monden*
ANDREW M. MONDEN, Chief Engineer

Date: 12/4/98

EXHIBIT "V"

ENGINEERING BRANCH

COMMENTS

We suggest that the proposed construction and improvement work follow Kauai County's Flood Ordinance Standards.

We confirm that the proposed project site is located in Zone VE. This is an area located within the 100-year flood plain where coastal flooding occurs with velocity hazard (wave action), and base flood elevations determined.

The applicant should also be aware that the northern portion of the project site is located in Zone VE, and within the drainageway adjacent to Papa'a Stream.

**BELLES GRAHAM
PROUDFOOT & WILSON**

MICHAEL J. BELLES
MAX W.J. GRAHAM, JR.
DAVID W. PROUDFOOT
DONALD H. WILSON

Federal I.D. No. 99-0317663

ATTORNEYS AT LAW

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ASSOCIATE
PAMELA P. RASK

OF COUNSEL
JONATHAN J. CHUN
JERILYNN ONO HALL

February 5, 1999

Mr. Andrew M. Monden, Chief Engineer
Department of Land and Natural Resources
Land Division - Engineering Branch
State of Hawaii
1151 Punchbowl Street, Room 325
Honolulu, Hawaii 96813

RE: **Conservation District Use Permit Application #KA-2915
to construct a driveway, and perform landscaping irrigation
improvements on Kauai TMK Nos. (4) 4-9-05:13 (por.), and
(4) 4-9-06:05 (por.) & 11, located at Papa'a Bay, Papaa, Kauai, Hawaii**

Dear Mr. Monden:

Thank you for your comments dated December 4, 1998, relative to the above subject project.

Your comments relate to compliance with Kauai County's Flood Ordinance Standards. Please be apprised that building permits have already been issued for construction of a workshop, caretaker's residence, two cottages, a garage, swimming pool, and a main residence. None of these structures are located within the Conservation District. The building permit review process addresses the County's flood zone requirements and it should be noted that none of the above structures mentioned are located within the 100-year flood zone.

The Conservation District does contain the VE Zone with the flood elevation at 12 feet MSL. Please be apprised that no structures are proposed to be developed within the Conservation or the VE Zone. Only the existing road will be improved as a driveway access to the cottages and residence. Also, no development is planned within the drainageway of Papaa Stream.

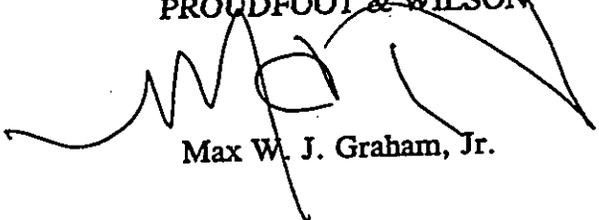
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Mr. Andrew M. Monden, Chief Engineer
Department of Land and Natural Resources
February 5, 1999
Page 2

Again, thank you for your review of the Application and should you have any additional comments or concerns, please contact me or our architectural consultant, Avery H. Youn, at (808) 246-9414.

Sincerely yours,

BELLES GRAHAM
PROUDFOOT & WILSON



Max W. J. Graham, Jr.

MWJG:jljg

cc: Mr. Avery H. Youn

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