Department of Water
County of Kaua'i

Water has no substitute.....Conserve it

May 25, 2006

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

Dear Ms. Salmonson:

Subject: Finding of No Significant Impact (FONSI)
Proposed 0.5 MG Storage Tank, County of Kauai, Department of Water
TMK: (4) 4-6-03: 10 & 12, Kawaihau District, Kauai, Hawai'i

The County of Kauai, Department of Water, has reviewed the comments received during the 30-day public comment period which began on February 8, 2006. This agency has determined that the proposed project will have no significant environmental effects and has issued a FONSI. Please publish this notice in the June 8, 2006 issue of The Environmental Notice.

We have enclosed a completed OEQC Publication Form and four (4) copies of the Final EA. Please call Glen Koyama at Belt Collins Hawaii, phone (808) 521-5361, if you have any questions.

Sincerely,

Wynne M. Ushigome
Acting Manager/Chief Engineer

Enclosure

RECEIVED
'06 MAY 30 P1:50
OFC. OF ENVIRONMENTAL QUALITY CONTROL

4398 Pua Loke St., P.O. Box 1706, Lihue, HI 96766 Phone: 808-245-5400
Engineering and Fiscal Fax: 808-245-5813, Operations Fax: 808-245-5402, Administration Fax: 808-246-8628

2006-06-08 KA FEA KAPAA 0.5 STORAGE TANK

JUN - 8 2006

FINAL
ENVIRONMENTAL ASSESSMENT

PROPOSED 0.5 MG STORAGE TANK
KAWAIHAU, KAUA'I, HAWAI'I

Department of
Water
County of Kaua'i

FINAL
ENVIRONMENTAL ASSESSMENT

PROPOSED 0.5 MG STORAGE TANK
KAWAIHAU, KAUA'I, HAWAI'I

May 2006

Prepared by:

BELT COLLINS HAWAII LTD.
HONOLULU, HAWAII

Prepared for:

DEPARTMENT OF WATER
COUNTY OF KAUA'I

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ACRONYMS AND ABBREVIATIONS

BLNR	Board of Land and Natural Resources, State of Hawai'i
BMP	Best Management Practices
CZM	Coastal Zone Management
CZO	Comprehensive Zoning Ordinance
DFW	Division of Forestry and Wildlife
DLNR	Department of Land and Natural Resources, State of Hawai'i
DOH	Department of Health, State of Hawai'i
DOW	Department of Water, County of Kaua'i
DWSRF	Drinking Water State Revolving Fund
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
HAR	Hawai'i Administrative Rules
HRS	Hawai'i Revised Statutes
HsB	Hanamaula silty clay
KIUC	Kaua'i Island Utility Cooperative
KUL	Kolokolo extremely stony clay loam
MG	million gallon
NAAQS	National Ambient Air Quality Standards
NPDES	National Pollutant Discharge Elimination System
SHPD	State Historic Preservation Division
SMA	Special Management Area
USFWS	U.S. Fish and Wildlife Service

1 SUMMARY

PROPOSING AGENCY:	Department of Water (DOW), County of Kaua'i
APPROVING AGENCY:	DOW, County of Kaua'i
GENERAL PROJECT DESCRIPTION:	The DOW is proposing to construct a 0.5 million gallon (MG) storage tank at the 510-foot elevation of the Kapa'a Homesteads in Kawaihau, Kaua'i. The new tank and accessory facilities will be designed to supplement the existing 1.0-MG Makaleha Tank in the Wailua–Kapa'a Water System and improve service to the Kapa'a community. The proposed project does not include development of a new source.
PROJECT LOCATION:	The new 0.5-MG storage tank and accessory facilities will be located adjacent to the existing Makaleha Tank (elevation 510 feet) on Kahuna Road on a portion of State of Hawai'i properties, identified as Tax Map Key 4-6-03:10 and 12 (see Figures 1 and 2).
DETERMINATION:	Finding of No Significant Impact (FONSI)
CONSULTED AGENCIES:	**Federal Agencies** U.S. Army Corps of Engineers U.S. Fish and Wildlife Service U.S. Natural Resources Conservation Service **State Agencies** Environmental Management Division, Department of Health (DOH) Forestry and Wildlife Division, Department of Land and Natural Resources (DLNR) Land Division, DLNR State Historic Preservation Division, DLNR **County Agencies** Department of Planning Department of Public Works Fire Department

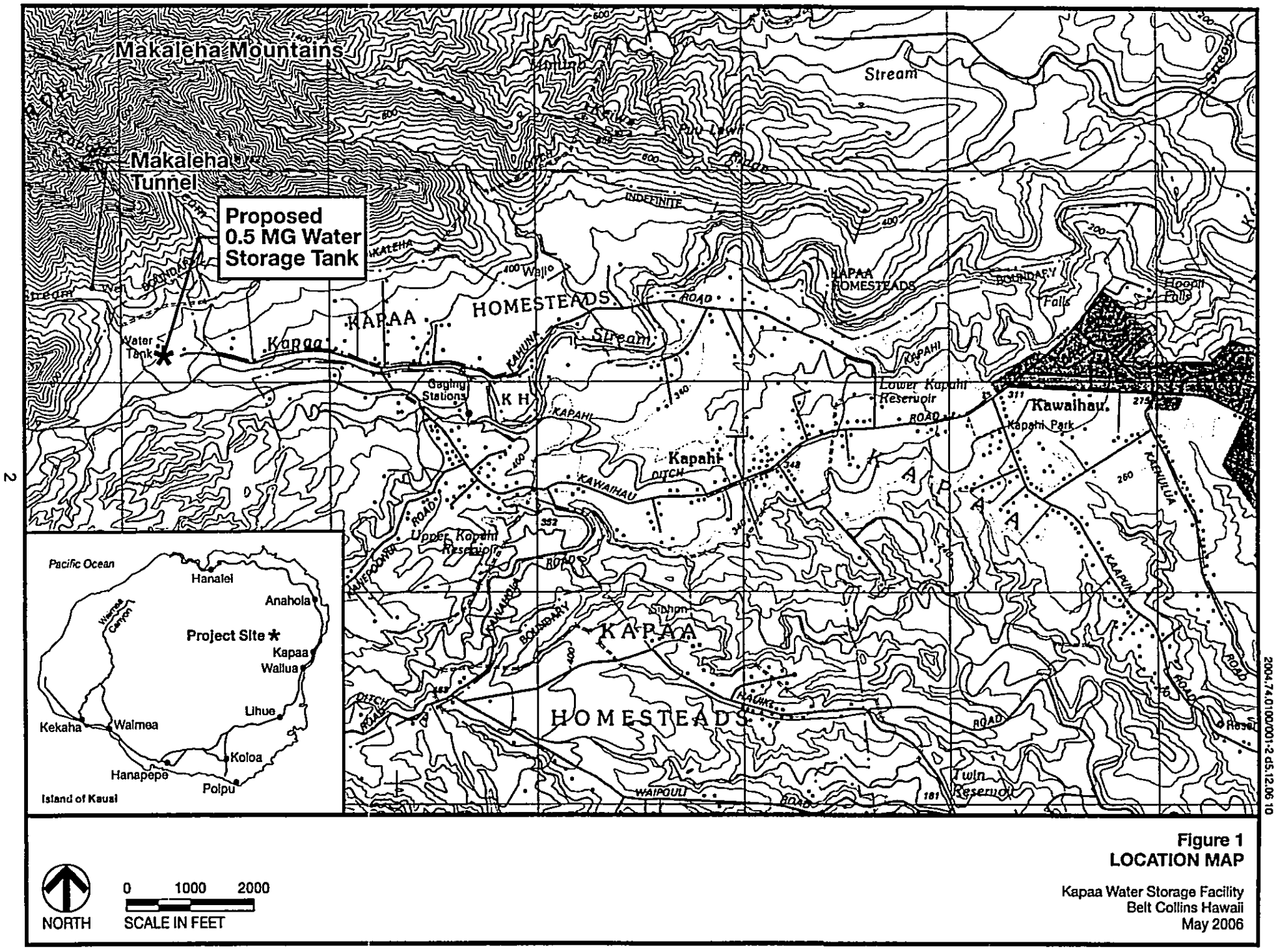

Figure 1
LOCATION MAP

Kapaa Water Storage Facility
Belt Collins Hawaii
May 2006

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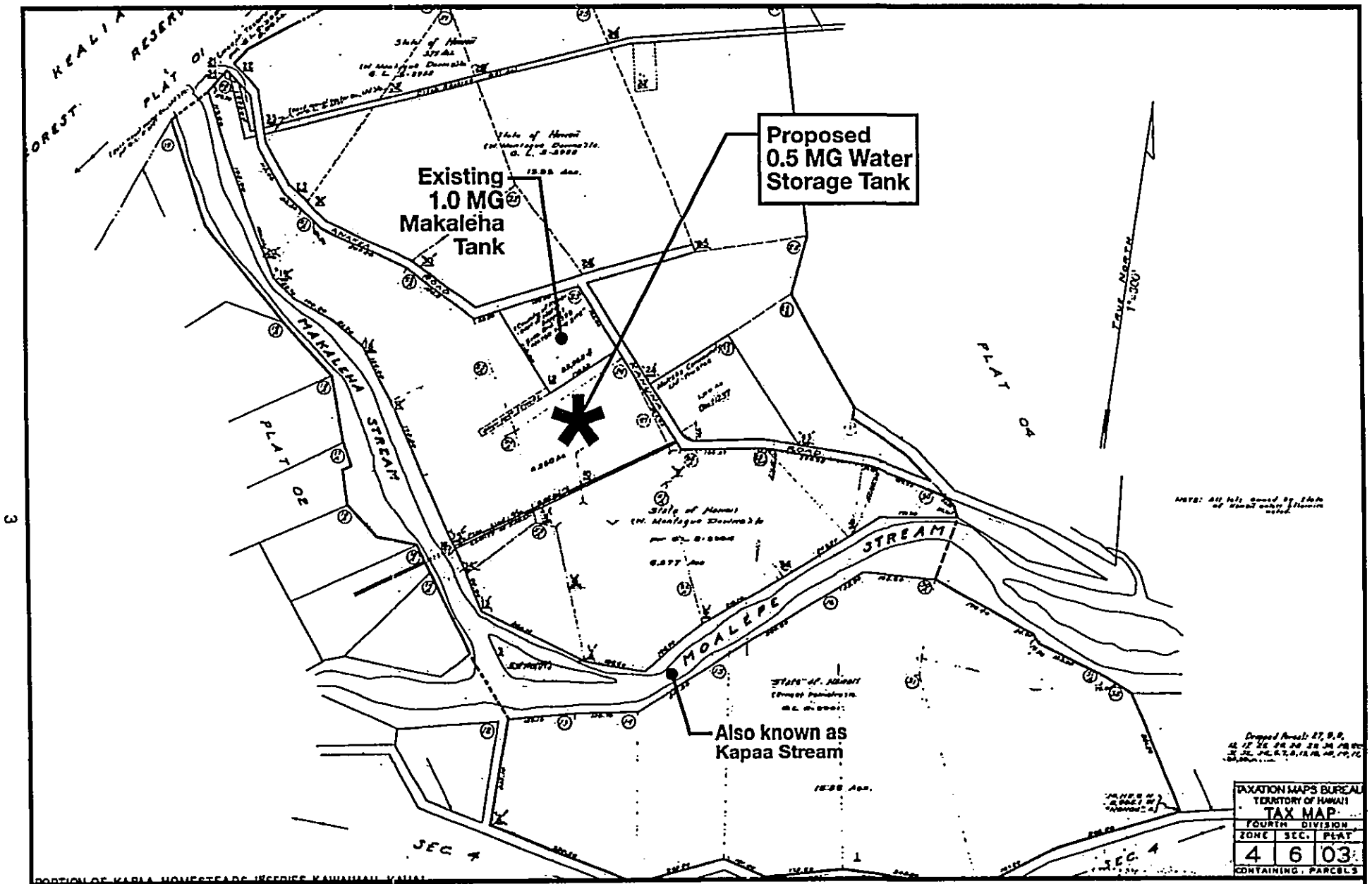

Figure 2
TAX MAP

Kapaa Water Storage Facility
Belt Collins Hawaii
May 2006

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2 DESCRIPTION OF THE PROPOSED ACTION

2.1 Project Objective

The water system that currently serves the Kapa'a community in the Kawaihau District of Kaua'i lacks adequate storage reserve to meet Maximum Day Demand plus fire flow requirements. In the event of peak day demand during high usage seasons or during extreme emergencies, inadequate storage may cause a negative effect on DOW's ability to sufficiently serve its customers.

An increase in water storage capacity for the Kapa'a Sector of the Wailua–Kapa'a Water System is required to meet the area's needed reserve. The additional storage should be located at an elevation that can effectively maintain the required pressure for the designated service area.

The preferred location for the new storage facility is adjacent to the existing 1.0-MG Makaleha Storage Tank (elevation 510') in uplands Kapa'a Homesteads (see Figure 3), where the storage tank can be directly tied to the two sources for the Wailua-Kapa'a system: the Makaleha Tunnel (elevation 574') and the Kapa'a Homesteads Well No. 1 (within the Makaleha Tank site). The existing and proposed tanks will serve as initial storage facilities for the overall Kapa'a system. No new source of water or distribution line is being proposed with this project.

2.2 Background

The Wailua–Kapa'a Water System serves an area that has continued to grow over the years. Its service area includes Wailua–Waipouli Resort area, Wailua Houselots, Wailua Homesteads, Kapa'a town, and Kapa'a Homesteads. Area growth has included new subdivisions, individual homes, and new businesses, which all together have resulted in an increased demand for water.

There are eight primary pressure zones within the Wailua–Kapa'a service area representing the different elevations in the system. Existing storage tanks currently serve five of these zones; the other three are dependent on pressure reducing valves and storage tanks from the other zones for supply.

According to DOW's *Water Plan 2020,* a long-range planning guide for the agency, Wailua–Kapa'a is deficient in storage in a number of pressure zones. Notably, all storage deficiencies within the Wailua–Kapa'a Water System are based on the Maximum Day Demand criteria. The pressure zone occupied by the Makaleha Tank is currently deficient by 50,000 gallons and will be deficient by more than 140,000 gallons by 2020. The pressure zone immediately makai of the Makaleha Tank zone, which has no storage tank, is currently deficient by 70,000 gallons and will be deficient by nearly 170,000 gallons by 2020. Thus, the current deficiency in the Makaleha Tank pressure zone and its adjoining makai zone is 120,000 gallons, which will increase to a 290,000 gallon deficiency by 2020.

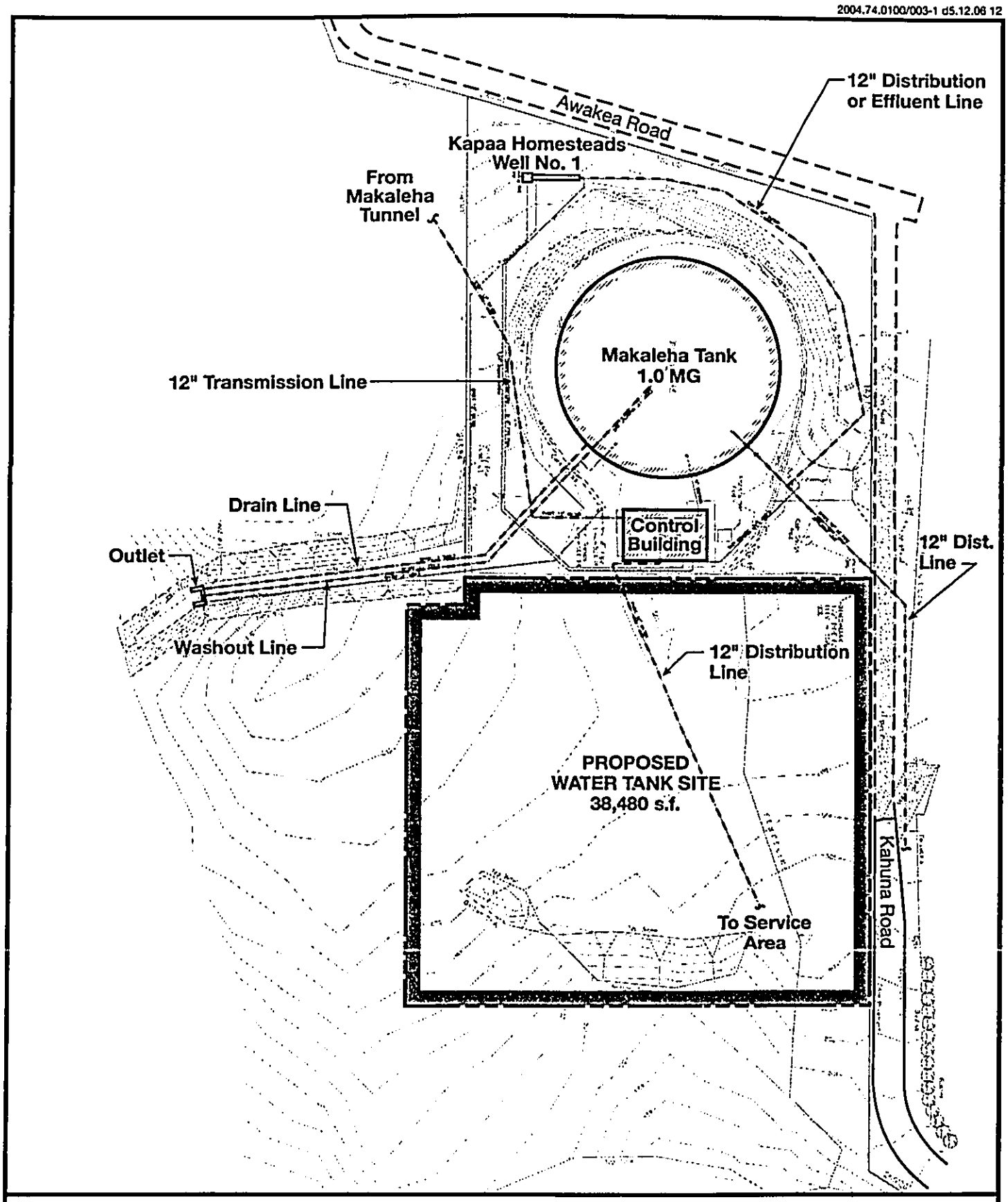

Figure 3
EXISTING SITE

Kapaa Water Storage Facility
Belt Collins Hawaii
May 2006

The proposed 0.5-MG storage tank at the Makaleha Tank site will be adequate to accommodate the needed deficiency and long-term future needs for the area. Locating the additional storage in the highest pressure zone for the Kapa'a sector will help optimize the system for needed pressure and rate of flow in the targeted zones.

2.3 Description of the Proposed Action

The new County storage tank will occupy approximately 38,480 square feet of a vacant 6.6-acre State of Hawai'i property identified as Tax Map Key 4-6-03: 10 (see Figure 4). The site has a grade of approximately three percent and is covered by a variety of groundcover and loose stands of open canopy trees. The project site may require a subdivision of the State property to create a separate parcel for the new facility.

The new storage tank will be constructed of concrete and measure approximately 20 feet high with a diameter of approximately 74 feet. It will have a finish floor elevation of 512' (existing elevation is 510'), which is similar to the finish floor elevation of the existing Makaleha Storage Tank (see Figure 5). A 14-foot wide paved driveway will provide access to and around the new tank from Kahuna Road.

Drainage facilities, including a culvert and swales, for surface runoff will be included as part of the site improvements, and a 6-foot high chain link fence will be erected along the site boundary for security purposes. Minor landscaping, consisting of grass or groundcover, will be provided for visual enhancement and erosion control.

The new tank will be fed by a 55-foot long connecting line from the existing tank via an existing control building and new valve. Water in the new tank will then be discharged for distribution through a new 140-foot long connecting line to an existing 12-inch transmission line along Kahuna Road. This 12-inch line serves as the main distribution and service line for the rest of the Wailua-Kapa'a Water System.

A washout and overflow line from the new tank will connect with the washout and overflow line of the existing tank. Additionally, a perimeter drain line beneath the new tank's outside wall will connect with the drain line of the existing tank. The outlet for these lines is located in a drainage easement that extends approximately 120' southwest of the existing tank parcel within the current State property.

Accessory to the two storage tanks, the DOW will install on the Makaleha tank site a new portable generator and shelter to provide emergency power backup for the control building and tanks should electrical power fail in the area. The generator will operate by diesel fuel and produce an output up to approximately 150 kilowatts. The generator shelter will be 15' wide, 25' long, and approximately 13' high. It will be constructed of concrete masonry units and include a low-pitch concrete roof (see Figure 6).

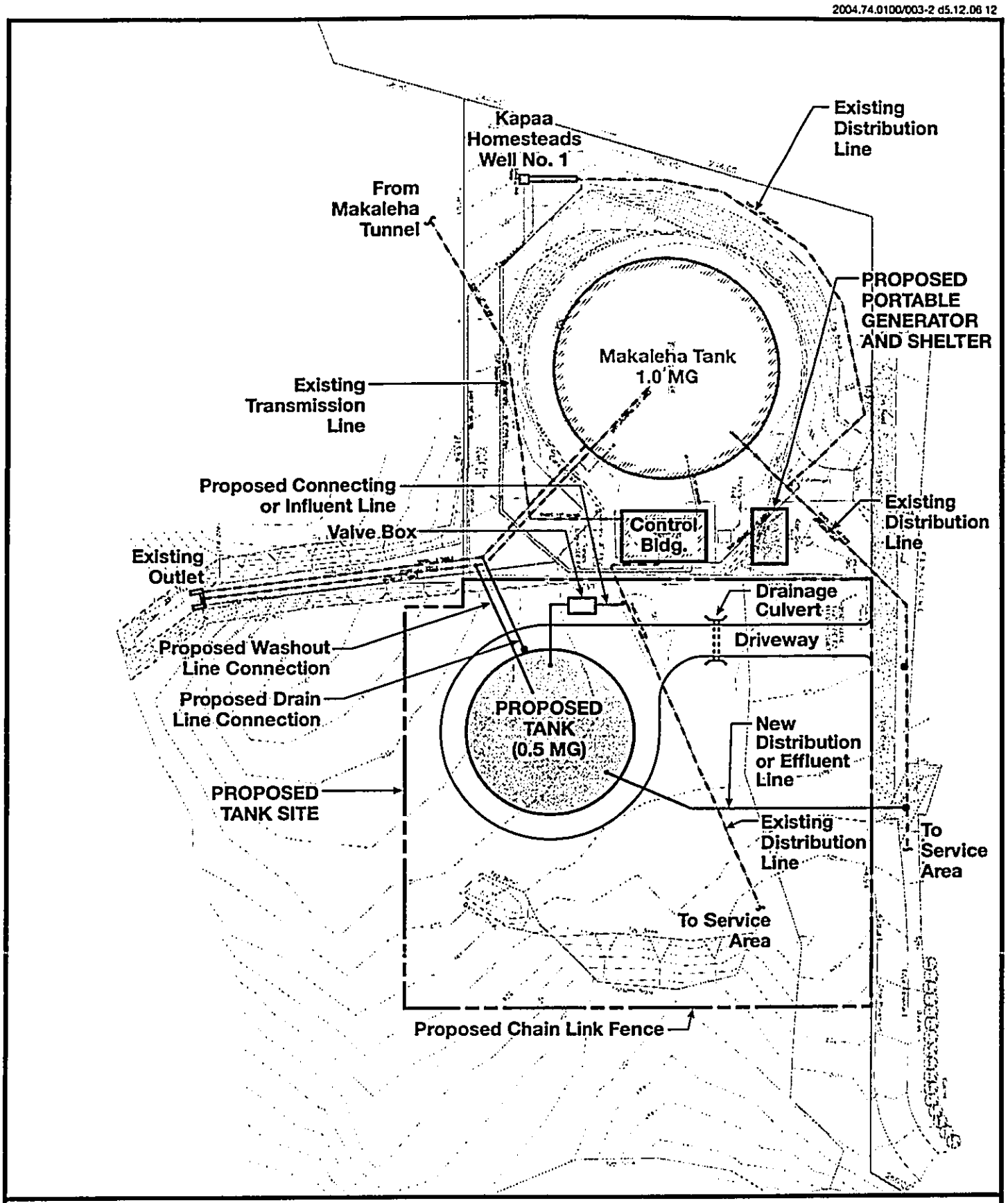

Figure 4
PROPOSED 0.5 MG STORAGE TANK

Kapaa Water Storage Facility
Belt Collins Hawaii
May 2006

HORIZONTAL SCALE: 1" = 40'

Figure 5
SECTION PLAN
(East View)

Kapaa Water Storage Facility
Belt Collins Hawaii
May 2006

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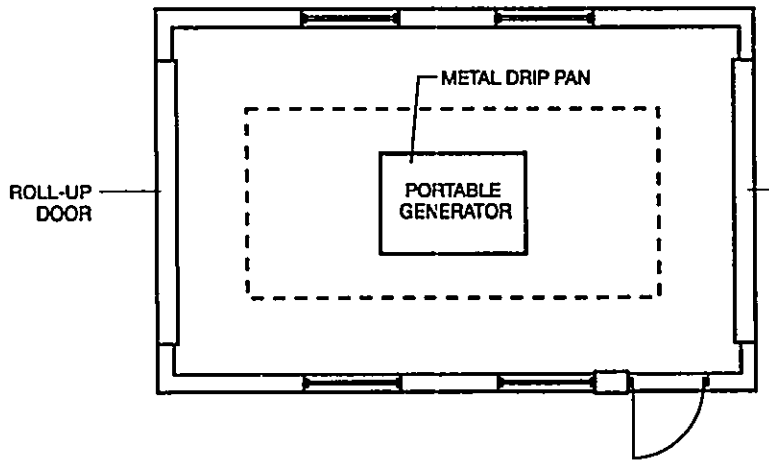
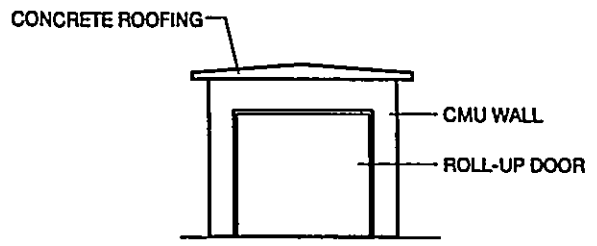
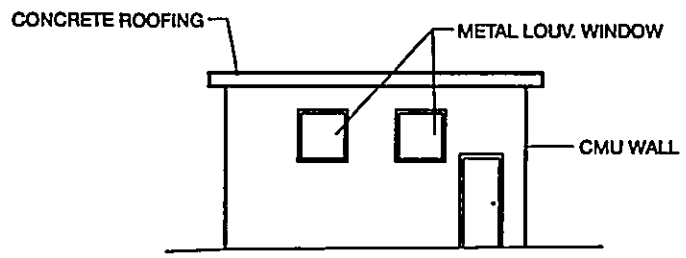


FLOOR PLAN
SCALE 1" = 8'-0"



NORTH ELEVATION
SCALE 1" = 16'-0"



EAST ELEVATION
SCALE 1" = 16'-0"

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Figure 6
PORTABLE GENERATOR AND SHELTER
Kapaa Water Storage Facility
Belt Collins Hawaii
May 2006

2.4 Estimated Cost

Construction of the new storage tank and accessory facilities is estimated to cost approximately $2.6 million. This estimate does not include planning, permitting, and design costs. Funding for the project will come from DOW. Supplemental funding may be sought from federal funds through the State of Hawai'i's Drinking Water State Revolving Fund (DWSRF) program. This source of funding constitutes a federal action and will require that the project meet all Hawai'i DWSRF program requirements.

2.5 Construction Schedule

Construction of the storage tank is projected to begin in mid-2006 or the third quarter of 2006 after all government permits and approvals are secured. Completion of the tank installation is expected to occur approximately 12 months thereafter.

3 DESCRIPTION OF THE AFFECTED ENVIRONMENT

3.1 Regional Setting

The proposed storage tank site is located in the Kawaihau District of the Island of Kaua'i, a region that extends from the ocean to the mountains and contains the small coastal town of Kapa'a (population of 9,500[1]), beach resorts of Wailua, rural residences, small agricultural farms, grazing lands, and large open spaces. Most of the lands in the mauka area are homestead lands, which are in rural or agricultural use.

The people of the region are a mix of long-time residents, newcomers, and visitors. Kūhiō Highway is the main access through Kapa'a, extending approximately 30 miles from Līhu'e to Hanalei with numerous local side roads providing access to the inland and coastal areas. The project site is located in the far mauka section of the Kawaihau District at the foothills of the Makaleha Mountains.

3.2 Existing Water System and Land Use

The proposed storage tank will connect with the Wailua–Kapa'a System, the largest water system on Kaua'i operated by DOW. It includes over 5,000 metered services, as of 1998, and services Wailua-Waipouli Resort, Wailua Houselots, Wailua Homesteads, Kapa'a town, and Kapaa Homesteads. Feeding the system are three tunnels and seven operational wells (see Table 1). The two sources that feed the Kapa'a Sector are the Makaleha Tunnel located approximately 1,400 feet above the existing Makaleha Tank in the Keālia Forest Reserve, and the Kapa'a Homesteads Well No. 1 located immediately within the Makaleha Tank site.

[1] U.S. Census, 2000.

Table 1. Wailua–Kapa'a System Sources

Source	Elevation (in feet)	Capacity (in gallons per minute)
Tunnels		
Makaleha Tunnel	574	350
Molelepe Tunnel	568	300
Akulikuli Tunnel	360	not in service
Wells		
Nonou 9-1A	155	not in service
Nonou 9-1B	157	425-450
Nonou 9-1C	72	850
Kapa'a Homesteads Well No. 1	525	750
Kapa'a Homesteads Well No. 2*	approximately 500+	500
Wailua Homesteads Well "A"	462	470
Wailua Homesteads Well "B"	458	500

* This well was expected to be in service in mid 2002.
Source: Water Plan 2020, March 2001.

All of the storage facilities in the Wailua–Kapa'a System are listed in Table 2 below.

Table 2. Storage Facilities in the Wailua–Kapa'a Water System

Storage Facility	Elevation (in feet)	Capacity (in million gallons)
Makaleha Tank	510	1.0
Ornellas Tank	305	0.20
Nonou Tank	193	2.0
Wailua Homesteads Tank	519	0.5
Pu'upilo Tank	587	0.125

Source: Water Plan 2020

For operational purposes, the system contains three service areas, which include: (1) the coastal area of Wailua-Waipouli Resort and Kapa'a town, (2) Wailua Homesteads, and (3) Kapa'a Homesteads. The proposed storage tank is located in the Kapa'a Homesteads service area or the Kapa'a Sector of the Wailua–Kapa'a System. This service area is connected to two storage tanks: the 1.0-MG Makaleha Tank at the project site and the 0.2-MG Ornellas Tank (305-foot elevation) at the service area's mid-elevation.

The water system in the service area includes a network of 2- to 12-inch distribution lines in the upper elevations, and 6-, 8-, and 12-inch pipes in the lower sections. There are also various types

of valves including backpressure valves, pressure reducing valves, solenoid valves, and altitude valves.

3.3 Land Tenure

The proposed storage tank will be located on State of Hawai'i land. Subdivision of the State land may be required to create a separate parcel for the proposed facility. Acquisition procedures may then be initiated to place the site into County ownership or use.

3.4 Physiography

The project site is located at approximately the 510-foot elevation of the Kapa'a Homesteads. Its terrain is relatively even and slopes approximately three percent descending generally from west to east (see Figure 7). There is no prominent or distinguishing geographic feature on the property.

3.5 Geology

Kaua'i is the oldest of the major Hawaiian Islands and, geologically, the most weathered or eroded. It consists of at least one extinct volcano and was formed by lavas from the shield, post shield, and rejuvenated stages. Notably, the island has a lack of rift zones, but has an enormous caldera complex with a graben, or down-dropped block on the caldera's south side. Rejuvenated-stage lavas have covered much of the eastern half of the island. Through time, numerous landslides have modified Kaua'i's north, northeast, east, and south flanks.

The project site is situated at the foothills of the Makaleha Mountains far inland of the shoreline in a physiographic area known as the Kapa'a dissected upland. Geologically, the area is considered to be composed of alluvium deposits. The surrounding mountains are extensively carved by erosion, stream flow, and surface runoff.

3.6 Soils

According to the U.S. Soil Conservation Service's *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*, soils on the property consist of Kolokolo extremely stony clay loam (KUL) and Hanamā'ulu silty clay, 3 to 8 percent slopes (HsB).

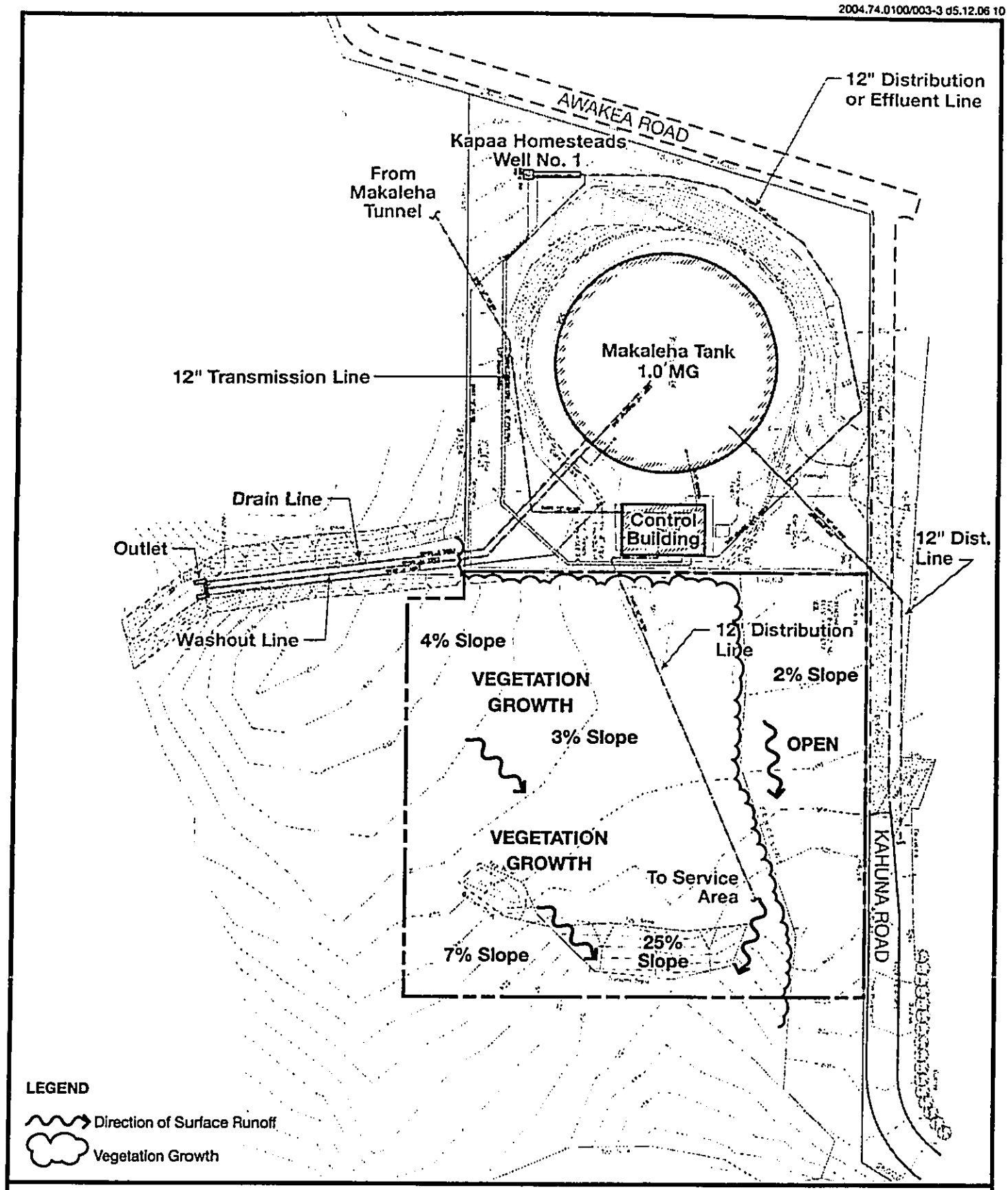

Figure 7
EXISTING SITE CONDITIONS

Kapaa Water Storage Facility
Belt Collins Hawaii
May 2006

The Kolokolo soil is well drained and is usually developed in alluvium, washed from upland soils. The extremely stony clay loam of the Kolokolo soil is very dark brown clay loam and extremely stony. The stones and boulders make cultivation impractical. The soil's permeability characteristic is moderate, runoff over the surface is very slow, and erosion condition is no more than slight. The soil's Capability Classification is VIIs, nonirrigated.

The Hanamā'ulu silty clay soil is well drained, found on stream terraces, and developed in alluvium washed from upland soils. Its permeability characteristic is moderately rapid, runoff over the soil is slow, and its erosion is no more than slight. The soil is used for pasture, wildlife habitat, sugar cane, and water supply, and its Capability Classification is IIe, irrigated or nonirrigated.

In geotechnical engineering tests conducted during December 2004,[2] the project site was found to have (at the time of the survey) very moist, stiff to very stiff clayey silts with embedded weathered basaltic gravel, cobbles, and some boulders believed to represent near-surface older alluvial deposits. This layer of material extends to depths of about 9 to 18 feet below the existing ground surface. Generally, stiff saprolitic clayey silts with embedded weathered rock corestones representing moderately to extremely weathered basalt rock was encountered below the older alluvial deposits. These silts were found to extend to at least 40 feet below the existing ground surface.

3.7 Flora

Vegetation on the proposed tank site consists of heavy ground cover, loose stands of Mollucan albizia, and isolated trees, such as African tulip and koa haole. None of these species are native.

In April of 2003, vegetation on the site was sparse and primarily included the scattered stands of Mollucan albizia. The groundcover now includes wedelia, California grass, thimbleberry, pothos vine, bamboo, and white ginger. These species are all introduced and are common in urban settings. None of these species are rare, threatened or endangered.

3.8 Fauna

Phillip L. Bruner, Environmental Consultant, conducted an avifaunal and feral mammal survey of the project site in July 2004. Thirteen alien species of birds were observed (see Table 3). They included Japanese white eye, spotted dove, zebra dove, house finch, and common myna, among others. These species are quite common in urban and surrounding areas. None of the recorded species are native or migratory birds.

The only other species that might occur in the area, other than those recorded, is the migratory Pacific Golden-Plover. This species winters in the islands from August through late-April. Prior to the cold season, particularly during the month of July, migratory shorebirds are on their

[2] *Geotechnical Engineering Exploration, Kapaa Homesteads 0.5 MG Storage Tank, Kapaa, Kauai, Hawaii,* prepared by Geolabs, Inc., February 28, 2005.

breeding grounds in the arctic. The Pacific Golden-Plover, also known as Kōlea in Hawaiian, has been extensively studied, and is not listed as threatened or endangered.

Feral species were also recorded in the area. Tracks and skeletal remains of feral pig as well as domestic cats and horses were observed. No rare, threatened, or endangered feral species were recorded. Notably, the proposed development should not have any measurable impact in the populations of birds and mammals in the region.

Table 3. List of Faunal Species

Common Name	Scientific Name
Cattle Egret	*Bubulcus ibis*
Red Junglefowl	*Ballus gallus*
Spotted Dove	*Streptopelia chinensis*
Japanese Bush-Warbler	*Dettia ciphone*
White-Rumped Shama	*Copsychus malabaricus*
Hwamei	*Garrulax canorus*
Japanese White-eye	*Zosterops japonicus*
Common Myna	*Acridotheres tristis*
Northern Cardinal	*Cardinalis cardinalis*
Western Meadowlark	*Sturnella neglecta*
House Finch	*Carpodacus mexicanus*
Java Sparrow	*Padda oryzivora*

3.9 Climate

Rainfall in the project area is approximately 80 to 90 inches per year. Average monthly temperatures range from the mid-70s (degrees Fahrenheit) to the mid-80s. Winds are predominantly from the northeast.

3.10 Hydrology

No water feature, stream, or watercourse occupies the proposed tank site. In the vicinity of the property, Makaleha Stream and Moalepe Stream extend from the 2,000- to 3,000-foot elevation of the Keālia Forest Reserve and join near the tank site to form Kapa'a Stream. The stream then flows through the Kapa'a Homesteads to the coast and into the ocean, a distance of approximately ten miles. Makaleha Stream is located approximately 320 feet southwest of the proposed tank, and Kapa'a Stream is about 500 feet to the southeast. The makai boundary of the Keālia Forest Reserve is situated approximately 800 feet from the tank site.

Groundwater is believed to occur in the project area as perched water on alluvium and underlain by basal water. Geolab's geotechnical study indicated that during its drilled coring tests on the

property, groundwater was encountered at depths of about 7 to 8 feet below the existing ground surface. In the mountains above the property, groundwater is believed to occur as water confined by dikes and not floating on salt water.

3.11 Natural Hazards

There are no active or dormant volcanoes on Kaua'i. The project site is not threatened by volcanic eruption and lava flow.

With two streams located near the project site, there are concerns that the watercourses may be a source of potential flood in the area. According to Flood Insurance Rate Map (FIRM) Community – Panel No. 150002 0130 D (Revised December 30, 1995), the project site is located in Zone X. The National Flood Insurance Program does not have any regulations for development in this type of designated area. Flood Zone X is designated for areas that are determined to be outside of 500-year flood plains.

Makaleha Stream is located approximately 320 feet to the southwest of the project site. From the U.S. Geological Survey (USGS) Quadrangle Maps, the stream runs in a valley approximately 10,000 feet long by 4,000 feet wide and has a drainage area of approximately 950 acres. At approximately 1,000 feet upstream of the proposed tank site, the stream channel begins to transition from a section with steep side slopes (2:1 to 3:1) to a section with generally flat slopes beyond the stream banks. The field topography at the proposed tank site confirms the presence of a flat slope outside of the stream bank. The streambed is conservatively estimated to be 10 feet below the elevation of the tank site. Additionally, the base of the proposed tank will be raised approximately 3 feet above the existing ground, which will be 2 feet higher than the existing adjacent Makaleha Tank.

Kapa'a Stream is located approximately 500 feet to the southeast of the proposed storage tank. It collects flow from the Makaleha Stream and its own tributary basin that measures approximately 11,000 feet long by 4,000 feet wide. The total drainage basin for this stream, inclusive of Makaleha Stream, is 2,025 acres. Based on the USGS Quadrangle Maps, the elevation of the Kapa'a streambed is at approximately 480 feet, or 30 feet lower than the proposed tank base elevation. For these reasons, the consultant engineer for the project believes that it is unlikely that the proposed storage tank will be subject to area-wide flooding.

Although heavy vegetation surrounds the property, the project vicinity is not a likely source of brush fire. It does not have dry arid conditions, which usually occur on the leeward side of the island.

Protected by the surrounding steep valley walls, the project site is not subject to severe high winds that could be damaging to the property.

