



EXECUTIVE CHAMBERS

HONOLULU

October 19, 2000

BENJAMIN J. CAYETANO
GOVERNOR

The Honorable Clifford S. Jamile, Manager and Chief Engineer
Board of Water Supply, City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Jamile:

With this letter, I accept the Final Environmental Impact Statement for the ~~Nanakuli~~
~~242 Reservoir in the Wai'anae District on the Island of O'ahu~~ as satisfactory fulfillment of the
requirements of Chapter 343, Hawaii Revised Statutes. The economic, social and
environmental impacts, which will likely occur should this project be built, are adequately
described in the statement. The analysis, together with the comments made by reviewers,
provides useful information to policy makers and the public.

My acceptance of the statement is an affirmation of the adequacy of that statement
under the applicable laws.

I find that the mitigation measures proposed in the environmental impact statement will
minimize the negative impacts of the project. Therefore, I urge the Board of Water Supply
and/or its agents to perform these, or alternative and at least equally effective, mitigation
measures at the discretion of the permitting agencies. The mitigation measures identified in
the environmental impact statement are listed in the enclosed document.

With warmest personal regards,

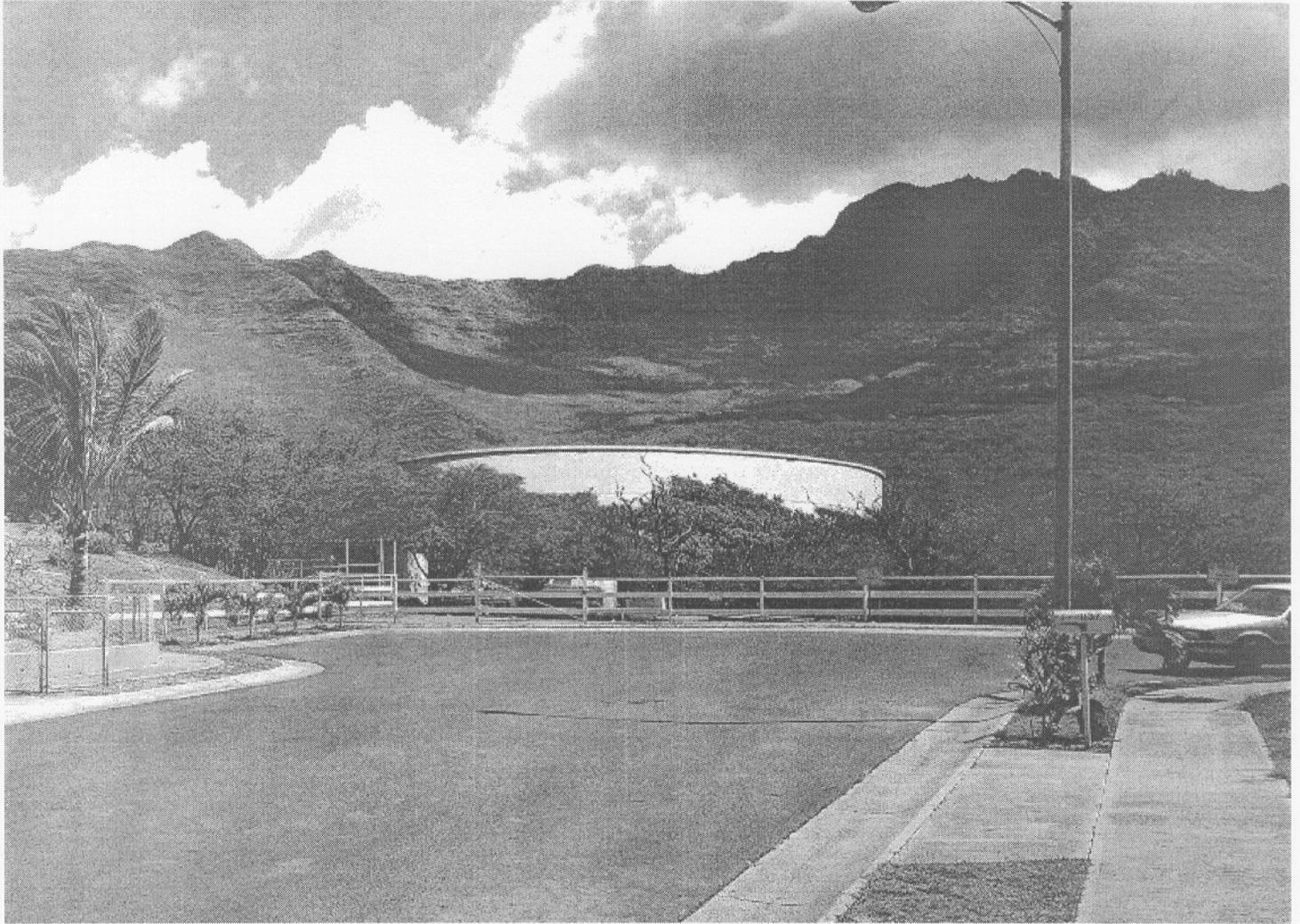
Aloha,


BENJAMIN J. CAYETANO

Enclosure

c: Bruce S. Anderson, Ph.D., M.P.H.
✓ Office of Environmental Quality Control

Final
ENVIRONMENTAL
IMPACT STATEMENT
for the
NANAKULI 242 RESERVOIR



Prepared For:
Board of Water Supply
City & County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843



Prepared By:
Shimabukuro, Endo & Yoshizaki, Inc.
1126 12th Avenue, Suite 309
Honolulu, Hawaii 96816

June 2000

**FINAL
ENVIRONMENTAL IMPACT STATEMENT
FOR THE
NANAKULI 242 RESERVOIR**

Prepared For: City and County of Honolulu
Board of Water Supply

**Responsible
Official:**

This environmental impact statement and all ancillary documents were prepared under my direction or supervision and the information submitted, to the best of my knowledge, fully addresses document content requirements as set forth in Section 11-200-17, Hawaii Administrative Rules



Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply

5.30.00
Date

Prepared By: Shimabukuro, Endo & Yoshizaki, Inc.

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CHAPTER I SUMMARY

1.1 Agency Proposing the Action

The Board of Water Supply is proposing the action. The contact person at the Board of Water Supply is Mr. Barry Usagawa. He can be reached at the following phone number: 527-5235. The mailing address for the Board of Water Supply is:

Board of Water Supply
City & County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

1.2 Approving Agency

The State of Hawaii is the approving agency. Governor Benjamin J. Cayetano is the approving authority.

1.3 Description of the Proposed Action

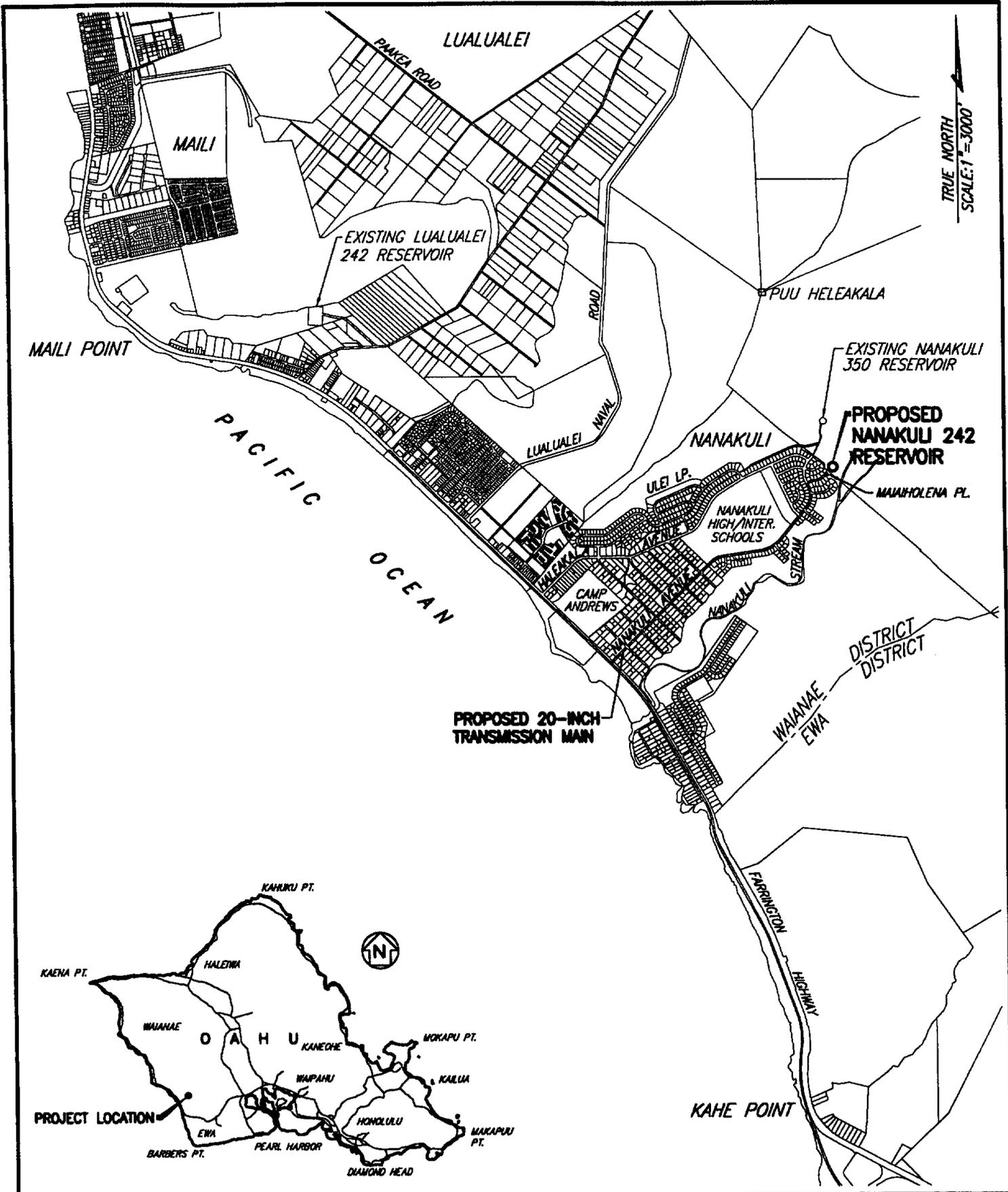
The proposed action is titled the "Nanakuli 242 Reservoir." The proposed action is located in Nanakuli, Oahu, Hawaii; within a parcel of land identified by Tax Map Key 8-9-8:3.

