

1992-02-08-KA-~~FEA~~-Kapa Water System - Two 0.5  
million gallon tanks

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**ENVIRONMENTAL ASSESSMENT**

**KAPAHI WATER TANK CONSTRUCTION PROJECT**

**KAPAA, KAUAI, HAWAII**

Prepared for  
Department of Water  
County of Kauai  
Lihue, Kauai, Hawaii

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## I. AUTHORITY

This environmental assessment covers the proposed construction of two 0.3 million gallon reinforced concrete water tanks, to be located in Kapaa, Kauai, Hawaii. This is prepared in accordance with the requirements of Chapter 343, Hawaii Revised Statutes, and the Regulations for Environmental Impact Statements of the Environmental Quality Commission, State of Hawaii (see fig. 1 - Site Plan).

## II. PROPOSING AGENCY

Department of Water, County of Kauai, Lihue, Kauai, Hawaii.



### III. DESCRIPTION OF PROPOSED PROJECT

The proposed project consists of two 0.3 mg reinforced concrete tanks with diameters of about 70 feet and heights of approximately 18 feet, connecting pipelines between the tanks and existing system, a catwalk between the two tanks, necessary roadways, and a data recording and transmission system connecting with the Kapaa Fire Station.

The tanks will be located on the site of the existing 0.20 mg Ornellas Tank at the intersection of Kawaihau and Kaapuni streets. The floor elevation of the new tanks will be approximately 300 feet above mean sea level. Because of the great difference in height of the new tanks and the Ornellas Tank (18 feet for the new tanks versus 7 feet for the Ornellas Tank), serious problems in overflow, head differential, and drainage become obvious. Therefore, it may be necessary to terminate operation of the Ornellas Tank and convert it to some other use. This matter will be dealt with in the design of the tanks and appurtenant pipelines.

The principal source of water for the tanks will continue to be the Makaleha and Akulikuli tunnels through the existing 12-inch pipelines along Kawaihau Road. Water levels in the tanks will be transmitted via a data recording and transmission system with recorders located at the Kapaa Fire Station.

An instrument house containing water level indicators, recorders, and controllers will be located on the site. The site itself will be completely fenced and landscaped.

#### IV. PURPOSE OF PROJECT

The primary purpose of this project is to provide additional water storage to meet demands in the Kapaa Homesteads and other nearby residential areas, and essentially the entire Kapaa area, especially during:

1. Peak demands such as during weekends, mornings, evenings and summer;
2. Emergencies such as fire, mainbreaks, or disruptions in the pumping system.

In addition to meeting emergency needs, the Kapahi tanks will serve as important elements in the water distribution system by reducing the severity of occasional and sustained high demands due to continued anticipated growth in the Wailua-Kapaa area. This area is one of the most rapidly growing areas on Kauai and the added tanks will assure greater reliability of water service. Several schools, residential areas, a hospital, churches and businesses will benefit from the addition of these tanks.

Figure 2 shows the increase in water services and consumption at Wailua-Kapaa as compared to Lihue.

Figure 2: Growth in Number of Water Services and Water Consumption - Lihue vs. Wailua-Kapaa

<u>Number of Water Services</u>			
	<u>1970</u>	<u>1987</u>	<u>% Increase</u>
Lihue	1,605	2,550	59
Wailua-Kapaa	1,784	3,953	122

<u>Water Consumption (GPD)</u>			
	<u>1970</u>	<u>1987</u>	<u>% Increase</u>
Lihue	1,352,000	1,945,446	44
Wailua-Kapaa	1,257,000	2,836,888	84

Source: Analysis of Metered Sales by Meter Size for Regular Bills, Department of Water, County of Kauai, FY 1986-87.

#### V. DESCRIPTION OF AFFECTED ENVIRONMENT

The proposed concrete tanks will be located at the southeast corner of Kaapuni and Kawaihau roads. This is the current site of the Ornellas Tank. The area of the lot is 0.836 acres.