3.12 Air Quality

There are no major air pollutant generators, including incinerators, quarries, manufacturing plants, and mass drying beds in the project area. The surrounding lands are comprised primarily of agricultural lands, grazing pastures, and open space.

Development of the storage tank will involve grading, placement of water lines, and construction of a concrete storage tank. These activities are expected to generate fugitive dust, but its quantity should be minor in scale. Additionally, no more than three homes are located within 800 feet of the site. Thus, minimal or no impact is expected on area residents.

3.13 Acoustical Environment

Sources of major sounds in this remote location are predominantly winds through vegetation foliage, activities from nearby rural residences and ranches, running water from adjacent streams, sounds from wildlife, and infrequent vehicles on Kahuna Road.

The dominant source of noise during project construction would be construction equipment involved in site grading, installation of the pipeline, and construction of the water tank's foundation and structure. The contractor is likely to use heavy earth-moving construction vehicles for this task. Since the tank construction will occur, to a large extent, away from residential areas, the impact on these premises would be minimal.

During the operational stage of the storage tank, project impact would be virtually zero except when repair or maintenance work is performed. This operation is generally minor and does not generate significant noise.

3.14 Scenic Resources

The visual characteristics of the project area could be described as remote with narrow, paved country roads and sparsely scattered rural or ranch homes. Views include open space, pasture lands, shrub lands, steep mountain walls, and forest lands.

The proposed water tank will **not** interfere with any scenic views of the area. In particular, the proposed tank would not be visible more than 500 feet from any public roads.

3.15 Archaeological Resources

In June of 2004, an archaeological study by Cultural Surveys Hawaii, Inc was conducted on the project site (see Appendix C). The study included historical research of archival sources, historic maps, Land Commission Awards, and previous archaeological reports, to determine the history of land use in the area and if archaeological sites have ever been recorded on or near the property. The study also included a field inspection to identify any existing surface archaeological features and an assessment of potential impacts to such sites.

The study findings indicated that there are no archaeological sites on the property. The consultant archaeologist recommended that no further historic preservation work is necessary for the site. If in the unlikely event that any human remains or other significant subsurface deposits are encountered during the course of development activities, all work in the immediate area should stop and the State Historic Preservation Division (SHPD) of the DLNR be promptly notified. Work should not resume in the construction area until specifically authorized by the SHPD office.

3.16 Cultural Resources

In addition to an archaeological study, a cultural impact assessment was conducted (see Appendix D). Historic research was carried out to identify any cultural resources or traditional cultural practices associated with the area.

Hawaiian traditions, that have centered on Kapa'a in pre-contact times, suggest the significance of and association with the ali'i. A survey of traditional mythological literature shows Kapa'a was prominently associated with some of the most famous legendary and historical figures including Maui, Kawelo, Mō'ikeha, Maweke, Palila, Pāka'a and Kanaka Nunui Moe. The 14 documented heiau of Kapa'a is a testament to both the substantial population and the social/political/religious importance of this ahupua'a.

Historic research has also provided information on sugar cane cultivation, settlement patterns, rice cultivation, the opening of Hawaiian Canneries, and the construction of the Ahukini Terminal & Railway Company in 1820.

Previous research of the region shows that the majority of archaeological studies were conducted within urban Kapa'a near the shore and that little data was developed for more inland areas.

According to the cultural assessment consultant for this project, in light of the above, the proposed project will have minimal or no impact on Hawaiian culture, its practices, and its traditions.

4 SOCIOECONOMIC SETTING

4.1 Socioeconomic Background of the Region

The Wailua–Kapa'a region can be identified by three geographic subareas: the coastal urban area of Wailua–Waipouli Resort and Kapa'a town, the inland homestead lands of Wailua, and the mauka homesteads of Kapa'a.

The Wailua–Waipouli Resort and Kapa'a town area has become a resort and town center with hotels and shopping complexes for visitors as well as a business and shopping district for local island residents. Wailua–Kapa'a is the largest populated area on Kaua'i. Its growth has also spurred the development of support businesses and services and created traffic needs that justify major roadway improvements. The population of this district is currently about 16,000.[3]

The lands mauka of the coastal urban area were subdivided for agricultural homesteads during the Territorial Government days. Agriculture was the primary activity for these properties, but the economy and culture have changed and the area is now transitioning from agricultural to

[3] U.S. Census, 2000.

residential use.[4] Home building continues to increase as small land holdings are divided up, contributing to the increase in the area's population. Local roads and water systems are not keeping up with the new land uses and as a result have affected the provision of adequate access and fire protection.

4.2 Economic Impacts Assessment

Installation of a new tank in the Wailua–Kapa'a Water System will help fulfill the need to upgrade the existing system and remove some of its storage capacity deficiencies. During the construction phase of the project, short-term economic impacts would be generated, including the mobilization of labor in the construction industry and its impact and multiplier effect on the rest of the island economy.

During its operational stage, repair and maintenance activities for the water tank will be managed by existing DOW staff. Over the long-term, the proposed project will contribute to the continued economic stability of the region's ongoing agricultural and small business activities. Having a solid economic base will help maintain strong personal and business incomes and produce property and sales taxes for government revenues.

4.3 Social Considerations

The proposed action is not considered a land use that generates direct social impacts. Its purpose is to provide a utility that serves and supports land uses, such as residential, commercial, agricultural, public facilities, institutions, etc. No new source of water is being proposed and no expansion of service areas is being planned with this project. Hence, no impact on housing demand is anticipated.

The primary intent of the proposed action is to improve storage in the system to accommodate anticipated water demand during peak day periods in high usage seasons, have sufficient capacity for fire flow protection, and maintain adequate control over water pressure flow within the respective pressure zones.

The focus of public concerns on the project, if any, would be on construction impact on the environment, particularly if there would be any fugitive dust, sedimentation from stormwater runoff, construction noise, and water quality impacts on nearby streams. During the project's operational stage, there would be primarily monitoring, maintenance, and repair activities to service the water system. Overall, these activities would have negligible impacts on the environment.

[4] County of Kaua'i, Planning Department. November 2000. *Kauai General Plan.*

5 PUBLIC FACILITIES AND SERVICES

5.1 Circulation and Traffic

Access to the project site is via Kahuna Road and Kawaihau Road from Kūhiō Highway, a distance of approximately 6 miles. Both Kahuna Road and Kawaihau Road are two-way, paved County roads.

Extending approximately 160 feet beyond the new tank site, Kahuna Road terminates with a connection to Awakea Road, an unpaved dirt road that leads toward the Keālia Forest Reserve. Traffic on Kahuna Road at the project site is infrequent and comprised primarily of a few owners of property located mauka of the proposed tank. Makai of the site, there are less than nine homes within 2,000 feet of the property.

5.2 Water, Sewer, Electricity and Telephone

Water service to the project area occurs via DOW facilities at the Makaleha Tank and along Kahuna Road. Fire hydrants are located along the County right-of-way, including one that is located within 100 feet of the property.

There is no public wastewater collection and disposal system in the project area. Private individual systems are currently in use.

Electrical and telephone lines are located on utility poles along the County road up to the project site. These lines do not continue beyond the Makaleha Tank. Electrical power for the County facility is provided by Kauai Island Utility Cooperative (KIUC), and telephone service is provided by Hawaiian Telcom. The new portable generator on the Makaleha tank site will provide emergency backup power for the DOW facility.

5.3 Solid Waste

Debris from site preparation (clearing, grubbing, and grading operations) and solid waste from water tank construction will be removed from the property and hauled to the County landfill in Kekaha.

No solid waste will be generated during the facility's normal operations, except for wastes produced by DOW repair and maintenance activities. The quantity of these wastes will be nominal and infrequent.

5.4 Public Facilities and Services

The nearest fire station is located in Waipouli, which is approximately six and one-half miles from the project site. Police headquarters is located in Līhu'e, but a substation is located in Kapa'a approximately six miles from the project site. Although regular police surveillance does not occur at the project site, police protection services are provided to all areas of the island.

Considering the project site is situated at the end of Kahuna Road, a long response time to the property can be anticipated.

Mahelona Medical Center, located in Kapa'a adjacent to Kapa'a High School, provides long-term care services with 70 beds and a small, 9-bed psychiatric ward. There are no emergency services; such services are provided at the Wilcox Hospital in Lihue.

Other public facilities in Kapa'a include elementary and middle schools, public library, parks, beach parks, refuse transfer station, green waste diversion site, and a U.S. Post Office.

6 RELATIONSHIP TO PUBLIC LAND USE POLICIES

6.1 Hawai'i State Plan

The Hawai'i State Plan was established by state law to serve as a guide for the future long-range development of the state. It was intended to identify the goals, objectives, policies, and priorities for the state government to: (1) provide a basis for determining priorities and allocating limited resources, such as public funds, services, human resources, land, energy, water, and other resources; (2) improve coordination of federal, state, and county plans, policies, programs, projects, and regulatory activities; and (3) establish a system for plan formulation and program coordination to provide for an integration of all major state and county activities.

The relevant objectives of the State Plan on water and for the Wailua–Kapa'a service area are:

- assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use, and
- support water supply services to areas experiencing critical water problems.

6.2 State Land Use Law

The State Land Use District Maps (Figure 8), administered by the State Land Use Commission, designate the project site in the Conservation District, Resource Subzone. The proposed action is an identified land use in the Conservation District and requires a Conservation District Use Permit from the State Board of Land and Natural Resources.

6.3 State Environmental Policy

The proposed action is consistent with the State Environmental Policy, as stated in Hawai'i Revised Statutes (HRS) Chapter 344, to "enhance the quality of life" by "creating opportunities for the residents of Hawai'i to improve their quality of life through diverse economic activities which are stable and in balance with the physical and social environments." The proposed action will provide the necessary infrastructure to support such economic opportunities, allowing them to flourish and establish themselves in the County.

The following guidelines of the State Environmental Policy relate to the proposed project:

- Encourage management practices that conserve and fully utilize all natural resources.
- Encourage management practices that conserve and protect watersheds and water sources, forest, and open space areas.

6.4 Kaua'i County General Plan

The General Plan was updated and adopted by the County of Kaua'i in November 2000. The plan sets forth policies that govern the future development of the county. It is intended to improve the physical environment of the island and the health, safety, and general welfare of its people.

The General Plan recognizes that the DOW needs to continually improve its water system to accommodate the increasing demand for the island's precious resource. One such improvement includes providing additional storage facilities for its water system.[5]

The Land Use Map of the General Plan designates the project area as "Open." The intent of the Open designation is to preserve, maintain, or improve the natural characteristics of non-urban land and water areas that: (a) are of significant value to the public as scenic or recreational resources; (b) perform essential physical and ecologic functions important to the welfare of surrounding lands, waters, and biological resources; (c) have the potential to create or exacerbate soil erosion or flooding on adjacent lands; (d) are potentially susceptible to natural hazards such as flood, hurricane, tsunami, coastal erosion, landslide or subsidence; or (e) form a cultural, historic or archaeological resource of significant public value.

It is also the intent of the Open designation that such lands remain predominantly free of buildings, paving, and other construction. With the exception of kuleanas and other small lots of record, any construction that is permitted shall be clearly incidental to the use and open character of the surrounding lands.

The proposed storage tank will not interfere with the County's policies on Open designation. The new County facility will be located adjacent to an existing water tank and will not affect any rare, endangered, or threatened wildlife or botanical habitat. The site has been surveyed and there are no archaeological features in the area. The proposed project will be designed to maintain the overall character of the land and take into consideration existing soil erosion and flooding conditions.

Overall, the proposed project is a utility that is designed to serve the public and provide for its needs.

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5 Sections 7.4 and 6.2.3.1 of the Kauai General Plan.

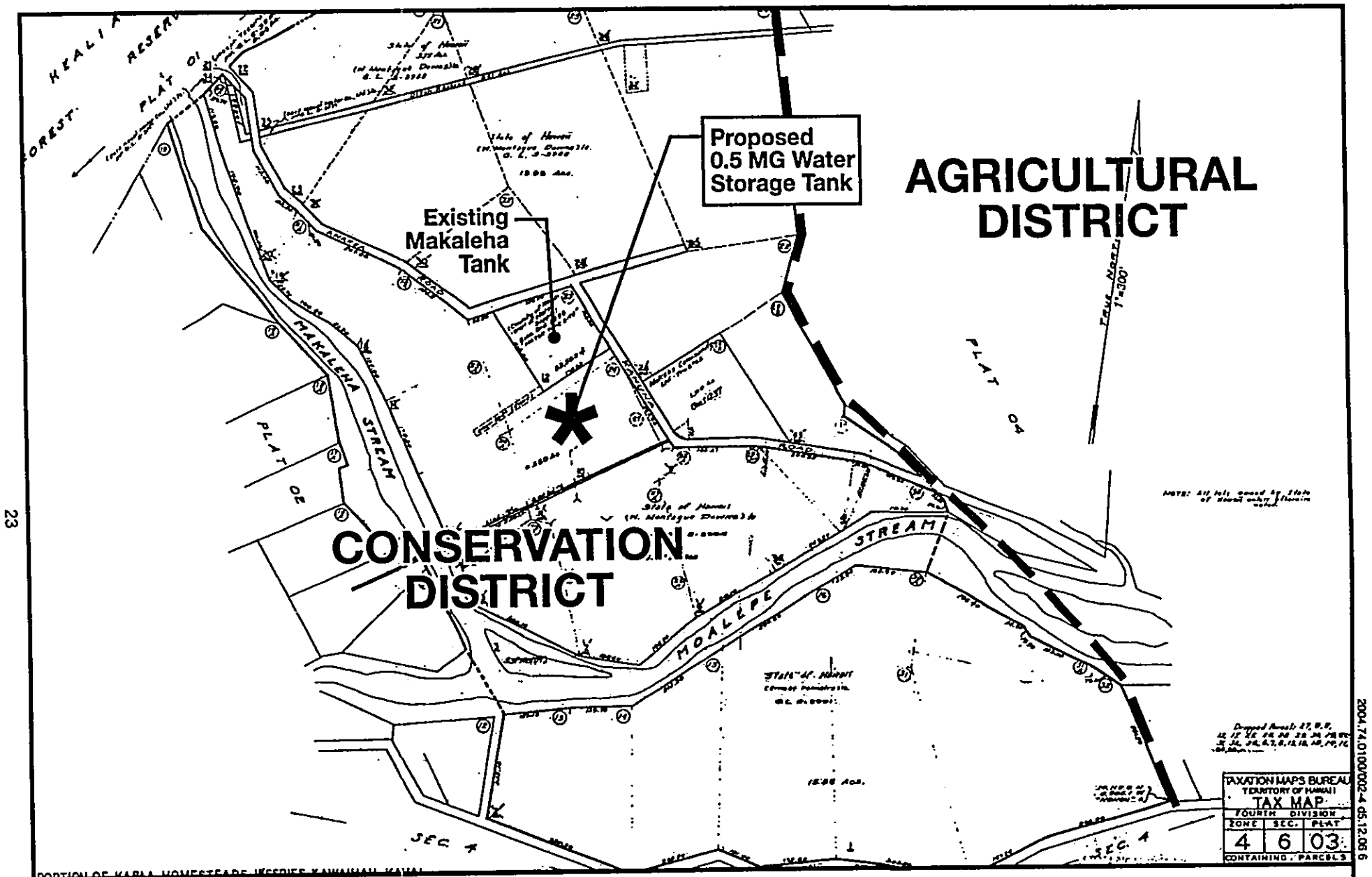

Figure 8
STATE LAND USE DISTRICTS

Kapaa Water Storage Facility
Belt Collins Hawaii
May 2006

6.5 Kapa'a–Wailua Development Plan

Adopted in 1975, the Kapa'a–Wailua Development Plan sets forth the County's development guidelines for the Kapa'a–Wailua region. It establishes specific provisions that are more detailed than the islandwide General Plan.

Although the project site is located in the region, it is not covered by any land use documents of the Development Plan. The primary focus of the plan is in the built-up areas of the region. Description of any needed water system improvements is provided through a reference to *A General Plan for Domestic Water/Island of Kaua'i*, which was prepared by the State DLNR in cooperation with the County Department of Water in 1972. The County DOW currently uses the *Water Plan 2020* as its guidelines for water system improvements on the island.

6.6 Water Plan 2020

The *Water Plan 2020* is an update of previous DOW's long-range water system improvement plans for Kaua'i. It is a 20-year comprehensive planning document that has the objective to ensure that the department continues to provide safe, affordable, and sufficient drinking water to its island community. The plan reviews existing facilities and service standards, and provides an outline for new and replacement facilities, a capital improvement program for the next 5 to 7 years, a financial plan, and a water rate study.

The *Water Plan 2020* currently identifies a need for an additional 2,150,000 gallons of storage for the Wailua–Kapa'a service area based on current deficiencies and projected demand in the service area. The current storage capacity of the Wailua–Kapa'a System is 3.825 MG. The proposed 0.5-MG storage facility is part of DOW's effort to meet the needed storage requirement for the area.

6.7 Kaua'i County Zoning Ordinance

The Comprehensive Zoning Ordinance (CZO) of the County of Kaua'i regulates land use on the island of Kaua'i. Land use regulations consist of development standards, application procedures, and criteria for granting permits and other approvals. Lands that are within the State Conservation District, however, are subject to the State DLNR's land use regulations for Conservation-designated lands. The proposed project will comply with those regulations.

6.8 Special Management Area

The project site is situated outside of the Special Management Area (SMA) and, therefore, is not subject to the SMA Rules and Regulations of the County of Kaua'i.

6.9 Required Permits and Approvals

In summary, the proposed project will require a Conservation District Use Permit from the State Board of Land and Natural Resources (BLNR). The new storage tank will occupy a site less than one acre in size, but may have discharges that would go to a nearby stream. Hence, a National Pollutant Discharge Elimination System (NPDES) general permit from the State Department of Health (DOH) may be required.

Located outside of the SMA, the proposed action will not require a SMA Use Permit.

Since a grading permit from the County Department of Public Works is not required, the County Department of Water will oversee grading activities on the project site.

6.10 Compliance with the DWSRF Program Requirements

As previously described, this project may be funded in part by federal funds through the DWSRF Program. The DWSRF Program was established to promote projects that help prevent contamination through source water protection and enhanced water system management. This environmental assessment (EA) includes the environmental information required for compliance with the DWSRF Program.

6.10.1 Crossing-Cutting Federal Authorities

The following sections address the proposed project's relationship to the federal "cross-cutting" authorities.

6.10.1.1 Archaeological and Historic Preservation Acts

An archaeological study of the project site was conducted in 2004. Its findings and recommendations indicate that the proposed action is consistent with the Archaeological and Historic Preservation Act of 1974, as amended. Although no archaeological sites were discovered, the DOW will still follow procedures that require the stoppage of all work in the immediate area, should any archaeological feature be uncovered during construction. A project archaeologist will be then called to the site to evaluate the significance of the feature and make recommendations to the State Historic Preservation Officer (SHPO). The SHPO will consequently determine what is necessary to mitigate any impacts before construction is permitted to proceed again.

6.10.1.2 Clean Air Act

The U.S. Environmental Protection Agency (EPA) compares concentrations of criteria pollutants to established National Ambient Air Quality Standards (NAAQS) in order to characterize air quality. Criteria pollutants at the national level include carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter, ozone (O_3), and lead (Pb). Based on ambient air monitoring data, the EPA has classified the island of Kaua'i and the state as being in attainment

of the federal standards. Pollutant concentrations within the islands also comply with the more stringent state standards.

The proposed action will not have long-term emissions due to the nature of its operations. Short-term construction-related emissions, however, such as those from fugitive dust, would be generated and subject to compliance with the provisions of the Hawai'i Administrative Rules (HAR) 11-60.1. These state provisions are designed to control emissions of substantial size and require that fugitive dust be minimized. Hence, no significant impact on air quality is expected to occur.

6.10.1.3 Coastal Zone Management Act

The Hawai'i Coastal Zone Management (CZM) Program was promulgated in 1977 as a result of the Federal Coastal Zone Management Act of 1972. Jurisdiction of the CZM Program encompasses the entire state including its uplands, coastal plains, and coastal waters. Its policies on the environment relate to recreational resources, historic resources, scenic and open space resources, coastal ecosystems, economic uses, coastal hazards, managing development, public participation, beach protection, and marine resources.

Other elements of the program are a permit system to control development within the SMA and the State shoreline setback area, a Hawai'i Ocean Resources Management Plan to provide a comprehensive, integrated ocean policy and management framework for Hawai'i's marine waters, and a federal consistency program that requires all federal activities, permits, and financial assistance to be consistent with the Hawai'i CZM Program.

Located at the 510-foot elevation of the Kapa'a Homesteads, the proposed action is more than 4.5 miles from the shoreline. The town of Kapa'a is situated on the coast below the project site.

The remote location of the proposed action will not involve any construction or change of land use on or near the shore. It will not interfere with any existing beach accesses, negatively affect significant historic and prehistoric resources, obstruct coastal scenic and open space resources, nor impair valuable coastal ecosystems.

The proposed project will include opportunities for public participation, via the provisions of HRS Chapter 343, and allow the State to implement its ocean resources management program. The proposed action is consistent with the objectives and policies of the Hawai'i CZM Program.

6.10.1.4 Endangered Species Act

Floral and faunal species on the project site have been identified as typical or common to the island. None of the species have been identified as endangered or threatened.

6.10.1.5 Environmental Justice, Executive Order 12898

The project site is located in a remote area of Kapa'a occupied primarily by rural, agricultural, and ranching activities. In the mid and lower elevations of the water system, human occupation is denser and more predominant.

All customers, whether they are a minority or a majority in the region, or whether they are high-income, middle-income, or low-income will benefit from the proposed improved system.

The site of the proposed tank is located in a vacant area and will not displace any existing residences or business operations. Due to its remote location, the proposed project will have a minimal effect on the human environment and on views by motorists, pedestrians, and residents.

6.10.1.6 Floodplain Management, Executive Order 11988

The project site is located more than 4.5 miles from the ocean, but is approximately 320 feet from a nearby stream. According to FIRM Community – Panel No. 150002 0130 D (Revised December 30, 1995), the project site is located in Zone X. The National Flood Insurance Program does not have any regulations for development within this area. Flood Zone X is designated specifically for areas that are determined to be outside of the 500-year flood plains. Hence, no portion of the project site is located within a 100-year riverine floodway.

6.10.1.7 Protection of Wetlands, Executive Order 11990

As a result of a geotechnical study of the project site, there were no wetlands found in the project area. Further, the site is covered predominantly by introduced or alien plants.

6.10.1.8 Farmland Protection Policy Act

The proposed action calls for construction and operation of a storage water tank on a vacant parcel adjacent to an existing storage facility. No farmlands or agricultural properties will be affected.

6.10.1.9 Fish and Wildlife Coordination Act

The proposed action will not result in any alteration of a stream or natural water feature or impacting any critical wildlife habitat. Comments were requested from the U.S. Fish and Wildlife Service (USFWS) and the State Division of Forestry and Wildlife (DFW) during the project's preconsultation process. No response was received from the USFWS, and the State DFW had no comments. The same agencies will be asked again to comment on the proposed project during the Draft EA's 30-day public comment period (see Chapter 12).

6.10.1.10 National Historic Preservation Act

During an archaeological survey of the project site by Cultural Surveys Hawaii in June 2003, no archaeological features were discovered. Additionally, the State Historic Preservation Division (SHPD) of the DLNR concurred that there would be no historic sites on the property (See Appendix A, SHPD Memorandum). The archaeology consultant for the project, hence, recommended that no further historic preservation work at the project site is necessary.

6.10.1.11 Safe Drinking Water Act

The Safe Drinking Water Act is the primary federal law that ensures the acceptable quality of our drinking water. Under this Act, the EPA sets standards for drinking water quality and oversees the states, local municipalities, and water suppliers who implement those standards. The Act requires all public water systems to meet stringent water quality standards.

One of the purposes of the proposed storage tank project is to upgrade the existing water system in Kapa'a to meet current DOW standards. In addition to providing an efficient and reliable delivery system for the water, the DOW is subject to the provisions of the Safe Drinking Water Act and State DOH water quality standards for drinking water.

The proposed project does not include the development of a new source of water but instead includes improvements to its delivery system. The source of the water is the Makaleha Tunnel and Kapa'a Homesteads Well No. 1. The delivery system includes the storage tanks, water mains, and service laterals.

After the tank is constructed, the facility will be cleaned, tested for leaks, and disinfected in accordance with the Water System Standards of the DOW. Discharge of any effluent water will comply with DOH's NPDES requirements.

6.10.1.12 Wild and Scenic Rivers Act

There are no streams, watercourses or other identifiable water features within the project site. Outside of the project site, Makaleha Stream is approximately 320 feet to the southwest, and Kapa'a Stream is approximately 400 feet to the southeast. These streams are not part of the National Wild and Scenic Rivers System, and thus, not subject to the protection of the Wild and Scenic Rivers Act.

Kapa'a Stream is located downslope of the project site and any runoff from the property would flow toward that watercourse. Ground percolation will occur over the course of the runoff to help reduce impacts to downslope properties.

Discharges from overflows and tank cleaning will seldom occur, and will be conducted in a manner that complies with all NPDES Permit conditions. Precautionary measures will be taken to assure that the quality of the nearby streams are not impaired or deteriorated.

7 SUMMARY OF MAJOR IMPACTS

7.1 Construction Methodology and Impacts

Heavy equipment and vehicles will be used during the site preparation stage of the project construction. The site presently contains groundcover and a loose stand of trees that will require grubbing, clearing, and removal. Removal of the top layer of soil and replacement with a granular soil material for proper foundation support will be required. This would be followed by

placement of a subcourse layer of material on top of the granular material and rough grading to create a site pad for the storage tank. The finish grade will be 2 to 6 feet higher than the existing grade to be functional with the existing tank elevation. The removed layer of top soil will be disposed at a County approved off-site location, and the imported granular and subcourse material will be brought to the property from an approved off-site source. The new material will be contamination-free.

It is anticipated that construction of the new tank will involve the use of such heavy equipment and construction vehicles as a flatbed truck, concrete truck, asphalt concrete truck, backhoe, loader, dump truck, boom-mounted truck, and dozer. Dust and noise are expected to be generated during this stage. Groundwater is not expected to be encountered while excavating to a depth of approximately 4 feet for the site pad foundation and underground pipe placements. Construction equipment will be stored on-site to minimize off-site mobilization which would include the transferring of equipment on the local roadways between the construction yard and project site. Once the tank is completed, the new facility will be cleaned, tested, and disinfected before it is placed into operation.

Landscaping will occur as the last stage of construction, and then all construction debris and waste materials will be removed from the construction area.

Potential runoff and sedimentation from the construction area to adjacent inhabited areas are not likely to occur during heavy rainfall. Currently, no resident occupied lands are located immediately downslope of the property. Runoff erosion control measures, however, still will be employed, where necessary, to prevent or reduce runoff and sedimentation discharges to nearby streams. These measures are discussed in the next section of this document.

The portable generator and shelter will be constructed on the grounds of the existing Makaleha Tank. Minor site alterations will be required including modification of its driveway and placement of asphalt concrete pavement for the shelter area. To install the accessory facility within the site, adjustments will be needed for the chain link fence and gate as well on-site drainage swale. None of the improvements will occur outside of the tank site.

7.2 Operation Impacts

The proposed action calls for permanent fixtures that do not have active operational activities, except for periodic monitoring and maintenance. Traffic impacts from project operations, hence, would be minimal. Other project impacts would be primarily visual and minor in scale, particularly since the facility would be in a remote area away from general public view.

Periodically, when rainfall occurs on the project site, surface runoff from the proposed storage facility will increase modestly over the land and be directed to open areas within the property and through drainage lines to an outlet on the adjacent vacant State land for general ground percolation. On occasions, overflows in the tank will occur and be discharged through a washout/overflow line to the same outlet on the State land. No discharge will be made directly to any adjacent private property.

8 PROPOSED MITIGATION MEASURES

Mitigation measures will be employed by the construction contractor to minimize any impacts that might occur on the surrounding environment. To address potential runoff and sedimentation that might occur to adjacent streams, watercourses, and sensitive natural areas during construction, the contractor will develop a best management practices (BMP) plan for County review. The plan will describe how on-site generated runoff and sediment movement will be controlled and prevented from entering other properties, and how the applicant will implement the plan. The plan will not be approved unless the applicant first meets all of the grading standards that are designed to safeguard life and limb, protect property, promote public welfare, and preserve and enhance the natural environment including but not limited to water quality.

Potential mitigation measures for controlling runoffs and sediment movement include the development of sedimentation basins, cut-off swales and ditches, rock filter berms, hydromulching, and wattles. These will be included in the BMP, which will be submitted to the County for review.

Discharges from overflows and tank cleaning will seldom occur, and will be conducted in a manner that complies with all NPDES Permit conditions. Precautionary measures will be taken to assure that the quality of the nearby streams are not impaired or deteriorated.

Groundwater is not expected to be encountered during the project's grading and excavation operations. Hence, it would not be necessary to address concerns regarding discharges to subsurface State waters.

In order to control dust generated by earthwork on the construction site, mitigation measures such as the installation of dust screens, covering of dirt stockpiles, and sprinkling of water on exposed dirt areas, may be employed. Since only a few residences are located in the immediate vicinity and away from the predominant wind direction, mitigation measures may not need to be extensive.

Construction noise should be an insignificant source of impact in the remote area of Kapa'a Homesteads. Heavy vegetation around portions of the site will provide some noise buffers. Additionally, no construction will occur in the evenings or at night. Construction activities will comply with the HAR Chapter 11-46, Community Noise Control. Compliance with DOH regulations will be part of the project's construction contract and the responsibility of the selected contractor.

According to the project archaeologist, no archaeological sites were found on the project site, and hence, no further archaeological work or assessment is necessary. Should any unexpected archaeological features be uncovered during construction, all work within the immediate area will be halted and the SHPD will be contacted for proper treatment. Work will not resume in the area until authorized by the SHPD.

All solid waste or debris generated within the property during construction will be collected and hauled away to the County landfill or authorized commercial disposal site.

9 ALTERNATIVES CONSIDERED

9.1 No Action

If the new 0.5-MG storage tank were not constructed, the site would remain vacant and unproductive. The present water system would continue to underserve its customers in the Kapa'a Homesteads area and the system's deficiency would continue to persist as the service area's population grows. Hence, the system in the Kapa'a sector will lack adequate storage reserve to meet maximum day demand and fire flow requirements. An inadequate storage facility may result in an interruption of service during peak day demand through the highest usage season and inadequate supply during severe fire emergencies.

9.2 Increasing Existing Tank Size

Although increasing the size of the existing tank is an alternative, it is usually dismissed from serious consideration. Concrete tanks are typically designed structurally to the originally designed facility, and hence, would not be structurally expandable. Further, it would a very complex operation to undertake the tank expansion while continuing to serve the system's customers and maintaining the water quality in the reservoir. These problematic uncertainties raise risks which are not worthwhile to DOW.

9.3 Replacement with Larger Tank

This option would involve the construction of a 1.5-MG tank adjacent to the existing 1.0-MG tank and removal of the existing tank when the new tank is completed. The obvious cost of this option over the other options would be the demolition expenses for the existing facility. If DOW were to simply abandon the existing tank rather than remove it, the County agency would be in the same position as the other proposal where there would be two tanks at the same location.

Additionally, the possibility of transferring the existing tank site back to the State after removing the existing storage facility in return for the adjacent new tank site is remote considering the presence of the Kapa'a Homesteads Well No. 1 and ancillary apparatus within the property. Refitting all of the lines to a new reservoir would be an additional cost for the project.

9.4 Alternative Location

An alternative site for the 0.5-MG storage tank would be in the pressure zone located immediately makai of the Makaleha Tank pressure zone. In this zone, there are no storage tanks and supply is furnished by a line from Makaleha Tank in the above zone and a series of pressure reducing valves.

A new storage tank within this pressure zone would be ideal. However, since the lower pressure zone has a split system (one along Kahuna Road and the other along Kawaihau Road), there is no

suitable site that is vacant for a single reservoir at an appropriate elevation to serve customers along both roads.

10 DETERMINATION

This EA has determined that the proposed action will have no significant adverse impact on the environment and that an Environmental Impact Statement (EIS) is not warranted. A FONSI therefore has been concluded for this project.

11 FINDINGS AND REASONS SUPPORTING DETERMINATION

The following findings and reasons indicate that the proposed action will have no significant adverse impact on the environment based on the 13 criteria for significant impact as provided in Hawaii Administrative Rules 11-200-12.

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

Alternative designs were considered in determining the best plan for upgrading the Wailua–Kapa'a Water System without resorting to significant losses or destruction on the area's natural and archaeological resources.

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

The proposed action calls for the construction of a new storage tank to supplement an existing tank at the 510-foot elevation of the Wailua–Kapa'a System. No new land uses are planned. The proposed facility does not require changes that would curtail the range of beneficial uses of the environment.

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

As demonstrated in Chapter 6 of this document, the proposed action is consistent with the state's long-term environmental policies and guidelines as expressed in HRS Chapter 344.

4) Substantially affects the economic or social welfare of the community or state.

The proposed action is expected to sustain and improve the positive economic effects that a utility provides to a community. The construction activity associated with the proposed project will mobilize existing labor forces, but would not result in significant infusion of business and personal income into the local economy. No negative effects on the social welfare of the local community are anticipated.

5) Substantially affects public health.

The proposed action will not result in the use of hazardous materials or construction methodology that would be detrimental to the public health and safety of the area residents. Existing State Department of Health regulations protect water quality in the area.

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

There will be no significant adverse social impact generated by the proposed action. The new storage tank will supplement and be located adjacent to an existing tank and will not change the character of the immediate area nor generate undue increased resident population. It will not result in any notable long-term negative impacts on traffic or overburden existing public facilities and services.

7) Involves a substantial degradation of environmental quality.

The proposed action will not involve massive alteration of the project site. It will not alter the overall drainage condition of the area. The project site is situated in the vicinity of existing public facilities. No long-term degradation of the natural environment or negative impact from the proposed project is anticipated.

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

The proposed action is designed to supplement the existing storage tank at the project site, but is not designed to spur the development of additional facilities. No additional phases of the facility are planned. No further commitment for a larger action is being made.

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

A review of existing resources in the project area indicate that no federally- nor state-listed rare, threatened, or endangered wildlife or flora species would be negatively affected by the proposed action.

10) Detrimentally affects air or water quality or ambient noise levels.

The anticipated impacts associated with project construction, such as dust and noise, are short-term and temporary. These impacts would be minimized by implementation of mitigation measures in accordance with applicable laws, statutes, ordinances, and rules and regulations of the federal, state, and county governments. Erosion and sedimentation control measures and best management practices will be employed to prevent construction-related runoff from impacting adjacent properties and water resources.

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

Flooding from severe storms will not be a hazard for the new storage facility, which would be on a foundation elevated above the surrounding land. Further, the storage facility will an uninhabited structure.

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

The remote location of the proposed action will have a minimal, if any, visual impact on the general public. The site is not visible from any major County or State roads.

13) Requires substantial energy consumption.

The proposed action will require only nominal energy consumption during its operations.

12 COMMENTS FROM AND RESPONSES TO PUBLIC AGENCIES AND INTERESTED PARTIES

The Draft Environmental Assessment for this project was transmitted to the following agencies and interested parties for review and comment. The parties that responded are indicated below and a copy of their correspondence with a response from the proposing agency or its consultant is attached to this section. Comments from these agencies and interested parties that are applicable have been incorporated into this Final EA.

Reviewing Agency & Parties	Agencies and Parties Responded	Agencies and Parties Responding w/ No Comment	Agency and Party Letters & Responses Attached in this Section
Federal Agencies			
U.S. Natural Resources & Conservation Service			
U.S. Fish and Wildlife Service			
State Agencies			
Department of Health – Environmental Planning Office	X		X
Department of Business, Economic Development and Tourism			

[Continued] Reviewing Agency & Parties	Agencies and Parties Responded	Agencies and Parties Responding w/ No Comment	Agency and Party Letters & Responses Attached in this Section
Department of Hawaiian Home Lands	X	X	
Department of Land and Natural Resources	X		X
State Historic Preservation Division			
Na Ala Hele Program			
Office of Environmental Quality Control	X		X
Office of Hawaiian Affairs	X	X	
County Agencies			
Fire Department			
Planning Department			
Department of Public Works			
Utility Companies			
Kauai Island Utility Cooperative			
Hawaiian Telcom			
Property Owners			
Yolanda B. Baldwin			
Edwin Martins			

LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
EPO-06-037

March 13, 2006

Mr. Glen Koyama
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Mr. Koyama:

SUBJECT: Draft Environmental Assessment for the Proposed 0.5 MG Storage Tank, County of Kauai, Department of Water, Kawaihau, Kauai, Hawaii TMK: 4-6-03: 10 & 12

Thank you for allowing us to review and comment on the subject application. The application was routed to the various branches of the Environmental Health Administration. We have the following Safe Drinking Water Branch comments.

Safe Drinking Water Branch

We recommend that the County of Kauai, Department of Water be informed s that the project may be funded by Drinking Water State Revolving Fund (DWSRF) loan monies as identified in the Draft Environmental Assessment; however, the project is not currently on the DWSRF Priority List of Projects for state FY 2006. If the Department of Water is interested in funding the project with DWSRF funds, we recommend that they contact the Safe Drinking Water Branch and submit a form to place the project on the next DWSRF Priority List.

Otherwise, please note that the environmental assessment review is adequate for DWSRF funding purposes.

If you have any questions or comments, please contact Denise Manuel of the Safe Drinking Water Branch at (808) 586-4258

We strongly recommend that you review all of the Standard Comments on our website: www.state.hi.us/health/environmental/env-planning/landuse/landuse.html. Any comments specifically applicable to this application should be adhered to.

If there are any questions about these comments please contact Jiacai Liu with the Environmental Planning Office at 586-4346.

Sincerely,

KELVIN H. SUNADA, MANAGER
Environmental Planning Office

c: EPO
SDWB
EH-Maui

BeltCollins

50
1953-2003
YEARS OF
EXCELLENCE

May 11, 2006
2004.74.0100 / 06P-176

Mr. Kelvin H. Sunada, Manager
Environmental Planning Office
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, HI 96801-3378

Dear Mr. Sunada:

Draft Environmental Assessment
Proposed 0.5 MG Kapaa Storage Tank
Kawaihau, Kauai, Hawaii

Thank you for your letter of March 13, 2006 regarding the Draft Environmental Assessment for the proposed 0.5 MG storage tank in Kawaihau, Kauai. We acknowledge that the project may be funded by the Drinking Water State Revolving Fund (DWSRF) loan monies, and that should the Kauai County Department of Water decide to participate in the funding program, appropriate forms will be submitted to the Department of Health for placement of the project on the next DWSRF Priority List.

We appreciate your comments on the proposed project.

Sincerely yours,

BELT COLLINS HAWAII LTD.

Glen T. Koyama

GTK:lf

cc: Wynne M. Ushigome, Kauai County Department of Water

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200 ▪ Honolulu, Hawaii 96819-4554 USA
T/808 521 5361 ▪ F/808 538 7819 ▪ honolulu@beltcollins.com ▪ www.beltcollins.com

LINDA LINGLE
GOVERNOR
STATE OF HAWAII

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

BEN HENDERSON
DEPUTY TO THE CHAIRMAN

KAULANA H. PARK
EXECUTIVE ASSISTANT

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

February 16, 2006

Mr. Glen T. Koyama
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Mr. Koyama:

Thank you for the opportunity to review the draft environmental assessment report for the Kauai Department of Water's proposed 0.5 MG storage tank project located within the Kapaa Homesteads, Kawaihau area. The Department of Hawaiian Home Lands has no comments to offer.

Should you have any questions, please call the Planning Office at (808) 586-3836.

Aloha and mahalo,

for Micah A. Kane, Chairman
Hawaiian Homes Commission

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May 11, 2006
2004.74.0100 / 06P-177

Mr. Micah A. Kane, Chairman
Hawaiian Homes Commission
State of Hawaii
P.O. Box 1879
Honolulu, HI 96805

Dear Mr. Kane:

Draft Environmental Assessment
Proposed 0.5 MG Kapaa Storage Tank
Kawaihau, Kauai, Hawaii

Thank you for your letter of February 16, 2006 regarding the Draft Environmental Assessment (EA) for the proposed 0.5 MG storage tank in Kawaihau, Kauai. We acknowledge that you have no comments to offer on the proposed project at this time.

We appreciate your review of our Draft EA.

Sincerely yours,

BELT COLLINS HAWAII LTD.

Glen T. Koyama

GTK:lf

cc: Wynne M. Ushigome, Kauai County Department of Water

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200 ▪ Honolulu, Hawaii 96819-4554 USA
T/808 521 5361 ▪ F/808 538 7819 ▪ honolulu@beltcollins.com ▪ www.beltcollins.com

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

DIVISION OF FORESTRY AND WILDLIFE
3060 Eiwa Street, Room 306
Lihue, Hawaii 96766

February 22, 2006

Mr. Glen T. Koyama
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Subject: Draft Environmental Assessment, Proposed 0.5 MG Storage Tank Kawaihau, Kaua'i, Hawaii

Dear Mr. Koyama,

Thank you for the opportunity to review and comment on the above subject matter. We have comments to offer in regards to the area that will be enclosed by the new storage tank. The area that the proposed new tank will occupy is primarily used by hunters as a parking area to access Hunting Unit C-Moalepe. The existing parking area is also used by the non-hunting public for hiking.

With this in mind, we would like to recommend the public parking area be re-located northwest of the existing Makaleha Tank approximately 50' by 50'in size. The new area would be able to accommodate up to four trucks and trailers. However, the area is muddy and may need crushed rock to prevent further deterioration. Maps and pictures of the proposed site are attached.

We would also recommend the dirt road (Kahuna and Awakea road) be re-surfaced to accommodate the new parking area. At present the roads are in poor condition with ruts and poor drainage. With the use of 4X4 trucks and trailers, the road will only deplete with each week of use. Therefore, we request that crushed rock to be applied, to prevent further erosion and deterioration.

Thank you for the opportunity to provide our comments to the draft EA. We believe that these improvements would be advantageous to both of our organizations and the general public. Should you have any questions, please contact Lindsey Ibara at (808) 274-3433 or 274-3441.