The proposed action consists of the construction of a 2 million-gallon reinforced concrete reservoir, 20-inch transmission main, access road, and associated appurtenances. Figure 1 shows the location of the proposed action.

1.4 Hawaii Environmental Impact Statement Law

Hawaii's environmental impact statement law (Hawaii Revised Statutes, Chapter 343) requires the preparation of environmental assessments and environmental impact statements for many development projects such as the proposed action. The law requires that government give systematic consideration to the environmental, social and economic consequences of proposed development projects before granting permits that allow construction to begin.

The proposed action is subject to preparation of an environmental review since City and County of Honolulu funds will be used to construct the proposed action.



PREPARED FOR: HONOLULU BOARD OF WATER SUPPLY	NANAKULI 242 RESERVOIR NANAKULI, OAHU, HAWAII LOCATION OF PROPOSED ACTION	sey Shimabukuro, Endo & Yoshizaki, Inc. ENGINEERS Civil & Structural Engineers	FIGURE 1
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1.5 Significant Beneficial and Adverse Impacts

Significant beneficial impact means the sum of beneficial effects on the quality of the environment. It includes actions that are beneficial to the environment; are consistent with the state's environmental policies or long-term environmental goals and guidelines as established by law; or improve the economic or social welfare.

The proposed action will have a significant beneficial impact; it will improve water system performance and reliability in meeting domestic and fire protection needs for the Nanakuli low service area. It will also provide greater flexibility in emergency situations. The proposed action is consistent with the State's policy of fostering safe, sanitary and decent homes.

Significant adverse impact means the sum of adverse effects on the quality of the environment. It includes actions that irrevocably commit a natural resource; curtail the range of beneficial use of the environment; are contrary to the state's environmental policies or long-term environment goals and guidelines as established by law; or adversely affect economic or social welfare.

There are no known adverse impacts that are considered significant and related to the proposed action.

The proposed action will have other adverse impacts that are not considered significant including impacts to air quality, noise levels, traffic, erosion, point source pollution, visual, and to existing tenants renting land for ranching from the Department of Hawaiian Home Lands. There is a possibility that underground cultural resources and human burials may be impacted by the construction of the 20-inch transmission main. Mitigation measures are proposed to help to minimize the affect of these impacts.

1.6 Proposed Mitigation Measures

The following mitigation measures are proposed for consideration to minimize adverse impacts to air quality:

1. Use water or suitable chemicals to control fugitive dust during construction activities such as clearing the land and grading.
2. Cover all moving, open-bodied trucks transporting materials, which may result in fugitive dust.
3. Use asphalt, water or suitable chemicals on roads, materials stockpiles and other surfaces, which may result in fugitive dust.
4. Maintain roadways in a clean manner.

5. Remove earth or other materials promptly from paved streets, which have been transported there by trucking, earth-moving equipment, erosion, or other means.
6. Provide fugitive dust screen between reservoir site and adjacent residential homes.
7. Maintain construction vehicles to meet emission levels required by law.

The following mitigation measures are proposed for consideration to minimize adverse impacts to noise levels:

1. Schedule construction activities which will generate significant noise levels when schools are not in session.
2. Require the contractor to install mufflers and noise damping equipment on construction vehicles and equipment.

The following mitigation measures are proposed for consideration to minimize adverse traffic impacts:

1. If required by the Department of Transportation Services, provide off duty police officers to control the flow of traffic.
2. Schedule large truck deliveries and routes to account for school sessions and pedestrian and vehicular traffic before and after school.

The following mitigation measures or Best Management Practices are proposed for consideration to minimize adverse impacts from erosion:

1. Provide silt fences to catch silt before it leaves the project site to minimize erosion to Nanakuli Stream.
2. Upon completion of finish grading, grass areas that are bare and have no ground cover.
3. Provide ground cover for bare areas.

The following mitigation measures are proposed for consideration to minimize adverse impacts from point source pollution:

1. Remove chlorine from wash water prior to discharge into Nanakuli Stream.
2. Sample effluent and test it for chlorine prior to discharge.

The following mitigation measures are proposed for consideration to minimize the visual impact of the reservoir tank:

1. Landscaping around reservoir to produce a masking effect.
2. Landscape excavation cuts and benches.
3. Paint concrete reservoir with earth tones to blend with existing background.

The following mitigation measures are proposed for consideration to minimize the impact to permittees, MaryAnn Higashi and Robert Lyman, that rent land from the Department of Hawaiian Home Lands for ranching:

1. Relocate existing stable on the permit area for MaryAnn Higashi.
2. Relocate existing fencing on the permit areas for Robert Lyman and MaryAnn Higashi.

The following mitigation measures are proposed for consideration to minimize the impact to underground cultural resources and human burials during construction of 20-inch transmission main:

1. Develop a program of archaeological monitoring during the installation of the 20-inch transmission main.
2. Provide full time monitoring by a qualified archaeologist for the sandy coastal deposits in the makai portion of Nanakuli Avenue.
3. Once excavation has proceeded through terrigenous sediments, provide on call monitoring. (During on call monitoring if any suspected cultural deposits are located, work in the area will halt immediately and a qualified archaeologist will be called to assess the deposits.)

1.7 Alternatives Considered

The initial objective was to construct a regional reservoir with a capacity of five million gallons to serve communities within the Waianae District water system low service area. The following alternatives were considered:

1. No action.
2. Elevated storage tank.
3. Underground storage tank.

4. Ground level storage tank.

The first three alternatives were eliminated. The ground level storage tank alternative was selected for further study. Seven sites were identified for the ground level reservoir. After analysis, all seven potential sites for the regional reservoir were eliminated. The reasons for eliminating alternatives and sites are discussed in Chapter III "Alternatives to Proposed Action."

The Board of Water Supply refined their plan for the Waianae District low service area. Instead of one large regional reservoir, two smaller local reservoirs with a capacity of two million gallons each are now being planned for construction to service Nanakuli and Waianae. The proposed action is the Nanakuli reservoir and the second reservoir for Waianae will be planned for in the future.

Two sites, "A" and "G," were identified as the best candidates for a ground level reservoir to serve the Nanakuli low service area. Site "A" is located near the end of Maiaiholena Place and Site "G" is located near the top of Ulei Loop. Site "G" was eliminated during the field investigation phase because of poor soil conditions.

Three alternative alignments were identified for the 20-inch transmission main that would connect the reservoir to an existing transmission main along Farrington Highway. The routes of alternative alignments are described below:

Alignment A. Nanakuli Avenue and Maiaiholena Place

Alignment B. Haleakala Avenue, Nanakuli Avenue and Maiaiholena Place

Alignment C. Ranch road along Nanakuli Stream, Maiapolua Place, Nanakuli Avenue and Maiaiholena Place.

Alignments "B" and "C" were eliminated. The reasons for eliminating these alignments are discussed in Chapter III "Alternatives to Proposed Action." The Board of Water Supply selected reservoir Site "A" and transmission main Alignment "A" for the proposed action.

1.8 Unresolved Issues

There is one unresolved issue related to the proposed action. The Waianae Neighborhood Board has commented that flooding may occur at the proposed reservoir site. Mr. John Higashi who uses the site indicated that during heavy rainfall there is sheet flow over the surface less than 6 inches in depth. The cause and extent of flooding, if any, at the site are not known. Therefore, an assessment of the impact of the proposed action on the existing flooding condition cannot be made.

To resolve this issue prior to commencement of the proposed action, the action will be designed to meet the drainage standards of the City and County of Honolulu, Department of Planning and Permitting. A drainage study may be conducted during the design of the proposed action. This study may also include a flood analysis of the watershed and Nanakuli Stream. Necessary drainage improvements will be implemented to meet the drainage standards.

1.9 Compatibility with Policies, Land Use Plans and Controls

In general, the proposed action is consistent with the policies of the Hawaii State Plan and the City & County of Honolulu General Plan. It is also consistent with other State and County polices that are based on the Hawaii State Plan and the General Plan.

The proposed action is within land placed in the agriculture land use district by the State. Major water storage tanks are listed as a permissible use on land zoned Agricultural.

The proposed action is within land classified as General Agricultural District AG-2 by the City and County of Honolulu. The proposed action is a public use and is a permitted principle use within the AG-2 District.

1.10 List and Status of Necessary Licenses, Permits and Approvals

Table 1 lists the necessary licenses, permits and approvals required for the proposed action and their status.