In the vicinity of the lot, there are only a few residential parcels with small farmlands, Kapahi Park, and a shallow, open ditch. The lot itself is covered partly with a maintained grass lawn and some small bushes.

Kawaihau Road leads to the Kapaa Homesteads residential subdivision and Kapaa town (approximately 3.8 miles from the tank site). As stated in Section IV, several schools, the Sam Mahelona Hospital, parks, shopping centers, businesses, stores, and hotels in addition to residences are located in Kapaa, making this town one of the largest on the island.

## VI. ARCHAEOLOGICAL CONSIDERATIONS

According to records and maps at the Bishop Museum and the Historic Sites Division of the State of Hawaii's Department of Land and Natural Resources, there are no known historic or archaeological sites, including sacred grounds, heiaus, burials, landmarks or bridges in the proposed project area. The archaeological and historical sites that may exist are located more inland, toward the Makaleha Mountains and the Kamalii Ridge. Even there, the possibility of the existence of these sites is very remote.

Apparently the surface and subsurface lands near the project site have been obliterated by many years of agricultural use, or have been destroyed by flooding or covered by slopewash.

There are, however, a few archaeological discoveries which were found in nearby areas that are worth mentioning:

1. An idol was found in September of 1896, by G.N. Wilcox. The idol, named "Manukalanipo", was found in the Kapahi Ditch, and is believed to be one of three idols native to Kauai.
2. Prior to 1931, a large and heavy (3100 lbs.) bowl of unknown origin and of difficult classification, was found at Kapahi in the Kapaa Homesteads. The bowl was probably used as a large grindstone.
3. Nine pebbles, possibly used as stones for battle, were found near Mt. Waiku. But the absence of any surface remains and documentary evidence weigh against this area as having any traditional significance. The pebbles could have been carried by hunters or formed naturally.

## VII. FLORA-FAUNA

### A. Flora:

According to a botanical survey conducted by Dr. David Lorence, PhD, of the Pacific Tropical Botanical Garden on Kauai, no rare or endangered species are encountered at the project site, nor do any species indigenous to Hawaii exist there.

Types of flora which were identified at the project site are herbaceous weeds of various types, and all are in relative abundance. Eight species from the aster family (composital) are predominant, while members of the bean family (Leguminosae) and grass family (Gramineae) are also abundant. Shrubbery plants observed include the *Leucaena leucophala* (haole koa), *Ricinus communis* (castor bean), and *Indigofera suffruticosa* (indigo). In all, 33 species of flora were recorded at the project site. It is of significance to note that the Federal Registry has no listing of any endangered plants in the area.

**LIST OF PLANT SPECIES OCCURRING AT**  
**THE PROPOSED WATER TANK SITE, KAPAA, KAUAI**  
(Family, genus, species, and common name in parentheses)  
- Survey Conducted by Dr. David H. Lorence, PhD

**ACANTHACEAE**

Hemigraphis reptans

**COMMELINACEAE**

Commelina diffusa (honohono)

**COMPOSITAE**

Bidens pilosa (beggar tick)  
Conyza bonariensis (Hairy horseweed, lani wela)  
Emilia fosbergii (pualele)  
Pluchea symphytifolia (fleabane)  
Sonchus oleraceus (pualele)  
Synedrella nodiflora (syndrella)  
Wedelia trilobata (wedelia)  
Taraxacum officinale (dandelion)

**CONVOLVULACEAE**

Ipomoea triloba (aiea, morning glory)

**EUPHORBIACEAE**

Chamaesyce hirta (garden spurge)  
Ricinus communis (castor bean)

**GRAMINEAE**

Cenchrus echinatus (common sandbur, umealu)  
Digitaria ciliaris (kukaipua'a)  
Paspalum conjugatum (hilo grass)  
Paspalum fimbriatum (paspalum grass)  
Pennisectum clandestinum (kikuyu grass)  
Sorghum halepense (Johnson grass)