Sincerely,

Alvin Kyono
Kauai Branch Manager

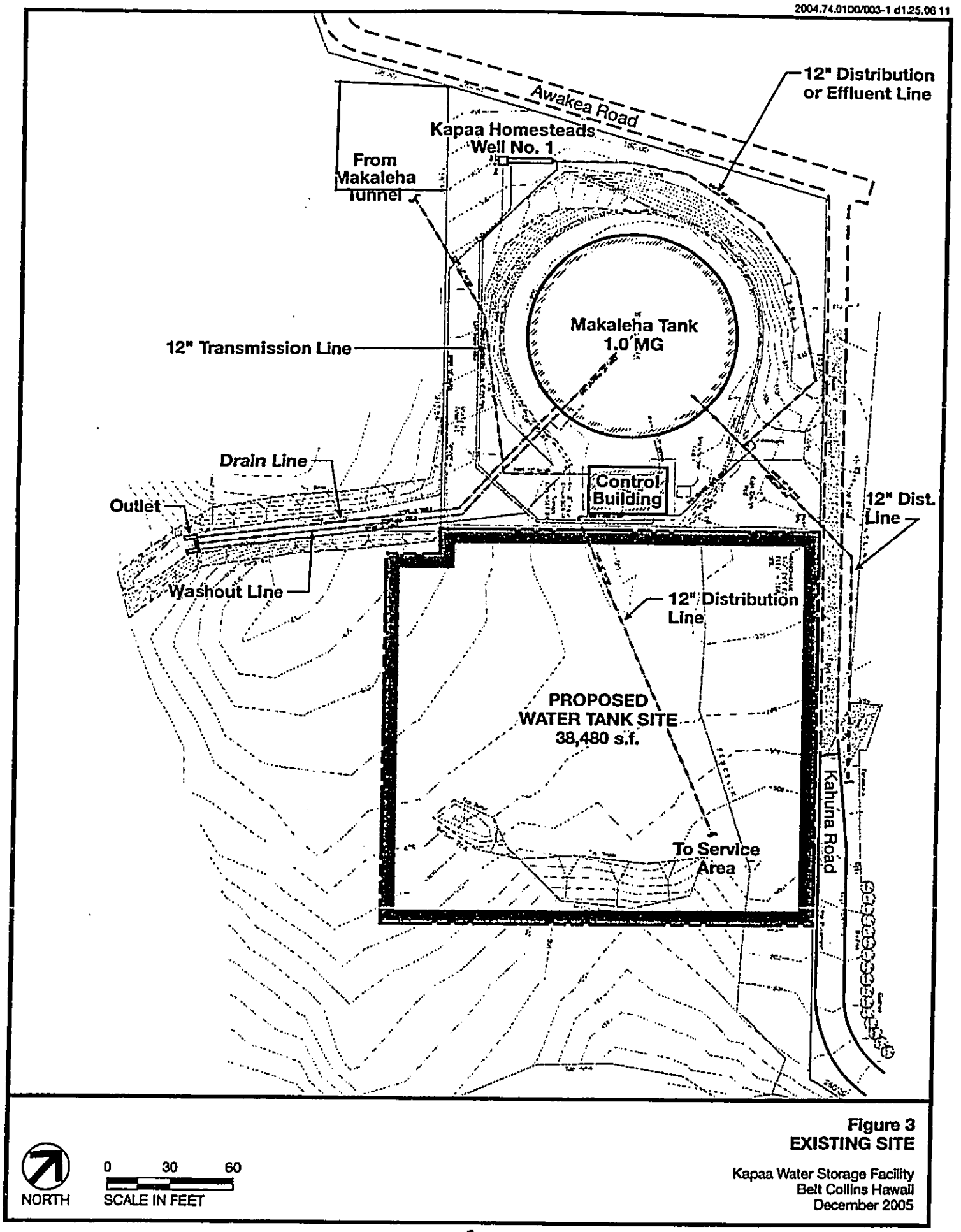


Figure 3
EXISTING SITE

Kapaa Water Storage Facility
Belt Collins Hawaii
December 2005

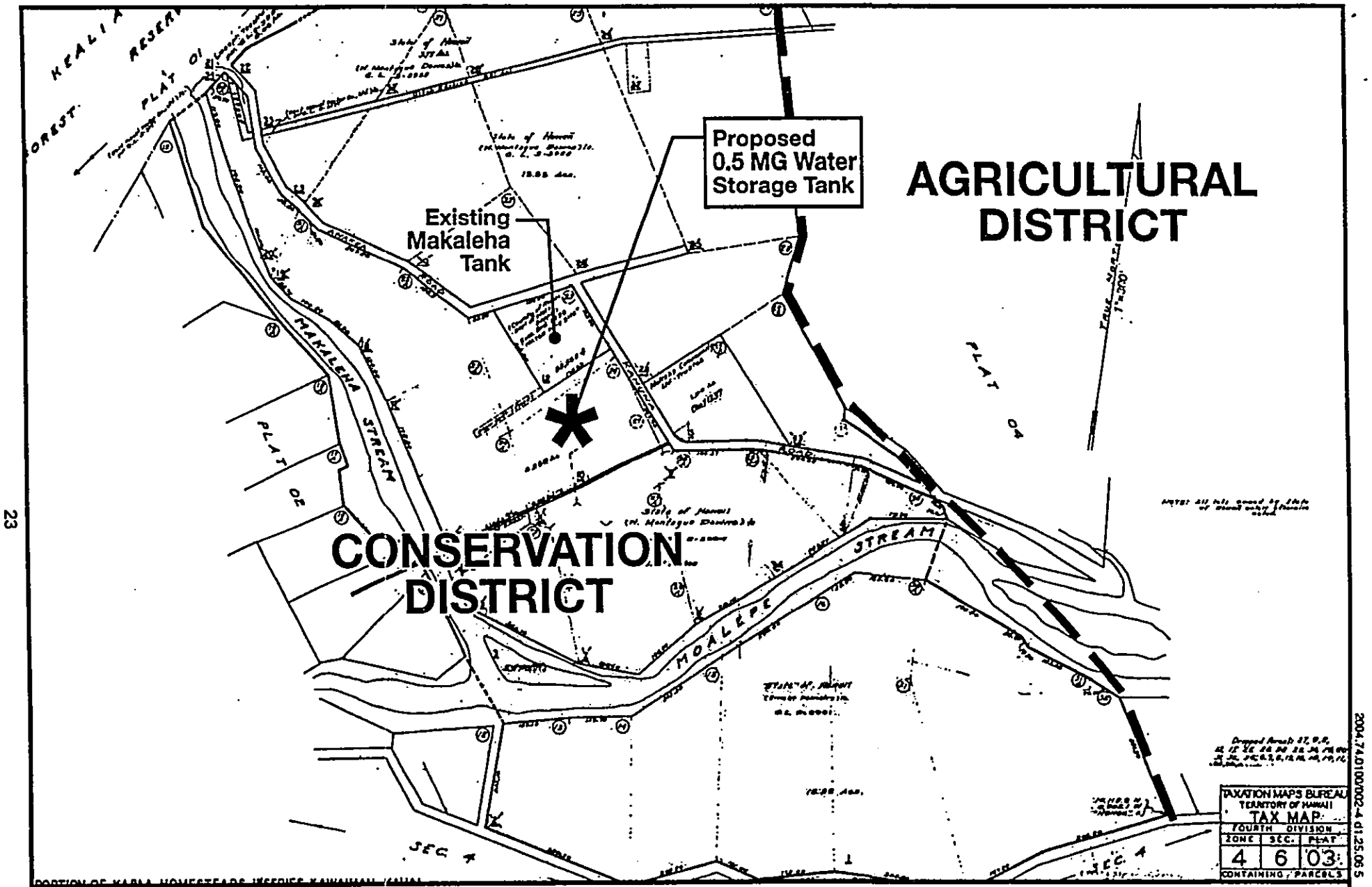
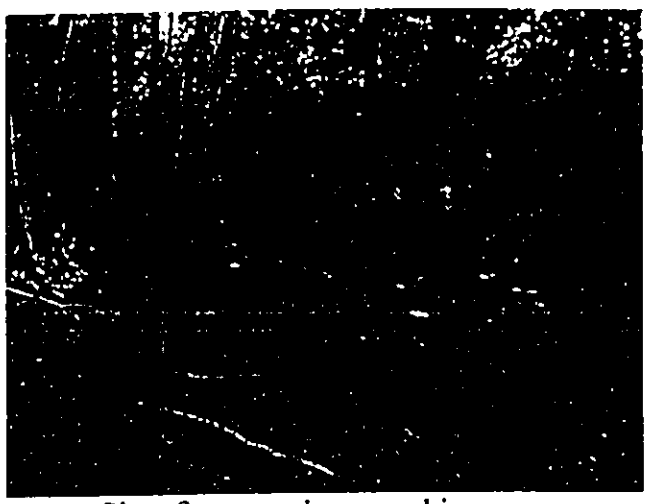


Figure 8
STATE LAND USE DISTRICTS

Kapaa Water Storage Facility
Belt Collins Hawaii
December 2005

Proposed New Parking area North West of Makaleha Tank



Site of proposed new parking area.

Another view of proposed new Parking area

Road leading to parking area.

BeltCollins

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YEARS OF
EXCELLENCE

May 11, 2006
2004.74.0100 / 06P-173

Mr. Alvin Kyono
Division of Forestry and Wildlife, Kauai Branch
Department of Land and Natural Resources
State of Hawaii
3060 Eiwa Street, Room 306
Lihue, Kauai, HI 96766

Dear Mr. Kyono:

Draft Environmental Assessment
Proposed 0.5 MG Kapaa Storage Tank
Kawaihau, Kauai, Hawaii

Thank you for your letter of February 22, 2006 regarding the Draft Environmental Assessment for the proposed 0.5 MG storage tank in Kawaihau, Kauai. We acknowledge the presence of an existing informal parking area and access point for hunters and non-hunters at the proposed tank site.

Your suggestion for a replacement parking area west of the Makaleha Tank is located over an existing water transmission line owned by Kauai County Department of Water (DOW). The DOW will need to study the impact of the replacement parking area over the utility line before any commitments can be made. In the meantime, DOW will continue to work with your office to make the necessary accommodations to allow continued use of the project area by hunters and non-hunters for access to the mauka lands.

We appreciate your comments on the proposed project.

Sincerely yours,

BELT COLLINS HAWAII LTD.

Glen T. Koyama

GTK:lf

cc: Wynne M. Ushigome, Kauai County Department of Water

Honolulu
Guam
Hong Kong
Philippines
Seattle
Singapore
Thailand

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200 ▪ Honolulu, Hawaii 96819-4554 USA
T/808 521 5361 ▪ F/808 538 7819 ▪ honolulu@beltcollins.com ▪ www.beltcollins.com

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EXCELLENCE

May 11, 2006
2004.74.0100 / 06P-174

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

Dear Ms. Salmonson:

Draft Environmental Assessment
Proposed 0.5 MG Kapaa Storage Tank
Kawaihau, Kauai, Hawaii

Thank you for your letter of March 6, 2006 regarding the Draft Environmental Assessment (EA) for the proposed 0.5 MG storage tank in Kawaihau, Kauai. The Kauai County Department of Water plans to construct and use materials for the new facility that blend with the surrounding area. Landscaping on the storage tank site will include plants that are native to the area. Section 11 of the Final EA will include findings and reasons supporting the Finding of No Significant Impact based on the 13 criteria outlined in HAR 11-200-12.

We appreciate your comments on the proposed project.

Sincerely yours,

BELT COLLINS HAWAII LTD.

Glen T. Koyama

GTK:lf

cc: Wynne M. Ushigome, Kauai County Department of Water

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200 ▪ Honolulu, Hawaii 96819-4554 USA
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LINDA LINGLE
GOVERNOR OF HAWAII

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186
E-mail: oeqc@health.state.hi.us

March 6, 2006

Mr. Edward Tschupp
Department of Water Supply
County of Kauai
3498 Pualoke Street
Lihue, Hawaii 96766

Dear Mr. Tschupp:

Subject: Draft EA Kapaa 0.5 Storage Tank, Kauai

Thank you for the opportunity to review the subject document. We have the following comments.

1. We recommend constructing and painting the water tank with materials and colors that blend with the surroundings. We also recommend landscaping with native Hawaiian plants to reduce the visual impacts.

2. Please provide your findings and reasons for supporting the finding of no significant impact based on all 13 criteria in HAR 11-200-12. Please see the enclosed example.

If you have any questions, please contact Jeyan Thirugnanam at 586-4185.

Sincerely,

Genevieve Salmonson
Director

c: Belt Collins

BeltCollins

50
1953-2003
YEARS OF
EXCELLENCE

May 11, 2006
2004.74.0100 / 06P-175

Mr. Clyde W. Namuo, Administrator
Office of Hawaiian Affairs
State of Hawaii
711 Kapiolani Boulevard, Suite 500
Honolulu, HI 96813

Dear Mr. Namuo:

Draft Environmental Assessment
Proposed 0.5 MG Kapaa Storage Tank
Kawaihau, Kauai, Hawaii

Thank you for your letter of March 7, 2006 regarding the Draft Environmental Assessment (EA) for the proposed 0.5 MG storage tank in Kawaihau, Kauai. We acknowledge your statement that no comment is offered at this time on the Draft EA.

If any significant cultural deposits or human skeletal remains are uncovered during the project's construction, the Kauai County Department of Water will stop work in the immediate vicinity and the State Historic Preservation Division will be notified.

We appreciate your review on this project.

Sincerely yours,

BELT COLLINS HAWAII LTD.

Glen T. Koyama

GTK:lf

cc: Wynne M. Ushigome, Kauai County Department of Water

Honolulu
Guam
Hong Kong
Philippines
Seattle
Singapore
Thailand

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200 ▪ Honolulu, Hawaii 96819-4554 USA
T/808 521 5361 ▪ F/808 538 7819 ▪ honolulu@beltcollins.com ▪ www.beltcollins.com

PHONE (808) 594-1888

FAX (808) 594-1865

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

HRD06/2251

March 7, 2006

Glen T. Koyama
Belt Collins Hawaii Ltd.
2153 N. King Street, Suite 200
Honolulu, HI 96819-4554

RE: Draft Environmental Assessment for a Proposed 0.5 MG Storage Tank, Kawaihau, Kaua'i, 4-6-03: 10&12.

Dear Mr. Koyama,

The Office of Hawaiian Affairs (OHA) is in receipt of your February 9, 2006 request for comment on the above listed proposed project. OHA offers the following comments:

Our staff has no comment specific to the above-listed Draft Environmental Assessment. Thank you for your continued correspondence.

OHA asks that, In accordance with Section 6E-46.6, Hawaii Revised Statutes and Chapter 13-300, Hawaii Administrative Rules, if any significant cultural deposits or human skeletal remains are encountered, work shall stop in the immediate vicinity and the State Historic Preservation Division (SHPD/DLNR) shall be contacted.

Thank you for the opportunity to comment. If you have further questions or concerns, please contact Jesse Yorck, Native Rights Policy Advocate, at (808) 594-0239 or jessey@oha.org.

'O wau iho nō,

Clyde W. Nāmu'o
Administrator

CC: La France Kapaka-Arboleda
OHA Community Affairs Coordinator (Kaua'i)
3-3100 Kuhio Hwy., Suite C4
Lihue, HI 96766-1153

13 REFERENCES

Bruner, Philip L. July 2004. Avifaunal and feral mammal survey.

County of Kaua'i, Planning Commission. December 1973. *Kapaa–Wailua Development Plan.* Prepared by LMLI Architects/Planners, Inc. and Hawaii Real Estate Research, Inc.

County of Kaua'i, Planning Department. November 2000. *Kauai General Plan.*

County of Kaua'i, Department of Water. March 2001. *Water Plan 2020.* Prepared by R.W. Beck and CH2M Hill.

County of Kaua'i, Department of Water. February 1990. *Kauai Water Use and Development Plan.* Prepared by R.M. Towill Corporation.

Cultural Surveys Hawaii, Inc. June 2004. Archaeological study.

Federal Emergency Management Agency. Flood Insurance Rate Map Community – Panel No. 150002 0130 D. Revised December 30, 1995.

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State of Hawai'i, Office of Governor. *The Hawaii State Plan.*

State of Hawai'i, State Land Use Commission. No date. *State Land Use District Maps.*

U.S. Department of Agriculture Soil Conservation Service. 1972. *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii.*

University of Hawai'i, Department of Geography. *Atlas of Hawaii.* Second Edition, 1983 and Third Edition, 1998.

APPENDICES

APPENDIX A

Preconsultation Letters

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

June 21, 2004
LD-NAV
WAILUAKAPAAWATERKCDW.RCM

Belt Collins Hawaii Ltd.
Glen T. Koyama
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Mr. Koyama:

SUBJECT: Pre-Assessment Consultation for the Preparation of a Draft Environmental Assessment for the County of Kauai Proposed Water Storage Tank for the Wailua-Kapaa Water System, Kawaihau, Kauai, Hawaii - TMK: (4) 4-6-03: 010

Thank you for the opportunity to review and comment on the subject matter.

The Department of Land and Natural Resources' (DLNR) Land Division made available or distributed a copy of the document pertaining to the subject matter to the following DLNR Divisions for their review and comment:

- Division of Aquatic Resources
- Commission on Water Resource Management
- Office of Conservation and Coastal Lands
- Division of Forestry and Wildlife
- Division of State Parks
- Engineering Division
- Land-Planning and Development
- Kauai District Land Office

Enclosed please find a copy of the Engineering Division comment.

Based on the attached responses, the Department has no other comment to offer at this time. Should you have any other questions, please feel free to contact Nicholas A. Vaccaro of the Land Division Support Services Branch at 1-808-587-0384.

Very truly yours,

DIERDRE S. MAMIYA
Administrator

C: KDLO

LINDA LINGLE
GOVERNOR OF HAWAII

RECEIVED
LAND DIVISION
2004 JUN 15 P 3:

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
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KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

June 9, 2004

LD/NAV
WAILUAKAPAAWATERKCDW.CMT

L-3123
Suspense Date: 6/18/04

MEMORANDUM:

TO:
XXX Division of Aquatic Resources
XXX Division of Forestry & Wildlife
Na Ala Hele Trails
XXX Engineering Division
XXX Division of State Parks
Division of Boating and Ocean Recreation
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Land-Kauai District Land Office
XXX Land-Planning and Development

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Pre-Assessment Consultation for the Preparation of a Draft Environmental Assessment for the Proposed Water Storage Tank - Wailua- Kapaa Water System, Kawaihau, Kauai, Hawaii - TMK: (4) 4-6-03: 010

Please review the attached letter (summary) dated June 7, 2004 and attachment pertaining to the subject matter and submit your comments (if any) to us on Division letterhead signed and dated by the suspense date.

Should you need more time to review the subject matter, please contact Nicholas A. Vaccaro at ext.: 7-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

(X) We have no comments.

( ) Comments attached.

Date: JUN 14 2004

Signed:

DIVISION: _____

Name: MICHAEL G. BUCK, ADMINISTRATOR
DIVISION OF FORESTRY AND WILDLIFE

LINDA LINGLE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

June 9, 2004

LD/NAV
WAILUAKAPAAWATERKCDW.CMT

L-3123
Suspense Date: 6/18/04

MEMORANDUM:

TO:
XXX Division of Aquatic Resources
XXX Division of Forestry & Wildlife
Na Ala Hele Trails
XXX Engineering Division
XXX Division of State Parks
Division of Boating and Ocean Recreation
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Land-Kauai District Land Office
XXX Land-Planning and Development

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Pre-Assessment Consultation for the Preparation of a Draft Environmental Assessment for the Proposed Water Storage Tank - Wailua- Kapaa Water System, Kawaihau, Kauai, Hawaii - TMK: (4) 4-6-03: 010

Please review the attached letter (summary) dated June 7, 2004 and attachment pertaining to the subject matter and submit your comments (if any) to us on Division letterhead signed and dated by the suspense date.

Should you need more time to review the subject matter, please contact Nicholas A. Vaccaro at ext.: 7-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

( ) We have no comments.

(X) Comments attached.

Date: 6-14-04

Signed: [signature]

DIVISION: OCCL

Name: _____

* PROJECT IS LOCATED IN THE CONSERVATION DISTRICT

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

June 9, 2004

LD/NAV
WAILUAKAPAAWATERKCDW.CMT

L-3123
Suspense Date: 6/18/04

MEMORANDUM:

TO:
XXX Division of Aquatic Resources
XXX Division of Forestry & Wildlife
Na Ala Hele Trails
XXX Engineering Division
XXX Division of State Parks
Division of Boating and Ocean Recreation
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Land-Kauai District Land Office
XXX Land-Planning and Development

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Pre-Assessment Consultation for the Preparation of a Draft Environmental Assessment for the Proposed Water Storage Tank - Wailua- Kapaa Water System, Kawaihau, Kauai, Hawaii - TMK: (4) 4-6-03: 010

Please review the attached letter (summary) dated June 7, 2004 and attachment pertaining to the subject matter and submit your comments (if any) to us on Division letterhead signed and dated by the suspense date.

Should you need more time to review the subject matter, please contact Nicholas A. Vaccaro at ext.: 7-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

( ) We have no comments. (X) Comments attached.

Date: _____ Signed: _____

DIVISION: Engineering Name: ERIC T. HIRANO, CHIEF ENGINEER

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LA/NAV

Ref.: WAILUAKAPAAWATERKCDW.CMT

COMMENTS

( ) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ___.

(X) **Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone X. The National Flood Insurance Program (NFIP) does not have any regulations for development within these areas.**

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

( ) Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

( ) Mr. Robert Sumimoto at (808) 523-4254 or Mr. Mario Siu Li at (808) 523-4247 of the City and County of Honolulu, Department of Planning and Permitting.

( ) Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Emler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.

( ) Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.

( ) Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.

( ) The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.

( ) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

( ) Additional Comments:_____

_____

( ) Other: _____

_____

Should you have any questions, please call Mr. Andrew Monden of the Planning Branch at 587-0229.

Signed: Andrew M. Monden
~~for~~ ERIC T. HIRANO, CHIEF ENGINEER

Date: 6/15/04

LINDA LINGLE
GOVERNOR OF HAWAII

JUN 10 12 53 PM '04

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

June 9, 2004

TO:
___ADMINISTRATOR
___ASST ADMIN
___DEV BR
___PLAN BR
___RES MGT BR
___CLERICAL
___ADMIN ASST
___INTERP BR
___
___CIRC/POST/STAFF
___COMMENTS & REC
___DRAFT REPLY
___FILE
___FOLLOW UP
___INFO
___RUN COPIES
___RUSH DUE
___SEE ME
___FAX/SEND COPY TO
___Suspense Date

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

L-3123
6/18/04

RECEIVED
2004 JUN 17 A 10 14
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII
LAND DIVISION

LD/NAV
WAILUAKAPAAWATERKCDW.CMT

MEMORANDUM:

TO: XXX Division of Aquatic Resources
XXX Division of Forestry & Wildlife
Na Ala Hele Trails
XXX Engineering Division
XXX Division of State Parks
Division of Boating and Ocean Recreation
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Land-Kauai District Land Office
XXX Land-Planning and Development

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Pre-Assessment Consultation for the Preparation of a Draft Environmental Assessment for the Proposed Water Storage Tank - Wailua- Kapaa Water System, Kawaihau, Kauai, Hawaii - TMK: (4) 4-6-03: 010

Please review the attached letter (summary) dated June 7, 2004 and attachment pertaining to the subject matter and submit your comments (if any) to us on Division letterhead signed and dated by the suspense date.

Should you need more time to review the subject matter, please contact Nicholas A. Vaccaro at ext.: 7-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

(✓) We have no comments. ( ) Comments attached.

Date: 6/15/04 Signed: [signature]

DIVISION: State Parks Name: Daniel S. Quinn

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

HAWAI'I HISTORIC PRESERVATION DIVISION REVIEW

Log #: 2004.1518
Doc #: 0406NM14.doc

Applicant/Agency: Glen Koyama/County of Kauai Water Department

Address: Belt Collins Hawaii Ltd. 2153 North King Street, Suite 200, Honolulu, HI 96813-4554

SUBJECT: **Historic Preservation Review – EA for Proposed Water Storage Tank Wailua-Kapaa Water System**

Ahupua'a: Kapaa
District, Island: Kawaihau, Kauai
TMK: (4) 4-6-03: 10

1. We believe there are no historic properties present, because:
___a) intensive cultivation has altered the land
✓ b) residential development/urbanization has altered the land
✓ c) previous grubbing/grading has altered the land
__ d) an acceptable archaeological assessment or inventory survey found no historic properties
___e) other

2. This project has already gone through the historic preservation review process, and mitigation has been completed ___.

✓ Thus, we believe that "no historic properties will be affected" by this undertaking

Staff: Nancy McMahon Date: 6/16/04

Title: Archaeologist for Kaua'i

LINDA LINGLE
GOVERNOR OF HAWAII

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

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

In reply, please refer to:
EPO-04-139

June 10, 2004

Mr. Glen T. Koyama
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Mr. Koyama:

SUBJECT: Proposed Water Storage Tank, Wailua-Kapaa Water System
Kawaihau, Kauai, Hawaii, TMK: 4-6-003: 10

Thank you for allowing us to review and comment on the subject document. We have the enclosed standard comments to offer. If there are any questions about these standard comments please contact Ryan Davenport with the Environmental Planning Office at 586-4346.

Sincerely,

Gene F. Harrigan-Lum

JUNE F. HARRIGAN-LUM, MANAGER
Environmental Planning Office

Enclosure

c. SDWB
EPO
SHWB
NRAIQ
CWB
WWB
CAB
HEER

Standard Comments

Environmental Planning Office Dated 3/2/04

The Environmental Planning Office (EPO) is responsible for several surface water quality management programs mandated by the federal Clean Water Act or dictated by State policy . (http://www.state.hi.us/doh/eh/epo/wqm/wqm.htm). Among these responsibilities, EPO:

- maintains the *List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d)* (http://www.state.hi.us/doh/eh/epo/wqm/303dpcfinal.pdf);
- develops and establishes Total Maximum Daily Loads (TMDLs) for listed waters (suggesting how much existing pollutant loads should be reduced in order to attain water quality standards, please see http://www.epa.gov/owow/tmdl/intro.html);
- writes TMDL Implementation Plans describing how suggested pollutant load reductions can be achieved; and
- conducts assessments of stream habitat quality and biological integrity.

To facilitate TMDL development and planning, and to assist our assessment of the potential impact of proposed actions upon water quality, pollutant loading, and biological resources in receiving waters, we suggest that environmental review documents, permit applications, and related submittals include the following standard information and analyses:

Waterbody type and class

1. Identify the waterbody type and class, as defined in Hawaii Administrative Rules Chapter 11-54 (http://www.state.hi.us/doh/rules/11-54.pdf), of all potentially affected water bodies[1].

Existing water quality management actions

2. Identify any existing National Pollutant Discharge Elimination System (NPDES) permits and related connection permits (issued by permittees) that will govern the management of water that runs off or is discharged from the proposed project site or facility. Please include NPDES and other permit numbers; names of permittees, permitted facilities, and receiving waters (including waterbody type and class as in 1. above); diagrams showing drainage/discharge pathways and outfall locations; and note any permit conditions that may specifically apply to the proposed project.

3. Identify any planning documents, groups, and projects that include specific prescriptions for water quality management at the proposed project site and in the potentially affected waterbodies. Please note those prescriptions that may specifically apply to the proposed project.

Pending water quality management actions

4. Identify all potentially affected water bodies that appear on the current *List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d)* including the listed waterbody, geographic scope of listing, and pollutant(s) (See Table 7 at http://www.state.hi.us/doh/eh/epo/wqm/303dpcfinal.pdf).

5. If the proposed project involves potentially affected water bodies that appear on the current *List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d)*, identify and quantify expected changes in the following site and watershed conditions and characteristics:
   - surface permeability
   - hydrologic response of surface (timing, magnitude, and pathways)
   - receiving water hydrology
   - runoff and discharge constituents
   - pollutant concentrations and loads in receiving waters
   - aquatic habitat quality and the integrity of aquatic biota

Where TMDLs are already established they include pollutant load allocations for the surrounding lands and point source discharges. In these cases, we suggest that the submittal specify how the proposed project would contribute to achieving the applicable load reductions.

Where TMDLs are yet to be established and implemented, a first step in achieving TMDL objectives is to prevent any project-related increases in pollutant loads. This is generally accomplished through the proper application of suitable best management practices in all phases of the project and adherence to any applicable ordinances, standards, and permit conditions. In these cases we suggest that the submittal specify how the proposed project would contribute to
reducing the polluted discharge and runoff entering the receiving waters, including plans for
additional pollutant load reduction practices in future management of the surrounding lands and drainage/discharge systems.

Proposed Action and Alternatives Considered

We suggest that each submittal identify and analyze potential project impacts at a watershed scale by considering consider the potential contribution of the proposed project to cumulative, multi-project watershed effects on hydrology, water quality, and aquatic and riparian ecosystems.

We also suggest that each submittal broadly evaluate project alternatives by identifying more than one engineering solution for proposed projects. In particular, we suggest the

consideration of "alternative," "soft," and "green" engineering solutions for channel modifications that would provide a more environmentally friendly and aesthetically pleasing channel environment and minimize the destruction of natural landscapes.

If you have any questions about these comments or EPO programs, please contact Ryan Davenport at 586-4346.

[1]"Potentially affected waterbodies" means those in which proposed project activity would take place and any that could receive water discharged by the proposed project activity or water flowing down from the proposed project site. These waterbodies can be presented as a chain of receiving waters whose top link is at the project site upslope and whose bottom link is in the Pacific Ocean, and can be named according to conventions established by Chapter 11-54 and the *List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d)*. For example, a recent project proposed for Nuhelewai Stream, Oahu might potentially affect Nuhelewai Stream, Kapalama Canal, and Honolulu Harbor and Shore Areas.
[OTHER EXAMPLES OR DIAGRAM??]

Solid and Hazardous Waste Branch Dated 3/2/04

1)
The OSWM recommends the development of a solid waste management plan that encompasses all project phases including demolition, construction, and occupation/operation of the completed project.

Specific examples of elements that the plan should address include:

- The recycling of green-waste during clear and grub activities;
- Recycling construction and demolition wastes, if appropriate;
- The use of locally produced compost in landscaping;
- The use of recycled content building materials;
- The provision of recycling facilities in the design of the project.

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2)
The developer shall ensure that all solid waste generated during project construction is directed to a Department of Health permitted solid waste disposal or recycling facility.

---

3)
The developer should consider providing space in the development for recycling activities. The provision of space for recycling bins for paper, glass, and food/wet waste would help to encourage the recycling of solid waste(s) generated by building occupants.

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4)
The discussion of solid waste issues contained in the document is restricted to activities within the completed project. The OSWM recommends the development of a solid waste management plan that encompasses all project phases, from construction (and or demolition) to occupation of the project.

Specific examples of plan elements include: the recycling of green-waste during clear and grub activities; maximizing the recycling of construction and demolition wastes; the use of locally produced compost in the landscaping of the project; and the provision of recycling facilities in the design of the project.

- -

5)
Hawaii Revised Statutes Chapter 103D-407 stipulates that all highway and road construction and improvement projects funded by the State or a county or roadways that are to be accepted by the State or a county as public roads shall utilize a minimum of ten per cent crushed glass aggregate as specified by the department of transportation in all base-course (treated or untreated) and sub-base when the glass is available to the quarry or contractor at a price no greater than that of the equivalent aggregate.

If you have any questions, please contact the Solid and Hazardous Waste Branch at (808) 586-4240.

Noise, Radiation & Indoor Air Quality Branch Dated 3/2/04

"Project activities shall comply with the Administrative Rules of the Department of Health:

- Chapter 11-39 Air Conditioning and Ventilating.
- Chapter 11-45 Radiation Control.
- Chapter 11-46 Community Noise Control.
- Chapter 11-501 Asbestos Requirements.
- Chapter 11-502 Asbestos-Containing Materials in Schools.
- Chapter 11-503 Fees for Asbestos Removal and Certification
- Chapter 11-504 Asbestos Abatement Certification Program

Should there be any questions, please contact Russell S. Takata, Environmental Health Program Manager, Noise, Radiation and Indoor Air Quality Branch, at 586-4701."

Clean Water Branch Dated 3/2/04

1. The Army Corps of Engineers should be contacted at (808) 438-9258 to identify whether a Federal license or permit (including a Department of Army permit) is required for this project. Pursuant to Section 401(a)(1) of the Federal Water Pollution Act (commonly known as the "Clean Water Act"), a Section 401 Water Quality Certification is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters...."

2. A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for the following activities:

a. Storm water associated with industrial activities, as defined in Title 40, Code of Federal Regulations, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi).

b. Construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. **An NPDES permit is required before the commencement of the construction activities.**

c. Discharges of treated effluent from leaking underground storage tank remedial activities.

d. Discharges of once through cooling water less than one (1) million gallons per day.

e. Discharges of *hydrotesting water.*

f. Discharges of construction dewatering effluent.

g. Discharges of treated effluent from petroleum bulk stations and terminals.

h. Discharges of treated effluent from well drilling activities.

i. Discharges of treated effluent from recycled water distribution systems.

j. Discharges of storm water from a small municipal separate storm sewer system.

k. Discharges of circulation water from decorative ponds or tanks.

The CWB requires that a Notice of Intent (NOI) to be covered by a NPDES general permit for any of the above activities be submitted at least 30 days before the commencement of the respective activities. The NOI forms may be picked up at our office or downloaded from our website at http://www.state.hi.us/health/eh/cwb/forms/genl-index.html.

3. The applicant may be required to apply for an individual NPDES permit if there is any type of activity in which wastewater is discharged from the project into State waters and/or coverage of the discharge(s) under the NPDES general permit(s) is not permissible (i.e. NPDES general permits do not cover discharges into Class 1 or Class AA receiving waters). An application for the NPDES permit is to be submitted at least 180 days before the commencement of the respective activities. The NPDES application forms may also be picked up at our office or downloaded from our website at http://www.state.hi.us/health/eh/cwb/forms/indiv-index.html.

4. Hawaii Administrative Rules, Section 11-55-38, also requires the owner to either submit a copy of the new NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the DOH that the project, activity, or site covered by the NOI or application has been or is being reviewed by SHPD.

Please submit a copy of the request for review by SHPD or SHPD's determination letter for the project.

If you have any questions, please contact the CWB at 586-4309.

Waste Water Branch Dated 3/2/04

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems". We do reserve the right to review the detailed wastewater plans for conformance to applicable rules.

Should you have any questions, please contact the Planning & Design Section of the Wastewater Branch at 586-4294.

Clean Air Branch Dated 3/2/04

Construction/Demolition Involving Asbestos:

Since the proposed project would entail renovation/demolition activities which may involve asbestos, the applicant should contact the Asbestos Abatement Office in the Noise, Radiation and Indoor Air Quality Branch at 586-5800.

Control of Fugitive Dust:

A significant potential for fugitive dust emissions exists during all phases of construction. Proposed construction activities will occur in proximity to **existing residences, businesses, public areas and thoroughfares**, thereby exacerbating potential dust problems. It is recommended that a dust control management plan be developed which identifies and addresses all activities that have a potential to generate fugitive dust. Implementation of adequate dust control measures during all phases of development and construction activities is warranted.

Construction activities must comply with the provisions of Hawaii Administrative Rules, §11-60.1-33 on Fugitive Dust.

The contractor should provide adequate measures to control dust from the road areas and during the various phases of construction. These measures include, but are not limited to, the following:

a) Plan the different phases of construction, focusing on minimizing the amount of dust-generating materials and activities, centralizing on-site vehicular traffic routes, and locating potential dust-generating equipment in areas of the least impact;
b) Provide an adequate water source at the site prior to start-up of construction activities;
c) Landscape and provide rapid covering of bare areas, including slopes, starting from the initial grading phase;
d) Minimize dust from shoulders and access roads;

e) Provide adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and
f) Control dust from debris being hauled away from the project site.

Hazard Evaluation and Emergency Response Office(HEER) Dated 3/2/04

1. A phase I Environmental Site Assessment (ESA) should be conducted for developments or redevelopments. If the investigation shows that a release of petroleum, hazardous substance, pollutants or contaminants occurred at the site, the site should be properly characterized through an approved Hawaii State Department of Health (DOH)/Hazard Evaluation and Emergency Response Office (HEER) soil and or groundwater sampling plan. If the site is found to be contaminated, then all removal and remedial actions to clean up hazardous substance or oil releases by past and present owners/tenants must comply with chapter 128D, Environmental Response Law, HRS, and Title 11, Chapter 451, HAR, State Contingency Plan.

2. All lands formerly in the production of sugarcane should be characterized for arsenic contamination, If arsenic is detected above the US EPA Region (preliminary remediation goal (PRG) for non-cancer effects, then a removal and or remedial plan must be submitted to the Hazard Evaluation and Emergency Response (HEER) Office of the State Department of Health for approval. The plan must comply with Chapter 128D, Environmental Response Law, HRS, and Title 11, Chapter 451, HAR, State Contingency Plan.

3. If the land has a history of previous releases of petroleum, hazardous substances, pollutants, or contaminants, we recommend that the applicant request a "no further action" (NFA) letter from the Hawaii State Department of Health (DOH)/ Hazard Evaluation and Emergency Response (HEER) Office prior to the approval of the land use change or permit approval.

Safe Drinking Water Branch Dated 3/11/04

The Safe Drinking Water Branch administers programs in the areas of: 1) public water systems; 2) underground injection control; and 3) groundwater protection. Our general comments on projects are as follows.

Public Water Systems

- Federal and state regulations define a public water system as a system that serves 25 or more individuals at least 60 days per year or has at least 15 service connections. All public water system owners and operators are required to comply with Hawaii Administrative Rules, Title 11, Chapter 20, titled Rules Relating to Potable Water Systems.

- All new public water systems are required to demonstrate and meet minimum capacity requirements prior to their establishment. This requirement involves demonstration that the system will have satisfactory technical, managerial and financial capacity to enable the system to comply with safe drinking water standards and requirements.

- Projects that propose development of new sources of potable water serving or proposed to serve a public water system must comply with the terms of Section 11-20-29 of Chapter 20. This section requires that all new public water system sources be approved by the Director of Health prior to its use. Such approval is based primarily upon the submission of a satisfactory engineering report which addresses the requirements set in Section 11-20-29.

- The engineering report must identify all potential sources of contamination and evaluate alternative control measures which could be implemented to reduce or eliminate the potential for contamination, including treatment of the water source. In addition, water quality analyses for all regulated contaminants, performed by a laboratory certified by the State Laboratories Division of the state of Hawaii, must be submitted as part of the report to demonstrate compliance with all drinking water standards. Additional parameters may be required by the Director for this submittal or additional tests required upon his or her review of the information submitted.

- All sources of public water system sources must undergo a source water assessment which will delineate a source water protection area. This process is preliminary to the creation of a source water protection plan for that source and activities which will take place to protect the source of drinking water.

- Projects proposing to develop new public water systems or proposing substantial modifications to existing public water systems must receive approval by the Director of Health prior to construction of the proposed system or modification. These projects include treatment, storage and distribution systems of public water systems. The approval authority for projects owned and operated by a County Board or Department of Water or Water Supply has been delegated to them.

- All public water systems must be operated by certified distribution system and water treatment plant operators as defined by Hawaii Administrative Rules, Title 11, Chapter 11-25 titled; Rules Pertaining to Certification of Public Water System Operators.

- All projects which propose the use of dual water systems or the use of a non-potable water system in proximity to an existing potable water system to meet irrigation or other needs must be carefully design and operate these systems to prevent the cross-connection of these systems and prevent the possibility of backflow of water from the non-potable system to the potable system. The two systems must be clearly labeled and physically separated by air gaps or reduced pressure principle backflow prevention devices to avoid contaminating the potable water supply. In addition backflow devices must be tested periodically to assure their proper operation. Further, all non-potable spigots and irrigated areas

should be clearly labeled with warning signs to prevent the inadvertent consumption on non-potable water. Compliance with Hawaii Administrative Rules, Title 11, Chapter 11-21 titled; Cross-Connection and Backflow Control is also required.

- All projects which propose the establishment of a potentially contaminating activity (as identified in the Hawai`i Source Water Assessment Plan) within the source water protection area of an existing source of water for a public water supply should address this potential and activities that will be implemented to prevent or reduce the potential for contamination of the drinking water source.

- For further information concerning the application of capacity, new source approval, operator certification, source water assessment, backflow/cross-connection prevention or other public water system programs, please contact the Safe Drinking Water Branch at 586-4258.

Underground Injection Control (UIC)

- Injection wells used for the subsurface disposal of wastewater, sewage effluent, or surface runoff are subject to environmental regulation and permitting under Hawai`i Administrative Rules, Title 11, Chapter 11-23, titled Underground Injection Control (UIC). The Department of Health's approval must be first obtained before any injection well construction commences. A UIC permit must be issued before any injection well operation occurs.

- Authorization to use an injection well is granted when a UIC permit is issued to the injection well facility. The UIC permit contains discharge and operation limitations, monitoring and reporting requirements, and other facility management and operational conditions. A complete UIC permit application form is needed to apply for a UIC permit.
- A UIC permit can have a valid duration of up to five years. Permit renewal is needed to keep an expiring permit valid for another term.

For further information about the UIC permit and the Underground Injection Control Program, please contact the UIC staff of the Safe Drinking Water Branch at 586-4258.

Groundwater Protection Program

Projects that propose to develop a golf course are asked to use the Guidelines Applicable to Golf Courses in Hawai`i (Version 6) in order to address certain groundwater protection concerns, as well as other environmental concerns

BRYAN J. BAPTISTE
MAYOR

GARY K. HEU
ADMINISTRATIVE ASSISTANT

COUNTY ENGINEER
TELEPHONE 241-6600

LADYE H. MARTIN
DEPUTY COUNTY ENGINEER
TELEPHONE 241-6600

AN EQUAL OPPORTUNITY EMPLOYER
COUNTY OF KAUA'I
DEPARTMENT OF PUBLIC WORKS
4444 RICE STREET
MO'IKEHA BUILDING, SUITE 275
LIHU'E, KAUA'I, HAWAI'I 96766-1340

July 8, 2004

Belt Collins Hawai'i, Ltd.
2153 North King Street, Suite 200
Honolulu, HI 96819-4554
Attention: Mr. Glen Koyama

SUBJECT: ENVIRONMENTAL ASSESSMENT
PROPOSED WATER STORAGE TANK
WAILUA-KAPA'A WATER SYSTEM
PW6.082

Gentlemen:

We reviewed the subject EA and offer the following comments in regards to grading:

1. The description of the proposed action state that the new tank will be located adjacent to the existing 1.0 MG Kapa'a Homestead Tank and will be situated on State of Hawai'i land. While our Erosion and Sediment Control Ordinance No 808 would exempt the grading activities on TMK: 4-6-03-10 since the work will be within a self-contained government controlled area, we would expect that either the State or the Department of Water oversee the grading activities. A grading permit maybe required for the borrow site or for the disposal site receiving the excess wasted excavated material.

2. Although a grading permit may not be required, Best Management Practices shall be employed at all times during the construction of the new water tank.

3. The subject property abuts Makaleha Stream on the West and Moalepe Stream to the South. We believe the subject property is susceptible to flooding from the above natural drainage ways and the new tank site may be subject to flooding. Flood studies should be prepared for our review and approval to protect the new water tank.

4. Kahuna Road is a substandard and narrow roadway that does not meet County roadway standards. Kahuna Road has narrow asphalt pavement of approximately 10 feet and a right-of-way width of approximately 20 feet according to the tax map key. Additionally, the narrow pavement width will not convey two-way vehicular traffic. Consequently, we would expect traffic safety problems with any increase in traffic under their present condition. The County of Kaua'i has no immediate future plans to improve Kahuna Road.