Table 1. List and Status of Necessary Permits and Approvals

<u>Licenses, Permits & Approvals Required</u>	<u>From Agency</u>	<u>Status</u>
License to Use Hawaiian Home Lands	DHHL	Not Obtained
Community Noise Control Permit and Construction Noise Variance	DOH	Not Obtained
National Pollutant Discharge Elimination System Permits for: Dewatering (If needed) Hydrotesting (If needed) Stormwater (If needed)	DOH	Not Obtained
Approval for Construction within DOT Right of Way	DOT	Not Obtained
Building Permit	DPP	Not Obtained
Construction Dewatering Permit to Discharge Groundwater into Municipal Separate Storm Sewer System	DPP	Not Obtained
Development Plan Amendment for Public Facilities Map	DPP	Not Obtained
Grading Permit and Approval	DPP	Not Obtained
Permit to Discharge Effluent into Municipal Storm Sewer System	DPP	Not Obtained
Public Use and Utility Waiver Construction Plans Approval	DPP	Not Obtained
Trenching Permit	DPP	Not Obtained
Subdivision Application for Easements	DPP	Not Obtained
Street Usage Permit	DTS	Not Obtained

Table Abbreviations:

- DHHL - State Department of Hawaiian Home Lands
- DOH - State Department of Health
- DOT - State Department of Transportation
- DPP - City & County of Honolulu Department of Planning and Permitting
- DTS - City & County of Honolulu Department of Transportation Services

CHAPTER II DESCRIPTION OF PROPOSED ACTION

The Board of Water Supply is responsible for managing and operating Oahu's public water system to maintain a safe and reliable supply for island residents. To accomplish these goals, the BWS operates wells and tunnels that yield potable water. Water is distributed to customers through a system of transmission mains and storage reservoirs.

During emergencies caused by mechanical failures or main breaks, flexibility is the key to ensure that no BWS customer is deprived of water service. Oahu's public water system is substantially operated as an integrated islandwide water system that connects water sources (i.e. wells, etc.), water mains and reservoirs. The water system provides customers with sufficient backup services during water main breaks or emergency servicing.

2.1 Purpose of and Need for Proposed Action

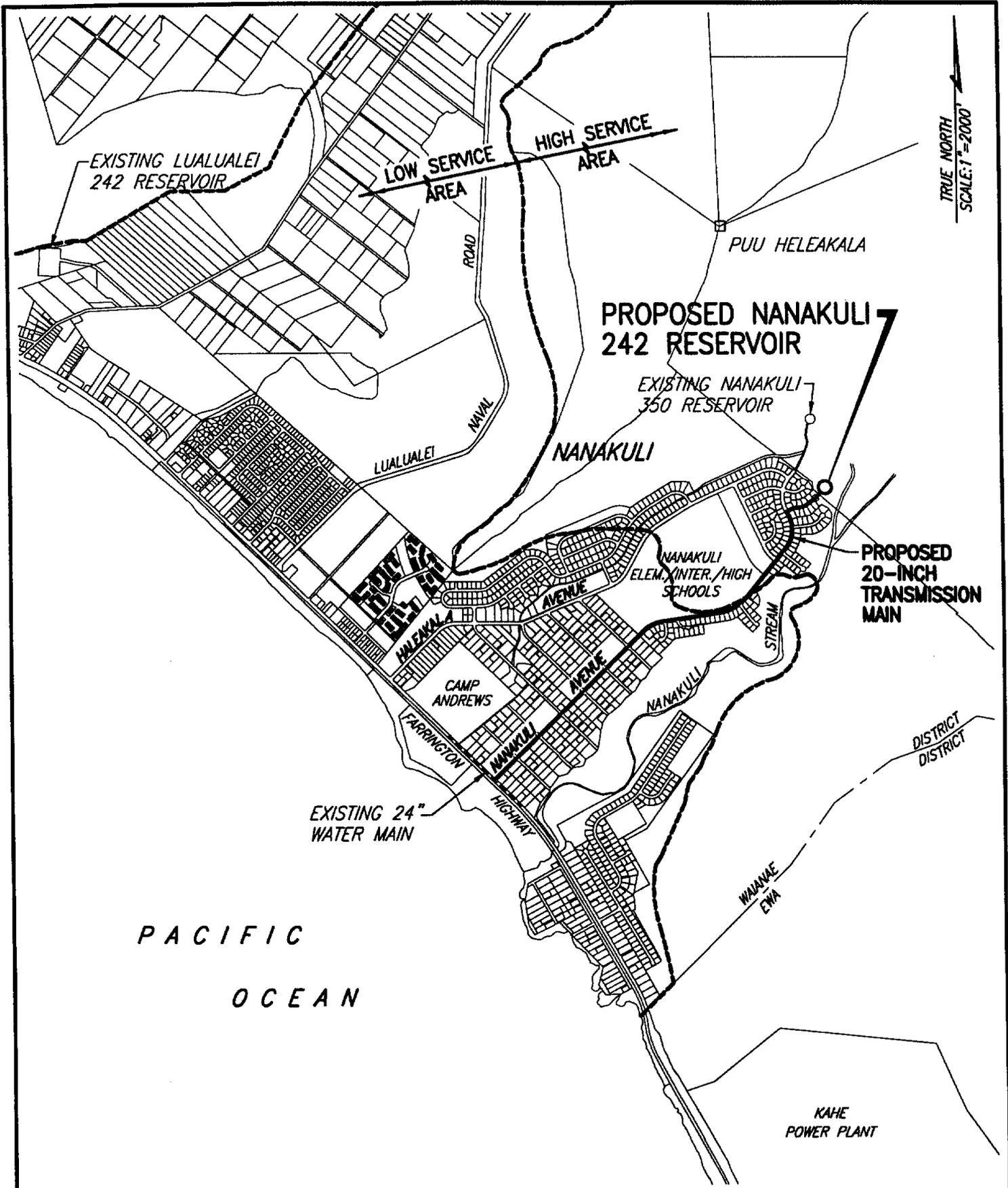
The purpose of the proposed action is to provide a reliable water system for domestic use and fire protection in the Nanakuli low service area, which is shown in Figure 2.

The Nanakuli low service area is between the ocean and the 142-foot ground elevation. Along the coast, the service area is generally between Hakimo Road and the Waianae/Ewa District Boundary.

The proposed Nanakuli 242 Reservoir is about 100 feet higher elevation than the Nanakuli low service area. The designation "242" refers to the maximum water level elevation (242 feet) in the reservoir tank measured from mean sea level. The static head of stored water is sufficient to reliably produce acceptable water pressure at customer water fixtures and fire hydrants within the low service area.

The proposed action is needed because the Nanakuli low service area does not have sufficient water storage capacity to meet the standard capacity defined by Board of Water Supply policies. The policy is storage capacity shall be a minimum of one and a half times average daily demand.

Reservoirs must store an adequate amount of water for consumption and fire fighting use, especially for emergencies. During a water main break, the stored water is consumed allowing Board of Water Supply crews to repair the break with minimal interruption in service. In addition, reservoirs are used to meet peak demand periods.



PREPARED FOR:
**HONOLULU BOARD OF
 WATER SUPPLY**

NANAKULI 242 RESERVOIR
 NANAKULI, OAHU, HAWAII
NANAKULI LOW SERVICE AREA

sey Shimabukuro, Endo
 ENGINEERS & Yoshizaki, Inc.
 Civil & Structural Engineers

FIGURE
2

2.2 Statement of Objectives

The objective of the proposed action is to provide the facilities necessary for an additional two million gallons of storage capacity for the Nanakuli low service area. The size of the proposed reservoir is based on the existing water usage, existing storage and required storage capacity.

Table 2 shows the average daily demand and storage requirements for the low service area in the Waianae District; it also includes the Nanakuli low service area.

Table 2. Average Daily Demand and Storage in Waianae District 242 System

<u>Low Service Area</u>	<u>Average Daily Demand (Million Gallons)</u>	<u>Required Storage Capacity (Million Gallons)</u>	<u>Existing Storage Capacity (Million Gallons)</u>	<u>Storage Capacity Deficit (Million Gallons)</u>
Makaha	1.40	2.10	2.50	-0.40
Waianae-Maili-Lualualei	4.90	7.35	2.00	5.35
Nanakuli	<u>2.00</u>	<u>3.00</u>	<u>1.50</u> (See Note 4)	<u>1.50</u>
Totals	8.30	12.45	6.00	6.45

Table Notes:

1. The 1998 metered demand in Waianae District (Nanakuli to Makaha low service system) is approximately 8.3 million gallons per day (MGD). The demand in the high service systems of Nanakuli, Waianae and Makaha Valleys are about 1.2 mgd.

2. Production by Waianae District sources is approximately 4.5 MGD. The balance of 3.8 MGD and high services systems of 1.2 mgd is imported from Pearl Harbor via the Barber's Point Line Booster.

3. When all existing and planned Waianae District sources are on-line, a total of 6.5 MGD is expected to be produced and the Ewa import requirement will be reduced to 2.4 MGD.

4. Existing Lualualei 242 Reservoir. The location of Lualualei 242 reservoir is shown in Figure 2.

The average daily demand in the Nanakuli low service area is about two million gallons per day. The required storage capacity is one and a half times average daily demand or about three million gallons. The existing Lualualei 242 reservoir provides 1.5 million gallons of storage for Nanakuli low service area. About 1.5 million gallons of additional storage is needed.

The proposed action was sized for a capacity of two million gallons. The extra half million gallons will provide storage capacity for the future when water usage increases due to planned developments on Hawaiian Home Lands and other lands within the area.

The existing Nanakuli 350 Reservoir, which is approximately 600 feet north of the project site, provides for water needs in the high service area of Nanakuli Valley. It does not serve the Nanakuli low service area.