**LEGUMINOSAE**

Chamaecrista nictitans (Japanese tea)  
Desmanthus virgatus (acutan)  
Desmodium sandwicense (beggar weed)  
Desmodium torulosum (beggar weed)  
Indigofera suffruticosa (indigo)  
Leucaena leucocephala (haole koa)  
Mimosa pudica (hilahila)

**MALVACEAE**

Abutilon grandifolium (hairy abutilon)  
Malvastrum coromandelianum (false mallow)

**PLANTAGINACEAE**  
Plantago lanceolata (narrow-leaved plantain)

**RUBIACEAE**  
Spermacoce assurgens (button weed)

**SOLANACEAE**  
Capsicum annum (noui, red chili pepper)

**VERBENACEAE**  
Stachytarpheta urticifolia (vervain, oi)  
Verbena littoralis (oi, weed vervain)

B. Fauna:

Very few, if any, animals are known to exist in the project site area. No birds were observed and there are probably none which reside in the area due to the absence of any trees on the site.

The list below illustrates the kinds of insects and arthropods which were observed by Donald Sugawa, entomologist for the Department of Agriculture on Kauai. None is endemic or endangered.

INSECTS

COMMON NAME

SCIENTIFIC NAME

Black earwig	<u>Chelisoches morio</u> (Fabricius)
Globe skimmer	<u>Pantala flavescens</u> (Fabricius)
White margined cockroach	<u>Cutilia soror</u> (Brunner)
Grass sharpshooter	<u>Draeculacephala minerva</u> Ball
Japanese grasshopper	<u>Oxya japonica</u> (Thunberg)
Pink winged grasshopper	<u>Atractomorpha sinensis</u> Bolivar
Ocean field cricket	<u>Teleogryllus oceanicus</u> (LeGuilou)
Bermuda grass leafhopper	<u>Carneocephala sagillifera</u> (Uhler)
Leafhopper assassin bug	<u>Zelus renardii</u> Kolenati
Black stink bug	<u>Coptosoma xanthogramma</u> (White)

INSECTS (cont.)

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>
Southern green stink bug	<u>Nezara viridula</u> (Linnaeus)
Narrow wing kattydid	<u>Elimaea punctifera</u> (Walker)
Greenhouse whitefly	<u>Trialeurodes vaporariorum</u> (Westwood)
Spiraling whitefly	<u>Aleurodicus dispersus</u> Russell
A ladybug	<u>Cornicus coeruleus</u> Mulsant
Pepper weevil	<u>Anthonomus eugenii</u> Cano
Chinese rose beetle	<u>Adoretus sinicus</u> Burmeister
Black twig borer	<u>Xylosandrus compactus</u> (Eichoff)
Lawn armyworm	<u>Spodoptera maurita</u> (Boisduval)
Grass webworm	<u>Herpetogramma licarsisalis</u> (Walker)
Koa haole seed weevil	<u>Araecerus levipennis</u> Jordan
Bean butterfly	<u>Lampides boeticus</u> (Linnaeus)
Fiery skipper	<u>Hylephila phyleus</u> (Drury)
Sourbush seedfly	<u>Acinia picturata</u> (Snow)
Blowfly	<u>Chrysomya sp.</u>
Oriental fruitfly	<u>Dacus dorsalis</u> Hendel
Serpentine leafminer	<u>Liriomyza sp.</u>
Paper wasp	<u>Polistes sp.</u>
Honeybee	<u>Apis mellifera</u> (Linnaeus)
Ground beetle	<u>Gonocephalum seriatum</u> (Boisduval)
Ants	various

OTHER ARTHROPODS

Spiny backed spider	<u>Gasteracantha canciformis</u> (Linnaeus)
Wolf spider	<u>Heteropoda regina</u> (Fabricius)
Yellow garden spider	<u>Argiope appensa</u> Walckenaer
Sow bug	<u>Porcellio laevis</u> (Latr.)
Small garden snail	<u>Bradybaena similaris</u> (Ferussac)
Garden millipede	<u>Oxidus gracilis</u> Koch

Conclusion: No major disturbance to the flora and fauna at the project site is anticipated. Grasses and weeds will need to be removed, and insects and other arthropods will need to relocate when the storage tanks are constructed.