Thank you for this opportunity to provide our comments. Should you have any questions, please feel free to contact Wallace Kudo of my staff at (808) 241-6622.

Very truly yours,

CESAR C. PORTUGAL, P.E.
Chief, Division of Engineering

CONCUR:

LADYE H. MARTIN
Deputy County Engineer

WK

cc: Design and Permitting
Road Maintenance

APPENDIX B

Faunal Survey

AVIFAUNAL AND FERAL MAMMAL SURVEY OF LANDS INVOLVED IN THE KAPAA HOMESTEAD/KAPAHI STORAGE TANK WATER SYSTEMS IMPROVEMENT PROJECT IN WAILUA/KAPAA, KAUAI

Prepared for:

Belt Collins Hawaii Ltd.

Prepared by:

Phillip L. Bruner
Environmental Consultant
Faunal (Bird & Mammal) Surveys
Box 1775
BYUH
55-220 Kulanui St.
Laie, HI 96762

19 July 2004

INTRODUCTION

This report provides the findings of a two day (15, 16 July 2004) faunal (bird and mammal) field survey of three sites involved in the Kapaa Homestead/Kapahi Storage Tank Water Systems Project in Wailua-Kapaa, Kauai. References to pertinent published and unpublished sources are also included in this report to provide a broader perspective of birds and mammals known from similar habitats in this region of Kauai. The goals of the field survey were to:

1- Document the species of birds and mammals presently in the area of these sites.

2- Conduct an evening search for the endangered Hawaiian Hoary Bat (*Lasiurus cinereus semotus*).

HABITAT DESCRIPTIONS OF THE THREE SITES

Site 1: Makai Site 1

This site is located at the junction of Kaapuni and Kawaihau Roads. The site is covered in dense tall grass along with a few scattered trees. Residential properties surround the site.

Site 2: Makai Site 2

This site is located mauka of Lower Kapahi Reservoir off Kahuna Road. The property contains a mix of pasture lands and second growth forest composed primarily

of alien (introduced) trees and brush. Similar habitat surrounds the site. A few residential properties are nearby.

Site 3: Mauka Site

This site is located at an existing water tank at the end of Kahuna Road. The area is presently in pasture with a patch of large Mollucan albizia (*Paraserianthes falcataria*) trees. These trees are not native. Residential lands are nearby.

SURVEY PROTOCOL

The faunal survey was conducted on foot. All habitats at each of the three sites were examined. Each site was surveyed four times (early morning on 15, 16 July and late afternoon on 15, 16 July). In addition, the evening (1900-2300 hours) of 15 July was devoted to searching for the presence of the endangered Hawaiian Hoary Bat at each of these sites. A Pettersson Elektronik AB Ultrasound Detector D 100 was used to listen for echolocating bats. Daylight surveys were conducted early and late when birds were most active and detectable. No trapping of mammals was attempted. Such an effort was beyond the scope and time available for this survey. The majority of the mammal observations came from the presence of tracks and visual sightings.

Weather during the course of the survey varied from clear to periods of light rain showers. The conditions were actually ideal since the birds were active and vocal and thus easily detected.

Scientific names used in this report follow Pyle (2002) and Honacki et al. (1982). These sources use the names found in the current scientific literature.

RESULTS OF THE FIELD SURVEY

Makai Site 1:

No native or migratory birds were recorded on this site. Given the habitat present none would be expected. Table One lists the 12 species of alien (non-active) birds recorded over the course of the survey. The only mammal observed was a Mule (*Equus caballus* x *Equus asinus*). This animal was tied up and allowed to graze a portion of the site fronting Kawaihau Road. The night observations did not detect the presence of the Hawaiian Hoary Bat. Cats (*Felis catus*) were seen near the property but were likely pets from adjoining residential lands.

Makai Site 2:

No native or migratory birds were found at this location. The habitat in this area is not suitable for these species. The nearby Lower Kapahi Reservoir and small streams may provide some limited habitat for endangered Koloa or Hawaiian Duck (*Anas wyvilliana*). This species is common on Kauai (Hawaii Audubon Society 1997). A total of ten species of alien (non-native) birds were tallied on the survey of this site. Table One lists the names of these species. The only mammal observations were the tracks of

feral pigs (*Sus scrofa*). The endangered Hawaiian Hoary Bat was not found on the survey at this location.

Mauka Site 2:

No native or migratory birds were recorded at this site. The only species that might be expected is the migratory Pacific Golden-Plover (*Pluvialis fulva*). This species winters in Hawaii from August to late April. During July migratory shorebirds are on their breeding grounds in the arctic. The Pacific Golden-Plover, known as Kolea in Hawaiian, has been extensively studied (Johnson et al. 1981, 1989, 1993, 2001a, 2001b, 2004). The migratory Kolea is not listed as threatened or endangered. The pasture lands around the Mauka Site likely have foraging, territorial Kolea during August through April. Table One notes the 13 species of alien (non-native) birds recorded at the Mauka Site. Tracks and skeletal remains of feral pigs (*Sus scrofa*) were found in this area.. Domestic cats and horses were also present. This species is fairly common on Kauai (Tomich 1986, Kepler and Scott 1990). Jacobs (1991, 1993) and Reynolds et al. (1998) provide further information on the life history and distribution of the Hawaiian Hoary Bat.

SUMMARY AND CONCLUSIONS

All three sites were thoroughly surveyed for birds and mammals. All habitats were investigated at appropriate times when birds and mammals were active and most

easily detected. No unexpected birds or mammals were discovered on the survey. A similar list of birds and mammals were found on other studies in similar habitat in this area of Kauai (Bruner 1986, 1990, 1993). No migratory birds were recorded but likely occur in the pastures during the months of August through April. The native Hawaiian Hoary Bat was not detected at any of the sites. This species is known to forage not only in native forest but also in developed areas. Thus it is possible that one might on occasion see bats foraging over any of these sites. They roost solitarily in trees. The proposed developments at these three sites should not have any measurable impact in the populations of birds and mammals in this region of Kauai.

TABLE ONE

Alien (introduced) birds found on a survey of three sites involved in the Kapaa Homestead/Kapahi Storage tank Water Systems Project in Wailua-Kapaa, Kauai. A (+) indicates the presence and a (-)an absence of that particular species.

Common Name	Scientific Name	Makai Site 1	Makai Site 2	Mauka Site
Cattle Egret	*Bubulcus ibis*	+	-	+
Red Junglefowl	*Gallus gallus*	+	+	+
Spotted Dove	*Streptopelia chinensis*	+	+	+
Zebra Dove	*Geopelia striata*	+	+	+
Japanese Bush-Warbler	*Cettia diphone*	-	-	+
White-rumped Shama	*Copsychus malabaricus*	-	-	+
Hwamei	*Garrulax canorus*	-	+	+
Japanese White-eye	*Zosterops japonicus*	+	+	+
Common Myna	*Acridotheres tristis*	+	+	+
Red-crested Cardinal	*Paroaria coronata*	+	+	-
Northern Cardinal	*Cardinalis cardinalis*	+	+	+
Western Meadowlark	*Sturnella neglecta*	-	+	+
House Finch	*Carpodacus mexicanus*	+	+	+
House Sparrow	*Passer domesticus*	+	-	-
Nutmeg Mannikin	*Lonchura punctulata*	+	-	-
Chestnut Munia	*Lonchura atricapilla*	+	-	-
Java Sparrow	*Padda oryzivora*	+	-	+

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APPENDIX C

Archaeological Survey

An Archaeological Assessment
For The Proposed Water Reservoir,
Kapa'a Ahupua'a, Kaua'i

TMK 4-6-03:10

by

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SEPTEMBER 2004

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I. INTRODUCTION

A. Project Background

At the request of Belt Collins Hawai'i Ltd., Cultural Surveys Hawai'i, Inc. (CSH) conducted an archaeological assessment of a parcel of land (referred to hereafter as "Mauka Locale") in Kapa'a (in TMK 4-6-3:10) (Figures 1 & 2). In addition, CSH surveyed and assessed two additional parcels as alternative sites (referred to hereafter as "Makai Locale 1" and "Makai Locale 2") in (TMKs 4-6-11:3, 4-6-8:23). The survey was accomplished to address any historic preservation or cultural impact issues that might be raised by the proposed development of a water reservoir within one of the three parcels. The county of Kaua'i owns the three parcels.

B. Scope of Work

Archaeological and Historical Concerns

The purpose of this archaeological assessment is to address any archaeological and/or historical concerns. The assessment included a surface survey and a report detailing methods and any finds. The archaeological assessment does not meet the requirements of an inventory-level survey per the rules and regulations of SHPD/DLNR. However, the level of work is sufficient enough to address site types, locations, and allow for future work recommendations.

The scope of work includes:

1. Historical research included study of archival sources, historic maps, Land Commission Awards and previous archaeological reports to construct a history of land use and to determine if archaeological sites have been recorded on or near this property.
2. Field inspection of the project area identified any surface archaeological features and investigated and assessed the potential for impact to such sites. The assessment identified any sensitive areas that may require further investigation or mitigation before the project proceeds.
3. Preparation of a report included the results of the historical research and the fieldwork with an assessment of archaeological potential based on that research with recommendations for further archaeological work, if appropriate. It also provided mitigation recommendations if there were archaeologically sensitive areas that need to be taken into consideration.

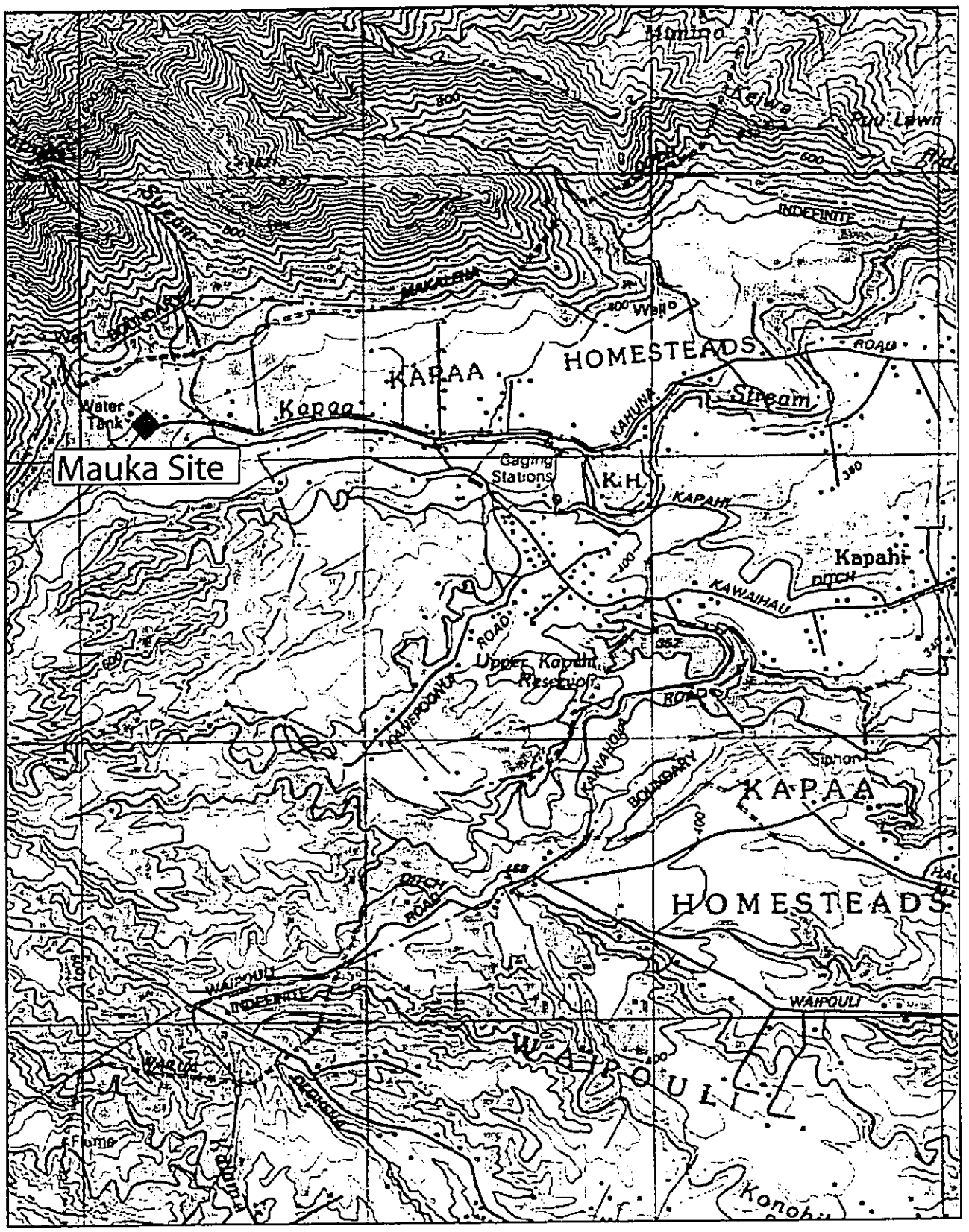

Figure 1. Portion of USGS map showing project location.

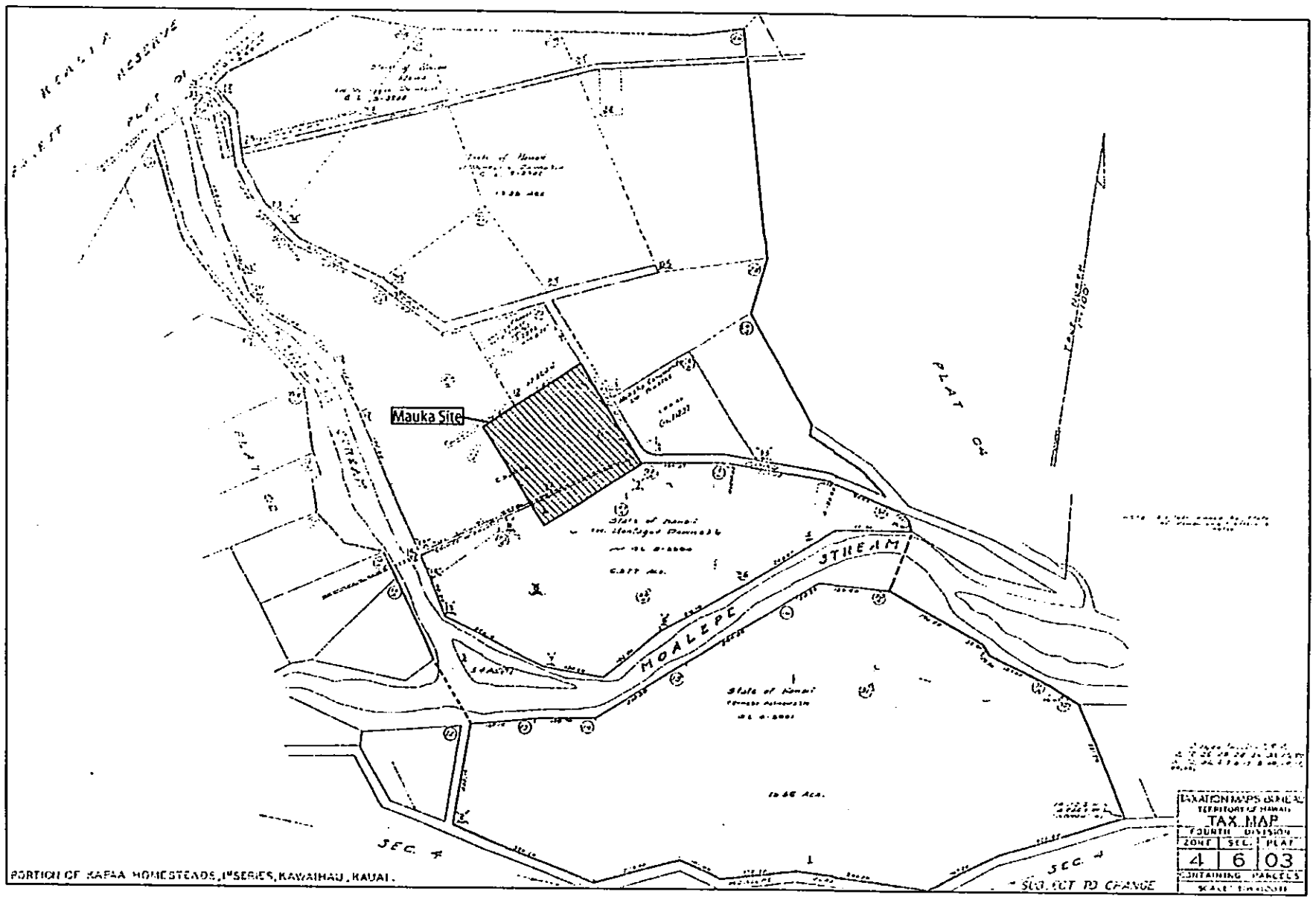

Figure 2 TMK 4-6-03 showing project area location

C. Methods

On June 10th, 2004 a field inspection of the Mauka Locale proposed water tank installation project area was conducted by Cultural Surveys Hawai'i Inc. archaeologist Karl Van Ryzin, B.A., and supervising archaeologist David Perzinski, B.A. Survey transects oriented north-south were conducted with archaeologists spaced apart 10 m. Field observations were recorded and photographs were taken of the project area. The work was conducted under the overall supervision of principal archaeologist Hallett H. Hammatt, Ph.D.

Historical research included a review of previous archaeological studies on file at the State Historic Preservation Division of the Department of Land and Natural Resources; studies of documents at Hamilton Library of the University of Hawai'i, and study of maps at the Survey Office of the Department of Land and Natural Resources. Nineteenth-century Land Commission Award claim records were accessed via the Internet from the Mahele Database prepared by Waihona 'Aina Corp.

D. Natural Setting

1. Mauka Locale Project Area

The Mauka Locale project area is located immediately south of where Kahuna Road terminates, just northeast of Makaleha Stream. The project areas elevation is 150 m (500 ft) and is approximately 7.56 km (4.7 mi) to the coast. A significant landmark is an existing water tank that lies just west of the project area (Figure 7). Foote et al (1972) described the soil in this area as being Kapa'a Silty clay. Kapa'a Silty clay consists of "well-drained soils on the uplands on the islands of Kaua'i and Oahu. These soils developed in material weathered from basic igneous rock. They are gently sloping to extremely steep. Elevations range from 200 to 800 feet." (Foote et al.1972). Mauka Locale receives an average an annual rainfall of approximately 2000 mm (79 inches) (Giambelluca 1986:47). A brief summary of observations on the natural setting is presented in the results of field check section of this study.

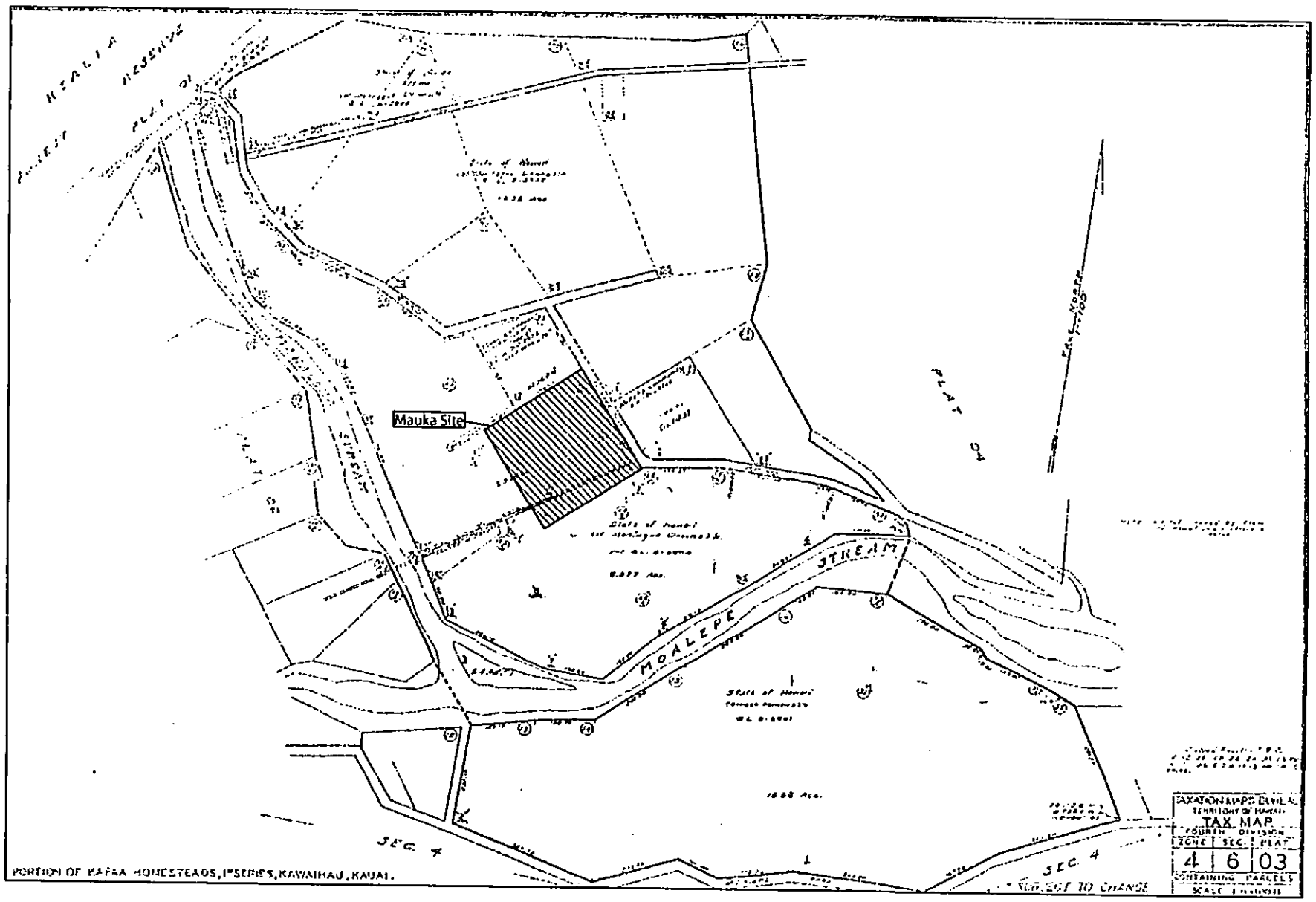

Figure 3. TMK 4-6-03 showing Mauka Locale project area

II. HISTORICAL BACKGROUND

A. From Puna District to Kawaihau District

The *ahupua'a* of Kapa'a belongs in the ancient district of Puna, one of five ancient districts on Kaua'i (King 1935: 228). Puna was the second largest district on Kaua'i, behind Kona, and extended from Kīpū, south of Līhue to Kamalomalo'o, just north of Keālia. For taxation, educational and judicial reasons, new districts were created in the 1840's. The Puna District, with the same boundaries became the Līhue District, named for an important town in that district. In 1878, by act of King Kalākaua in securing a future and name for the new Hui Kawaihau, created the new district of Kawaihau. This new district encompassed the *ahupua'a* ranging from Olohena on the south to Kīlauea on the north. Subsequent alterations to district boundaries in the 1920's left Kawaihau with Olohena as its southernmost boundary and Moloa'a as its northernmost boundary (King 1935:222).

B. Traditional and Legendary Accounts of Kapa'a

1. Palila and Ka'ea

High in the *mauka* region of Kapa'a in the Makaleha mountains at a place called Ka'ea, is reported to be the supernatural banana grove of the Kaua'i *kupua* or demigod Palila, grandson of Hina (Handy and Handy 1972:424). Joseph Akina for *Kū'oko'a* Newspaper in 1913 describes Palila's banana grove:

> The stalk could hardly be surrounded by two men, and was about 35 feet high from the soil to the lowest petiole. The length of the cluster from stem to lowest end of the bunch of bananas was about 1 ¾ fathoms long (one *anana* and one *muku*). There were only two bananas on each about 4 ½ inches around the middle. There were just two bananas, one on the east side and one on the west, each about a foot or more in length. The one on the east side was tartish, like a *waiawi* (Spanish guava) in taste and the one on the west was practically tasteless. The diameter of the end of the fruit stem of this banana seemed to be about 1½ feet. This kind of banana plant and its fruit seemed almost supernatural... (Akina, 1913:5).

2. Ka Lulu o Mō'īkeha

Kapa'a was the home of the legendary *ali'i*, Mō'īkeha. Born at Waipi'o on the island of Hawai'i, Mō'īkeha sailed to Kahiki (Tahiti), the home of his grandfather Maweke, after a disastrous flood. On his return to Hawai'i, he settled at Kapa'a, Kaua'i. Kila, Mō'īkeha's favorite of three sons by the Kaua'i chiefess Ho'oipoikamalani, was born at Kapa'a and was said to be the most handsome man on the island. It was Kila who was sent by his father back to Kahiki to slay his old enemies and retrieve a foster son, the high chief La'amaikahiki (Handy and Handy 1972:424; Beckwith 1970:352-358; Kalākaua 1888:130-135; Fornander 1916, vol.4 pt.1:160). Mō'īkeha's love for Kapa'a is recalled in the *'ōlelo no'eau*: *Ka lulu o Mō'īkeha i ka laulā o Kapa'a*. "The calm of Mō'īkeha in the breadth of Kapa'a" (Pukui, 1983: 157).

"Lulu-o-Moikeha" is described as being situated "near the landing and the school of Waimahanalua" (Akina, 1913: 5). The landing in Kapa'a was known as the Makee Landing and was probably constructed in the late 1870s, along with the Makee sugar mill. Today, in place of the old Makee Landing is part of a breakwater located on the north side of Mō'īkeha Canal near the present day Coral Reef Hotel, and approximately half-a-mile north of Waikaea Bridge.

Akina (1913) tells the story of how Mō'īkeha's son, Kila stocks the islands with the fish *akule*, *kawakawa* and *'ōpelu*. When Kila travels to Kahiki, he seeks out his grandfather Maweke and explains that he is the child of Mō'īkeha. When Maweke asks Kila if Mō'īkeha is enjoying himself, Kila answers with the following chant:

My father enjoys the billowing clouds over Pohaku-pili,

The sticky and delicious poi,

With the fish brought from Puna,

The broad-backed shrimp of Kapalua,

The dark-backed shrimp of Pōhakuhapai,

The potent *awa* root of Maiaki'i,

The breadfruit laid in the embers at Makialo,

The large heavy taros of Keahapana

The crooked surf of Makaīwa too

The bending hither and thither of the reed and rush blossoms,

The swaying of the *kalukalu* grasses of Puna

The large, plump, private parts of my mothers,

Of Ho'oipoikamalanai and Hinau-u,

The sun that rises and sets,

He enjoys himself on Kaua'i,

All of Kaua'i is Mō'īkeha's. (Akina, 1913: 6)

Maweke was delighted and when the boy is questioned as to his purpose, Kila tells his grandfather he is seeking fish for his family. Maweke tells Kila to lead the fish back to his homeland. This is how Kila led the *akule*, *kawakawa* and *'ōpelu* to Hawai'i.

3. Paka'a and the wind gourd of La'amaomao (Keahiahi)

Kapa'a also figures prominently in the famous story of Pāka'a, and the wind gourd of La'amaomao. Pāka'a was the son of Kūanu'uanu, a high-ranking retainer of the Big Island ruling chief Keawenuia'umi (the son and heir to the legendary chief 'Umi), and La'amaomao, the most beautiful girl of Kapa'a and member of a family of high status kahuna. Kūanu'uanu left the island of Hawai'i, traveled throughout the other islands and finally settled on Kaua'i, at Kapa'a. It was there that he met and married La'amaomao, although he never revealed his background or high rank to her until the day a messenger arrived, calling Kūanu'uanu back to the court of Keawenuia'umi.

By that time, La'amaomao was with her child but Kūanu'uanu could not take her with him. He instructed her to name the child, if it turned out to be a boy, Pāka'a. Pāka'a was raised on the beach at Kapa'a by La'amaomao and her brother Ma'ilou, a bird snarer. He grew to be an intelligent young man and it is said he was the first to adapt the use of a sail to small fishing canoes. Although Pāka'a was told by his mother from a very young age that his father was Ma'ilou, he suspected otherwise and after constant questioning La'amaomao told her son the truth about Kūanu'uanu.

Intent on seeking out his real father and making himself known to him, Pāka'a prepared for the journey to the Big Island. His mother presented to him a tightly covered gourd containing the bones of her grandmother, also named La'amaomao, the goddess of the winds. With the gourd and chants taught to him by his mother, Pāka'a could command the forces of all the winds in Hawai'i. While this story continues on at length about Pāka'a and his exploits on the Big Island and later on Moloka'i, it will not be dwelt upon further here. It is important to note that several versions of this story do include the chants which give the traditional names of all of the winds at all the districts on all the islands, preserving them for this and future generations (Nakuina 1990; Rice 1923:69-89; Beckwith 1970:86-87; Thrum 1923:53-67; Fornander 1918-19 vol. 5 pt.1:78-128).

Frederick Wichman (1998:84) writes that Pāka'a grew up on a headland named Keahiahi. Here, Pāka'a learned to catch *mālolo*, his favorite fish. After studying the ocean and devising his plan to fabricate a sail, Pāka'a wove a sail in the shape of a crab claw and tried it out on his uncle's canoe. One day, after going out to catch *mālolo*, he challenged the other fishermen to race to shore. He convinced them to fill his canoe with fish suggesting it was the only way he could truly claim the prize if he won:

> The fishermen began paddling toward shore. They watched as Pāka'a paddled farther out to sea and began to fumble with a pole that had a mat tied to it. It looked so funny that they began to laugh, and soon they lost the rhythm of their own paddling. Suddenly Pāka'a's mast was up and the sail filled with wind. Pāka'a turned toward shore and shot past the astonished fishermen, landing on the beach far ahead of them. That night, Pāka'a, his mother, and his uncle had all the *mālolo* they could eat (Wichman 1998:85).

4. Kaweloleimākua

Kapa'a is also mentioned in traditions concerning Kawelo (Kaweloleimākua), Ka'ililauokekoa (Mō'īkeha's daughter, or granddaughter, dependent on differing versions of the tale), the *mo'o* Kalamainu`u and the origins of the *hīna'i hīnālea* or the fish trap used to catch the

hīnālea fish, and the story of Lonoikamakahiki (Fornander 1917, vol.4 pt.2:318, vol.4 pt.3:704-705; Rice 1923:106-108; Thrum 1923:123-135; Kamakau 1976:80).

5. *Kalukalu* grass of Kapa'a

"*Kūmoena kalukalu Kapa'a*" or "Kapa'a is like the *kalukalu* mats" is a line from a chant recited by Lonoikamakahiki. Kalukalu is a sedge grass, apparently used for weaving mats (Fornander 1917, Vol. IV, Pt. 2, pp. 318-19). Pukui (1983: 187) associates the *kalukalu* with lovers in "*ke kalukalu moe ipo o Kapa'a*; the *kalukalu* of Kapa'a that sleeps with the lover". According to Wichman (1998:84), "a *kalukalu* mat was laid on the ground under a tree, covered with a thick pile of grass, and a second mat was thrown over that for a comfortable bed", thus the association with lovers. Kaua'i was famous for this peculiar grass, and it probably grew around the marshlands of Kapa'a. It is thought to be extinct now, but an old-time resident of the area recalled that it had edible roots, "somewhat like peanuts." Perhaps it was a famine food source (Kapa'a Elementary School 1933:VI).

C. Heiau of Kapa'a

During their expeditions around Hawai'i in the 1880's, collecting stories from *ka pō'e kahiko*, Lahainaluna students stopped in Kapa'a and Keālia and gathered information regarding heiau of the region. All together, fourteen *heiau* were named in Kapa'a and Keālia, suggesting the two *ahupua'a* were probably more politically significant in ancient times. Table 1 lists the names of the ten heiau identified in the *ahupua'a* of Kapa'a, their location if known, their type, and associated chief and priest.

Table 1. *Heiau* of Kapa'a

Name	Location	Type	Associated
Mailehuna	Kapa'a (Mailehuna is the area of the present day Kapa'a School)	unknown	Kiha, Kaumuali'i/ Lukahakona
Pueo	Kapa'a	unknown	Kiha, Kaumuali'i/ Lukahakona
Pahua	Kapa'a/Keālia	unknown	Kiha/ Lukahakona
Kumalae	Kapa'a/Keālia	unknown	Kiha/ Lukahakona
Waiehumalama	Kapa'a/Keālia	unknown	Kiha/ Lukahakona
Napuupaakai	Kapa'a/Keālia	unknown	Kiha/ Lukahakona
Noeamakalii	Kapa'a/Keālia	"*heiau* for birth of Kaua'i Chiefs, like Holoholoku"	Unknown
Puukoa	Kapa'a/Keālia	"*unu* type heiau"	Unknown
Piouka	Kapa'a/Keālia	"*unu* type heiau"	Unknown
Una	Kapa'a/Keālia	Unknown	Kiha/ Lukahakona
Mano	Kapa'a/Keālia	Unknown	Kiha/ Lukahakona

Name	Location	Type	Associated
Kuahiahi	Kapa'a (govn't school stands on site now)	Unknown	Kaumuali`i/ Lukahakona
Makanalimu	Upland of Kawaihau	Unknown	Kaumuali'i
Kaluluomō'īkeha	Kapa'a	Unknown	Mō'īkeha

The exact locations of these heiau are unknown. The locations of two of the *heiau* correlate with the locations of *wahi pana* which are known to be in close to Kuahiahi and Kaluluomō'īkeha. Kuahiahi (also spelled Kaahiahi and Keahiahi) is the rocky headland at the north end of Kapa'a where the first Kapa'a School was once located. Kaluluomō'īkeha is thought to be the general area near the Mō'īkeha Canal and the present day Coral Reef Hotel

D. The Mahele: Kapa'a Land Commission Awards

The Organic Acts of 1845 and 1846 initiated the process of the Mahele, the division of Hawaiian lands, which introduced private property into Hawaiian society. In 1848 the crown and the ali`i received their lands. The common people received their *kuleana* in 1850. It is through records for Land Commission Awards (LCAs) generated during the Mahele that specific documentation of traditional life in Kapa'a Ahupua'a comes to light.

During the Mahele, Kapa'a was taken as Crown Lands (Office of the Commissioner of Public Lands of the Territory of Hawaii, 1929). The *'Ili* of Paikahawai and Ulakiu in Kapa'a Ahupua'a were retained as Government Lands.

Table 2. Mahele Land Claims in Kapa'a Ahupua'a

LCA	CLAIMANT	'ILI	LAND USE	AWARD
08843	Kiau and son, Apahu	Apopo, Kalolo Village	6 *lo'i*, small *kula* and house lot	2 *'āpana*; 2,75 acres
10564	Oleloa, Daniela	Kapa'a, Puna;	with one fish pond; 10 *lo'i* and a fish pond	No award in Kapa'a, Puna; award in Waioli, Halelea
08247	Ehu	Moalepe	approx. 20 *lo'i* lying waste, some orange trees	1 *'āpana*, Kapa'a
08837	Kamapaa	Awawaloa, Ulukiu Village	9 *lo'i*, and adjoining *kula*; house lot	Awawaloa: 1 *'āpana*; Wakiu 3 *'āpana*

LCA	CLAIMANT	'ILI	LAND USE	AWARD
03638	Huluili, Kahoiu (Kadaio)	Maeleele, Kaloko Village	15 *lo'i* in Maeleele and adjoining *kula*; house lot in village of Kaloko (Kalolo)	Maeleele: 2 apana, 5 acs.
03971 and 03243	Honolii, Ioane	Kahana, Kupanihi	6 uncultivated *lo'i*, house lot in Kupanihi Village	Kupanihi: 2 *'āpana*, 1 ac
03554 and 03599	Keo	Hahanui,	Entire *'ili* of Kahanui, 15 *lo'i*, house lot in Puhi Village	No Award in Kapa`a, Puna; Award in Waila`au, Kona.

The land claims during this period show that only five individuals were awarded land parcels in the relatively large *ahupua'a* of Kapa'a. The five awardees include Kiau (#08843), Kamapaa (#08837), Ioane Honolii (#03971) Huluili (#03638) and Ehu (#08247). In addition, two land claims (#10564 and #03554, 3559) were not awarded in Kapa'a. Four of the five awardees received multiple parcels which show similarities. All four had *lo'i* or irrigated *kalo* fields on the mauka side of the lowland swampy area, sometimes extending a short distance up into small, shallow gulches and valleys. Many of these *lo'i* parcels name pali or hills/cliffs as boundaries. Each LCA also had a separate house lot located on the *makai* side of the swamp, near the beach. Three of the land claims name ponds on their lands, including Puhi Pond (LCA #03554), Fishponds in Kupanihi 'Ili (LCA #03971) and Hahanui 'Ili (LCA #10564). Loko Kihapai may be the same as the Fishpond in Hahanui as it was named in the same land claim. The other two *loko* are associated with house lots, situated on the *makai* edge of the Kapa'a swamplands suggesting modification of the natural swamplands. Other natural and cultural resources mentioned in the LCAs include freshwater springs, pig pens, *hau* bushes, *hala* clumps, streams, *'auwai*, and *kula* or pasturelands.

Interestingly, the residential "village" of Kapa'a did not exist as a single entity, but was a series of probably small settlements or compounds, perhaps even individual house lots which stretched along the shoreline of the *ahupua'a* and included (south to north) Kupanihi (Makahaikupanihi), Kalolo (Kaulolo), Puhi, and Uluki.

The fifth individual, Ehu (LCA #08247), was the only person to be awarded a single parcel in the upland area of Kapa'a, Moalepe Valley, approximately five miles *mauka* of the coast and one mile southwest of the Mauka Locale project area. In 1848, when Ehu made his claim, he was the only one living there. A few years later, according to Honolii's testimony to support Ehu's claim, "There are no houses and no people now living on the land. Ehu found himself lonely there, all his neighbors having either died or left the land. Ehu now lives in Wailua." Evidently Ehu may have been the last person to live at and cultivate in the traditional way, the far *mauka* region of Kapa'a.

E. Early Historic Accounts of Kapa'a (1830's-1900's)

Although most of the historic record documents for Kaua'i in this period revolve around missionary activities and the missions themselves, there was indication that the Kapa'a area was being considered for new sugar cane experiments, similar to those occurring in Kōloa. In a historic move, Ladd and Company received a 50 year lease on land in Kōloa from Kamehameha III and Kaua'i Governor Kaikio'ewa of Kaua'i. The terms of the lease allowed the new sugar company "the right of someone other than a chief to control land" and had profound effects on "traditional notions of land tenure dominated by the chiefly hierarchy" (Donohugh, 2001: 88). In 1837, a very similar lease with similar terms was granted to Wilama Ferani, a merchant and U.S. citizen based in Honolulu (Hawai'i State Archives, Interior Dept., Letters, Aug. 1837). The lease was granted by Kauikeaouli for the lands of Kapa'a, Keālia and Waipouli for twenty years for the following purpose:

> ...for the cultivation of sugar cane and anything else that may grow on said land, with all of the right for some place to graze animals, and the forest land above to the top of the mountains and the people who are living on said lands, it is to them whether they stay or not, and if they stay, it shall be as follows: They may cultivate the land according to the instructions of Wilama Ferani and his heirs and those he may designate under him... (Hawai'i State Archives, Interior Dept., Letters, Aug. 1837).

Unlike Ladd & Company which eventually became the Kōloa Sugar Company, there is no further reference to Wilama Ferani and his lease for lands in Kapa'a, Keālia and Waipouli. In a brief search for information on Honolulu merchant, Wilama Ferani, nothing was found. It is thought that perhaps Wilama Ferani may be another name for William French, a well known Honolulu merchant who is documented as having experimented with grinding sugar cane in Waimea, Kaua'i at about the same time the 1837 lease for lands in Kapa'a, Keālia and Waipouli was signed (Joesting, 1984: 152).

In 1849, son of Wai'oli missionary, William P. Alexander, recorded a trip he took around Kaua'i. Although, he focuses on the larger mission settlements like Kōloa and Hanalei, he does mention Kapa'a.

> A few miles from Wailua, near Kapa'a we passed the wreck of a schooner on the beach, which once belonged to Capt. Bernard. It was driven in a gale over the reef, and up on the beach, where it now lies. A few miles further we arrived at Keālia. We had some difficulty crossing the river at this place, owing to the restiveness of our horses. The country here near the shore was rather uninviting, except the valley which always contained streams of water (Alexander, 1991: 123).

In later years, the notorious Kapa'a reef was to become the location of many shipwrecks once a landing was built there in the 1880s.

The first large scale agricultural enterprise in Kapa'a began in 1877 by the Makee Sugar Plantation and the *Hui* Kawaihau (Dole, 1916: 8). The *Hui* Kawaihau was originally a choral society begun in Honolulu whose membership consisted of many prominent names, both Hawaiian and *haole*. It was Kalākaua's thought that the *Hui* members could join forces with

Makee, who had previous sugar plantation experience on Maui, to establish a successful sugar corporation on the east side of Kaua'i. Captain Makee was given land in Kapa'a to build a mill and he agreed to grind cane grown by Hui members. Kalākaua declared the land between Wailua and Moloa'a, the Kawaihau District, a fifth district and for four years the *Hui* attempted to grow sugar cane at Kapahi, on the plateau lands above Kapa'a. After a fire destroyed almost one half of the *Hui's* second crop of cane and the untimely death of one of their principal advocates, Captain James Makee, the Hui began to disperse and property and leasehold rights passed on to Makee's son-in-law and new Makee Plantation owner, Colonel Z.S. Spalding (Dole, 1916: 14).

As part of the infrastructure of the new plantation, a sugar mill was erected and the Makee Landing was built in Kapa'a during the early years of the Makee Sugar Plantation. Following Captain Makee's death, Colonel Spalding took control of the Plantation and in 1885 moved the mill to Keālia (Cook, 1999: 51). The deteriorating stone smokestack and landing were still there well into the 1900s (Damon, 1931:359). Condè and Best (1973:180) suggest that railroad construction for the Makee Plantation started just prior to the mid 1890's. There is one reference to a railroad line leading from the Kapa'a landing to Keālia in 1891. During Queen Lili'uokalani's visit to Kaua'i in the summer of 1891, the royal party was treated to music by a band, probably shipped in from O'ahu. "The band came by ship to Kapa'a and then by train to Keālia" (Joesting, 1984:252). This line is depicted on a 1910 USGS map which shows the line heading south from Keālia Mill and splitting near the present Coral Reef Hotel, one finger going to the old Kapa'a Landing (Makee Landing) and another line heading *mauka*, crossing the present Mō'īkeha Canal, traveling southwest up Lehua Street and through what is now goat pasture, along a plateau and into the *mauka* area behind Kapa'a swamplands. This railroad line was part of a twenty mile network of plantation railroad with some portable track and included a portion of Keālia Valley and in the *mauka* regions of the plateau lands north of Keālia (Condé and Best, 1973:180).