2.3 Historical Perspective

Waianae District

In ancient times, Waianae was known for the intense heat of the sun and for its abundance of fish. The area between Makua and Nanakuli was also noted for its susceptibility to drought and famine. The Waianae area consists of nine ahupua'a (a traditional land division which generally extends from the mountain to the sea), of which Nanakuli Valley is one. Figure 3 shows the Waianae District.

The population in Waianae District has grown significantly since the year 1950 when there was a population of about 7,000 people. By 1998, there were about 41,000 people living in the district.

Due to the increase in population and agriculture farms, water usage has been increasing in the Waianae District low service area. Storage capacity has not kept pace as evidenced by water use restrictions during recent water main breaks.

Water main breaks have caused the Board of Water Supply to ask residents of the Waianae District to use water only for essential needs while the break is repaired. As recently as August 12, 1999, residents were asked to restrict water use to drinking, cooking and for personal hygiene or sanitary needs; and to postpone activities such as doing the laundry, irrigating the lawn, irrigating crops and washing cars until after repairs were completed.

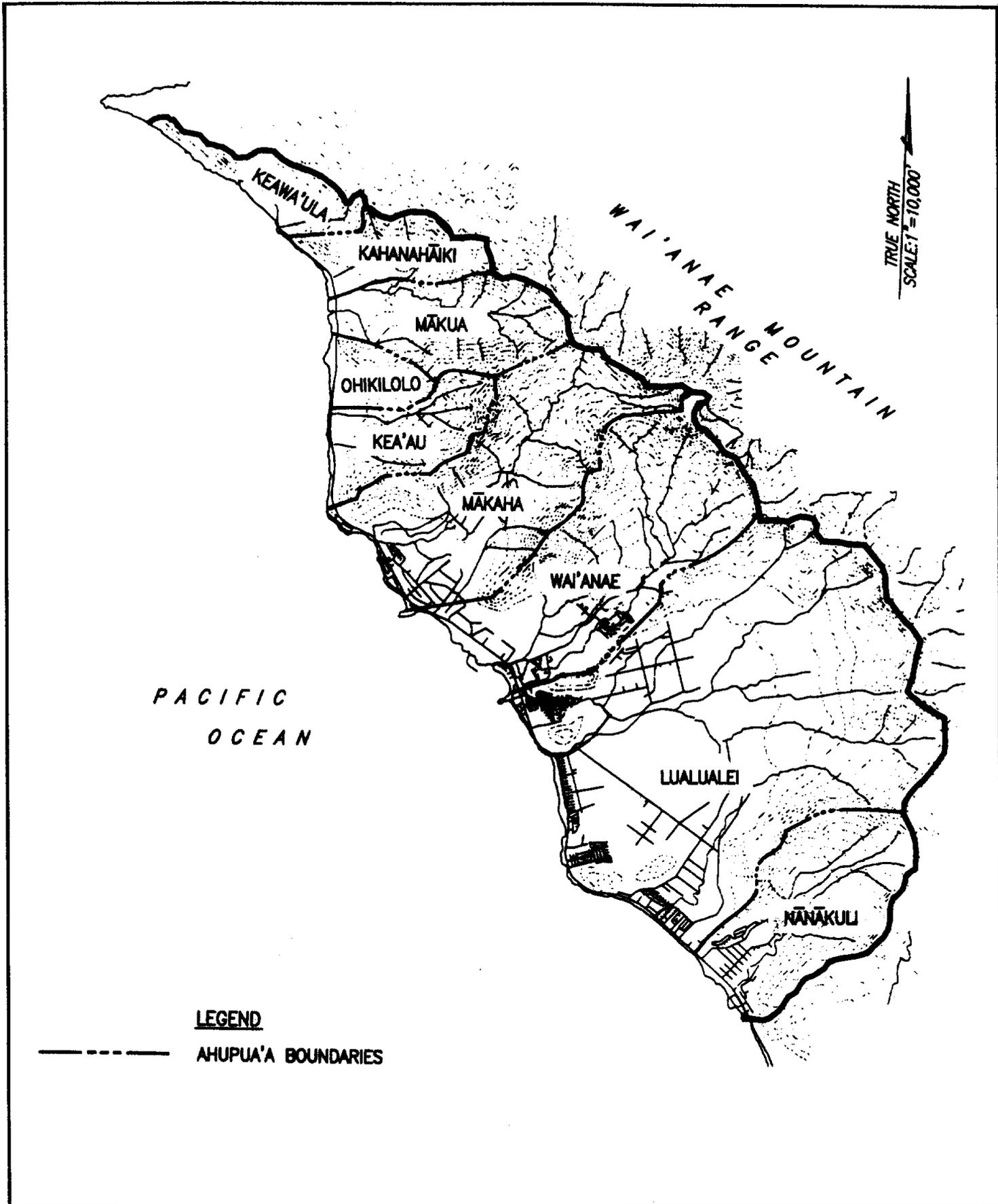
Nanakuli Valley

In ancient times, Nanakuli Valley's agricultural resources would have been sparse due to poor water and land resources. There were no perennial streams in the valley. Nanakuli probably sustained a sparse population in small, scattered settlements.

Before the year 1846, Nanakuli was listed as Crown Lands owned by the King (Kamehameha III). During the Mahele of 1848, the Land Commission divided the lands of the Kingdom of Hawaii between King Kamehameha III and the chiefs. The King further divided his lands into two parts, Crown Lands for the King and Government Lands for the Chiefs and people.

Between the years 1846 and 1848, native tenants were allowed to apply for fee-simple title to their land. There was only one application for title in Nanakuli. Tax records for Nanakuli, however, list eight people who paid taxes in 1855.

In the late 1800's, large portions of Nanakuli were leased for the purposes of ranching.



PREPARED FOR:
 HONOLULU BOARD OF
 WATER SUPPLY

NANAKULI 242 RESERVOIR
 NANAKULI, OAHU, HAWAII
 WA'ANAE DISTRICT

sey Shimabukuro, Endo
 & Yoshizaki, Inc.
 ENGINEERS Civil & Structural Engineers

FIGURE
 3

After the overthrow of the Hawaiian monarchy in the year 1893, Crown and Government Lands became Public Lands under the Republic of Hawaii. When the United States annexed Hawaii to become a Territory in the year 1898, the Republic of Hawaii ceded approximately 1.8 million acres of Crown and Government Lands to the United States. The Territory of Hawaii had possession, use and control of the lands, although legal title was vested in the United States.

The United States Congress enacted and the President signed the Hawaiian Homes Commission Act (42 Stat. 108, c. 42) on July 9, 1921. The purpose of the Act is to rehabilitate the Hawaiian race through a return to the soil. The Hawaiian Homes Commission was established by the Act to administer its provisions. The Act set aside 203,500 acres of public lands on Kauai, Maui, Oahu and the Big Island to be considered Hawaiian Home Lands. The Act allows persons of at least one-half Hawaiian blood to become lessees of the Hawaiian Homes Commission.

About 2,310 acres of land within Nanakuli Valley was turned over to the jurisdiction of the Hawaiian Homes Commission. Previous leases of Nanakuli land for ranching expired around that time.

In the mid-1920's, there were only ten residents in Nanakuli not including campers on the beach. Although Nanakuli Valley remained sparsely populated, its beach's attracted a growing number of campers. Most of Oahu had restricted camping on beaches, except in Nanakuli. Most of the campers were Hawaiian and stayed during the summer or all year.

By the 1930's, the Hawaiian Homes Commission had leased over 200 residential lots in Nanakuli. Water was provided through a 2-inch pipe from the Lualualei water system, which often ran dry daily. Waianae Sugar Plantation supplied the water, but competed with the homesteaders for use of the limited water supply.

After World War II, additional portions of Hawaiian Home Lands in Nanakuli Valley were developed into residential lots. Hawaiian Home Land mauka of the residential area was leased for ranching.

The Constitution of the State of Hawaii was drafted in 1950. It made provision for the inclusion of the Hawaiian Homes Commission Act as a law of the State.

Hawaii became a state in the year 1959. The United States Congress passed the Admission Act that granted or transferred most of the Public Land to the State of Hawaii. The Act generally stated that lands granted to the State of Hawaii shall be held as a public trust for:

1. The support of the public schools and other public educational institutions,
2. For the betterment of the conditions of native Hawaiians, as defined in the Hawaiian Homes Commission Act, 1920, as amended,
3. For the development of farm and home ownership on as widespread basis as possible,

4. For the making of public improvements, and
5. For the provision of lands for public use.

Following Statehood in the year 1959, the Hawaiian Homes Commission was abolished. The State of Hawaii assumed the obligation to the beneficiaries under the Hawaiian Homes Commission Act. The Department of Hawaiian Home Lands was established and given responsibility of administering the Act.

The Department of Hawaiian Home Lands has continued to build homes and other improvements such as roads within Nanakuli Valley. Most of Hawaiian Home Lands planned developments within the Nanakuli low service area have been completed.

Cooperative Understanding between BWS and DHHL

The Board of Water Supply has a cooperative understanding with the Department of Hawaiian Home Lands to provide water facilities for Hawaiian Home Lands. The following describes some of the projects that these agencies have collaborated on.

BWS and DHHL have entered into a proportionate share agreement to designate half a million gallons of source supply to DHHL lands. The source is from the proposed three million gallon Waipahu Wells III project, which is currently under construction. To date the following DHHL projects have been allocated water:

1. Princess Kahanu Estates in Nanakuli (0.1435 million gallons per day (mgd)),
2. Waianae Residence Lots No. 2A-2 (0.031 mgd),
3. Kalawahine Streamside in Papakolea (0.0435 mgd),
4. Waimanalo Residence Lots Unit 9 housing project (0.0265 mgd, and
5. Various small subdivisions on Kawao Avenue, Haleakala Avenue and Bell Street totaling about 4,000 gallons per day.