### VIII. POTENTIAL ENVIRONMENTAL IMPACTS AND SIGNIFICANCE

The following is a list of potential negative environmental impacts which could result from the construction of the Kapahi tanks. These impacts would be minimal; and in most cases, only temporary:

1. There will be some grading where the tanks will be located and also for the roadway from the street to the tanks.
2. There may be a dust problem during grading of the land, but this will be temporary.
3. There may be some traffic and noise problems during construction, but these will also be temporary and will probably not be serious. Construction activities will be confined to hours permitted by law or local regulations and ordinances.
4. There may be a minimal effect on the skyline due to the two tanks, but appropriate painting of tanks and attractive landscaping should enhance appearance.

5. Drainage from tanks would follow the existing pattern across farm lands, but flows in open drain would be very infrequent. Drainage from tanks would occur only when they are taken out of operation for maintenance work.

IX. ALTERNATIVE TO PROPOSED PROJECT

**DO NOT BUILD TANKS**

This would eliminate the badly-needed safety factor provided by the storage in the tanks during periods of peak demands and emergencies. If the tanks were not built, the reliability of the current system would be seriously questioned.

#### X. SUMMARY AND RECOMMENDATIONS

It is recommended that the Kauai County Department of Water proceed with the Kapahi Water Tank construction project for the following reasons:

1. The population of the Kapaa area continues to grow rapidly. This increase is evident in both the number of residents and businesses which are located in Kapaa. The present water system, which was constructed prior to the population surge, is not adequate to provide for this growth.
2. Because of this increase in population, there is an even greater need for adequate water storage to meet emergencies and peak demands.
3. The existing lot is owned by the County of Kauai, and would be an ideal site in terms of elevation and proximity to connecting pipelines. This locale is also ideal because the effect the construction would have on the environment would be minimal and, in most cases, only temporary.
4. The concrete tanks would be most cost-effective.

## XI. FINDINGS AND DETERMINATION

The purpose and description of the project, environmental considerations, and the reasons why the Kauai County Water Department should proceed with the project have been outlined in previous sections of this report. After completing an environmental assessment and consulting with various agencies and individuals, it has been determined that the proposed project will not have a significant impact on the environment and, accordingly, an Environmental Impact Statement would be unnecessary.

This environmental assessment indicates that the proposed project will not:

1. destroy natural or cultural resources such as historic or archaeological sites;
2. affect any rare or endangered species of flora or fauna;
3. result in degradation of the environment;

4. negatively affect the economic or social welfare of the community;
5. curtail the beneficial uses of the environment;
6. have detrimental effects on the public's health.

The proposed project will result in substantial benefit to the people of Kauai, particularly to those in the Wailua-Kapaa area since it would provide a reliable reserve of potable water that can be drawn upon during peak demand periods and emergencies such as fires and main breaks and other disruptions to the system. The two additional tanks would also help in a smoother and more reliable operation of the system by maintaining more consistent pressures throughout.

XII. PERSONS AND AGENCIES CONTACTED

<u>Name</u>	<u>Agency</u>
Toni Hahn	Bishop Museum
Martha Yent	State DLNR - Historic Sites
Andy Yuen	U.S. Division of Fish and Wildlife
Peter O'Connor	Bishop Museum
Donald Sugawa	Department of Agriculture
David Lorence	Pacific Tropical Botanical Gardens
Julian Yates	University of Hawaii, Entomology
Wayne Hinazumi	Department of Water, Kauai
Raymond Sato	Department of Water, Kauai

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