By the late 1800's, Makee Plantation was a thriving business with more than one thousand workers employed (Cook, 1999:51). Hundreds of Portuguese and Japanese immigrants found work on Makee Plantation and the new influx of immigrants required more infrastructure. In 1883, a lease for a school lot was signed between Makee Sugar Company and the Board of Education (Kapa'a School, 1983: 9). Stipulations found in the Portuguese immigrant contracts with Makee Sugar Company stated that "children shall be properly instructed in the public schools" (Garden Island, April 1, 1983). The original Kapa'a School was constructed in 1883 on a rocky point adjacent to the Makee Sugar Company railroad. Traditionally, this point was known as Kaahiahi (Kapa'a School, 1983: 10). In 1908, Kapa'a School was moved to its present site directly *mauka* and up the hill at Mailehune.

A 1905 map of Kapa'a by Fred E. Harvey shows sugarcane cultivation (field 25) where the present day Makai Locale 1 project area is located. Also shown are railroad tracks running just northeast of the Makai Locale 1.

As in much of the rest of Hawai'i, the Chinese rice farmers began cultivating the lowlands of Kapa'a with increasing success in the latter half of the 1800s. Several Hawaiian *kuleana* owners leased or sold their parcels *mauka* of the swamp land to Chinese rice cultivators. Other Chinese rice cultivators appeased to the government for swamplands first leasing and later buying. As a result of the growing rice and sugar industries, the economic activity displaced the house lot *kuleana* on the *makai* side of the marsh for increasing commercial and residential development (Lai, 1985:148-161).

Narrow wagon roads gave way to macadamized roads in the early part of the 20th century. This new road was called the Kaua'i Belt Road and parts of it are thought to have followed the "Old Government Road" (Cook, 1999). In Kapa'a, the present day Kūhiō Highway probably follows the same route as the original Government Road and subsequent Kaua'i Belt Road. The location of the *kuleana* awards in Kapa'a indicates that the majority of the house lots were situated along the Government Road. LCA 3243 names a "road" as one of its boundaries.

F. 20th Century History of Kapa'a (1900-Present)

In the early 1900's, government lands were auctioned off as town lots in Kapa'a to help with the burgeoning plantation population. One *kama'āina* mentioned that in the 1930's and 1940's, the area north of Mō'īkeha Canal in Kapa'a was mostly settled by Portuguese families (Bushnell et al. 2002). The Japanese were also very prominent in the 1920s and 1930s largely replacing the Chinese merchants of the turn of the century in the Kapa'a business sector (Bushnell et al. 2002). The Board of Health, Territory of Hawaii ran a dispensary in Kapa'a at the *makai* edge of Niu Street near the Kapa'a Beach Park parking lot, adjacent to the bike path starting 1926. The lot is presently vacant. A Fire Station was once located in the area now occupied by the Coral Reef Hotel and a Courthouse and jail cell once stood at the location of the present Kapa'a Neighborhood Center. It is not known when these structures were removed or abandoned.

In 1913, Hawaiian Canneries opened in Kapaa at the site now occupied by Pono Kai Resort (Cook, 1999: 56). Through the Hawaiian Organic Act, Hawaiian Canneries Company, Limited purchased the land they were leasing, approximately 8.75 acres, in 1923 (Bureau of Land Conveyances, Grant 8248). A 1923 sketch of the cannery shows only four structures, one very large structure assumed to be the actual cannery and three small structures *makai* of the cannery. A 1933 historic photograph of Kapa'a Town shows an ironwood windbreak on the *makai* side of the cannery adjacent to the railroad. By 1956, 1.5 million cases of pineapple were being packed. By 1960, 3400 acres were in pineapple and there were 250 full time employees and 1000 seasonal employees for the Kapa'a Cannery (Honolulu Advertiser, March 20, 1960). In 1962, Hawaiian Canneries went out of business due to competition from third world countries.

The Ahukini Terminal & Railway Company was formed in 1920 to establish a railroad to connect Anahola, Keālia, Kapa'a to Ahukini Landing and "provide relatively cheap freight rates for the carriage of plantation sugar to a terminal outlet" (Condé and Best, 1973: 185). This company was responsible for extending the railroad line from the Makee Landing, which was no longer in use, to Ahukini Landing, and for constructing the original Waika'ea Railroad Bridge and the Mō'īkeha Makai Railroad Bridge.

In 1934, the Lihue Plantation Company absorbed the Ahukini Terminal & Railway Company and Makee Sugar Company (Condé and Best, 1973: 167). The railway and rolling stock formerly owned by Makee Sugar Company became the Makee Division of the Lihue Plantation. At this time, besides hauling sugar cane, the railroad was also used to haul plantation freight including "fertilizer, etc...canned pineapple from Hawaiian Canneries to Ahukini and Nawiliwili, pineapple refuse from Hawaiian Canneries to a dump near Anahola and fuel oil from Ahukini to Hawaiian Canneries Co., Ltd." (Hawaiian Territorial Planning Board, 1940: 11). Former plantation workers and *kama'āina* growing up in Kapa'a remember when the cannery would send their waste to the pineapple dump, a concrete pier just north of Kumukumu Stream (State Site No. 50-30-08-789:H) by railroad. The structure is built over the water where the rail cars would dump

the pineapple waste. The current would carry the waste to Kapa'a which would attract fish and sharks (Bushnell et al. 2002).

Lihue Plantation was the last plantation in Hawai'i to convert from railroad transport to trucking (Condé and Best, 1973: 167). "By 1957 the company was salvaging a part of their plantation railroad, which was being supplanted by roads laid out for the most part on or close to the old rail bed" (Ibid: 167). By 1959, the plantation had completely converted over to trucking. The Cane Haul Road which begins near the intersection of Haua'ala Road and Kūhiō Highway is thought to date to the late 1950s and follows the alignment of the old railroad until just before or near 'Āhihi Point.

Severe floods in Kapa'a in 1940 led to the dredging and construction of the Waika'ea and Mō'īkeha Canals sometime in the 1940s (Hawaii Territorial Planning Board, 1940: 7). Although the Waika'ea Canal, bordering the Kapa'a Pineapple Cannery, had been proposed as early as 1923, nothing was constructed until after the floods (Bureau of Land Conveyances, Grant 8248). A Master Plan for Kapa'a, published in 1940, asks the Territorial Legislature for funds to be set aside for the completion of a drainage canal and for filling *makai* and *mauka* of the canal (Hawaii Territorial Planning Board, 1940:7). In 1955, reports came out on the dredging for coral proposed for the reef fronting Kapa'a Beach Park (*Garden Island Newspaper*, September 21, 1955). The coral was to be used for building plantation roads. This dredging was later blamed for accelerated erosion along Kapa'a Beach (Garden Island Newspaper, October 30, 1963).

Today, there are several sea walls along the Kapa'a Beach Park to check erosion. Old time residents claim the sandy beach in Kapa'a was once much more extensive than it is now (Bushnell et al. 2002).

Keālia Town slowly dispersed after the incorporation of Makee Sugar Company into Lihue Plantation in the 1930s. Many of the plantation workers bought property of their own and moved out of plantation camps. The plantation camps which bordered Kūhiō Highway were disbanded in the 1980s. The Lihue Plantation began to phase out in the last part of the 20th century. Kapa'a Town suffered after the closing of the Kapa'a Cannery, however the growing tourist industry helped to ease the economic affects of the Cannery's closing.

III. PREVIOUS ARCHAEOLOGICAL RESEARCH

A. Archaeological Studies and Sites in Kapa'a Ahupua'a

The following table outlines the archaeological research (Table 3) and historic properties (Table 4) identified in Kapa'a Ahupua'a. These tables are followed by discussion of the research and historic properties. Table 3 provides a list of archaeological research conducted within Kapa'a Ahupua'a, including columns for source, location, nature of study, and findings. The locations of these archaeological studies are shown in Figure 4. Table 4 is a list of known historic properties within the ahupua'a and includes columns for state site numbers, site type, location and reference. The locations of identified sites within Kapa'a Ahupua'a are shown in Figure 5.

Table 3. Previous Archaeological Studies in coastal Kapa'a

Source	Location	Nature of Study	Findings
Bennett 1931	Island wideIdentifies 2 sites: Site 110 Taro terraces and bowl and Site 111 A large simple dirt Hawaiian ditch	Archaeological Reconnaissance	Identifies 2 sites: Site 110 Taro terraces and bowl and Site 111 A large simple dirt Hawaiian ditch
Handy and Handy 1972	Archipelago-wide	Native Planter study	Discusses "highly developed irrigation system"
Ching 1976	Just south of the Waikaea Drainage Canal	Archaeological Reconnaissance	No significant findings
Hammatt 1981	Upland Kapa'a	Archaeological Reconnaissance	No significant findings
Hammatt 1986	Upper reaches of the Makaleha stream valley.	Archaeological Reconnaissance	No significant findings
Hammatt 1991	Along Kūhiō Highway	Subsurface Testing	Identifies two sub-surface cultural layer sites
Kikuchi and Remoaldo 1992	Around Kapa'a Town	Cemeteries of Kaua'i	Identifies six cemeteries
Spear 1992	South side Waikaea Canal, *mauka* of Kūhiō.Highway. (TMK: 4-5-05:04, 09)	Monitoring Report	Designated subsurface site 50-30-08-547

Source	Location	Nature of Study	Findings
Chaffee, Burgett & Spear 1994a	A house lot near the corner of Kukui and Ulu Streets in *mauka* Kapa'a Town. (TMK: 4-5-09:10)	Archaeological Inventory Survey	No significant findings
Chaffee, Burgett & Spear 1994b	Māmane Street Kapa'a Town. (TMK: 4-5-09:51	Archaeological Inventory Survey	No significant findings
Hammatt, Ida & Chiogioji 1994	Proposed bypass routes *mauka* of Kapa'a Town	Archaeological Assessment	No new field work, reviews literature
Hammatt, Ida & Folk 1994	South side Waikaea Canal, *mauka* of Kūhiō Highway (TMK: 4-5-05:06)	Archaeological Inventory Survey	Weak cultural layer designated site 50-30-08-748
Kawachi 1994	Inia Street (Jasper) TMK 4-5-08:33	Burial Report	Designates Site 50-30-08-871
McMahon 1994	"behind the armory in Kapa'a near the god stones" The location is uncertain & "Buzz's near the Coconut Marketplace"	Documents second hand report of burials in two locations	Bones in 3 places reported from behind the armory, 16 bodies reported from the Buzz' s restaurant. No site numbers assigned
Creed, Hammatt, Ida, Masterson & Winieski 1995	Kapa'a Sewer line project, Kūhiō Highway, south and central Kapa'a Town	Archaeological Monitoring Report	Documents cultural layer of site -1848 and (an enlarged) site -1849 & recovery of thirty burials at sites –867, -868, -871, & -1894
Jourdane 1995	1382-A 'Inia Street, *makai* of Kūhiō Highway, central Kapa'a Town	Burial Report	Site 626
McMahon 1996	South side Waikaea Canal, *mauka* of Kūhiō Highway (TMK: 4-5-05:08)	Archaeological Inventory Survey	No significant cultural material
Hammatt, Chiogioji, Ida & Creed 1997	Test excavations focused inland of Kapa'a Town	Archaeological Inventory Survey	Four test trenches were excavated inland of Kapa'a Town
Borthwick and Hammatt 1999	Kapa'a Seventh-Day Adventist Church at 1132 Kūhiō Highway	Archaeological Monitoring and Burial Treatment Plan	Monitoring was indicated as this parcel lay within the designated Site 50-30-08-1848.

Source	Location	Nature of Study	Findings
Bushnell and Hammatt 2000	Seventh-Day Adventist Church, *makai* of Kūhiō Highway, south of the Waikaea Canal	Archaeological Monitoring Report	Minimal findings (one piece of worked bone)
Callis 2000	Kapa'a Beach Park	Burial Removal and Archaeological Monitoring Report	Human Burial
Perzinski and Hammatt 2001	Kūhiō Highway on the margins of the Waikaea Canal	Archaeological Monitoring Report	No significant cultural material
Elmore and Kennedy 2003	Kūhiō Highway	Archaeological Monitoring Report	No significant cultural material
Dega, Michael F. and James Powell 2003	Kūhiō Highway	Archaeological Monitoring Report	Human Burials

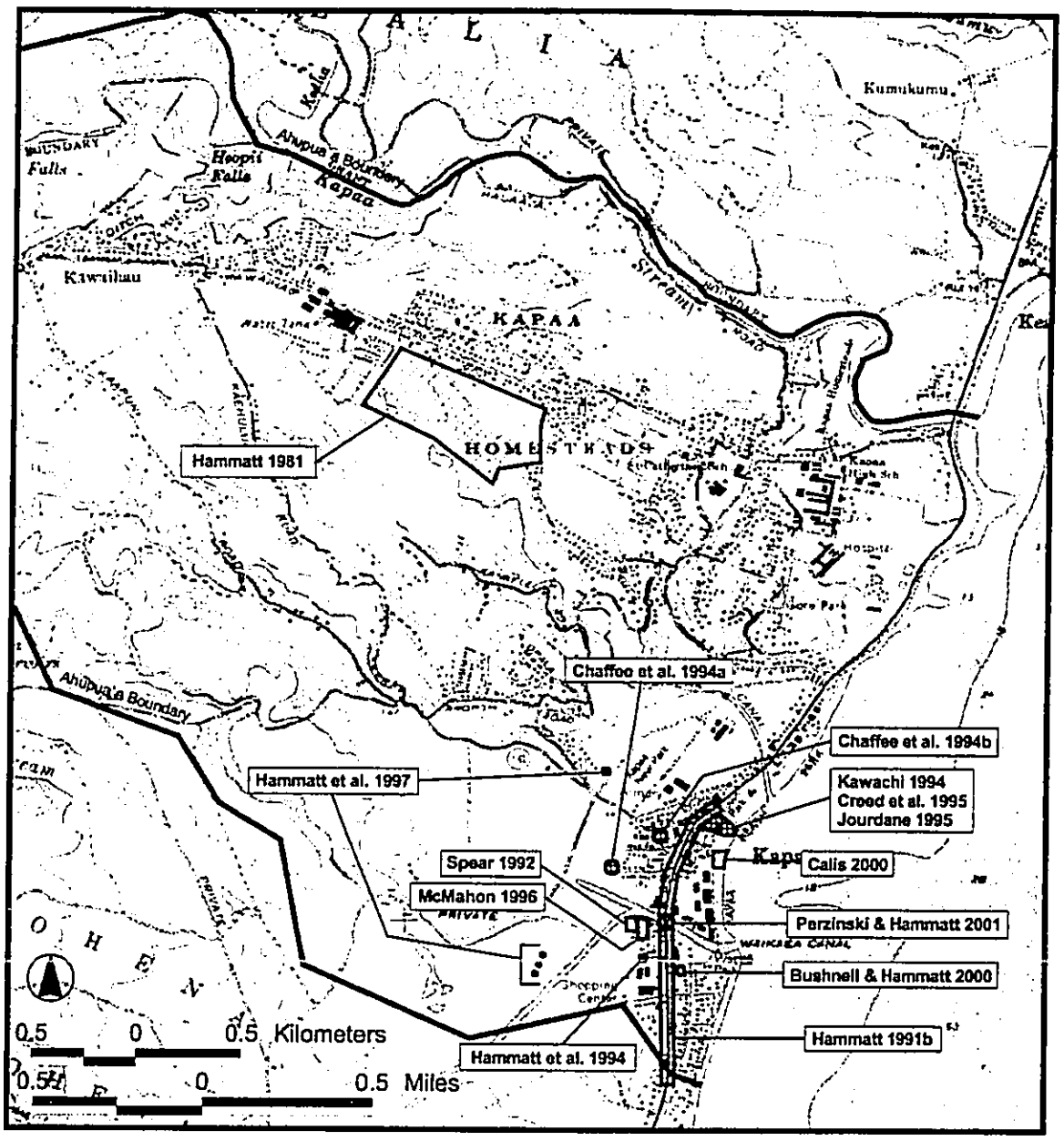

Figure 4. Map showing previous archaeological sites in Kapa'a. The majority of study areas are located within urban Kapa'a away from the shore and mountain areas.

Table 4. Historic Properties in Coastal Kapa'a Ahupua'a

Site # 50-30-08-	Site Type/ Name (if any)	Location	Site Constraints	Reference
B001	Historic Cemetery	South of bend of Kapa'a Stream, a kilometer *mauka* from Kūhiō Highway	Appears to be a discrete historic cemetery	Kikuchi and Remoaldo 1992
B002	Historic Cemetery	Just *mauka* from Kūhiō Highway, south of Kapa'a Stream	Appears to be a discrete historic cemetery	Kikuchi and Remoaldo 1992
B003	Kapa'a Public Cemetery	South of Kanaele Road, approximately one kilometer inland of Kūhiō Highway	Appears to be a discrete historic cemetery	Kanaele Road; Kikuchi and Remoaldo 1992
B004	Historic Cemetery	North of Apopo Road, approximately one kilometer inland of Kūhiō Highway	Appears to be a discrete historic cemetery	Kikuchi and Remoaldo 1992
B013	Historic Cemetery	Just *mauka* from Kūhiō Highway, north of the Waikaea Canal	Appears to be a discrete historic cemetery	Kikuchi and Remoaldo 1992
B014	All Saints Episcopal Church Cemetery	Just *mauka* from Kūhiō Highway, south of the Waikaea Canal	Appears to be a discrete historic cemetery	Kikuchi and Remoaldo 1992:62-65
-547	sub-surface features including a fire pit and a possible house foundation	South of bend of Waikaea Canal, *mauka* of Kūhiō Highway	Archaeological monitoring in the vicinity is recommended	Spear 1992:3

Site # 50-30-08-	Site Type/ Name (if any)	Location	Site Constraints	Reference
-626	Burial	Inia Street, *makai* of Kūhiō Highway, central Kapa`a	Consultation and monitoring in vicinity indicated	Jourdane 1995
-748	Minimal findings, a weak cultural layer (buried A-horizon)	South of the bend of the Waikaea Canal, *mauka* of Kūhiō Highway	Considered no longer significant within project area	Hammatt, Ida & Folk 1994
-867	1 set of human remains	Kukui Street, just *mauka* of Kūhiō Highway, Kapa`a Town	Consultation and monitoring in vicinity indicated	Creed et al. 1995:50
-868	1 set of human remains	Lehua Street *mauka* of Kūhiō Highway, Kapa'a Town	Consultation and monitoring in vicinity indicated	Creed et al. 1995:50
-871	13 sets of human remains (Creed et al. 1995:50)	Inia Street, *makai* of Kūhiō Highway	Consultation and monitoring in vicinity indicated	Kawachi 1994, Creed et al. 1995:50
1848	Cultural layer & sub	Along Kūhiō Highway between Wana Road and the Waikaea Drainage Canal	Archaeological monitoring in the vicinity is recommended	Hammatt 1991; Creed et al. 1995
-1849	Cultural layer & sub-surface features; Creed et al. 1995:53 expands boundaries to incl. burial sites, -626, -867, -868 - 871, and -1894	Along Kūhiō Highway between Inia Street and Kauwila Street extending to the coast	Consultation and monitoring in vicinity indicated	Hammatt 1991; Creed et al. 1995
-1894	11sets of human remains	Ulu Street, just N of Kūhiō Highway, Kapa'a Town	Consultation and monitoring in vicinity indicated	Creed et al. 1995:50

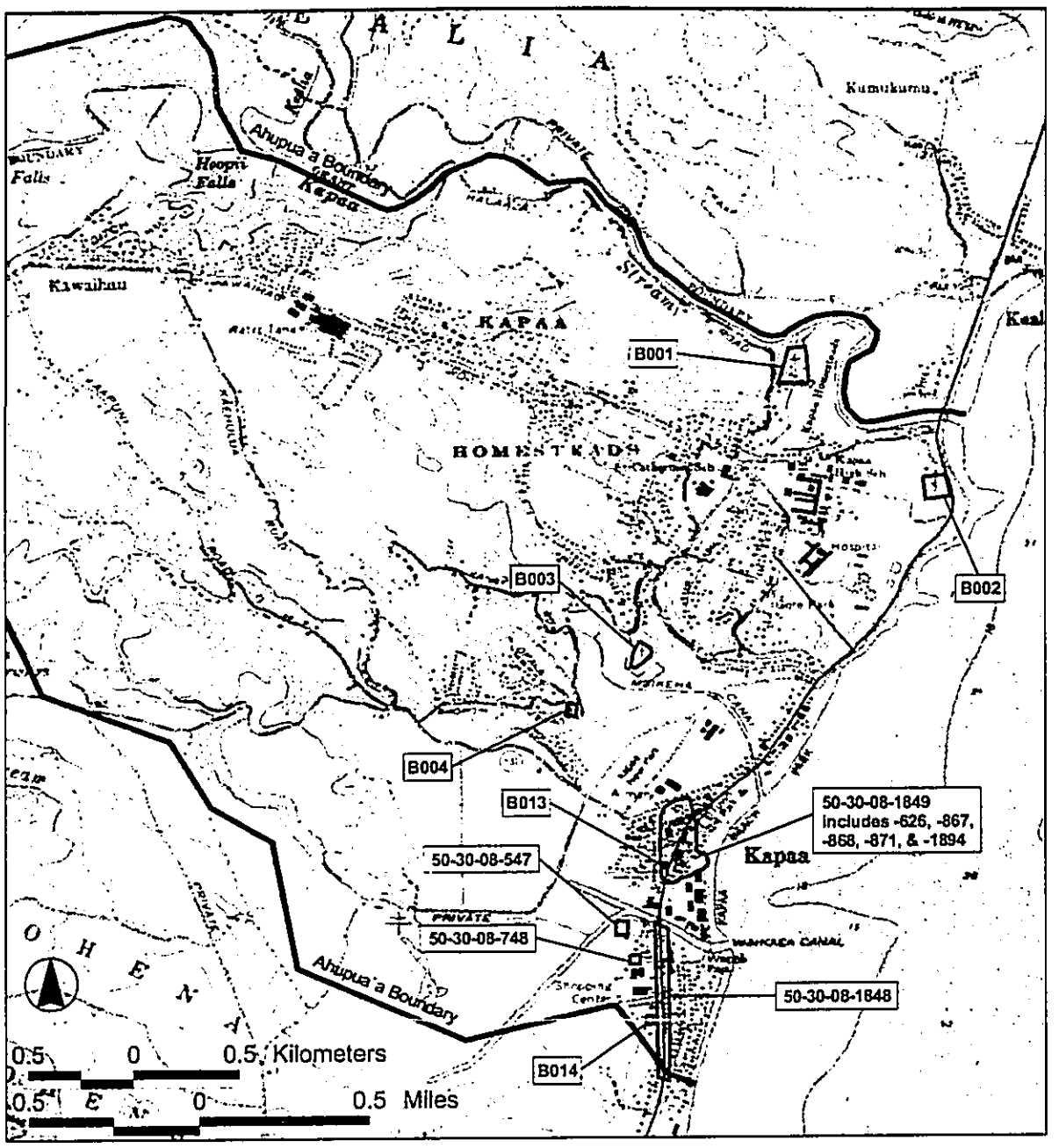

Figure 5. Map showing previously documented archaeological sites in Kapa'a.

B. Pattern of Archaeological Sites in Kapa'a

The pattern of archaeological studies in Kapa'a Ahupua'a is somewhat skewed with a dozen projects in urban Kapa'a Town and very little work along the coast (Figure 4). Major archaeological sites have been found in the Kapa'a Town area including extensive cultural layers with burials and other cultural features underlying Kūhiō Highway near All Saints Gym and near the older part of Kapa'a Town between Waika'ea Canal and Kapa'a Beach Park, *makai* of Kūhiō Highway (Hammatt 1991; Kawachi 1994; Creed et al. 1995; Jourdane 1995; Callis 2000). The *mauka-makai* extent of these cultural layers has not been clearly defined. These extensive cultural deposits associated with pre-historic and early historic habitation are known to exist in a relatively narrow sand berm that makes up the physiogeography of Kapa'a. The areas *mauka* of Kapa'a Town are marshy although much of it has been filled in recent decades. The five *kuleana* awarded during the Mahele are located adjacent to the present highway. The more *mauka* studies (Spear 1992,Chaffee et al. 1994a & 1994b, Hammatt et al. 1994, 1997, McMahon 1996) are thought to be located towards the *mauka* fringe of the sand berm, approaching more marshy conditions and have generally reported no significant or minimal findings. Less than 1.5 km to the south of Waika'ea Canal is another extensive subsurface, cultural deposit which is associated with a pre-contact fishing encampment located at the southern boundary of Waipouli adjacent to Uhalekawa'a Stream (Waipouli Stream) and the ocean (Hammatt et al. 2000).

Anticipated Sites based on historic and archaeological studies in *mauka* Kapa'a would be evidence of cane cultivation and historic railroad tracks for alternative Sites Makai Locale 1 and 2, and possible terracing for lo'i cultivation within the Mauka Locale.

IV. RESULTS OF FIELD CHECK

A. Mauka Locale

On June 10th, 2004, Cultural Surveys Hawai'i Inc. archaeologist Karl Van Ryzin, B.A., and supervising archaeologist David Perzinski, B.A., made a field inspection on the Mauka Locale proposed water tank installation project area. Access was made via Kahuna Road.

Survey transects oriented north-south were conducted within the project area. The Mauka Locale is relatively level with vegetation in the project area dominated by albezia, ginger, bamboo, papaya, *ti*, ferns, banana, California grass, and various weeds and vines (Figures 6 and 8). Modern-day trash was scattered along the northeast boundary near Kahuna Road (Figure 9). No archaeological sites were observed.

Figure 6. Mauka Locale project area, view to the south.

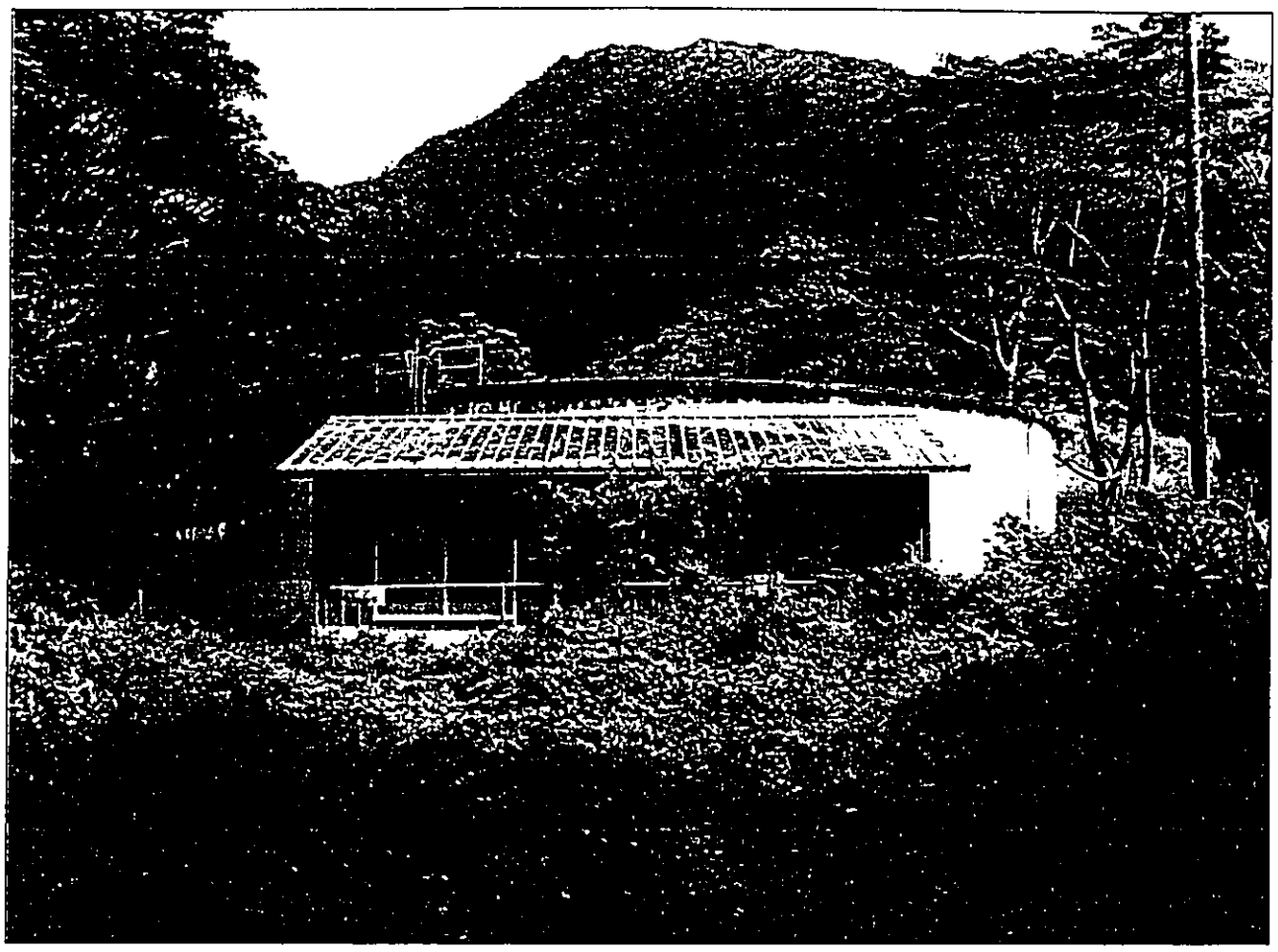

Figure 7. Existing water tank northwest of *mauka* project area, view to the northwest

Figure 8. Mauka Locale project area, view to the south.

Figure 9. Mauka Locale project area showing modern day trash along northeast boundary, view to the north.

V. RECOMMENDATIONS

The field checks examined the areas of proposed impact and found no archaeological sites or historic preservation concerns in the vicinity of any of the parcel. We recommend no further historic preservation work. As always, if in the unlikely event that any human remains or other significant subsurface deposits are encountered during the course of development activities all work in the immediate area should stop and the State Historic Preservation Division should be promptly notified.

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Bureau of Land Conveyances
Grant 8248

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VII. APPENDIX

A. Methods

On June 10th, 2004 a field inspection of alternative sites (Makai Locale 1 and Makai Locale 2) for the proposed water tank installation project area was conducted by Cultural Surveys Hawai'i Inc. archaeologist Karl Van Ryzin, B.A., and supervising archaeologist David Perzinski, B.A. Survey transects oriented north-south were conducted in both parcels with archaeologists spaced apart 10 m. Field observations were recorded and photographs were taken of the project areas. The work was conducted under the overall supervision of principal archaeologist Hallett H. Hammatt, Ph.D.

Historical research included a review of previous archaeological studies on file at the State Historic Preservation Division of the Department of Land and Natural Resources; studies of documents at Hamilton Library of the University of Hawai'i, and study of maps at the Survey Office of the Department of Land and Natural Resources. Nineteenth-century Land Commission Award claim records were accessed via the Internet from the Mahele Database prepared by Waihona 'Aina Corp.

B. Natural Setting

1. Makai Locale 1 Project Area

The Makai Locale 1 project area is located at the corner of Kawaihau Road and Ka'apuni Road (Figures 10 and 11) at an elevation of 91m (300ft) and approximately 4.18 km (2.6 mi) from the coast. Foote et al (1972) describes the soil in this area as being "Puhi Silty clay loam" (PnB) which is defined as being "well-drained soils on uplands on the island of Kaua'i. These soils developed in material derived from basic igneous rock. They are nearly level to steep. Elevations range from 175 to 500 feet." (Foote et al.1972). Makai Locale 1 receives an average annual rainfall of approximately 2000 mm (79 inches) (Giambelluca 1986:47). A brief summary of observations on the natural setting is presented in the results of field check section of this study.

2. Makai Locale 2 Project Area

The Makai Locale 2 project area is located approximately 400 m north of Lower Kapahi Reservoir and immediately south of Kapa'a Stream (Figures 10 and 12). The elevation runs from 60 m to 91 m (200-300 ft) and is approximately 4.59 km (2.85 mi) to the coast. Foote et al (1972) described three types of soils within this project area – rough broken land (rRR), rock outcrop (rRO), and Hanalei silty clay (HrB). Rough broken land consists of "very steep land broken by numerous intermittent drainage channels. In most places it is not stony. It occurs in gulches and on mountainsides on all the islands except Oahu. The slope is 40 to 70 percent. Elevations range from nearly sea level to about 8,000 feet. The local relief is generally between 25 and 500 feet. Runoff is rapid, and geologic erosion is active." (Foote et al.1972). Rock outcrop consists of "areas where exposed bedrock covers more than 90 percent of the surface. It occurs on all five islands. The rock outcrops are mainly basalt and andesite. This land type is gently sloping to precipitous. Elevations range from nearly seal level to 10,000 feet. ... This land

type is not suited to farming. It is used for water supply, wildlife habitat, and recreation" (Foote et al.1972). Hanalei silty clay consists of "somewhat poorly drained to poorly drained soils on bottom lands of the islands of Kaua'i and O'ahu. These soils developed in alluvium derived from basic igneous rock. They are level to gently sloping." (Foote et al.1972). Makai Locale 2 receives an average an annual rainfall of approximately 2000 mm (79 inches) (Giambelluca 1986:47). A brief summary of observations on the natural setting is presented in the results of field check section of this study.

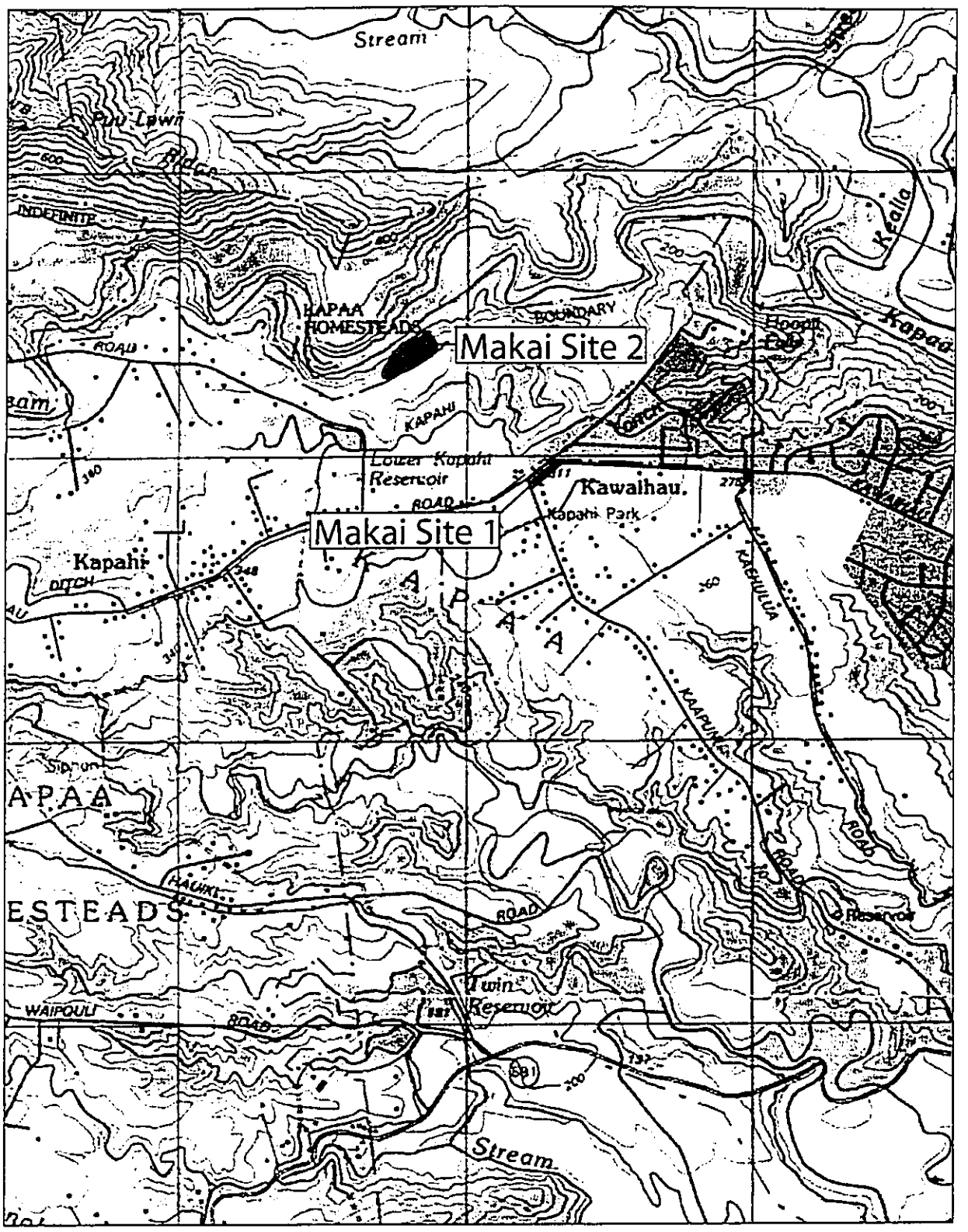

Figure 10 Portion of USGS map showing location of alternative sites Makai Site 1 and Makai Site 2

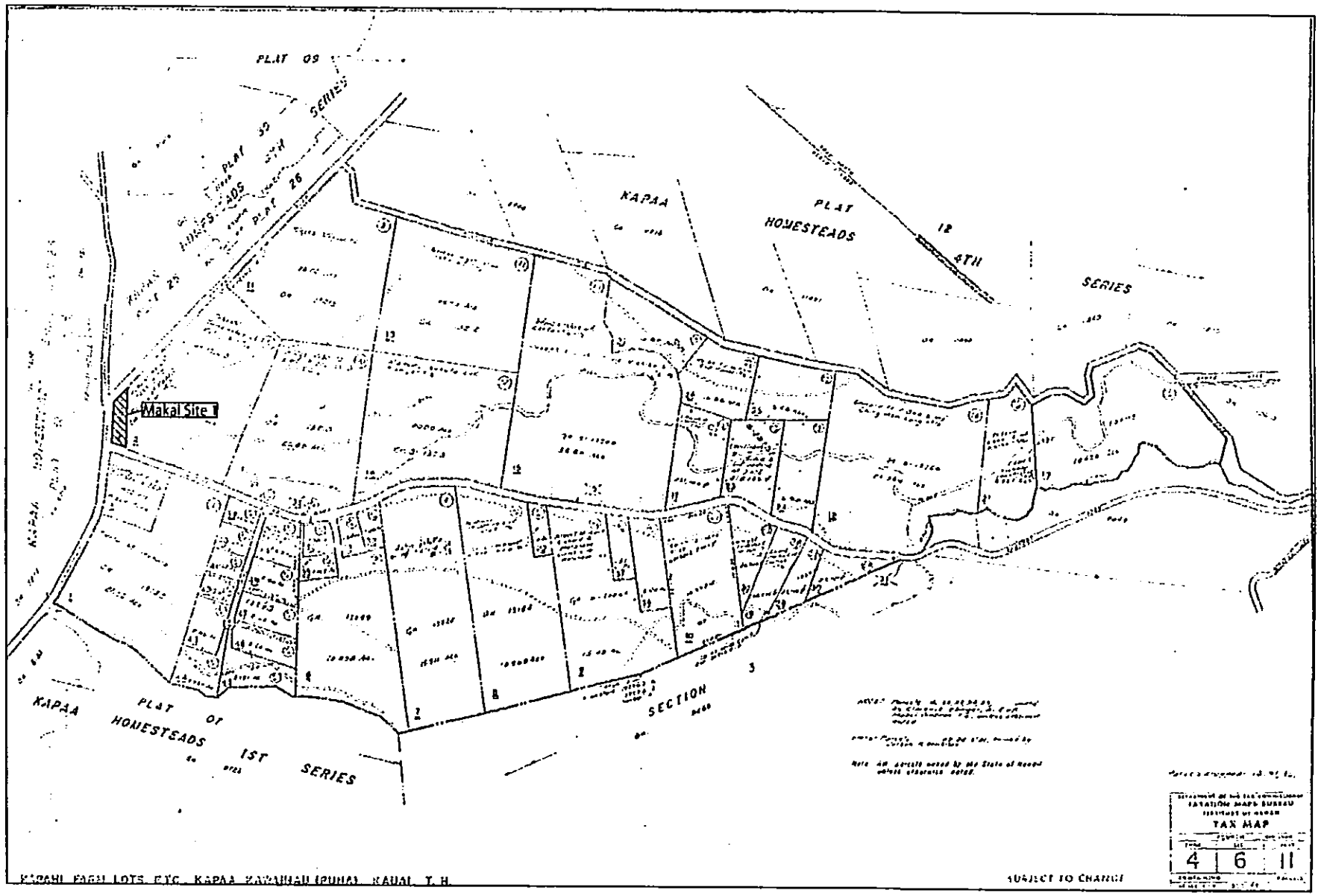

Figure 11 TMK 4-6-11 showing Makai Locale 1 project area

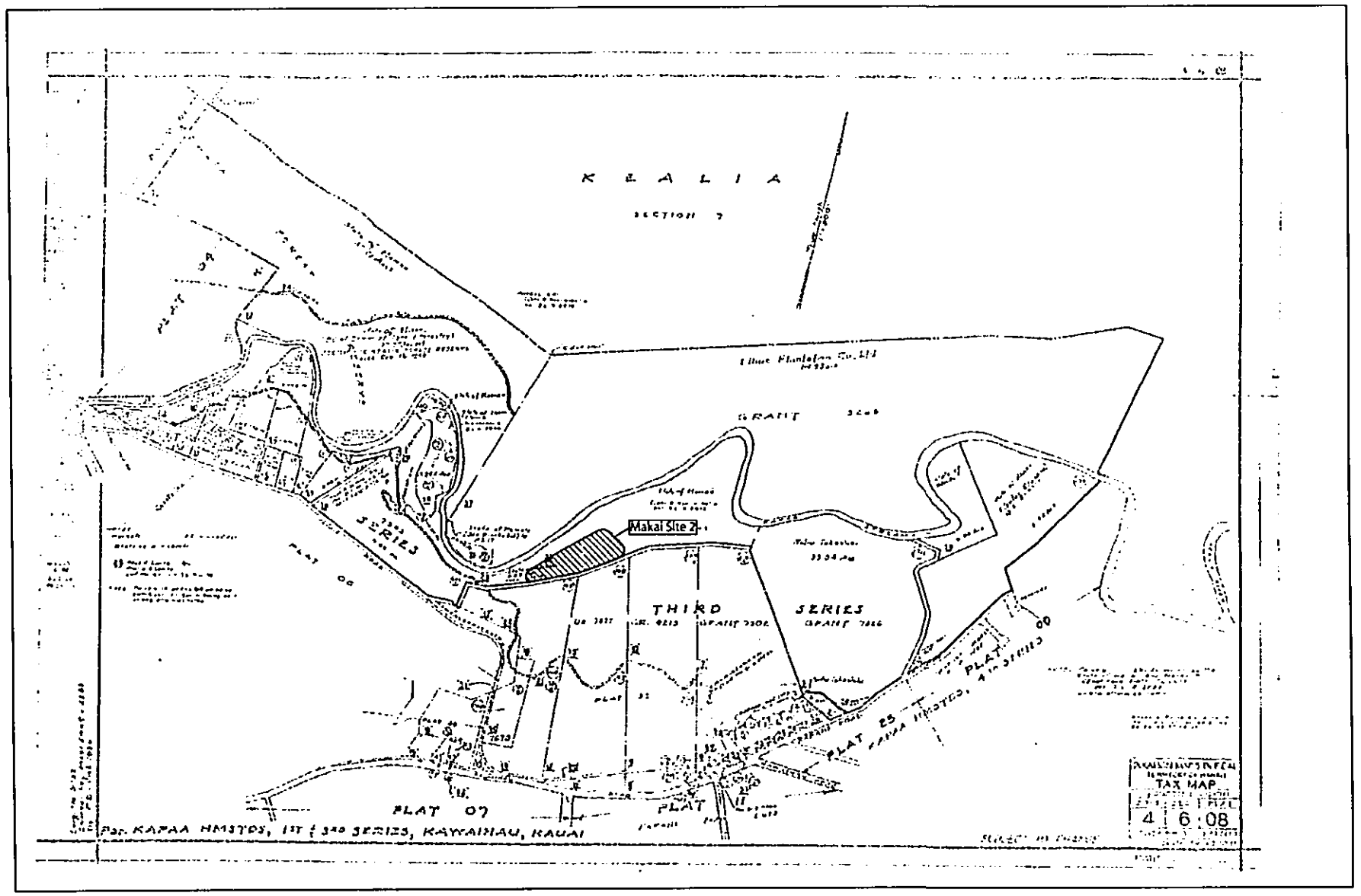

Figure 12. TMK 4-6-08 showing Makai Locale 2 project area.