Water credits could also provide water to the acres of released land from the Navy's Barber's Point Naval Air Station to DHHL.

The Board of Water Supply has transferred 4.5 acres of land in Papakolea to DHHL for the construction of the Kalawahine Streamside subdivision.

2.4 General Description of the Proposed Action

The proposed action consists of constructing:

1. A reservoir with a capacity of two million gallons located just mauka of Maiaholena Place,
2. A 20-inch transmission main that will connect the new reservoir to an existing transmission main along Farrington Highway via Maiaholena Place and Nanakuli Avenue,
3. An access road, and
4. Associated appurtenances.

The proposed action is the preferred alternative of the Honolulu Board of Water Supply (BWS).

Figure 4 shows the location of the reservoir site and route of the 20-inch transmission main on a United States Geological Survey topographic map.

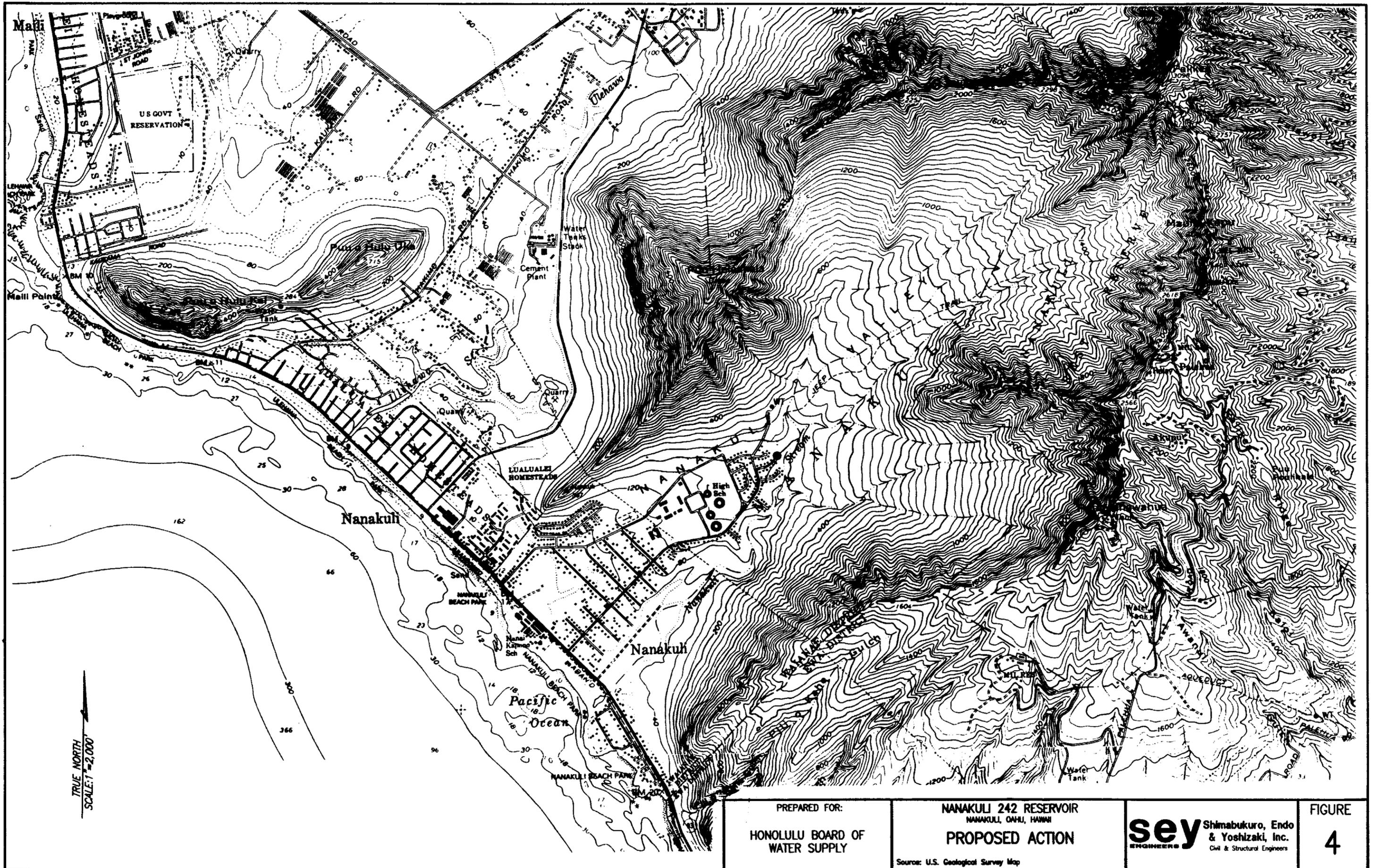
The proposed action will cost about eleven million dollars to construct. Economically, this will generate jobs for construction workers and businesses working to construct the reservoir and 20-inch transmission main.

The proposed action will help to foster safe, sanitary and decent homes; and reduce the threat to life and property from fire. Socially, the proposed action will help to provide the necessary facilities for a stable community.

The proposed reservoir and transmission main are located in an environment that has been extensively altered by human activities. The reservoir site resides in an existing ranch and is partly used to store equipment and partly used as a pasture. Boulders and kiawe trees are scattered throughout the site. The 20-inch transmission main is located within existing streets.

The proposed action will further alter the environment of the reservoir site. Construction activities will clear existing vegetation and animals, change the topography of the site, cover a portion of the site with a concrete tank, and provide new vegetation for landscaping.

No blasting will be used to construct the proposed reservoir. A description of the construction process is given in section 2.8 "Description of Construction."



2.5 Use of Public Lands and Funds

Hawaiian Home Lands

The proposed action is located on public lands that are under the jurisdiction of the State of Hawaii, specifically the Department of Hawaiian Home Lands (DHHL). The BWS will need to obtain a license from DHHL to use land for the proposed action. DHHL is not allowed to sell lands under its control. Figure 9 on page 36 shows the extent of Hawaiian Home Lands in Nanakuli Valley.

Approximately 1.5 acres (250 feet by 260 feet) is needed for the reservoir site, not including the access road easement and drainage easement. A 20-foot wide easement, approximately 150 ~~110~~ feet long is needed for the access road from the reservoir site to Maiaiholena Place. A 20-foot wide easement, approximately 250 feet in length, is needed for drainage purposes. A flowage easement is needed from the outlet to Nanakuli Stream. About 0.2 acres is needed for the access road, drainage easement, and flowage easement.

The 20-inch transmission main will be located within Nanakuli Avenue and Maiaiholena Place. The right-of-way for these roads is under the jurisdiction of the Department of Hawaiian Home Lands. BWS will need to obtain a license to place the transmission main within these roads.

Ceded Lands

The proposed action is also located on land that is known as Ceded Lands. The Hawaii State Constitution established the Office of Hawaiian Affairs, which derives revenues from the use of Ceded Lands, except for Hawaiian Home Lands. Hawaiian Home Lands are only under the jurisdiction of the Hawaiian Homes Commission Act.

Funding

The estimated cost to construct the 2 million-gallon reservoir and 20-inch transmission main is \$10,970,000. A breakdown of the construction cost is shown in Appendix A, which includes a description of each item of work, the estimated quantities for each item and unit costs.

The Board of Water Supply will fund the construction of the proposed action. The Board of Water Supply is a semi-autonomous agency authorized by City Charter and is entirely self-supporting from water sales revenues and water system facility charges.

2.6 Phasing and Timing of Action

Reservoir and 20-inch transmission main construction is expected to begin in the year 2003 and last approximately one year. The BWS does not plan to phase the proposed action.

2.7 Summary of Technical Data

The reservoir, water mains, roads, drainage structures, landscaping, and perimeter fences will be constructed according to Board of Water Supply standards.²⁶

Reservoir

The proposed reservoir will be circular and constructed of reinforced concrete with a diameter of approximately 107 feet and height of approximately 32 feet. The elevation of the tank floor will be 212 feet above mean sea level (MSL). The spillway or maximum water elevation in the reservoir will be 242 feet above MSL.

The reservoir will have a perimeter ring wall and interior individual spread footings for column support. There is a layer of near surface expansive clays underlying the proposed reservoir tank that are not suitable for foundation support. The clay will be removed and replaced with granular structural fill. The reservoir will have a roof to protect the water from contamination or algal growth stimulated from sunlight. Figure 5 shows the layout of the proposed reservoir and site. Figure 6 shows a section through the reservoir.

A perimeter road will be constructed around the periphery of the reservoir to allow maintenance personnel to inspect, maintain and repair the reservoir and other equipment. The road will be 10 feet wide and constructed of asphalt concrete.