C. Results of fieldwork

1. Makai Locale 1

On June 10th, 2004, Cultural Surveys Hawai'i Inc. archaeologist Karl Van Ryzin, B.A., and supervising archaeologist David Perzinski, B.A., made a field inspection of the Makai Locale 1 alternative water tank installation project area. Access was via Highway 56, turning off to the west on Highway 581, then turning off to the northwest on Kaehulua Road.

Makai Locale 1 is comprised of a 0.84-acre State property of which a portion is fenced and contains an existing 0.2 MG wooden reservoir (Figure 13). Survey transects oriented north-south were conducted through the project area. Based on observations the entire existing and proposed tank locale had previously been bulldozed and graded. The existing tank area consists of mowed grass lawn. The remainder of the property is an open, level pasture containing large patches of California grass, bananas, and various weeds and vines (Figures 14 and 15). No archaeological sites were observed. Based on background research Makai Locale 1 was, during the early 20th century, under sugar cane cultivation.

Figure 13. Fenced section of Makai Locale 1 project area, view to the southwest.

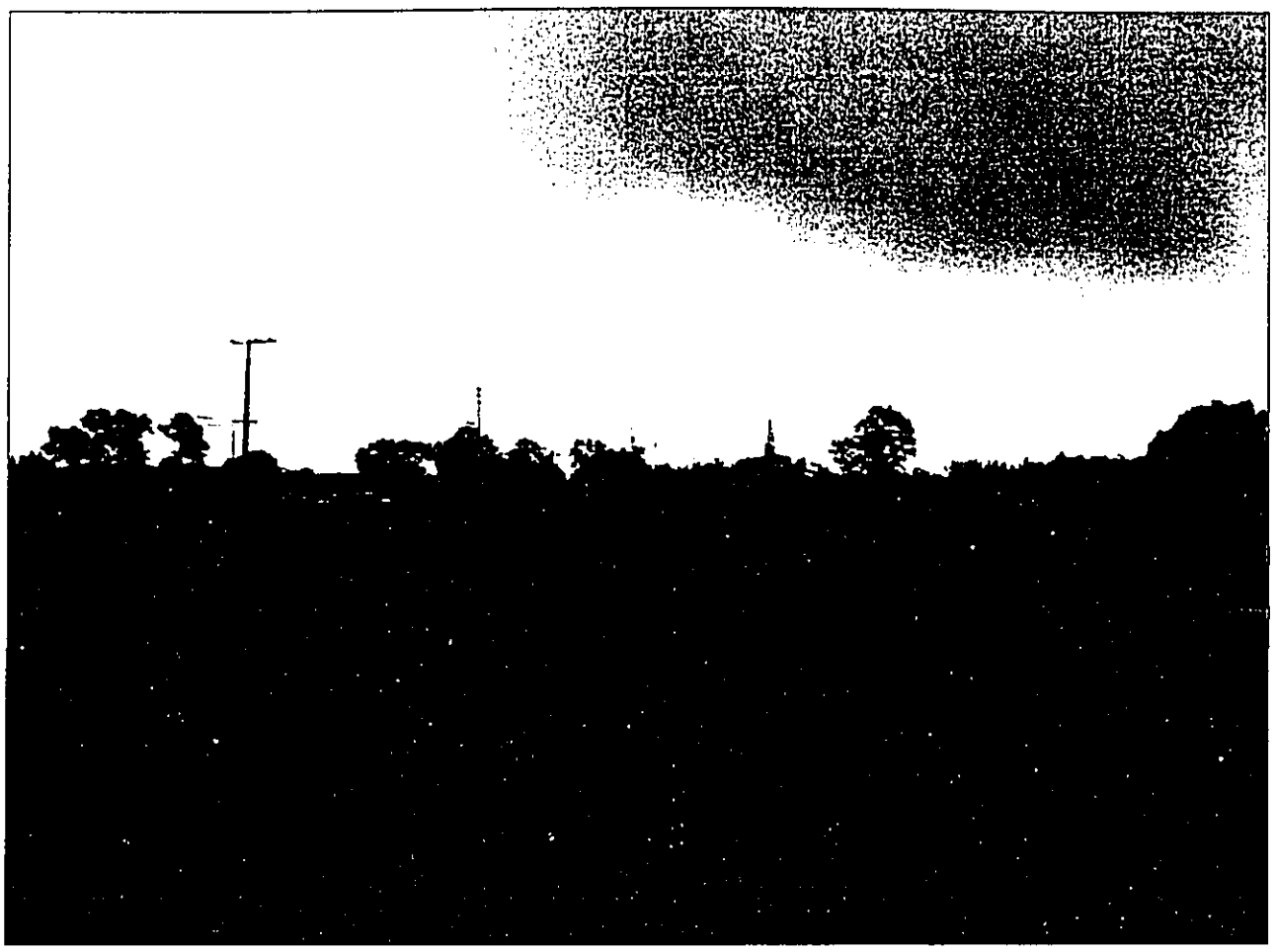

Figure 14. Makai Locale 1 project area, view to the east

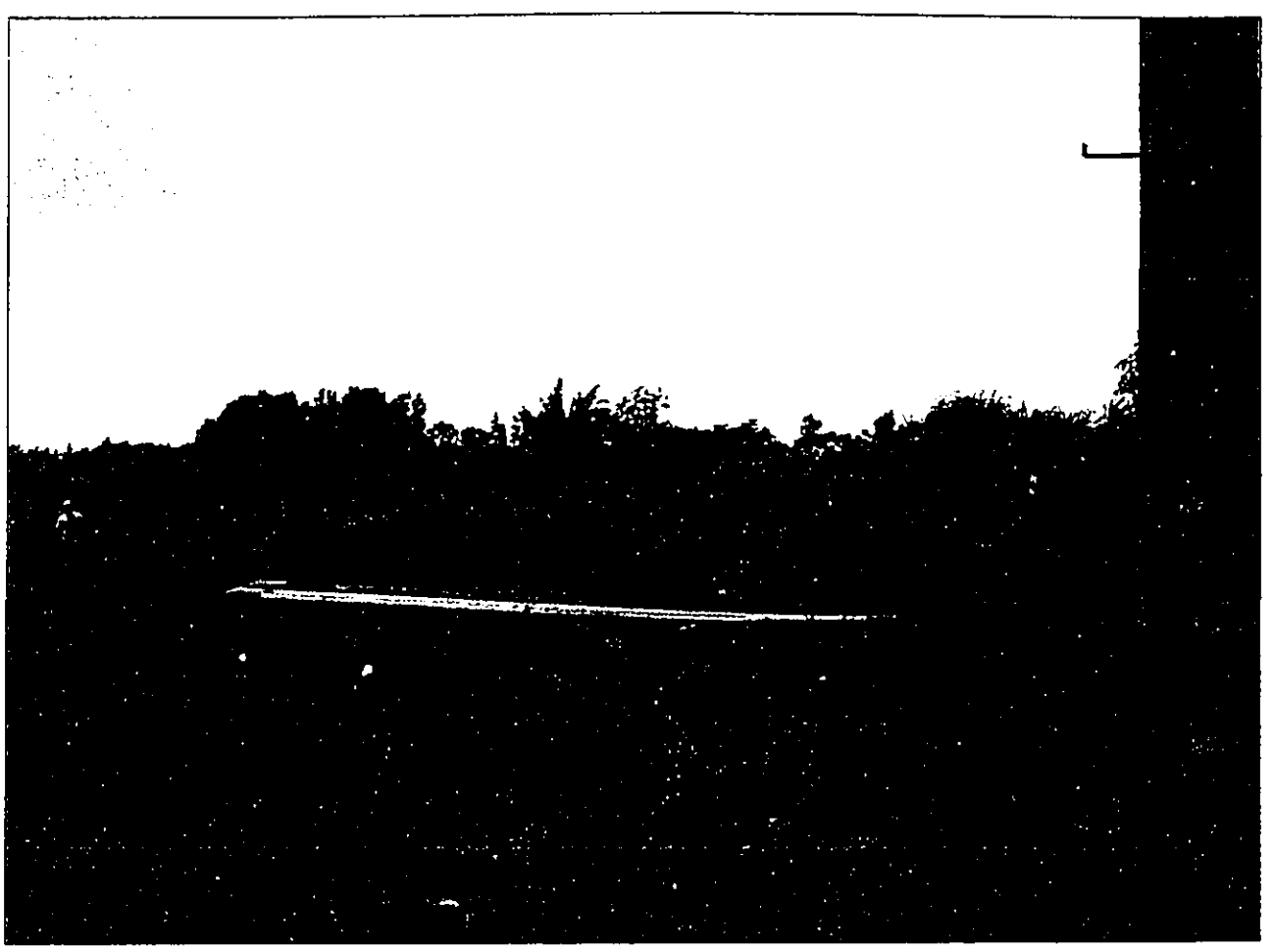

Figure 15. Makai Locale 1 project area, view to the southeast.

A. Makai Locale 2

On June 10th, 2004, Cultural Surveys Hawai'i Inc. archaeologist Karl Van Ryzin, B.A., and supervising archaeologist David Perzinski, B.A., made a field inspection on the Makai Locale 2 alternative water tank installation project area. Access was via an unmarked privately owned dirt road that runs northeast from Kahuna Road.

The Makai Locale 2 is comprised of an unmarked, approximately 3.7 acre site off a dirt access road and is located immediately south of Kapa'a Stream (Figure 12). The majority of the project area lies on a 45 to 90 degree angle slope that descends down into Kapa'a Stream (Figures 16 and 17). Survey transects oriented north-south were conducted throughout the relatively level upper portion of the project area. For the lower portion of the project area transects were done along the contour of the slope. Vegetation is dense with the project area dominated by ginger, ferns, *ti*, palms, albezia, and exotic grasses. No archaeological sites were observed.

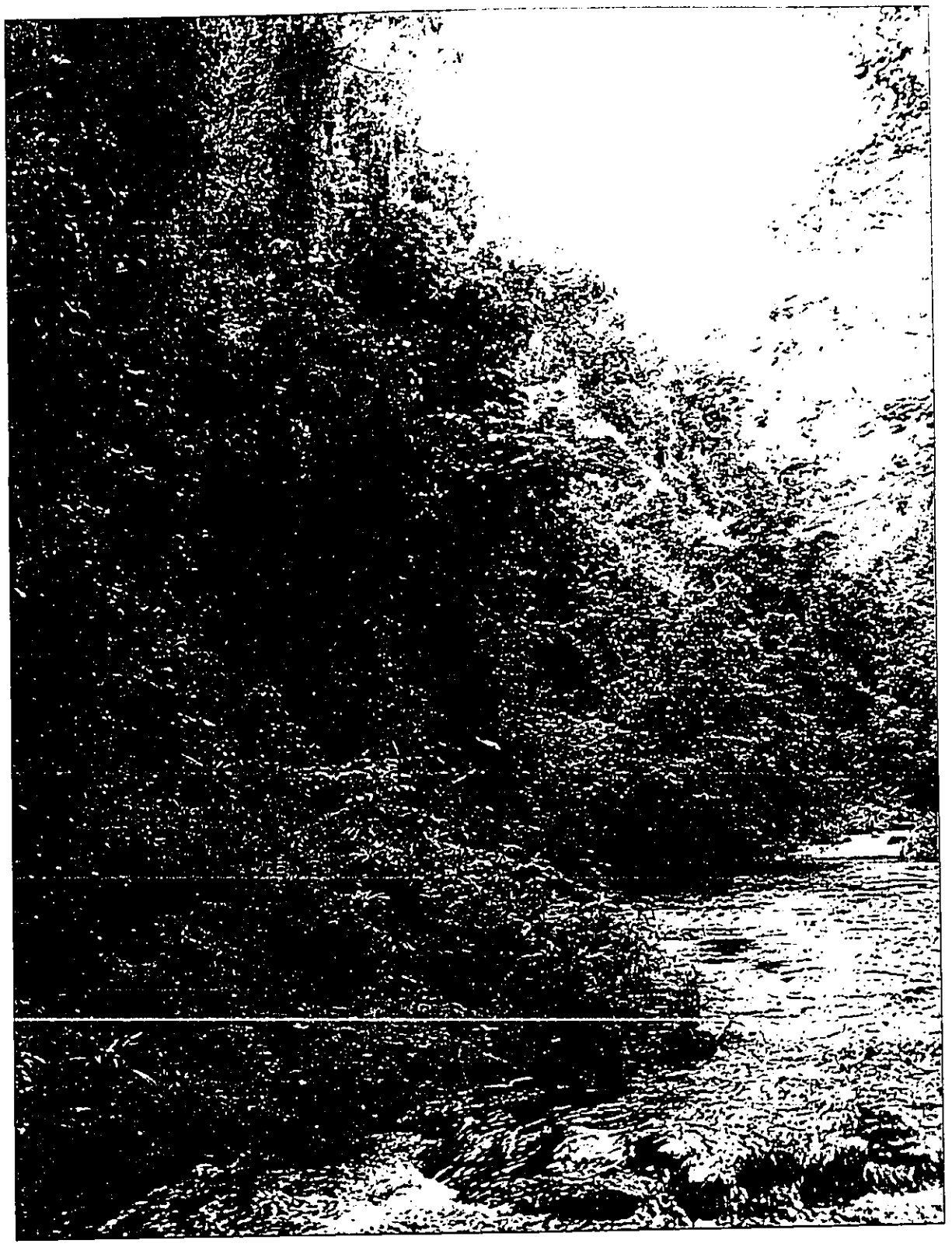

Figure 16. Makai Locale 2 project area south of Kapa'a stream showing steep slope, view to the west.

Figure 17. Makai Locale 2 project area showing dense vegetation and steep slope, view to the east.

B. Recommendations

The field checks examined the areas of proposed impact and found no archaeological sites or historic preservation concerns in the vicinity of any of the two alternative parcels. We recommend no further historic preservation work. As always, if in the unlikely event that any human remains or other significant subsurface deposits are encountered during the course of development activities all work in the immediate area should stop and the State Historic Preservation Division should be promptly notified.

APPENDIX D

Cultural Assessment Study

A Cultural Impact Assessment
For A Proposed Water Reservoir,
Kapa'a Ahupua'a, Kawaihau District, Kaua'i

TMKs 4-6-11:3, 4-6-08:24, 4-6-03:10

by

Auli'i Mitchell B.A.
and
Hallett H. Hammatt Ph.D.

Prepared for
Belt Collins Hawai'i Ltd.

by
Cultural Surveys Hawai'i, Inc.
October 2004

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I. INTRODUCTION

A. Project Background

At the request of Belt Collins Hawai'i Ltd., Cultural Surveys Hawai'i, Inc. (CSH) has conducted a cultural impact assessment for a proposed inland (*mauka)* water reservoir locality at Kapa'a, Kaua'i Island (TMK 4-6-3:10) (Figures 1 & 2). Two other alternate seaward (*makai*) possible localities (*Makai* 1 locale and *Makai* 2 locale) in Kapa'a (TMK 4-6-11:3, 4-6-08:24) were also assessed prior to the selection of the *mauka* locality as a preferred alternative for the proposed reservoir (See Appendix for data developed on the *makai* localities). This assessment was accomplished to address any historic preservation or cultural impact issues that might be raised by the proposed development of a water reservoir within one of the three parcels.

B. Scope of Work

Because of previous disturbance associated with the construction of the existing *mauka* and *makai* reservoirs and access roads a relatively modest scope of work was recommended. The agreed upon scope of work includes:

1) Examination of historical documents, Land Commission Awards, and historic maps, with the specific purpose of identifying traditional Hawaiian activities including gathering of plant, animal and other resources or agricultural pursuits as may be indicated in the historic record to develop a Cultural landscape background study,
2) A review of the existing archaeological information pertaining to the sites in the vicinity as they may allow us to reconstruct traditional land use activities and identify and describe the cultural resources, practices and beliefs associated with the parcel and identify present uses, if appropriate.
3) Limited consultations with agencies and individuals knowledgeable regarding the project area vicinity.
4) Preparation of a report on items 1-3 summarizing the information gathered related to traditional practices and land use. The report will assess the impact of the proposed action on the cultural practices and features identified.

C. Methods

Historical documents, maps and existing archaeological information pertaining to historical properties in the vicinity of this project were researched at the State Historic Preservation Division Library, Cultural Surveys Hawai'i Library, Asian Pacific Digital Library of Kapi'olani Community College, and the University of Hawai'i's Hamilton Library. The Office of Hawaiian Affairs, O'ahu Island Burial Council, Hui Mālama O Nā Kūpuna, and members of other community organizations were contacted in order to identify potentially knowledgeable individuals with cultural expertise and or knowledge of the study area and the surrounding vicinity. A discussion of the consultation process can be found in the section on "Community Consultations." Please refer to Table 5 for a complete list of individuals and organizations contacted.

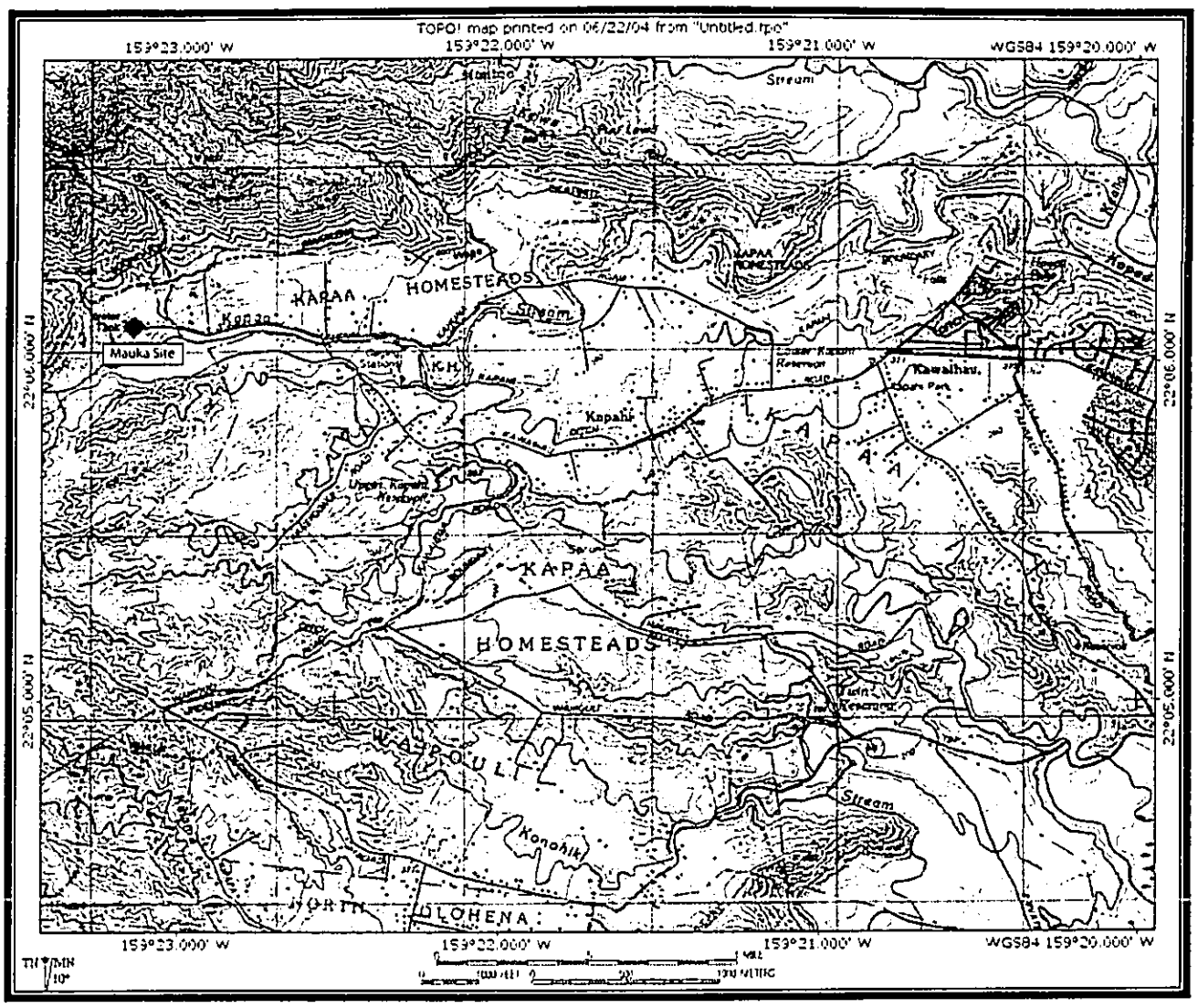

Figure 1. Portion of U.S. Geological Survey map showing, *mauka* project area

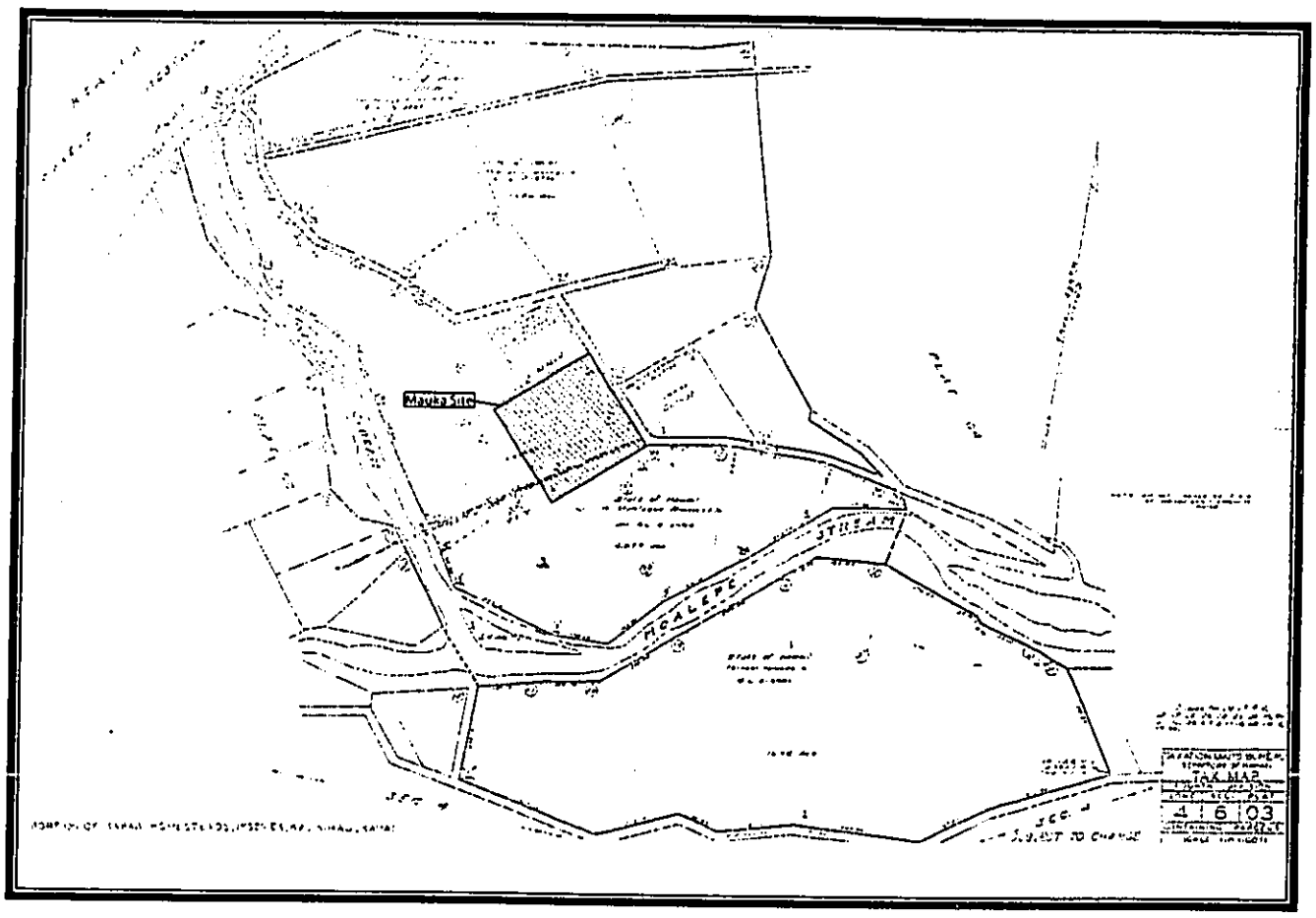

Figure 2. TMK Map 4-6-03 showing *mauka* project area

D. Natural Setting

The *Mauka* Locale project area is located in the uplands of Kapa'a Stream Valley west (*mauka*) of Kapa'a Town at Kapa'a Ahupua'a, Kawaihau District, on the east side of Kaua'i Island. The project area is located immediately south of where Kahuna Road terminates, just northeast of Makaleha Stream. The project area lies at an elevation of 150 m (500 ft) and is approximately 7.56 km (4.7 mi) from the coast. A significant landmark is an existing water tank that lies just west of the project area (see Figure 4). Foote et al (1972) described the soil in this area as being Kapa'a Silty clay. Kapa'a Silty clay consists of "well-drained soils on the uplands on the islands of Kaua'i and Oahu. These soils developed in material weathered from basic igneous rock. They are gently sloping to extremely steep. Elevations range from 200 to 800 feet." (Foote et al. 1972). The Mauka Locale receives an average an annual rainfall of approximately 2000 mm (79 inches) (Giambelluca et al. 1986:47). The area is relatively level with vegetation dominated by albezia, ginger, bamboo, papaya, *ti*, ferns, banana, California grass, and various weeds and vines (Figures 3-6). Modern-day trash was scattered along the northeast boundary near Kahuna Road (Figure 6). No archaeological sites were observed in the course of a companion archaeological assessment study (Van Ryzin and Hammatt 2004).

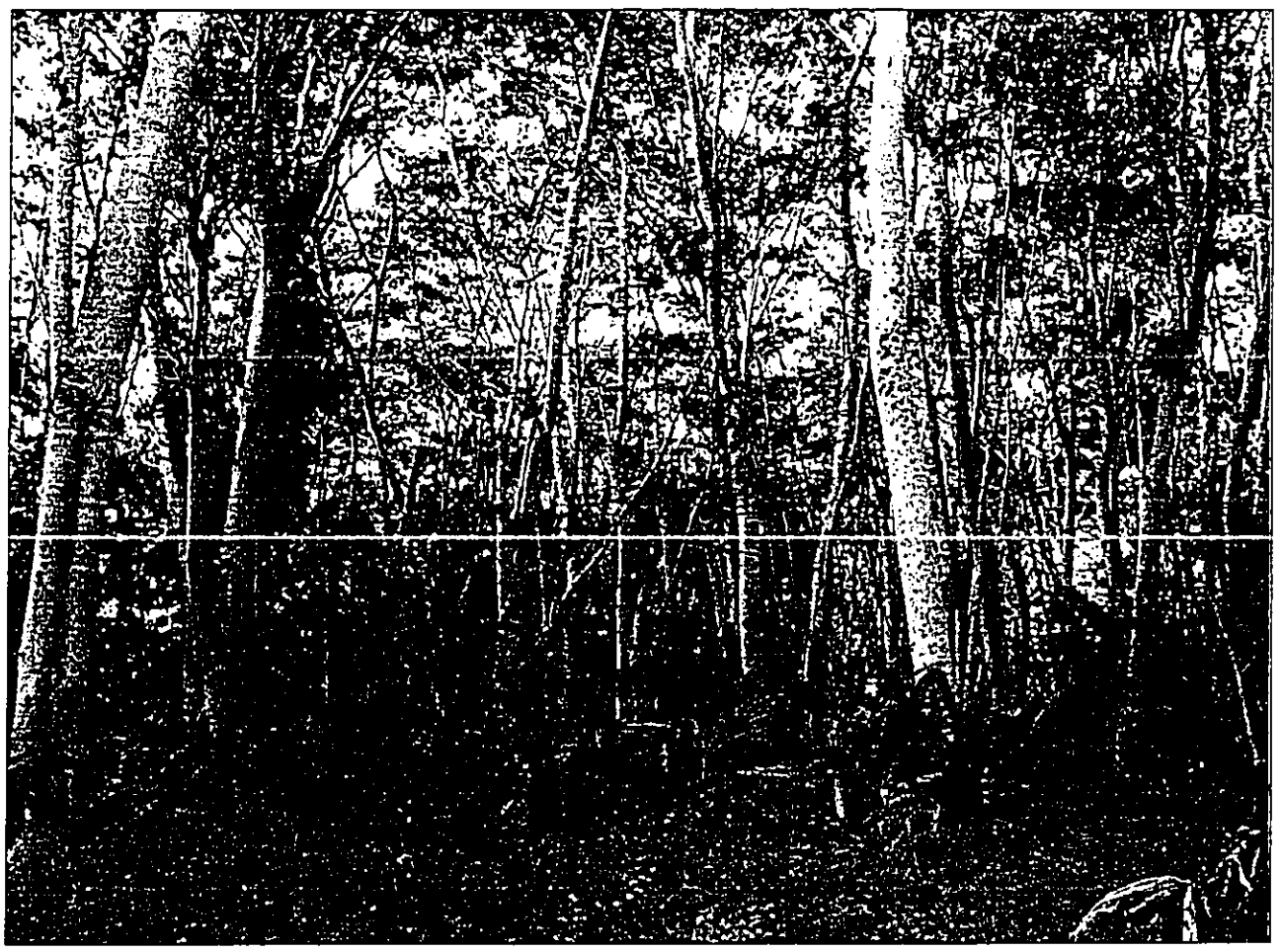

Figure 3. *Mauka* Locale project area, view to the south

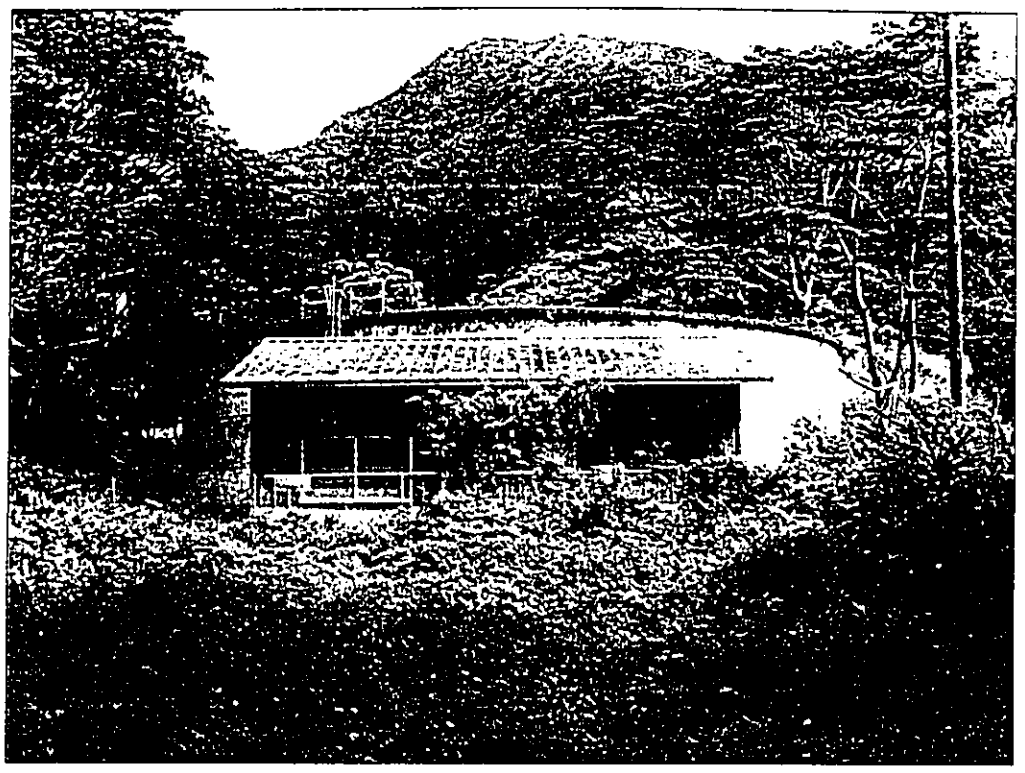

Figure 4. Existing water tank northwest of *Mauka* Locale project area, view to the northwest

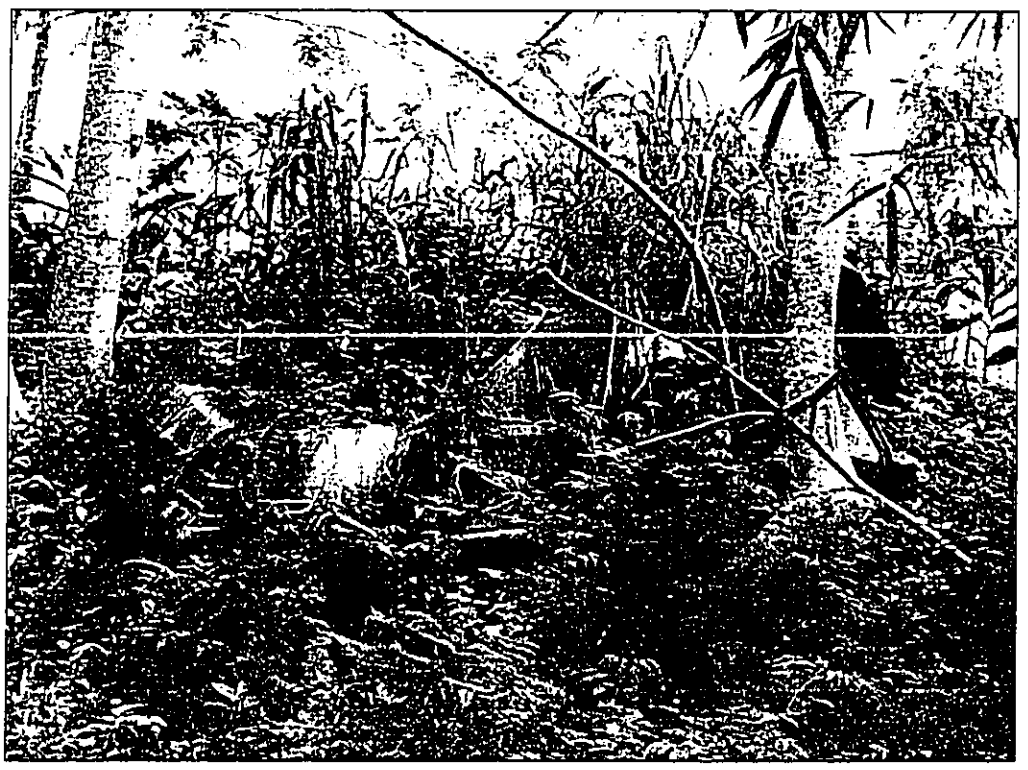

Figure 5. *Mauka* Locale project area showing modern day trash along northeast boundary, view to the north.

II. MYTHOLOGICAL AND TRADITIONAL ACCOUNTS OF KAPA'A

A. Introduction to the Mythological and Traditional Accounts of Kapa'a

Wichman (1998:84) notes the paradox that Kapa'a "is one of the largest *ahupua'a* of the Puna District [of Kaua'i] and the most bereft of legends." A brief overview of somer of the better documented mythological and traditional accounts of Kapa'a is presented below and is followed by a brief summation of their import.

B. Mythological and Traditional accounts of Kapa'a

1. Traditional Place Names of Kapa'a

Place Name	Reference	Meaning	Source
Apopo	*'Ili . pali*	"Tomorrow"?	LCA 8343, Soehren (2002:265)
Awawaloa	*'Ili*	long valley, gulch, ravine	LCA 8837, Soehren (2002:265)
Hahanui	*'Ili, pali,* stream	Lobelia plant?	LCA 10564, Soehren (2002:265)
Hoa	*Pali*	"Friend"?	Claim 3638:1, Soehren (2002:265)
Ho'opi'i	*Wailele*	"To cause to rise?"	Soehren (2002:265)
Humu'ula	*Pu'u*	"Jasper stone"?	Claim 8247, Soehren (2002:265)
Kahana	*'Ili*	"Cutting?"	Claim 3971 & 3243 Soehren (2002:265)
Kaloko	*Kauhale, kula*	"The pond"	Claim 3638
Kalolo	*Kauhale, kula*	"Liquor"?	Claim 3638, Soehren (2002:265)
Kamahuna	Pu'u	?	Soehren (2002:265)
Kamali'i	Ridge	"Children"	Soehren (2002:265)
Kapa'a	*Ahupua'a* name	The "solid"or "the closing"	Wichman (1998:84) Soehren (2002:265)
Kapahi	Village, stream	"The knife"	Soehren (2002:266)
Kapeku	*Lo'i*	"The kick"	Claim 8837, Soehren (2002:266)
Kaulolo	*Kauhale*	?	LCA 3638, Soehren (2002:266)
Keahiahi	Headland on the north associated with hero Pāka'a	"twilight"	Wichman (1998:84)

		Mythological and Traditional Accounts	
Keiwa	Ridge, boundary point	"The ninth"?	Soehren (2002:266)
Koalua	Surf	"Two coral heads"	Finney 1959, ʻĪʻī 1963, Soehren (2002:266)
Kolehaka	*Pali*	?	Claim 3971 & 3243, Soehren (2002:266)
Kolokolo	Name of a deep fresh water pond	"Soap Plant"	Wichman (1998:84)
Kolouna	*Pali*	*?*	Claim 8247, Soehren (2002:266)
Kupanihi	*ʻIli, kauhale*	*?*	LCA 3971 & 3243, Soehren (2002:266)
Māʻeleele	*ʻIli*	*"Numb"*	LCA 7638, Soehren (2002:266)
Makaleha	*Puʻu,* boundary point	Eyes looking about as in wonder and admiration	Boundary Commission, Soehren (2002:266)
Makanalimu	Place, *heiau*	"Gift of seaweed"	Pukui et al. (1974:141)
Makea	*ʻAuwai*	"Fallow land?	Claim 3599 & 3554, Soehren (2002:267)
Moalepe	*ʻIli*, stream	"Chicken comb"	LCA 8247, Soehren (2002:267)
Naele	*Pali*	"Swamp, bog"	Claim 8837, Soehren (2002:267)
Paikahawai	*ʻIli ku*	?	Soehren (2002:267)
Pōhākiʻikiʻi	*Puʻu*	Tilted stone	Soehren (2002:267)
Pōhakupili	*Puʻu,* boundary point	"Joined stone"	Soehren (2002:267)
Poʻo	Surf	"Head"	Finney 1959, Soehren (2002:267)
Pueo	*Pali*	"Owl"	Claim 8843, Soehren (2002:267)
Puhi	*Kauhale*, pond	"Eel?"	Claim 3599 & 3554, Soehren (2002:267)
Puohomaka	*Pali*	?	Claim 8837, Soehren (2002:267)
Pupukai	*Pali*	?	Claim 3638, Soehren (2002:267)

			Mythological and Traditional Accounts
Pu'u Ekeeke	*Pali*	?	Claim 8837, Soehren (2002:267)
Pu'u Lau'i'i	*Pu'u*, boundary point	*Lau'i'i* fern hill	Boundary Commission, Soehren (2002:267)
Ulakiu	*'Ili ku*		LCA 8837, Soehren (2002:267)
Waikaea	Ditch	?	Soehren (2002:268)
Wailē'ia	Rock, boundary point	"Abundant water"	Boundary Commission, Soehren (2002:268)

2. Heiau of Kapa'a

During their expeditions around Hawai'i in the 1880's, collecting stories from *ka pō'e kahiko*, Lahainaluna students stopped in Kapa'a and Keālia and gathered information regarding heiau of the region. All together, fourteen *heiau* were named in Kapa'a and Keālia, suggesting the two *ahupua'a* were probably more politically significant in ancient times. Table 1 lists the names of the ten *heiau* identified in the *ahupua'a* of Kapa'a, their location if known, their type, and associated chief and priest.

Table 1. *Heiau* of Kapa'a

Name	Location	Type	Associated
Mailehuna	Kapa'a (Mailehuna is the area of the present day Kapa'a School)	unknown	Kiha, Kaumuali'i/ Lukahakona
Pueo	Kapa'a	unknown	Kiha, Kaumuali'i/ Lukahakona
Pahua	Kapa'a/Keālia	unknown	Kiha/ Lukahakona
Kumalae	Kapa'a/Keālia	unknown	Kiha/ Lukahakona
Waiehumalama	Kapa'a/Keālia	unknown	Kiha/ Lukahakona
Nāpu'upa'akai	Kapa'a/Keālia	unknown	Kiha/ Lukahakona
Noeamakali'i	Kapa'a/Keālia	"*heiau* for birth of Kaua'i Chiefs, like Holoholoku"	Unknown
Pu'ukoa	Kapa'a/Keālia	"*unu* type heiau"	Unknown
Piouka	Kapa'a/Keālia	"*unu* type heiau"	Unknown
Una	Kapa'a/Keālia	Unknown	Kiha/ Lukahakona
Mano	Kapa'a/Keālia	Unknown	Kiha/ Lukahakona
Kuahiahi	Kapa'a (govn't school stands on site now)	Unknown	Kaumuali`i/ Lukahakona
Makanalimu	Upland of Kawaihau	Unknown	Kaumuali'i
Kaluluomō'īkeha	Kapa'a	Unknown	Mō'īkeha

The exact locations of these *heiau* are unknown. The locations of two of the *heiau* correlate with the locations of *wahi pana* or sacred places which are known to be in close to Kuahiahi and Kaluluomō'īkeha. Kuahiahi (also spelled Kaahiahi and Keahiahi) is the rocky headland at the north end of Kapa'a where the first Kapa'a School was once located. Kaluluomō'īkeha is thought to be the general area near the Mō'īkeha Canal and the present day Coral Reef Hotel

3. Kaililauokekoa the Chiefess of Kapa'a and the Lute Kanikawi

The tradition of Kaililauokekoa ("The leaf-bark of the Koa") tells the story of a daughter of Mō'īkeha who goes of to have adventures in the uplands with a certain youth of Pihanakalani who plays artfully on the musical instrument named Kanikawi. The residence of Mō'īkeha and Kaililauokekoa is said to have been at Kapa'a with a poetic reference to the grass ("the night drooping grass of Kapa'a"; see the discussion of the *Kalukalu* grass below). Mō'īkeha commanded his subjects to search for his errant daughter and "The valleys, pits, cliffs, hills and plains, were crowded with the common people." (Thrum 1923:131). Her lover is captured and is imprisoned down in Kapa'a. A boy surreptitiously brings the prisoner food by sneaking through the *Kalukalu* grass and *Ahuawa* rushes. Kahuna end up giving their blessing to the marriage of the young couple.