Access Road

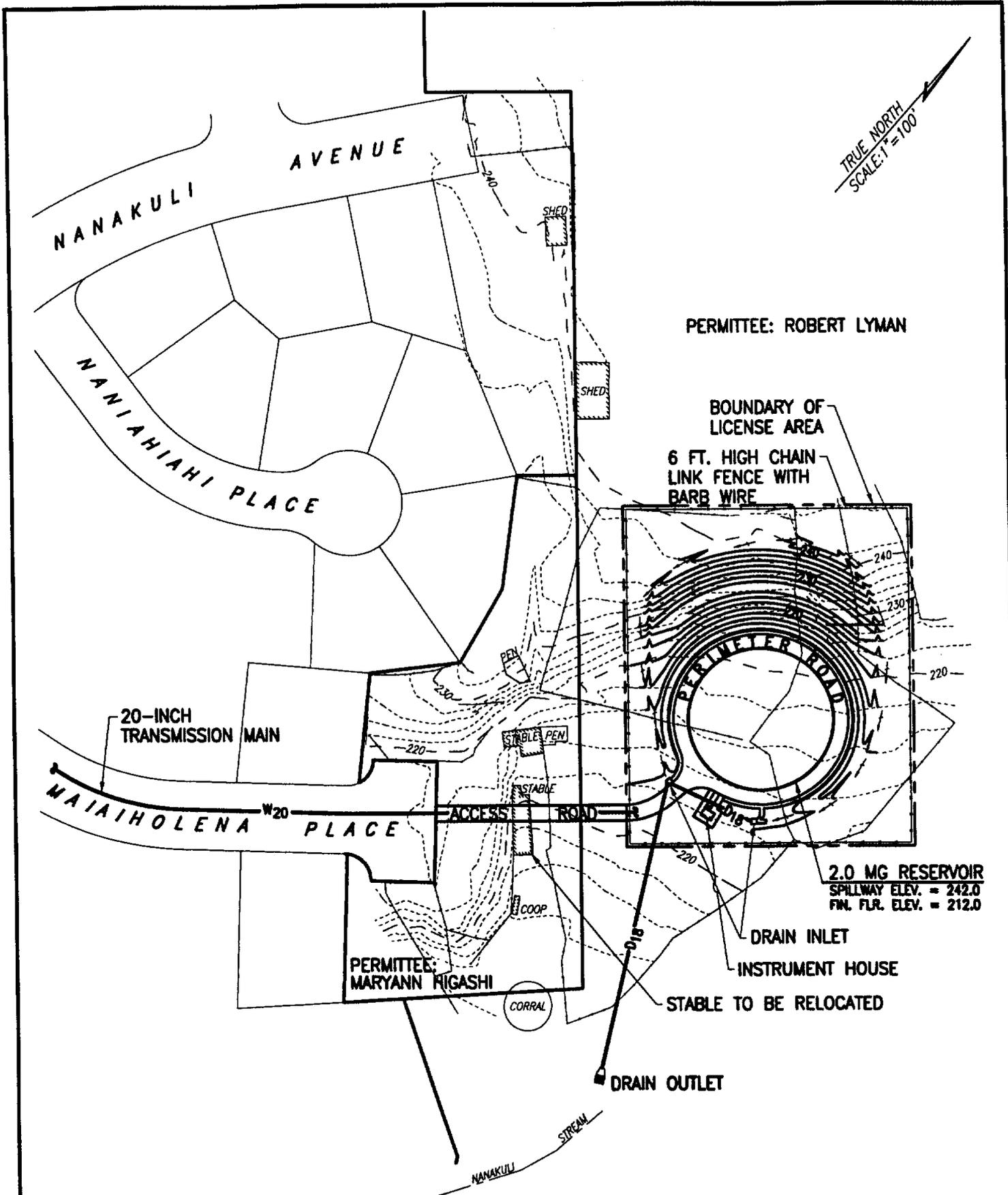
An access road with a 12-foot wide pavement beginning at the end of cul-de-sac at Maiaholena Place is proposed to provide access to the reservoir. The 214-foot long access road will have moderate road grades up to 4 percent. Underground utilities proposed in the road easement include a 20-inch water main, electrical, and telephone lines. Figure 6 also shows a profile of the access road.

Drainage

A drainage system will collect rainfall runoff water from the reservoir site and pipe it to an outlet. The water will then flow overland to Nanakuli Stream. A reservoir overflow pipe and washout pipe will connect to the drain pipe and also empty into Nanakuli Stream. The washout pipe will be used for routine maintenance and cleaning of the reservoir.

Other Facilities

An instrument building will be constructed on the reservoir site to house telemetry equipment. Electrical lines will provide power for equipment to monitor the tank water level and telephone lines will transmit readings to the BWS Beretania Street central station.



PREPARED FOR:
HONOLULU BOARD OF
WATER SUPPLY

NANAKULI 242 RESERVOIR
NANAKULI, OAHU, HAWAII

**PROPOSED
RESERVOIR SITE**

sey Shimabukuro, Endo
ENGINEERS & Yoshizaki, Inc.
Civil & Structural Engineers

FIGURE
5

HONOLULU BOARD OF
WATER SUPPLY

PREPARED FOR:

RESERVOIR SECTION AND
PROFILE OF ACCESS ROAD

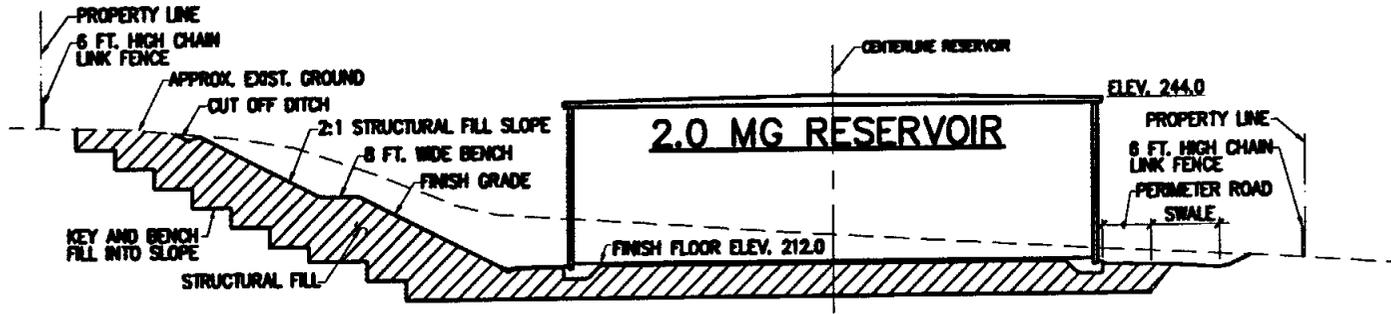
NAKUKU 242 RESERVOIR

NAKUKU, OAHU, HAWAII

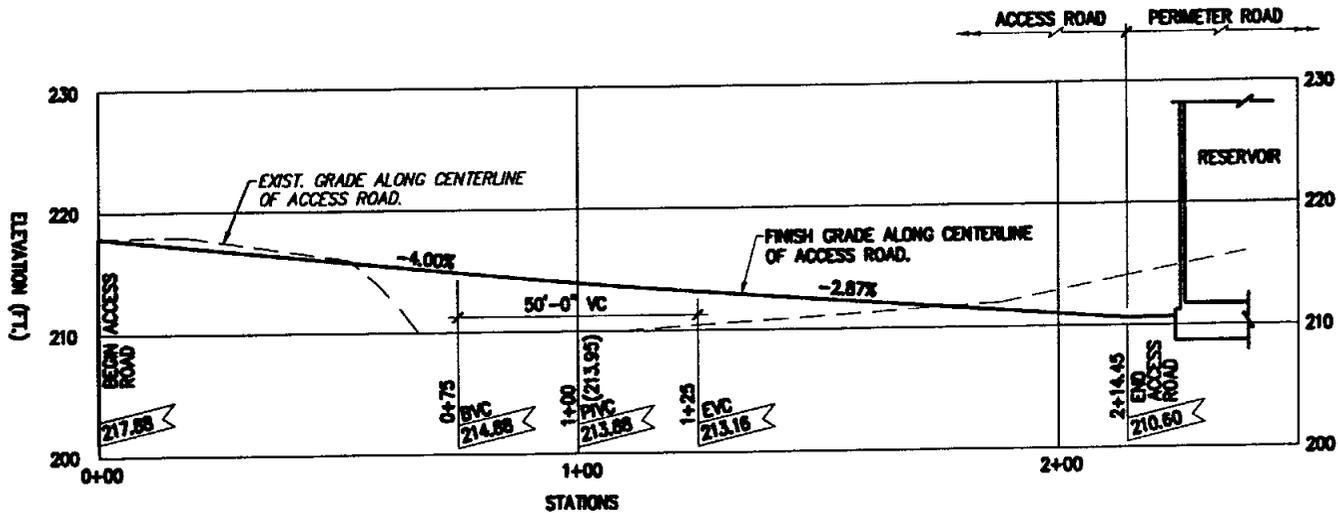
sey
ENGINEERS
Shimabukuro, Endo
& Yoshizaki, Inc.
Civil & Structural Engineers

6

FIGURE



LONGITUDINAL SECTION
SCALE: 1"=40'



PROFILE-ACCESS ROAD
SCALE: Horiz. 1"=40'
Vert. 1"=16'

Landscaping at the reservoir site will consist of plantings around the reservoir and the cut slopes.

A 6-foot high perimeter chain link fence topped with barbed wire will completely surround the reservoir site. A locked gate at the access road will control unauthorized entry to the site.

Transmission Main

A 20-inch transmission main will be constructed to connect the proposed reservoir to an existing transmission main along Farrington Highway. The alignment will follow the route along Maiaholena Place and Nanakuli Avenue. The 20-inch main is about 7,500 feet long. The transmission main will be buried under the street pavement with a minimum cover of 3 feet above the pipe.

2.8 Description of Construction

Construction of the proposed reservoir and 20-inch transmission main is anticipated to be as follows:

1. Construct erosion control measures. These measures may include silt fences, diversion swales, etc. to control soil erosion.
2. Clear and grub the reservoir site (about 1.5 acres) and access road to remove vegetation and debris. Construction equipment such as bulldozers may be used for this.
3. Rough grading of the access road. Construction equipment such as bulldozers may be used for this. Provide gravel access road for construction vehicles. Trucks will bring in gravel and vehicles with rollers may be used to compact it.
4. Grade the site to prepare a suitable foundation for the reservoir. The estimated quantity of excavation is 17,000 cubic yards. Blasting will not be used for excavation. Trucks will haul in material and take away unsuitable material. Front end loaders will be used to load the trucks. Areas that are at finish grade and expose dirt, such as cut slopes, will be grassed or covered with suitable material to prevent erosion. Water trucks may be used for irrigating grass and dust control.

The contractor will dispose of excess excavation at an appropriate site, according to the City and County of Honolulu rules and regulations for Grading Permits.

5. Construction of the 20-inch transmission main may start concurrently with step 3. The length of pipe is about 7,500 linear feet. The estimated quantity of trench excavation is 5,000 cubic yards. Equipment will be used to saw cut the existing pavement and backhoes will be used to dig a trench to install the main.

If ground water is encountered during trench excavation, the trench will be dewatered by pumping water out of the trench. The dewatering effluent will be disposed of by following Department of Health regulations.

The contractor will be required to work between the hours of 8:30 a.m. and 3:30 p.m. Monday through Friday on public streets. During working hours, the contractor will provide at least one lane for through traffic. During non-working hours, all trenches will be covered with a safe non-skid bridging material and all lanes shall be open to traffic. Driveways will be kept open unless the owners of the property using the street are otherwise provided for satisfactorily.

6. Begin construction of reservoir foundation. Truck in and place structural fill material. Rollers or vibratory equipment will be used to compact the fill. The estimated quantity of fill is 11,000 cubic yards.
7. Reservoir construction will begin with installing interior piping; placing reinforcing steel and concrete forms for the reservoir floor and footings. Concrete will be trucked to the reservoir site and placed in the forms. Pump trucks may be used to place the concrete. After the foundation is cured, the reservoir's reinforced concrete walls and columns will be erected and then the reinforced concrete roof.
8. Paint reservoir with earth tones to blend with existing background.
9. Construct instrument building.
10. Construct drainage system. Installation of electrical and telephone lines.
11. Construct access road and reservoir perimeter road. Trucks will haul in and place aggregates and asphalt concrete pavement. Vehicles with rollers may be used to compact the aggregate and pavement. A pavement laying machine may also be used.
12. Construct security fencing and landscaping.
13. Cleanup and testing. Upon completion, the reservoir and 20-inch transition main will be pressure tested to check for leaks. The contractor will also clean the reservoir and main by flushing the improvements with water and disinfecting with chlorine.

The contractor, who is awarded the contract to construct this project, will decide the actual construction schedule. The contractor will also decide what work tasks may be conducted concurrently. The quantity estimates, shown above and in Appendix A, will change based on the final design.

2.9 Description of Operation

Once the reservoir is completed, BWS maintenance personnel will periodically visit the reservoir to service and maintain the reservoir and equipment.

The Board of Water Supply's Beretania Station control center will handle the daily operations of the reservoir through remote telemetry and controls.

CHAPTER III ALTERNATIVES TO PROPOSED ACTION

This project began when the Board of Water Supply identified the need for additional storage capacity in the Waianae District water system. This district does not meet the Board of Water Supply standards for storage capacity. The initial objective was to construct a regional reservoir with a capacity of five million gallons to serve communities within the Waianae District.

After identification of alternatives and analysis, all potential regional reservoir alternatives were eliminated. Consequently, the Board of Water Supply refined their water system plan for the Waianae District from a single new regional reservoir for the entire district to two new local reservoirs with a capacity of two million gallons each. One local reservoir would serve Nanakuli and the second local reservoir for Waianae will be planned for in the future.

The following summarizes the alternatives studied for both the regional and local reservoir proposed actions. There are no known alternatives that are not within the existing authority of the Board of Water Supply.

3.1 Regional Reservoir to Serve Waianae District Low Service Area

Various storage alternatives were initially considered to satisfy the objective of constructing a five million-gallon reservoir, including:

1. No Action alternative,
2. Elevated Reservoir alternative,
3. Underground Reservoir alternative, and
4. Ground Level Reservoir alternatives:

The above alternatives were studied to determine if they met the objectives of the Board of Water Supply; and if they had significant environmental impacts which would preclude them from further study. Their environmental impacts and benefits were comparatively evaluated.

The ground level reservoir alternative was selected for further detailed study. The first three alternatives were eliminated for the reasons explained below.

No Action Alternative

Under the No Action alternative, the water storage in the Waianae District low service area will continue to be significantly below BWS standards. The standards require a storage capacity of 1.5 times the average daily use. An additional 6.45 million gallons of storage is required.

During water main breaks, the proposed five million-gallon reservoir plus the existing six million-gallon of storage will provide a source of water for consumption demands and fire fighting needs. Providing a storage capacity of 1.5 times the average daily use will generally allow BWS the time necessary to repair water main breaks.

Without the proposed five million-gallon reservoir, chances are greater that there will be a shortage of water for consumption during emergencies *than with the proposed reservoir*. Water may not be available in quantity or pressure for fire fighting. With increase demand due to population growth, the existing shortfall in water storage capacity will increase; the risk to public health and safety will also increase.

This alternative has no environmental impacts or direct cost to the BWS. The lack of sufficient water storage, however, may hamper fire-fighting efforts in the Waianae District especially during times of water main breaks. The No Action alternative may, therefore, have a direct impact on the health and safety of residents in this district.

The No Action alternative and postponing the action are not acceptable courses of action. The objective of managing and operating Oahu's public water system to maintain a safe and reliable supply for island residents would not be met.

Elevated Reservoir Alternative

Elevated reservoirs or water storage tanks are used in places that are generally flat with no mountains or hills close by. They are elevated above the ground to provide sufficient water pressure. They are usually elevated upon towers. In the Waianae District, an elevated reservoir would be highly visible from the surrounding area.

To provide sufficient pressure in the Waianae District low service area, the maximum water elevation in the tank would be 242 feet above mean sea level. Depending on the ground elevation of the reservoir site, the distance from the top of the tank to the ground below it will vary. The tank and tower may be up to 100 feet tall.

This alternative has one major environmental impact, among other impacts such as traffic, noise and dust during construction, etc. An elevated reservoir would have a significant visual impact. The tank and tower would likely be very noticeable from the surrounding area; and would probably be visible from Farrington Highway.

This alternative was eliminated due to its significant visual impact that probably could not be mitigated to an acceptable degree. There are also other alternatives with less visual impact.

Underground Reservoir

An underground reservoir would have impacts similar to other reservoir alternatives, such as traffic, noise and dust impacts during construction. It may also have other impacts associated with flora and fauna, archaeology, etc. depending on its location. It probably would have little to no visual impact if the topography above the reservoir matched the existing topography before the tank is constructed.

Underground reservoirs would not be as reliable as a reservoir that is accessible around its perimeter. They are covered with earth that prevents easy access for maintenance and repair in a timely manner. An accessible reservoir would minimize shut downs and minimize the possibility that the reservoir would be unavailable during emergencies.

For some repairs, underground tanks would have to be uncovered and repaired. Uncovering a tank would likely add a significant amount of time to the repair of the tank. Permits may have to be obtained to uncover the tank, which could add a significant amount of time between discovery of a leak and beginning of construction to repair the leak.

City & County of Honolulu laws require a grading permit when grading exceeds 50 cubic yards of cut or fill. Typically, construction plans and an erosion control plan would need to be prepared. State Department of Health may require a National Pollutant Discharge Elimination System (NPDES) permit to minimize the impact of stormwater runoff. These permits may be required before construction could begin.

In addition to the cost to repair the tank, other costs would be incurred. The additional cost would be for work necessary to prepare plans, obtain permits, clear and grub the area, remove the earth cover over the tank, replace the earth cover, and replace landscaping.

The underground alternative was eliminated as a possible action. The objective of managing and operating Oahu's public water system to maintain a safe and reliable supply for island residents would best be served via other alternatives.

There are alternatives, besides an underground reservoir, whose visual impact could be mitigated to an acceptable degree. There are also other alternatives that would minimize reservoir down time and maintenance costs.

Ground Level Reservoir

Ground level reservoirs have floor elevations at or near existing ground and are the most common type constructed by the BWS. Ground level reservoirs utilize the shallow subsurface formations to provide a stable foundation for the reservoir. A perimeter road around the reservoir provides access to the entire periphery of the reservoir for maintenance and repair. The Board of Water Supply selected this alternative for further detailed study.

A three-step process was used to select the site for the ground level reservoir. The three steps included identification of potential reservoir sites, development of site evaluation criteria to screen sites and a detailed analysis to evaluate each site.

Seven potential sites in the Waianae District, as shown in Figure 7, were identified extending from Kahe Point on the south to Maili Point on the north. These seven sites were evaluated in accordance with the following six criteria:

1. Site characteristics,
2. Vehicular accessibility,
3. Existing utility integration,
4. Environmental impact,
5. Land acquisition, and
6. Construction cost.

Table 3 shows a summary of the detailed analysis of potential reservoir sites in the Waianae District.