4. *Kalukalu* grass of Kapa'a

"*Kūmoena kalukalu Kapa'a*" or "Kapa'a is like the *kalukalu* mats" is a line from a chant recited by Lonoikamakahiki. *Kalukalu* is a sedge grass, apparently used for weaving mats (Fornander 1917, Vol. IV, Pt. 2, pp. 318-19). According to Wichman (1998:84), "a *kalukalu* mat was laid on the ground under a tree, covered with a thick pile of grass, and a second mat was thrown over that for a comfortable bed", thus the association with lovers. Kaua'i was famous for this peculiar grass, and it probably grew around the marshlands of Kapa'a. It is thought to be extinct now, but an old-time resident of the area recalled that it had edible roots, "somewhat like peanuts." Perhaps it was a famine food source (Kapa'a Elementary School 1983: VI).

Hawaiian sayings collected, translated, and annotated by Mary Kawena Pukui offer a unique opportunity to relish the wisdom, poetic beauty, and earthy humor of the Hawaiian Language. They reveal deeper layers of meaning, giving understanding not only of Hawai'i and its people but of all humanity. These sayings are considered to be the highest form of cultural expression in old Hawai'i, they bring one closer to the everyday thoughts and lives of the Hawaiians who created them (Pukui 1983: VII).

The following poetic sayings refer to the place of study, Kapa'a, Kaua'i: Pukui (1983: 187) associates the *kalukalu* with lovers in "*ke kalukalu moe ipo o Kapa'a*; the *kalukalu* of Kapa'a that sleeps with the lover":

> *Ka lulu o Mō'īkeha I ka laulā o Kapa'a.*
>
> *The calm of Mō'īkeha in the breadth of Kapa'a.*
>
> The chief Mō'īkeha enjoyed the peace of Kapa'a, Kaua'i, the place he chose as his permanent home

It is said the *kalukalu* is a fern somewhat like the *palapalai* (*Microlepia setosa*) famous to Kapa'a, Kaua'i. Mō'īkeha's love for Kapa'a is recalled in the *'ōlelo no'eau*, "*Ka lulu o Mō'īkeha i ka laulā o Kapa'a.*" "The calm of Mō'īkeha in the breadth of Kapa'a" (Pukui, 1983: 157):

Ke kalukalu moe ipo o Kapa'a.

The *kalukalu* of Kapa'a that sleeps with the lover.

Lovers were said to like whiling the time in the soft kalukalu plants.

5. Ka Lulu o Mō'īkeha

Kapa'a was the home of the legendary *ali'i*, Mō'īkeha. Born at Waipi'o on the island of Hawai'i, Mō'īkeha sailed to Kahiki (Tahiti), the home of his grandfather Maweke, after a disastrous flood. On his return to Hawai'i, he settled at Kapa'a, Kaua'i. Kila, Mō'īkeha's favorite of three sons by the Kaua'i chiefess Ho'oipoikamalani, was born at Kapa'a and was said to be the most handsome man on the island. It was Kila who was sent by his father back to Kahiki to slay his old enemies and retrieve a foster son, the high chief La'amaikahiki (Handy and Handy 1972:424; Beckwith 1970:352-358; Kalākaua 1888:130-135; Fornander 1916, vol.4 pt.1:160). "Lulu-o-Moikeha" understood as a place of ease of Mō'īkeha, is described as being situated "near the landing and the school of Waimahanalua" (Akina, 1913: 5). The landing in Kapa'a was known as the Makee Landing and was probably constructed in the late 1870s, along with the Makee sugar mill. Today, in place of the old Makee Landing is part of a breakwater located on the north side of Mō'īkeha Canal near the present day Coral Reef Hotel, and approximately half-a-mile north of Waikaea Bridge.

Akina (1913) tells the story of how Mō'īkeha's son, Kila stocks the islands with the fish *akule*, *kawakawa* and *'ōpelu*. When Kila travels to Kahiki, he seeks out his grandfather Māweke and explains that he is the child of Mō'īkeha. When Māweke asks Kila if Mō'īkeha is enjoying himself, Kila answers with the following chant:

My father enjoys the billowing clouds over Pōhaku-pili,
The sticky and delicious poi,
With the fish brought from Puna,
The broad-backed shrimp of Kapalua,
The dark-backed shrimp of Pōhakuhapai,
The potent '*awa* root of Maiaki'i,
The breadfruit laid in the embers at Makialo,
The large heavy taros of Kcahapana
The crooked surf of Makaīwa too
The bending hither and thither of the reed and rush blossoms,
The swaying of the *kalukalu* grasses of Puna
The large, plump, private parts of my mothers,
Of Ho'oipoikamalanai and Hinau-u,
The sun that rises and sets,
He enjoys himself on Kaua'i,
All of Kaua'i is Mō'īkeha's. (Akina, 1913: 6)

Māweke was delighted and when the boy is questioned as to his purpose, Kila tells his grandfather he is seeking fish for his family. Māweke tells Kila to lead the fish back to his homeland. This is how Kila led the *akule*, *kawakawa* and *ʻōpelu* to Hawaiʻi. See also accounts of Mōʻīkeha at Kapaʻa in Kalākaua (1888:124)

6. Kaweloleimākua

Kapaʻa is also mentioned in traditions concerning Kawelo (Kaweloleimākua), Kaʻililauokekoa (Mōʻīkeha's daughter, or granddaughter, dependent on differing versions of the tale), the *moʻo* or reptile Kalamainuʻu and the origins of the *hīnaʻi hīnālea* or the fish trap used to catch the *hīnālea* fish, and the story of Lonoikamakahiki (Fornander 1917, vol.4 pt.2:318, vol.4 pt.3:704-705; Rice 1923:106-108; Thrum 1923:123-135; Kamakau 1976:80).

7. Kanaka-Nunui-Moe-The Sleeping Giant

Frederick B. Wichman relates an account of Kauaʻi's Sleeping Giant:

> A long time ago, there was a giant living in Kawaihau among the low hills behind Kapaʻa town. He was so tall he could see above the coconut trees. If he sat very still, it was easy to mistake him for one of the hills. Anyone who did not know him was afraid of his great size, fearing the damage he might cause. However the people of Kawaihau loved him, for he was very friendly and went out of his way to be useful.
>
> This giant was always careful where he stepped so that he would not injure anyone and he never destroyed taro patches or houses with a careless foot. When he wished to rest, he sat on one of the small hills above Kapaʻa. The villagers were glad when this happened for his weight flattened the hilltop, making another plot of ground fit for cultivation.
>
> "He is very helpful," the Kapaʻa people said to astonished stranger who came to their land. "He does many things for us quickly that otherwise we could not do in many months."
>
> Wherever this giant stepped he left keep footprints and in these deep holes the people planted banana trees. The villagers threw leaves, taro peelings, and other vegetable rubbish into these holes. When a compost had been formed, they planted banana sprouts. In this way, the people of Kapaʻa always had ripe bananas to give to the giant, for banana was his favorite food.
>
> The giant yawned very often, for he was always sleepy. The gust of wind from his mouth often knocked down houses and blew the grass thatch into the sea. The giant was always very apologetic whenever this happened and he quickly brought logs from the uplands to rebuild the fallen houses and gathered *pili* for the thatching.
>
> He found it difficult to stay awake more than a hundred years at a time. When he could no longer fight against the drowsiness overpowering him, he would sleep using a small hill for a pillow. Because of this, the people called him Kanaka-nunui-moe, the sleeping giant.

When he slept, Nunui slept for hundreds of years while the winds blew dirt over him and seeds were dropped there by the birds. The gently showers sent by Ka-hale-*lehua*, goddess of the gentle rains, fed these seeds and forest grew up over the giant. When Nunui awoke and stretched, the people of Kapa'a fled in great fear, for what they had thought to be a hill had come alive.

One time, while Nunui was still awake, the high chief of Kawaihau wanted to build a large *heiau* to honor one of his gods. This was to be no ordinary temple. The chief wanted water-polished rocks for the walls and hard *koa* wood from Kōke'e for the framework of the god's house.

So the chief told the Kawaihau people what he wanted them to do. They must gather rocks from the golden brown waters of the Kōke'e streams and cut *koa* trees on the edges of Waimea canyon, and gather *pili* grass that grew at Mānā. "All this must be done in the turn of one moon," he ordered.

The unhappy people left their chief and silently returned to their village. The giant Nunui, stepping carefully among them, saw the long faces of the people.

"What is wrong?" he asked.

The Kapa'a villagers told him what they must do within the impossibly short time. "This cannot be done," the people said in low, sad voices. "How can we go to Kōke'e and bring back stones enough to build the walls in that time? And cut down the *koa* trees and bring the logs here and build the sacred house? And even if we do these things, who will cultivate our fields?"

Nunui smiled gently. "Tend to your fields," he said. "This work is nothing for me, and I'll gladly help you. Besides, it will give me something to do."

The giant went to Kōke'e and scooped up smooth, round boulders from the golden brown waters and brought them to Kapa'a. "Chief," he called to the astonished ruler, "show me where you wish to build this *heiau*."

The amazed chief pointed out the place set aside for the temple. Nunui placed the rocks to form a wall, fitting them so closely together that not even a mouse could squeeze between the cracks. Within a week, he had built a strong, thick, handsome wall around the sacred place.

Nunui returned to the edge of Waimea Canyon and cut down *koa* trees and trimmed them into the shaped he needed. He carried these back and made the framework of the house. He gathered *pili* grass form Mānā and wrapped the stems into bundles, tied these bundles to the framework, and within half the time the chief had set, the *heiau* was finished.

Everyone was happy. The farmers had been able to keep up with their chores, the chief had his *heiau*, and Nunui had something to do. There was even time enough a celebration. The chief ordered all his people to gather bananas and to pound sweet potatoes and taro into poi. Some people hurried to slaughter pigs and dogs to be cooked in the *imu*, while other paddled out to sea to fill their canoes with fish and sent their wives to gather seaweed and *'opihi* from the reef. At last, enough food for everyone was ready, and the chief, the villagers, and Nunui sat down before the overflowing bowls and platters.

"Eat," said the chief to Nunui. "After the work you have done, you must be hungry."

The giant ate all the food that had been put before him. When he was through, his stomach bulged and he was very sleepy. He chose a comfortable hill just a short distance above Kapa'a town. Nunui stretched a last time, lay down along the top of the hill, and soon was sound asleep.

As he slept through the years, the winds blew dirt over him and the birds brought seeds. Ka-hale-*lehua*, goddess of the gentle rains, sent showers to water the plants that now covered the giant.

So Kanaka-nunui-moe sleeps and sleeps and has come to resemble a long hill with a lump at one end where his nose is and lumps at the other ends where his feet are. He no long looks like a living being, but one day, perhaps soon, his eyes will open, he'll yawn and stretch his arms, and sit up. [Wichman 1985:13-16]

8. Lepeamoa

In the Legend of "Lepeamoa (The Chicken Girl of Pālama)"(Thrum 1923:177) is a reference to a fantastic battle at Kapa'a between Lepeamoa's brother, the hero Kauilani and a supernatural kupua called Akuapehuale ("god of swollen billows"):

> Kauilani struck him a heavy blow and the spear leaped again and again upon him, till he rolled into a mountain stream at a place called Kapa'a, out of which he crawled, almost drowned. Then he was driven along even to the image houses, where a fierce battle took place, in which the wooden images took part, many of them being torn to pieces by the teeth of Akuapehuale.

9. Pāka'a and the Wind Gourd of La'amaomao (Keahiahi)

Kapa'a also figures prominently in the famous story of Pāka'a, and the wind gourd of La'amaomao. Pāka'a was the son of Kūanu'uanu, a high-ranking retainer of the Big Island ruling chief Keawenuia'umi (the son and heir to the legendary chief 'Umi), and La'amaomao, the most beautiful girl of Kapa'a and member of a family of high status *kahuna*. Kūanu'uanu left the island of Hawai'i, traveled throughout the other islands and finally settled on Kaua'i, at Kapa'a. It was there that he met and married La'amaomao, although he never revealed his background or high rank to her until the day a messenger arrived, calling Kūanu'uanu back to the court of Keawenuia'umi.

By that time, La'amaomao was with child but Kūanu'uanu could not take her with him. He instructed her to name the child, if it turned out to be a boy, Pāka'a. Pāka'a was raised on the

beach at Kapa'a by La'amaomao and her brother Ma'ilou, a bird snarer. He grew to be an intelligent young man and it is said he was the first to adapt the use of a sail to small fishing canoes. Although Pāka'a was told by his mother from a very young age that his father was Ma'ilou, he suspected otherwise and after constant questioning La'amaomao told her son the truth about Kūanu'uanu.

Intent on seeking out his real father and making himself known to him, Pāka'a prepared for the journey to the Big Island. His mother presented to him a tightly covered gourd containing the bones of her grandmother, also named La'amaomao, the goddess of the winds. With the gourd and chants taught to him by his mother, Pāka'a could command the forces of all the winds in Hawai'i. While this story continues on at length about Pāka'a and his exploits on the Big Island and later on Molokai, it will not be dwelt upon further here. Several versions of this story include chants which give the traditional names of all of the winds at all the districts on all the islands, preserving them for this and future generations (Nakuina 1990; Rice 1923:69-89; Beckwith 1970:86-87; Thrum 1923:53-67; Fornander 1918-19 vol. 5 pt.1:78-128). The wind of Kapa'a is the Kēhau wind.

Frederick Wichman (1998:84) writes that Pāka'a grew up on the northern headland of Kapa'a named Keahiahi. Here, Pāka'a learned to catch *mālolo or flying fish*, his favorite fish. After studying the ocean and devising his plan to fabricate a sail, Pāka'a wove a sail in the shape of a crab claw and tried it out on his uncle's canoe. One day, after going out to catch *mālolo*, he challenged the other fishermen to race to shore. He convinced them to fill his canoe with fish suggesting it was the only way he could truly claim the prize if he won:

> The fishermen began paddling toward shore. They watched as Pāka'a paddled farther out to sea and began to fumble with a pole that had a mat tied to it. It looked so funny that they began to laugh, and soon they lost the rhythm of their own paddling. Suddenly Pāka'a's mast was up and the sail filled with wind. Pāka'a turned toward shore and shot past the astonished fishermen, landing on the beach far ahead of them. That night, Pāka'a, his mother, and his uncle had all the *mālolo* they could eat (Wichman 1998:85).

10. Palila and Ka'ea

High in the *mauka* region of Kapa'a in the Makaleha mountains at a place called Ka'ea, is reported to be the supernatural banana grove of the Kaua'i *kupua* or demigod Palila, grandson of Hina (Handy and Handy 1972:424). Joseph Akina for *Kū'oko'a* Newspaper in 1913 describes Palila's banana grove:

> The stalk could hardly be surrounded by two men, and was about 35 feet high from the soil to the lowest petiole. The length of the cluster from stem to lowest end of the bunch of bananas was about 1 ¾ fathoms long (one *anana* and one *muku*). There were only two bananas on each about 4 ½ inches around the middle. There were just two bananas, one on the east side and one on the west, each about a foot or more in length. The one on the east side was tartish, like a *waiawi* (Spanish guava) in taste and the one on the west was practically tasteless. The diameter of the end of the fruit stem of this banana seemed to be about 1½ feet. This kind of banana plant and its fruit seemed almost supernatural... (Akina, 1913:5).

C. Summary of the Mythological and Traditional accounts of Kapa'a

A survey of traditional mythological literature shows Kapa'a prominently associated with some of the most famous legendary and historical figures including Maui, Kawelo, Mō'īkeha, Māweke, Palila, Paka'a and Kanaka Nunui Moe. The fourteen documented *heiau* of Kapa'a is a testament to both the substantial population and the social/political/religious importance of this *ahupua'a*.

What few specific references there are suggest that high status habitation was focused near the coast with less intensive utilization of the uplands which were regarded as wild places. The most notable feature of the traditional accounts are the references to grasses and sedges (*Kalukalu* grass and *Ahuawa* rushes) which undoubtedly reflects in part the natural marsh lands near the coast but may also reflect transformation of the landscape through a denudation of trees by the activities of a relatively dense population harvesting slow growing trees for firewood and construction materials over many centuries.

III. HISTORICAL ACCOUNTS

The project area lies in the traditional *ahupua'a* of Kapa'a belong to the ancient district of Puna (now the district is more commonly called "Kawaihau"), one of five ancient districts on Kaua'i (King 1935: 228). Puna was the second largest district on Kaua'i, behind Kona, and extended from Kīpū, south of Līhu'e to Kamalomalo'o, just north of Keālia. For taxation, educational and judicial reasons, new districts were created in the 1840's. The Puna District, with the same boundaries became the Līhu'e District, named for an important town in that district. In 1878, by act of King Kalākaua in securing a future and name for the new Hui Kawaihau, created the new district of Kawaihau. This new district encompassed the *ahupua'a* ranging from Olohena on the south to Kīlauea on the north. Subsequent alterations to district boundaries in the 1920's left Kawaihau with Olohena as its southernmost boundary and Moloa'a as its northernmost boundary (King 1935:222).

A. Early Historic Period

Although most of the historic record documents for Kaua'i in this period revolve around missionary activities and the missions themselves, there was indication that the Kapa'a area was being considered for new sugar cane experiments, similar to those occurring in Kōloa. In a historic move, Ladd and Company received a 50 year lease on land in Kōloa from Kamehameha III and Kaua'i Governor Kaikio'ewa of Kaua'i. The terms of the lease allowed the new sugar company "the right of someone other than a chief to control land" and had profound effects on "traditional notions of land tenure dominated by the chiefly hierarchy" (Donohugh, 2001: 88). In 1837, a very similar lease with similar terms was granted to Wilama Ferani, a merchant and U.S. citizen based in Honolulu (Hawai'i State Archives, Interior Dept., Letters, Aug. 1837). The lease was granted by Kauikeaouli or Kamehameha III for the lands of Kapa'a, Keālia and Waipouli for twenty years for the following purpose:

> ...for the cultivation of sugar cane and anything else that may grow on said land, with all of the right for some place to graze animals, and the forest land above to the top of the mountains and the people who are living on said lands, it is to them whether they stay or not, and if they stay, it shall be as follows: They may cultivate the land according to the instructions of Wilama Ferani and his heirs and those he may designate under him... (Hawai'i State Archives, Interior Dept., Letters, Aug. 1837).

Unlike Ladd & Company which eventually became the Kōloa Sugar Company, there is no further reference to Wilama Ferani and his lease for lands in Kapa'a, Keālia and Waipouli. In a brief search for information on Honolulu merchant, Wilama Ferani, nothing was found. It is thought that perhaps Wilama Ferani may be another name for William French, a well known Honolulu merchant who is documented as having experimented with grinding sugar cane in Waimea, Kaua'i at about the same time the 1837 lease for lands in Kapa'a, Keālia and Waipouli was signed (Joesting, 1984: 152).

B. The Mahele: Kapa'a Land Commission Awards

The Organic Acts of 1845 and 1846 initiated the process of the *Mahele*, the division of Hawaiian lands, which introduced private property into Hawaiian society. In 1848 the crown and the *ali'i* received their lands. The common people received their *kuleana* in 1850. It is through records for Land Commission Awards (LCAs) generated during the *Mahele* that specific documentation of traditional life in Kapa'a Ahupua'a comes to light.

During the *Mahele*, Kapa'a was taken as Crown Lands (Office of the Commissioner of Public Lands of the Territory of Hawaii, 1929). The *'Ili* of Paikahawai and Ulakiu in Kapa'a Ahupua'a were retained as Government Lands.

Table 2. Mahele Land Claims in Kapa'a Ahupua'a

LCA	CLAIMANT	'ILI	LAND USE	AWARD
08843	Kiau and son, Apahu	Apopo, Kalolo Village	6 *lo'i*, small *kula* and house lot	2 *'āpana*; 2,75 acres
10564	Oleloa, Daniela	Kapa'a, Puna;	with one fish pond; 10 *lo'i* and a fish pond	No award in Kapa'a, Puna; award in Waioli, Halelea
08247	Ehu	Moalepe	approx. 20 *lo'i* lying waste, some orange trees	1 *'āpana*, Kapa'a
08837	Kamapa'a	Awawaloa, Ulukiu Village	9 *lo'i*, and adjoining *kula*; house lot	Awawaloa: 1 *'āpana*; Wakiu 3 *'āpana*
03638	Huluili, Kahoiu (Kadaio)	Maeleele, Kaloko Village	15 lo'i in Maeleele and adjoining *kula*; house lot in village of Kaloko (Kalolo)Maeleele: 2 *'āpana*, 5 acs.	Maeleele: 2 *'āpana*, 5 acs.
03971 and 03243	Honoli'i, Ioane	Kahana, Kupanihi	6 uncultivated *lo'i*, house lot in Kupanihi Village	Kupanihi: 2 *'āpana*, 1 ac
03554 and 03599	Keo	Hahanui,	Entire 'ili of Kahanui, 15 *lo'i*, house lot in Puhi Village	No Award in Kapa'a, Puna; Award in Waila'au, Kona.

The land claims during this period show that only five individuals were awarded land parcels in the relatively large *ahupua'a* of Kapa'a. The five awardees include Kiau (#08843), Kamapa'a (#08837), Ioane Honoli'i (#03971) Huluili (#03638) and Ehu (#08247). In addition, two land claims (#10564 and #03554, 3559) were not awarded in Kapa'a. Four of the five awardees received multiple parcels which show similarities. All four had *lo'i* or irrigated *kalo* fields on the *mauka* side of the lowland swampy area, sometimes extending a short distance up into small,

shallow gulches and valleys. Many of these *lo'i* parcels name *pali* or hills/cliffs as boundaries. Each LCA also had a separate house lot located on the *makai* side of the swamp, near the beach. Three of the land claims name ponds on their lands, including Puhi Pond (LCA #03554), Fishponds in Kupanihi 'Ili (LCA #03971) and Hahanui 'Ili (LCA #10564). Loko Kihapai may be the same as the Fishpond in Hahanui as it was named in the same land claim. The other two *loko* are associated with house lots, situated on the *makai* edge of the Kapa'a swamplands suggesting modification of the natural swamplands. Other natural and cultural resources mentioned in the LCAs include freshwater springs, pig pens, *hau* bushes, *hala* clumps, streams, *'auwai*, and *kula* or pasturelands.

Interestingly, the residential "village" of Kapa'a did not exist as a single entity, but was a series of probably small settlements or compounds, perhaps even individual house lots which stretched along the shoreline of the *ahupua'a* and included (south to north) Kupanihi (Makahaikupanihi), Kalolo (Kaulolo), Puhi, and Uluki.

The fifth individual, Ehu (LCA #08247), was the only person to be awarded a single parcel in the upland area of Kapa'a, Moalepe Valley, approximately five miles *mauka* of the coast and one mile southwest of the *Mauka* Locale project area. In 1848, when Ehu made his claim, he was the only one living there. A few years later, according to Honoli'i's testimony to support Ehu's claim, "There are no houses and no people now living on the land. Ehu found himself lonely there, all his neighbors having either died or left the land. Ehu now lives in Wailua." Evidently Ehu may have been the last person to live at and cultivate in the traditional way, the far *mauka* region of Kapa'a.

There were no *kuleana* claims found within the project area north of the Kapa'a Homesteads.

C. Post Mahele

In 1849, a son of Wai'oli missionaries, William P. Alexander, recorded a trip he took around Kaua'i. Although, he focuses on the larger mission settlements like Kōloa and Hanalei, he does mention Kapa'a:

> A few miles from Wailua, near Kapa'a we passed the wreck of a schooner on the beach, which once belonged to Capt. Bernard. It was driven in a gale over the reef, and up on the beach, where it now lies. A few miles further we arrived at Keālia. We had some difficulty crossing the river at this place, owing to the restiveness of our horses. The country here near the shore was rather uninviting, except the valley which always contained streams of water (Alexander, 1991: 123).

In later years, the notorious Kapa'a reef was to become the location of many shipwrecks particularly once a landing was built there in the 1880s.

The first large scale agricultural enterprise in Kapa'a began in 1877 by the Makee Sugar Plantation and the *Hui* Kawaihau (Dole, 1916: 8). The *Hui* Kawaihau was originally a choral society begun in Honolulu whose membership consisted of many prominent names, both Hawaiian and *haole*. It was Kalākaua's thought that the *Hui* members could join forces with Makee, who had previous sugar plantation experience on Maui, to establish a successful sugar corporation on the east side of Kaua'i. Captain Makee was given land in Kapa'a to build a mill and he agreed to grind cane grown by *Hui* members. Kalākaua declared the land between Wailua and Moloa'a, the Kawaihau District, a fifth district and for four years the *Hui* attempted to grow sugar cane at Kapahi, on the plateau lands above Kapa'a. After a fire destroyed almost one half

of the *Hui's* second crop of cane and the untimely death of one of their principal advocates, Captain James Makee, the *Hui* began to disperse and property and leasehold rights passed on to Makee's son-in-law and new Makee Plantation owner, Colonel Z. S. Spalding (Dole, 1916: 14).

As part of the infrastructure of the new plantation, a sugar mill was erected and the Makee Landing was built in Kapa'a during the early years of the Makee Sugar Plantation. Following Captain Makee's death, Colonel Spalding took control of the Plantation and in 1885 moved the mill to Keālia (Cook, 1999: 51). The deteriorating stone smokestack and landing were still there well into the 1900s (Damon, 1931:359). Condè and Best (1973:180) suggest that railroad construction for the Makee Plantation started just prior to the mid 1890's. There is one reference to a railroad line leading from the Kapa'a landing to Keālia in 1891. During Queen Lili'uokalani's visit to Kaua'i in the summer of 1891, the royal party was treated to music by a band, probably shipped in from O'ahu. "The band came by ship to Kapa'a and then by train to Keālia" (Joesting, 1984:252). This line is depicted on a 1910 USGS map which shows the line heading south from Keālia Mill and splitting near the present Coral Reef Hotel, one finger going to the old Kapa'a Landing (Makee Landing) and another line heading *mauka*, crossing the present Mō'īkeha Canal, traveling southwest up Lehua Street and through what is now goat pasture, along a plateau and into the *mauka* area behind Kapa'a swamplands. This railroad line was part of a twenty mile network of plantation railroad with some portable track and included a portion of Keālia Valley and in the *mauka* regions of the plateau lands north of Keālia (Condé and Best, 1973:180).

By the late 1800's, Makee Plantation was a thriving business with more than one thousand workers employed (Cook, 1999:51). Hundreds of Portuguese and Japanese immigrants found work on Makee Plantation and the new influx of immigrants required more infrastructure. In 1883, a lease for a school lot was signed between Makee Sugar Company and the Board of Education (Kapa'a School, 1983: 9). Stipulations found in the Portuguese immigrant contracts with Makee Sugar Company stated that "children shall be properly instructed in the public schools" (*Garden Island*, April 1, 1983). The original Kapa'a School was constructed in 1883 on a rocky point adjacent to the Makee Sugar Company railroad. Traditionally, this point was known as Kaahiahi (Kapa'a School, 1983: 10). In 1908, Kapa'a School was moved to its present site directly *mauka* and up the hill at Mailehune.

As in much of the rest of Hawai'i, the Chinese rice farmers began cultivating the lowlands of Kapa'a with increasing success in the latter half of the 1800s. Several Hawaiian *kuleana* owners leased or sold their parcels *mauka* of the swamp land to Chinese rice cultivators. Other Chinese rice cultivators appeased to the government for swamplands first leasing and later buying. As a result of the growing rice and sugar industries, the economic activity displaced the house lot *kuleana* on the *makai* side of the marsh for increasing commercial and residential development (Lai, 1985:148-161).

Narrow wagon roads gave way to macadamized roads in the early part of the 20th century. This new road was called the Kaua'i Belt Road and parts of it are thought to have followed the "Old Government Road" (Cook, 1999). In Kapa'a, the present day Kūhiō Highway probably follows the same route as the original Government Road and subsequent Kaua'i Belt Road. The location of the *kuleana* awards in Kapa'a indicates that the majority of the house lots were situated along the Government Road. LCA 3243 names a "road" as one of its boundaries.

D. 20th Century History of Kapa'a (1900-Present)

In the early 1900's, government lands were auctioned off as town lots in Kapa'a to help with the burgeoning plantation population. One *kama'āina* mentioned that in the 1930's and 1940's, the area north of Mō'īkeha Canal in Kapa'a was mostly settled by Portuguese families (Bushnell et al. 2002). The Japanese were also very prominent in the 1920s and 1930s largely replacing the Chinese merchants of the turn of the century in the Kapa'a business sector (Bushnell et al. 2002). The Board of Health, Territory of Hawaii ran a dispensary in Kapa'a at the *makai* edge of Niu Street near the Kapa'a Beach Park parking lot, adjacent to the bike path starting 1926. The lot is presently vacant. A Fire Station was once located in the area now occupied by the Coral Reef Hotel and a Courthouse and jail cell once stood at the location of the present Kapa'a Neighborhood Center. It is not known when these structures were removed or abandoned.

In 1913, Hawaiian Canneries opened in Kapa'a at the site now occupied by Pono Kai Resort (Cook, 1999: 56). Through the Hawaiian Organic Act, Hawaiian Canneries Company, Limited purchased the land they were leasing, approximately 8.75 acres, in 1923 (Bureau of Land Conveyances, Grant 8248). A 1923 sketch of the cannery shows only four structures, one very large structure assumed to be the actual cannery and three small structures *makai* of the cannery. A 1933 historic photograph of Kapa'a Town shows an ironwood windbreak on the *makai* side of the cannery adjacent to the railroad. By 1956, 1.5 million cases of pineapple were being packed. By 1960, 3400 acres were in pineapple and there were 250 full time employees and 1000 seasonal employees for the Kapa'a Cannery (*Honolulu Advertiser*, March 20, 1960). In 1962, Hawaiian Canneries went out of business due to competition from third world countries.

The Ahukini Terminal & Railway Company was formed in 1920 to establish a railroad to connect Anahola, Keālia, Kapa'a to Ahukini Landing and "provide relatively cheap freight rates for the carriage of plantation sugar to a terminal outlet" (Condé and Best, 1973: 185). This company was responsible for extending the railroad line from the Makee Landing, which was no longer in use, to Ahukini Landing, and for constructing the original Waika'ea Railroad Bridge and the Mō'īkeha Makai Railroad Bridge.

In 1934, the Lihue Plantation Company absorbed the Ahukini Terminal & Railway Company and Makee Sugar Company (Condé and Best, 1973: 167). The railway and rolling stock formerly owned by Makee Sugar Company became the Makee Division of the Lihue Plantation. At this time, besides hauling sugar cane, the railroad was also used to haul plantation freight including "fertilizer, etc...Canned pineapple from Hawaiian Canneries to Ahukini and Nāwiliwili, pineapple refuse from Hawaiian Canneries to a dump near Anahola and fuel oil from Ahukini to Hawaiian Canneries Co., Ltd." (Hawaii Territorial Planning Board, 1940: 11). Former plantation workers and *kama'āina* growing up in Kapa'a remember when the cannery would send their waste to the pineapple dump, a concrete pier just north of Kumukumu Stream (State Site No. 50-30-08-789: H) by railroad. The structure is built over the water where the rail cars would dump the pineapple waste. The current would carry the waste to Kapa'a which would attract fish and sharks (Bushnell et al. 2002).

Lihue Plantation was the last plantation in Hawai'i to convert from railroad transport to trucking (Condé and Best, 1973: 167). "By 1957 the company was salvaging a part of their plantation railroad, which was being supplanted by roads laid out for the most part on or close to the old rail bed" (Ibid: 167). By 1959, the plantation had completely converted over to trucking. The Cane Haul Road which begins near the intersection of Haua'ala Road and Kūhiō Highway is

thought to date to the late 1950s and follows the alignment of the old railroad until just before or near ʻĀhihi Point.

Severe floods in Kapaʻa in 1940 led to the dredging and construction of the Waikaʻea and Mōʻīkeha Canals sometime in the 1940s (Hawaii Territorial Planning Board, 1940: 7). Although the Waikaʻea Canal, bordering the Kapaʻa Pineapple Cannery, had been proposed as early as 1923, nothing was constructed until after the floods (Bureau of Land Conveyances, Grant 8248). A Master Plan for Kapaʻa, published in 1940, asks the Territorial Legislature for funds to be set aside for the completion of a drainage canal and for filling *makai* and *mauka* of the canal (Hawaii Territorial Planning Board, 1940:7). In 1955, reports came out on the dredging for coral proposed for the reef fronting Kapaʻa Beach Park (*Garden Island Newspaper*, September 21, 1955). The coral was to be used for building plantation roads. This dredging was later blamed for accelerated erosion along Kapaʻa Beach (Garden Island Newspaper, October 30, 1963).

Today, there are several sea walls along the Kapaʻa Beach Park to check erosion. Old time residents claim the sandy beach in Kapaʻa was once much more extensive than it is now (Bushnell et al. 2002).

Keālia Town slowly dispersed after the incorporation of Makee Sugar Company into Lihue Plantation in the 1930s. Many of the plantation workers bought property of their own and moved out of plantation camps. The plantation camps which bordered Kūhiō Highway were disbanded in the 1980s. The Lihue Plantation began to phase out in the last part of the 20th century. Kapaʻa Town suffered after the closing of the Kapaʻa Cannery, however the growing tourist industry helped to ease the economic affects of the Cannery's closing.

IV. PREVIOUS ARCHAEOLOGICAL RESEARCH

A. Archaeological Studies and Sites in Kapa'a Ahupua'a

The following table outlines the archaeological research (Table 3) and historic properties (Table 4) identified in Kapa'a Ahupua'a. These tables are followed by discussion of the research and historic properties. Table 3 provides a list of archaeological research conducted within Kapa'a Ahupua'a, including columns for source, location, nature of study, and findings. The locations of these archaeological studies are shown in Figure 6. Table 4 is a list of known historic properties within the ahupua'a and includes columns for state site numbers, site type, location and reference. The locations of identified sites within Kapa'a Ahupua'a are shown in Figure 7.

Table 3. Previous Archaeological Studies in Kapa'a

Source	Location	Nature of Study	Findings
Bennett 1931	Island wide Identifies 2 sites: Site 110 Taro terraces and bowl and Site 111 A large simple dirt Hawaiian ditch	Archaeological Reconnaissance	Identifies 2 sites: Site 110 Taro terraces and bowl and Site 111 A large simple dirt Hawaiian ditch
Handy and Handy 1972	Archipelago-wide	Native Planter study	Discusses "highly developed irrigation system"
Ching 1976	Just south of the Waikaea Drainage Canal	Archaeological Reconnaissance	No significant findings
Hammatt 1981	Upland Kapa'a	Archaeological Reconnaissance	No significant findings
Hammatt 1986	Upper reaches of the Makaleha stream valley.	Archaeological Reconnaissance	No significant findings
Hammatt 1991	Along Kūhiō Highway	Subsurface Testing	Identifies two sub-surface cultural layer sites
Kikuchi and Remoaldo 1992	Around Kapa'a Town	Cemeteries of Kaua'i	Identifies six cemeteries
Spear 1992	South side Waikaea Canal, mauka of Kūhiō Highway. (TMK: 4-5-05:04, 09)	Monitoring Report	Designated subsurface site 50-30-08-547
Chaffee, Burgett & Spear 1994a	A house lot near the corner of Kukui and Ulu Streets in mauka Kapa'a Town. (TMK: 4-5-09:10)	Archaeological Inventory Survey	No significant findings

Source	Location	Nature of Study	Findings
Chaffee, Burgett & Spear 1994b	Māmane Street Kapa'a Town. (TMK: 4-5-09:51	Archaeological Inventory Survey	No significant findings
Hammatt, Ida & Chiogioji 1994	Proposed bypass routes mauka of Kapa'a Town	Archaeological Assessment	No new field work, reviews literature
Hammatt, Ida & Folk 1994	South side Waikaea Canal, mauka of Kūhiō Highway (TMK: 4-5-05:06)	Archaeological Inventory Survey	Weak cultural layer designated site 50-30-08-748
Kawachi 1994	Inia Street (Jasper) TMK 4-5-08:33	Burial Report	Designates Site 50-30-08-871
McMahon 1994	"behind the armory in Kapa'a near the god stones" The location is uncertain & "Buzz's near the Coconut Marketplace"	Documents second hand report of burials in two locations	Bones in 3 places reported from behind the armory, 16 bodies reported from the Buzz' s restaurant. No site numbers assigned
Creed, Hammatt, Ida, Masterson & Winieski 1995	Kapa'a Sewer line project, Kūhiō Highway, south and central Kapa'a Town	Archaeological Monitoring Report	Documents cultural layer of site -1848 and (an enlarged) site -1849 & recovery of thirty burials at sites –867, -868, -871, & -1894
Jourdane 1995	1382-A 'Inia Street, makai of Kūhiō Highway, central Kapa'a Town	Burial Report	Site 626
McMahon 1996	South side Waikaea Canal, *mauka* of Kūhiō Highway (TMK: 4-5-05:08)	Archaeological Inventory Survey	No significant cultural material
Hammatt, Chiogioji, Ida & Creed 1997	Test excavations focused inland of Kapa'a Town	Archaeological Inventory Survey	Four test trenches were excavated inland of Kapa'a Town
Borthwick and Hammatt 1999	Kapa'a Seventh-Day Adventist Church at 1132 Kūhiō Highway	Archaeological Monitoring and Burial Treatment Plan	Monitoring was indicated as this parcel lay within the designated Site 50-30-08-1848.
Bushnell and Hammatt 2000	Seventh-Day Adventist Church, makai of Kūhiō Highway, south of the Waikaea Canal	Archaeological Monitoring Report	Minimal findings (one piece of worked bone)

Source	Location	Nature of Study	Findings
Callis 2000	Kapa'a Beach Park	Burial Removal and Archaeological Monitoring Report	Human Burial
Perzinski and Hammatt 2001	Kūhiō Highway on the margins of the Waikaea Canal	Archaeological Monitoring Report	No significant cultural material
Hammatt et al. 2003	Kūhiō Highway Bypass Options	Archaeological Assessment	Summarizes work
Bushnell et al. 2003	Kapa'a/Keālia Bike & Pedestrian Path	Archaeological Inventory Survey	Documents 5 new sites & a new feature for another site
Elmore and Kennedy 2003	Kūhiō Highway	Archaeological Monitoring Report	No significant cultural material
Dega, Michael F. and James Powell 2003	Kūhiō Highway	Archaeological Monitoring Report	Human Burials
Hammatt and Shideler 2004	Pedestrian Pathway Options	Archaeological Assessment	Summarizes work

B. Archaeological Studies within the Present Project Area

A companion *Archaeological Assessment For The Proposed Water Reservoir, Kapa'a Ahupua'a, Kaua'i TMK 4-6-03:10* (Van Ryzin, and Hammatt 2004) was recently completed. This study examined the areas of proposed impact and found no archaeological sites or historic preservation concerns in the vicinity.

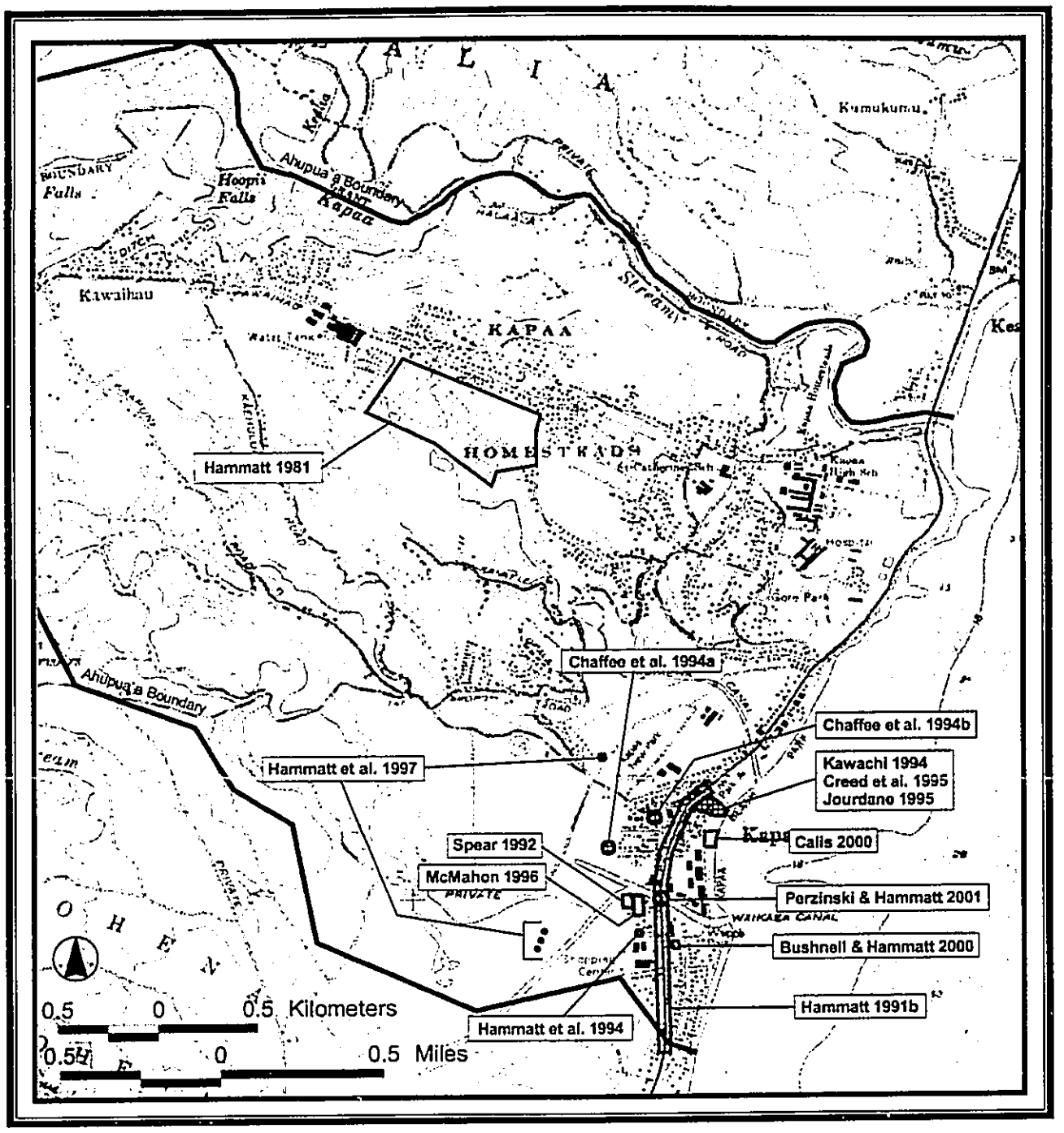

Figure 6. Map showing previous archaeological studies in Kapa'a.

Table 4. Historic Properties in Kapa'a Ahupua'a

Site # 50-30-08-	Site Type/ Name (if any)	Location	Reference
B001	Historic Cemetery	South of bend of Kapa'a Stream, a kilometer *mauka* from Kūhiō Highway	Kikuchi and Remoaldo 1992
B002	Historic Cemetery	Just *mauka* from Kūhiō Highway, south of Kapa'a Stream	Kikuchi and Remoaldo 1992
B003	Kapa'a Public Cemetery	South of Kanaele Road, approximately one kilometer inland of Kūhiō Highway	Kanaele Road; Kikuchi and Remoaldo 1992
B004	Historic Cemetery	North of Apopo Road, approximately one kilometer inland of Kūhiō Highway	Kikuchi and Remoaldo 1992
B013	Historic Cemetery	Just *mauka* from Kūhiō Highway, north of the Waikaea Canal	Kikuchi and Remoaldo 1992
B014	All Saints Episcopal Church Cemetery	Just *mauka* from Kūhiō Highway, south of the Waikaea Canal	Kikuchi and Remoaldo 1992:62-65
-547	sub-surface features including a fire pit and a possible house foundation	South of bend of Waikaea Canal, *mauka* of Kūhiō Highway	Spear 1992:3
-626	Burial	Inia Street, *makai* of Kūhiō Highway, central Kapa'a	Jourdane 1995
-748	Minimal findings, a weak cultural layer (buried A-horizon)	South of the bend of the Waikaea Canal, *mauka* of Kūhiō Highway	Hammatt, Ida & Folk 1994
-789	Historic road	Coastal Kapa'a	Bushnell et al. 2003
-867	1 set of human remains	Kukui Street, just *mauka* of Kūhiō Highway, Kapa'a Town	Creed et al. 1995:50
-868	1 set of human remains	Lehua Street *mauka* of Kūhiō Highway, Kapa'a Town	Creed et al. 1995:50
-871	13 sets of human remains (Creed et al. 1995:50)	Inia Street, *makai* of Kūhiō Highway	Kawachi 1994, Creed et al. 1995:50

Site # 50-30-08-	Site Type/ Name (if any)	Location	Reference
-884	Human burial	N. Coastal Kapa'a	SHPD communication, Bushnell et al. 2003
1848	Cultural layer & sub	Along Kūhiō Highway between Wana Road and the Waikaea Drainage Canal	Hammatt 1991; Creed et al. 1995
-1849	Cultural layer & sub-surface features; Creed et al. 1995:53 expands boundaries to incl. burial sites, -626, -867, -868 -871, and -1894	Along Kūhiō Highway between Inia Street and Kauwila Street extending to the coast	Hammatt 1991; Creed et al. 1995
-1894	11sets of human remains	Ulu Street, just N of Kūhiō Highway, Kapa'a Town	Creed et al. 1995:50
-2075	Hwy bridge	Across Kapa'a Stream	Bushnell et al. 2003
-2076	Petroglyph	Central coastal Kapa'a	Bushnell et al. 2003
-2077	Steps to former pavilion	S. coastal Kapa'a	Bushnell et al. 2003
-2078	Railroad bridges and foundations	Coastal Kapa'a	Bushnell et al. 2003

V. COMMUNITY CONSULTATIONS

Throughout the course of this study, an effort was made to contact and consult with Hawaiian cultural organizations, government agencies, and individuals who might have knowledge of and/or concerns about traditional cultural practices specifically related to the project area of Kapa'a. This effort was made by letter, e-mail, telephone and in-person contact. In the majority of cases, letters along with a map of the project area were mailed with the following text:

> Cultural Surveys Hawai'i is conducting a Limited Cultural Impact Assessment for the proposed Water Reservoir *Mauka* Locale in Kapa'a, Kaua'i Island. The purpose of the cultural study is to assess potential impacts to traditional cultural practices. This study is meant to satisfy requirements related to Chapter 343 HRS Articles IX and XII and Act 50 and t heir applicability to the project area.
>
> We are seeking your input regarding the following issues:
>
> General history and present and past land use of the study area.
>
> Knowledge of cultural sites which may be impacted by the project, e.g., historic sites, archaeological sites, burials, etc...
>
> Knowledge of traditional gathering practices in the study area-both past and present.
>
> Cultural associations with the study area through legends, traditional use or otherwise.
>
> Referrals of *kūpuna* who might be willing to share their cultural knowledge of the study area in general.
>
> Any other cultural concerns the community might have related to Hawaiian or other cultural practices in this area of Kapa'a, Island of Kaua'i.

The individuals, organizations, and agencies we attempted to contact and the results of any consultations are presented in Table 5. Cultural Surveys Hawai'i starts out with a list of community contacts and then follows up on their referrals.

Table 5 Community Consultations

Name	Organization, Affiliation	Comments
Ako, Valentine	Kapa'a Resident and *Kupuna*	Referred to Ernest Garcia
Batisite, Brian	Kaua'i County Council	No comment.
Garcia, Ernest	Hunter	No longer uses the area. More familiar with areas west of project area.
Iida, Ron	Royal Order of Kamehameha Kaumauali'i Chapter No. 3	No comment.
Kaneakua, James	Kapa'a Resident	No comment.
Kanoho, Ezra	Hawai'i State Capitol State Representative 13th District	No comment.
Kapaka-Arboleda,La France	Kaua'i/Ni'ihau Island Burial Council, Kapa'a Representative, and Office of Hawaiian Affair, Kaua'i Office Community Resource Coordinator	It is unlikely that SHPO will require various test pits along the project proposed, if something is found burial council will be asked for their recommendation etc. I am not privy to any burial sites in the area.
Kapeliela, Kana'i	State Historic Preservation Division Cultural Historian	No comment.
Kekua, Kehaulani	Kaua'i Cultural Center Director	No comment.
Lauretta, Mike	Department of Land and Natural Resources Kaua'i Land Division	DLNR has no input to offer regarding traditional Hawaiian activities; archaeological or cultural sites; nor cultural associations that could be recommended as they affect the project area.
Markell, Kai	State Historic Preservation Division Burials Director	No comment.
McMahon, Nancy	State Historic Preservation Division Kaua'i Archaeologist	No cultural concerns.
Muraoka, Beverly	Kapa'a Resident and Kupuna	No Comment.
Napōka, Nathan	State Historic Preservation Division Cultural and History Branch	No comment.

Requilman, Mary	Kauaʻi Historical Society Executive Director	No comment.
Rogers, Lucille	Ke Ola Pono No Nā Kūpuna Project Coordinator	No comment.
Rogers, Nancy	Hui Hoʻokipa O Kauaʻi Contact Person	No comment.
Sugiyama, Richard	Kapaʻa Resident	No cultural concerns or impacts in the project area. He thanks CSH for keeping him informed on different project in his area.
Tsuchiya, Rick	Kauaʻi Historic Preservation Review Commission, Kauaʻi County Planning	The project will be reviewed at the September meeting. A written statement will be sent to CSH.

VI. TRADITIONAL CULTURAL PRACTICES

Traditional cultural practices are based on a profound awareness concerning harmony between man and their natural resources. The Hawaiians of old depended on these cultural practices for survival. Based on their familiarity with specific places and through much trial and error, Hawaiian communities were able to devise systems that fostered sustainable use of nature's resources. Many of these cultural practices have been passed down from generation to generation and are still practiced in some of Hawaii's communities today.

This project seeks to assess traditional cultural practices as well as resources pertaining to the project area within Kapa'a Ahupua'a. This section will convey the different types of traditional practices and cultural resources associated with the vicinity.

A. Gathering for Plant Resources

Hawaiians utilized upland resources for a multitude of purposes. Forest resources were gathered, for not only the basic needs of food and clothing, but for tools, weapons, canoe building, house construction, dyes, adornments, hula, medicinal and religious purposes. The present project area is dominated by alien vegetation (albezia, ginger, California grass) although some traditional cultigens (banana, bamboo, *kī*) and historically introduced food plants (papaya) are present as well. Within the project area itself no specific documentation was found regarding gathering of plants during traditional Hawaiian times. During this assessment there were no ongoing practices related to traditional gathering of plant resources identified in the present project area. None of the individuals contacted for this assessment identified any native plant gathering practices within the project area.

B. Historic Properties

No historic properties were identified within the project area or in the vicinity. The density of identified historic properties is far greater near the coast of Kapa'a Ahupua'a. For a listing of the historic properties of Kapa'a, Kaua'i, see Table 4.

C. Burials

No burials are believed to be present within the project area and none are known in the vicinity.

D. Trails

Based on nineteenth and twentieth century maps the primary transportation routes *mauka/makai* correlated closely to the existing major roadways. During this assessment there were no trail systems identified in the proposed project area.

VII. SUMMARY AND RECOMMENDATIONS

In summary, a cultural impact assessment was conducted for a proposed mauka reservoir locality in Kapa'a Ahupua'a, Kaua'i. Historic research of the project areas was carried out to identify any cultural resources or traditional cultural practices associated with the area encompassing the proposed study area(s). An attempt was made to contact 21 parties regarding cultural knowledge, land use history, cultural sites and traditional Hawaiian or other cultural practices in the vicinity of the project area. Four of the six individuals who responded had no cultural concerns in the project study area(s) or in the vicinity of the project areas. Two of the organizations contacted, the Kaua'i/Ni'ihau Island Burial Council and the Kaua'i County Planning Departments, Historic Preservation Review Commission indicated an intention to discuss the matter at scheduled meetings for September 2004. No comments or concerns have been received.

Hawaiian traditions centered on Kapa'a suggest the area's significance and association with the *ali'i* in pre-contact times. A survey of traditional mythological literature shows Kapa'a prominently associated with some of the most famous legendary and historical figures including Maui, Kawelo, Mō'īkeha, Māweke, Palila, Paka'a Kanaka Nunui Moe. The fourteen documented *heiau* of Kapa'a is a testament to both the substantial population and the social/political/religious importance of this *ahupua'a.*

A famous O'ahu chief, Mō'ikeha (dates ca. A.D. 1340-1360 by the 20 years per generation count), according to tradition, sailed off to Kahiki and on his return settled in Wailua, Kaua'i, where the Puna family of chiefs welcome him. "On the death of Puna, Mō'īkeha became the principal chief (*Ali'i nui*) of Kaua'i, and remained there the balance of his life" (Fornander 1969:54).

Historic research provided information regarding sugar cane cultivation, settlement patterns, rice cultivation, the opening of Hawaiian Canneries and the construction of the Ahukini Terminal & Railway Company in 1820.

Previous archaeological research shows that the majority of study areas are located within urban Kapa'a near the shore and that little data has been developed for more inland areas. Archaeological research has identified numerous historic properties along the coastal regions of Kapa'a (see Table 4).

Based on the above findings, the proposed project will have minimal or no impact on Hawaiian culture, its practices and traditions.

It should be noted, however, that subsurface properties associated with former traditional Hawaiian activities in the project area, such as burials, artifacts and cultural layers, may be present despite the previous development of the proposed project areas. As a precautionary measure, personnel involved in future development activities in the area should be informed of the possibility of inadvertent cultural finds, and should be made aware of the appropriate notification measures to follow.

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IX. APPENDIX

At the request of Belt Collins Hawai'i Ltd., Cultural Surveys Hawai'i, Inc. (CSH) conducted a Cultural Impact Assessment for the Proposed Water Reservoir Location, *Mauka* Locale in the uplands of Kapa'a, Kaua'i island. During this assessment two other locations (the "*Makai* 1 Locale" and the "*Makai* 2 Locale") in seaward Kapa'a were also assessed as possible alternatives for the *Mauka* Locale, (Figures 7 to 10):

A. *Makai* Locale 1 Project Area

The *Makai* Locale 1 (TMK 4-6-11:3) project area is located at the corner of Kawaihau Road and Ka'apuni Road at an elevation of 91 m (300 ft) at a distance of approximately 4.18 km (2.6 mi) from the coast. Foote et al (1972) describes the soil in this area as being "Puhi Silty clay loam" (PnB) which is defined as being "well-drained soils on uplands on the island of Kaua'i. These soils developed in material derived from basic igneous rock. They are nearly level to steep. Elevations range from 175 to 500 feet." (Foote et al.1972). *Makai* Locale 1 receives an average annual rainfall of approximately 2000 mm (79 inches) (Giambelluca 1986:47).

On June 10th, 2004, Cultural Surveys Hawai'i staff made a field inspection of the *Makai* Locale 1 alternative water tank installation project area. Access was via Highway 56, turning off to the west on Highway 581, then turning off to the northwest on Kaehulua Road.

The *Makai* Locale 1 is comprised of a 0.84-acre State property of which a portion is fenced and contains an existing 0.2 MG wooden reservoir (Figure 11). Survey transects oriented north-south were conducted through the project area. Based on observations the entire existing and proposed tank locale had previously been bulldozed and graded. The existing tank area consists of mowed grass lawn. The remainder of the property is an open, level pasture containing large patches of California grass, bananas, and various weeds and vines (Figures 11 and 12). No archaeological sites were observed. Based on background research *Makai* Locale 1 was, during the early 20th century, under sugar cane cultivation. The field check examined the areas of proposed impact and found no archaeological sites or historic preservation concerns in the vicinity. No further historic preservation work was recommended.

In the course of the present Cultural Impact Assessment work the nineteen parties contacted (summarized in "Table 5 Community Consultation") were asked if they had any concerns for the *Makai* Locale 1 area that was initially under consideration. No concerns were expressed.

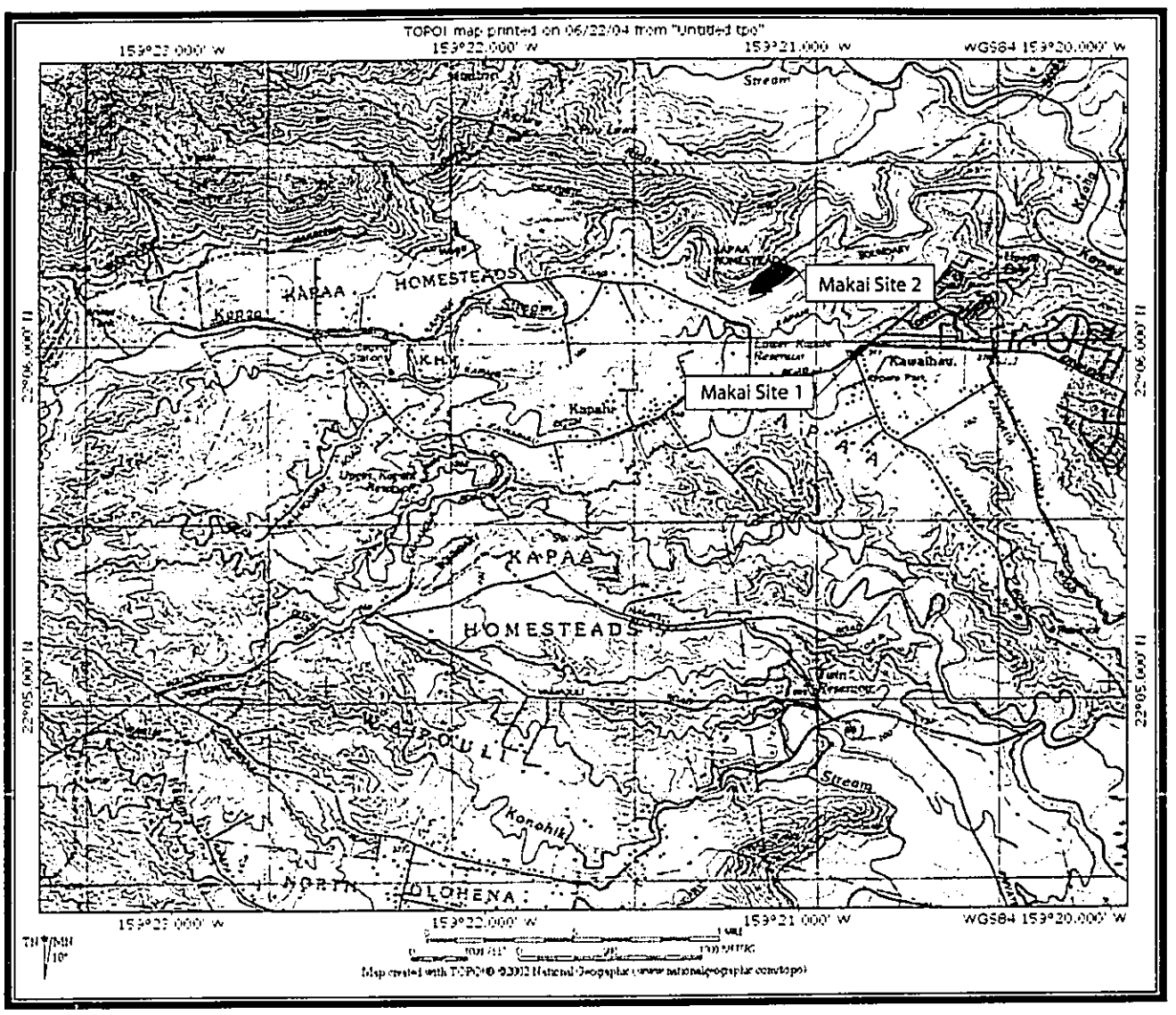

Figure 7. Portion of U. S. Geological Survey map showing alternative *Makai* 1 Locale and *Makai* 2 Locale

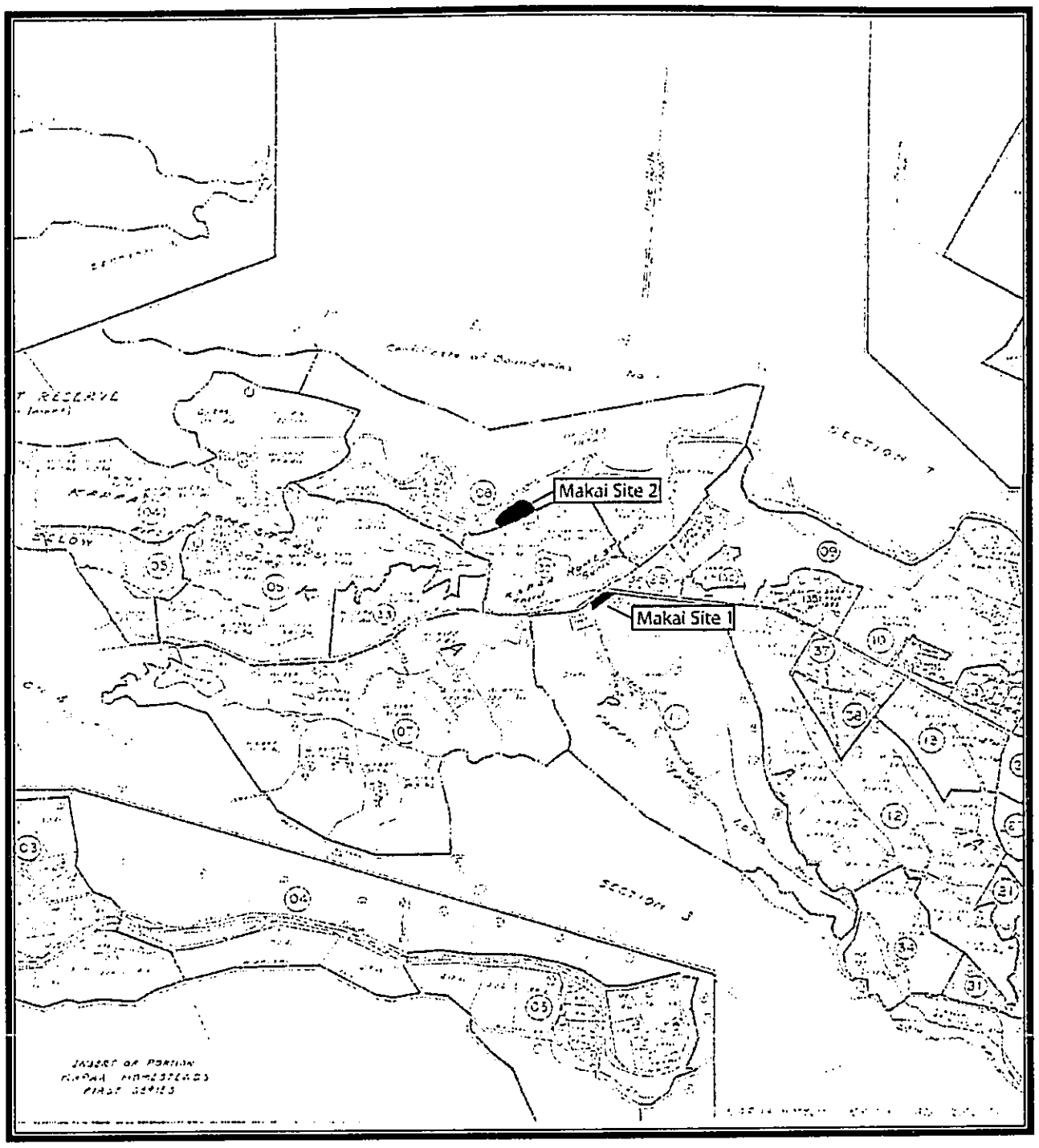

Figure 8. TMK map 4-6 Showing alternative locations *Makai* 1 Locale and *Makai* 2 Locale

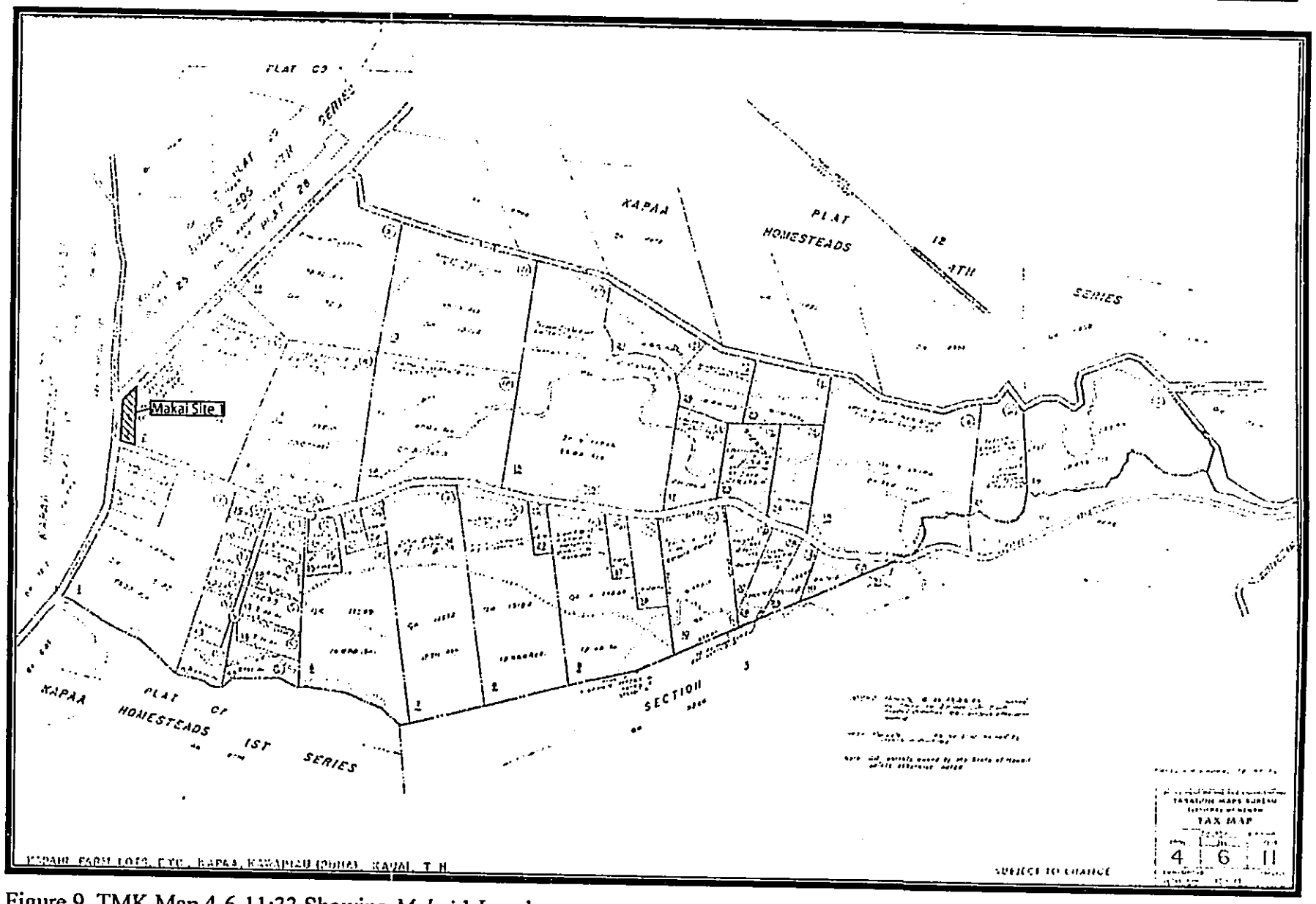

Figure 9. TMK Map 4-6-11:33 Showing *Makai* 1 Locale

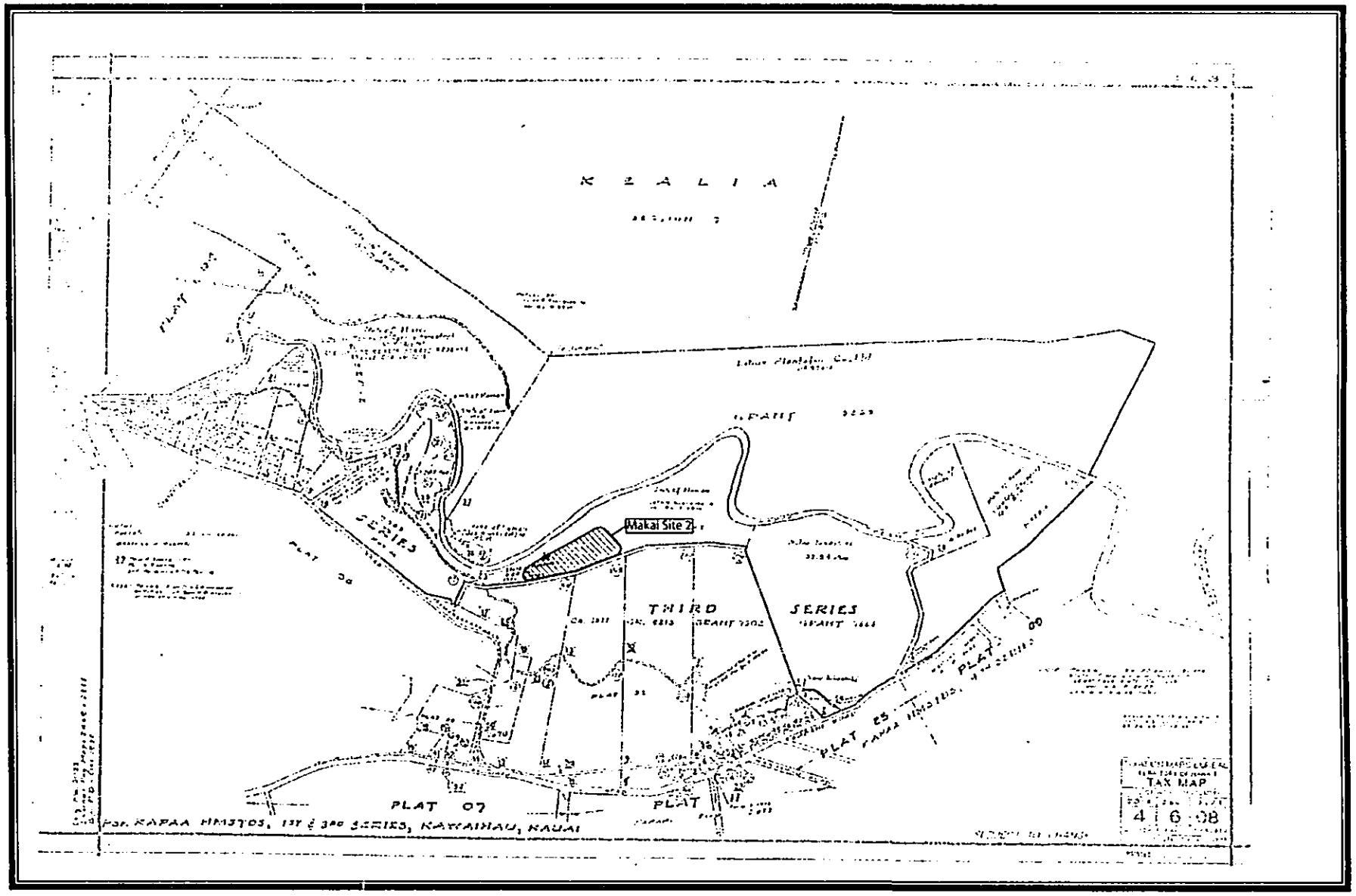

Figure 10. TMK Map 4-6-08:24 Showing *Makai* 2 Locale

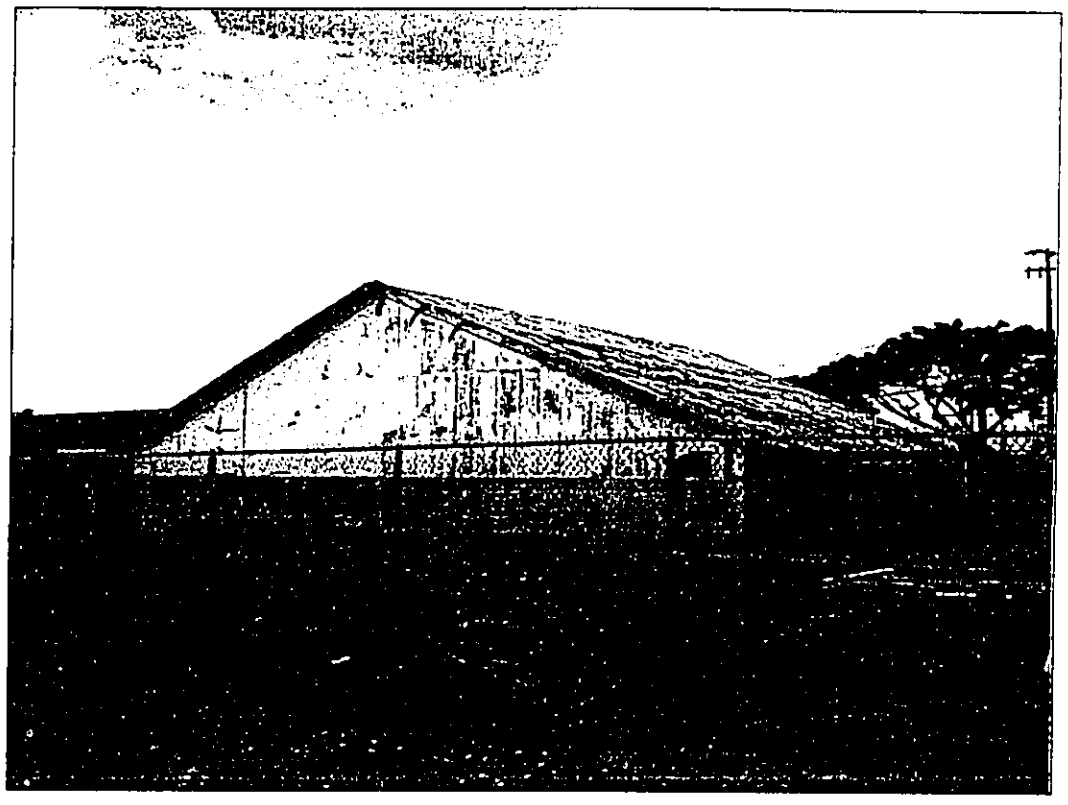

Figure 11. Fenced section of *Makai* Locale 1 project area, view to the southwest.

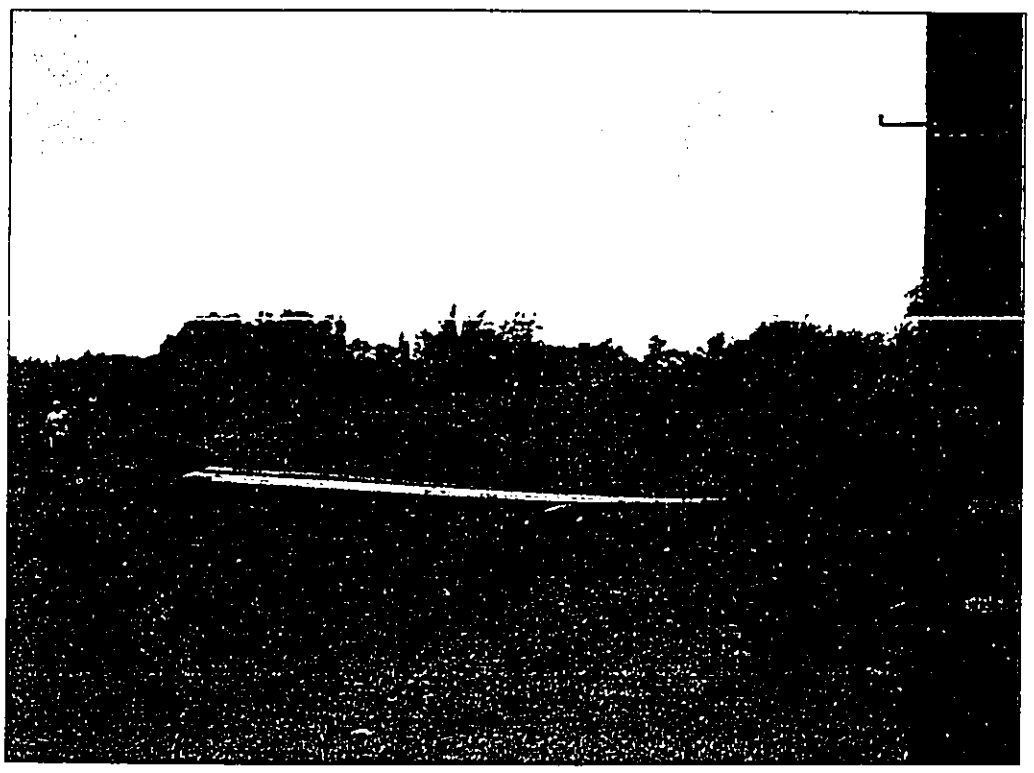

Figure 12. *Makai* Locale 1 project area, view to the southeast.

B. *Makai* Locale 2 Project Area

The *Makai* Locale 2 (TMK 4-6-08:24) project area is located approximately 400 m north of Lower Kapahi Reservoir and immediately south of Kapa'a Stream. The elevation runs from 60 m to 91 m (200-300 ft) and the project area is approximately 4.59 km (2.85 mi) from the coast. Foote et al (1972) described three types of soils within this project area – rough broken land (rRR), rock outcrop (rRO), and Hanalei silty clay (HrB). Rough broken land consists of "very steep land broken by numerous intermittent drainage channels. In most places it is not stony. The slope is 40 to 70 percent. Runoff is rapid, and geologic erosion is active." (Foote et al.1972). Rock outcrop consists of "areas where exposed bedrock covers more than 90 percent of the surface. The rock outcrops are mainly basalt and andesite. This land type is gently sloping to precipitous. ... This land type is not suited to farming. It is used for water supply, wildlife habitat, and recreation" (Foote et al.1972). Hanalei silty clay consists of "somewhat poorly drained to poorly drained soils on bottom lands of the islands of Kaua'i and O'ahu. These soils developed in alluvium derived from basic igneous rock. They are level to gently sloping." (Foote et al.1972). *Makai* Locale 2 receives an average an annual rainfall of approximately 2000 mm (79 inches) (Giambelluca 1986:47).

On June 10th, 2004, Cultural Surveys Hawai'i Inc. archaeologist Karl Van Ryzin, B.A., and supervising archaeologist David Perzinski, B.A., made a field inspection on the Makai Locale 2 alternative water tank installation project area. Access was via an unmarked privately owned dirt road that runs northeast from Kahuna Road.

The *Makai* Locale 2 is comprised of an unmarked, approximately 3.7 acre site off a dirt access road and is located immediately south of Kapa'a Stream. The majority of the project area lies on a 45 to 90 degree angle slope that descends down into Kapa'a Stream (Figures 13 and 14). Survey transects oriented north-south were conducted throughout the relatively level upper portion of the project area. For the lower portion of the project area transects were done along the contour of the slope. Vegetation is dense with the project area dominated by ginger, ferns, *ti*, palms, albezia, and exotic grasses. No archaeological sites were observed. The field check examined the areas of proposed impact and found no archaeological sites or historic preservation concerns in the vicinity. No further historic preservation work was recommended.

In the course of the present Cultural Impact Assessment work the nineteen parties contacted (summarized in "Table 5 Community Consultation") were asked if they had any concerns for the *Makai* Locale 2 area that was initially under consideration. No concerns were expressed.

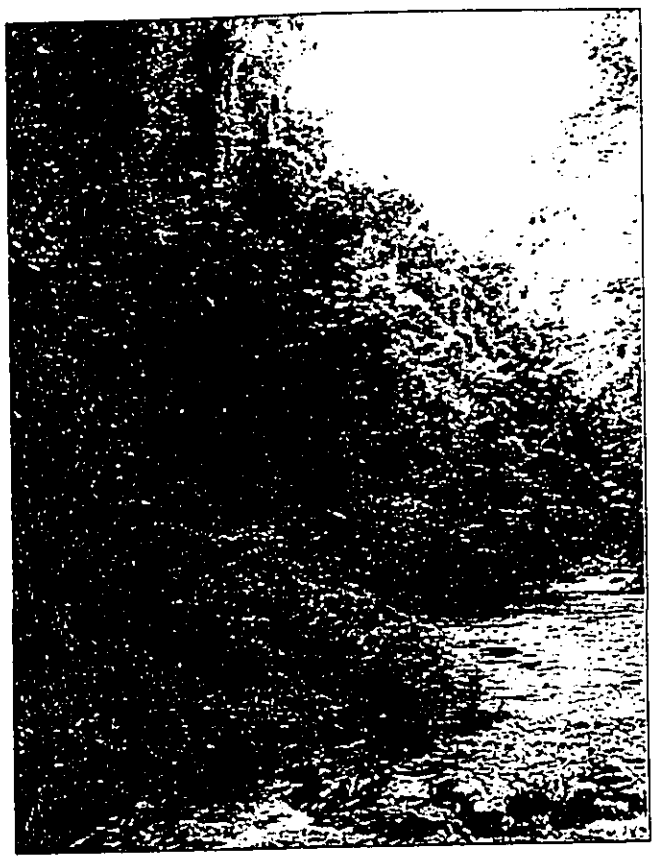

Figure 13. *Makai* Locale 2 project area south of Kapa'a stream showing steep slope, view to the west.

Figure 14. *Makai* Locale 2 project area showing dense vegetation and steep slope, view to the east.

CERTIFICATION

I HEREBY CERTIFY THAT THE MICROPHOTOGRAPH APPEARING IN THIS REEL OF FILM ARE TRUE COPIES OF THE ORIGINAL DOCUMENTS.

2007
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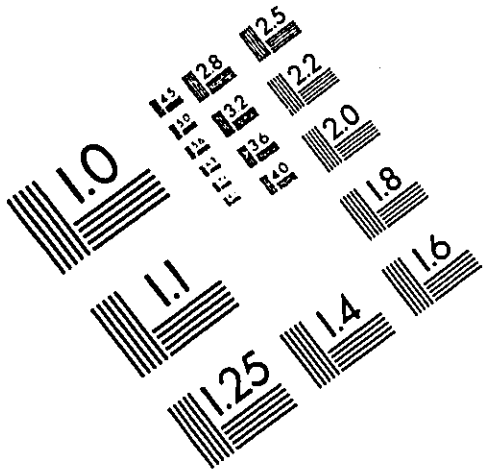
J. Kaai
SIGNATURE OF OPERATOR



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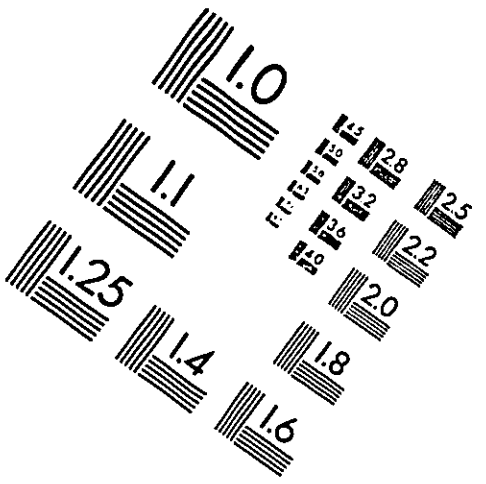

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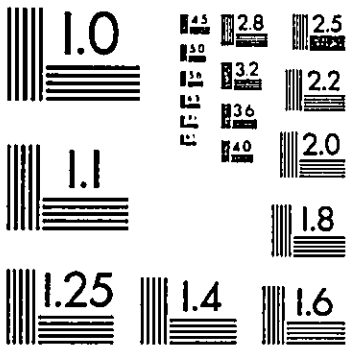

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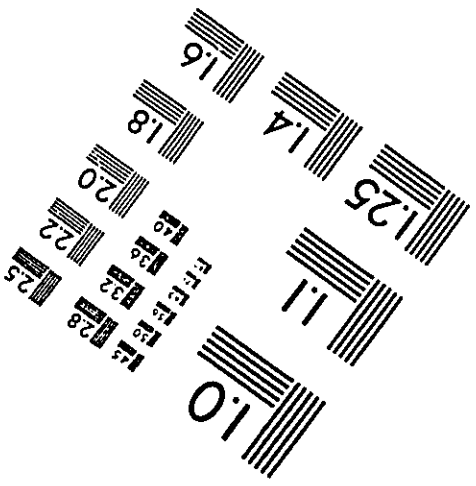

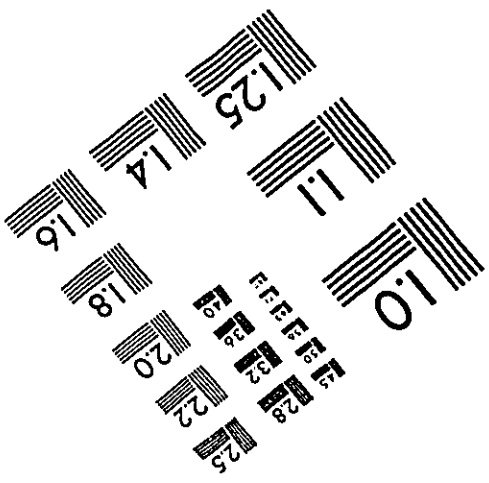

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