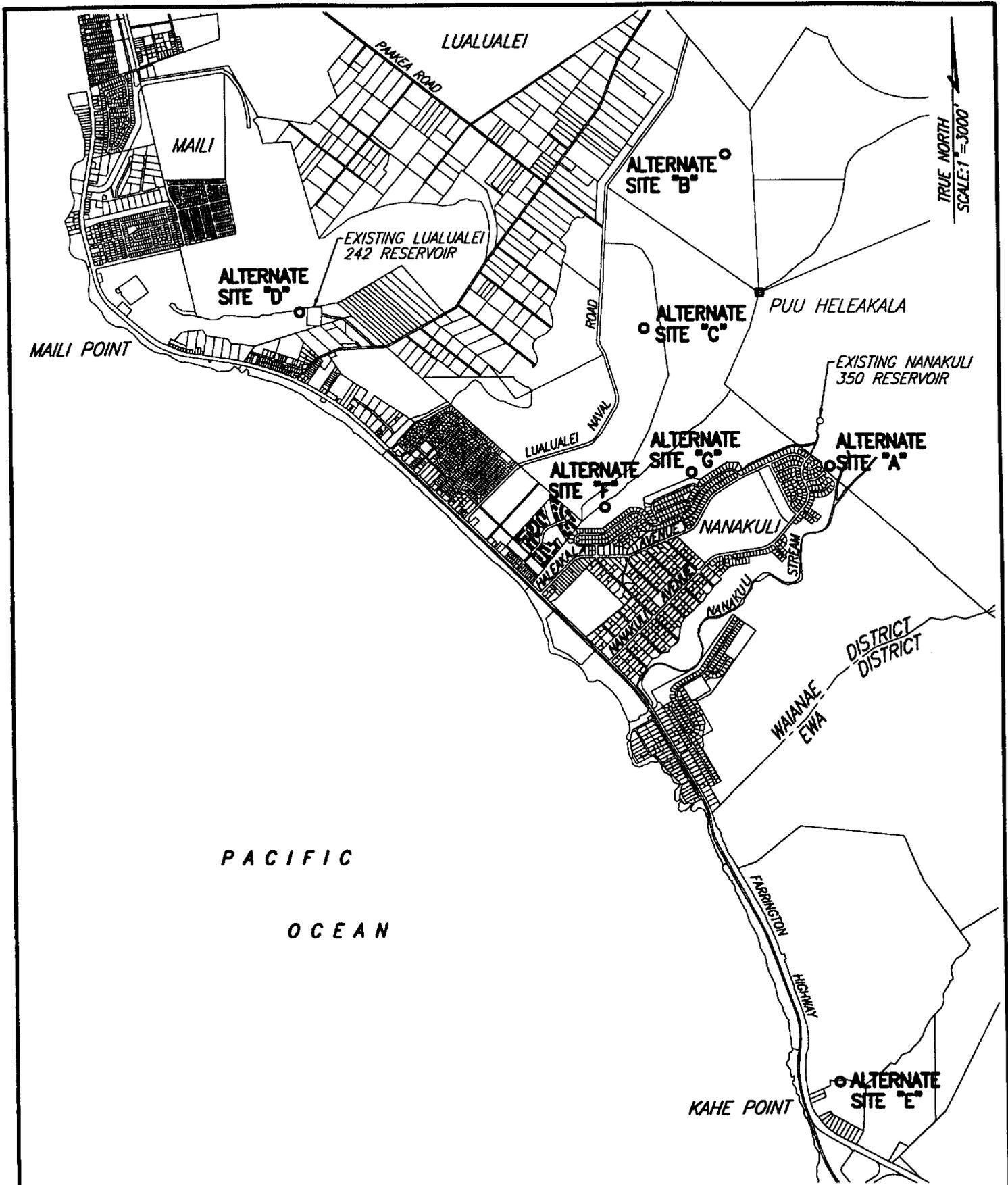
All potential reservoir sites were eliminated after detailed analysis, which included interviews with owner representatives for two candidate regional reservoir sites:

1. Sites "A," "E" and "G" were eliminated because of inadequate existing water transmission systems for a regional reservoir.
2. Sites "B" and "C" were eliminated because of detrimental impact on planned use of the property.
3. Sites "D" and "F" were eliminated because of significant scenic degradation.

3.2 Local Reservoir to Serve Nanakuli Low Service Area

The no action alternative, the elevated reservoir alternative and the underground reservoir alternative were eliminated from consideration for the reasons described in Section 3.1. A ground level reservoir with a capacity of two million gallons was selected for further detailed study and evaluation.

Two potential sites, "A" and "G", were identified in Nanakuli Valley for a ground level reservoir. Sites "A" and "G" are the same sites studied for the regional reservoir. Figure 7 shows the location of these sites.



<p>PREPARED FOR: HONOLULU BOARD OF WATER SUPPLY</p>	<p>NANAKULI 242 RESERVOIR NANAKULI, OAHU, HAWAII</p> <p>POTENTIAL SITES FOR 5 MILLION-GALLON RESERVOIR</p>	<p>sey Shimabukuro, Endo ENGINEERS & Yoshizaki, Inc. Civil & Structural Engineers</p>	<p>FIGURE 7</p>
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TABLE: 3 SUMMARY OF DETAILED ANALYSIS OF POTENTIAL REGIONAL RESERVOIR SITES IN WAIANAE DISTRICT

	SITE "A"	SITE "B"	SITE "C"	SITE "D"	SITE "E"	SITE "F"	SITE "G"
I. Site Characteristic Criterion	Good	Fair	Fair	Poor	Fair	Poor	Fair
a. Topography & terrain (grading)	Floor of valley, slopes 3-18%, Exc = 50,000 CY±	Lower slopes west side of Puu Heleakala, slopes 18-20% Exc = 75,000 CY ±	Lower slopes west side of Puu Heleakala, slopes 20-30% Exc = 103,500 CY ±	Ridge of Puu O Hulu Kai, slopes 40-125%, Exc = 197,500 CY ±	Ridge at Kahe Pt., slopes 9-13%, Exc = 76,000 CY±	Ridge of Puu Heleakala, slopes 13-75%, Exc = 165,500 CY±	Lower slopes east side of Puu Heleakala, slopes 20-60% Exc = 98,500 CY ±
b. Site size and shape	3.7 ac rectangular lot + rd.	3.1 ac rectangular lot + rd.	3.5 ac rectangular lot + rd.	4.5 ac rectangular lot + rd.	3.2 ac rectangular lot + rd.	3.8 ac rectangular lot + rd.	3.7 ac rectangular lot + rd.
c. Soil & foundation stability	Pulehu (PvC) alluvial soil, >5' to bedrock, good engineering properties.	Lualualei (LPE): stony talus >5' to bedrock, poor engineering properties.	Lualualei (LPE): stony talus >5' to bedrock, poor engineering properties.	Exposed rock land (rRK) very little topsoil. Highly stable foundation.	Exposed rock land (rRK) very little topsoil. Highly stable foundation.	Exposed rock land (rRK) very little topsoil. Highly stable foundation.	Exposed rock land (rRK) very little topsoil. Highly stable foundation. Possibly (LPE) stony talus.
II. Vehicular Accessibility Criterion	Good, existing access road nearby.	Fair	Fair	Fair, existing reservoir access road.	Poor	Poor	Fair
a. Topography & terrain (grading)	1,000 LF straight road @ 3 to 11% moderate grading.	1,600 LF straight road @ 7 to 18%, moderate grading.	1,100 LF straight road @ 5 to 20%, moderate grading.	400 LF, straight road next to existing reservoir, short but difficult grading.	600 LF winding road with steep side slopes, possibly use of existing landfill road, difficult grading.	1,600 LF winding road @ 10 to 20%, difficult grading.	650 LF straight road @ 10-15% slopes, near existing subdivision, moderate grading.
b. Soil stability	PvC - good for road fill and embankments although may be stony. Possibly LPE with poor engineering properties.	LPE - Poor road fill, low shear strength, high shrink-swell, very plastic.	LPE - Poor road fill, low shear strength, high shrink-swell, very plastic.	rRK - good stability.	rRK - good stability.	rRK - good stability. Possibly LPE talus at lower elevations with poor engineering properties.	rRK - good stability. Possibly LPE talus at lower elevations with poor engineering properties.
III. Integr. w/Exist. Utilities Criterion	Poor	Fair	Fair	Good	Poor	Fair	Poor
a. Water system	New water main to service area.	Connect to exist. water system on Paakea or Hakimo Rd.	Connect to exist. water system on Paakea or Hakimo Rd.	Next to existing reservoir.	Remote location, improvements required.	Connect to system on Ulei Lp., improvements required.	Connect to system on Ulei Lp., improvements required.
b. Drainage system	Runoff to Nanakuli Stream	Runoff directed to Lualualei Naval Rd. & Ulehawa Stream.	Runoff directed to Lualualei Naval Rd. & Ulehawa Stream.	Connect to existing reservoir facilities.	Runoff into Waimanalo Gulch.	Connect to drainage for existing subdivision or allow sheet flow from site.	Runoff to existing drainage cut off ditch.
c. Power & communication	Connect to facilities for 350' reservoir.	Connect to facilities along Lualualei Naval Road.	Connect to facilities along Lualualei Naval Road.	Connect to existing reservoir facilities.	Connect to facilities along Farrington Highway.	Connect to facilities on Mokiawe St. or transm. lines crossing ridge.	Connect to facilities on Ulei Lp. or Mokiawe St.
IV. Environmental Impact Criterion	Good	Good	Fair	Poor	Good	Poor	Fair
a. Natural beauty, scenic value and aesthetic qualities	In back of valley, can blend in with surroundings.	Site partially hidden by ridges.	Somewhat visible but can be masked.	A reservoir already present, but Puu O Hulu labeled "important coastal land form."	May be possible to hide below top of existing ridge.	Prominently located on ridge head near Farrington Highway.	Near exist. subdiv. low on slopes, can be partially masked w/ landscaping.
b. Arch. & historic resources	No known sites.	No known sites.	No known sites.	No known sites.	No known sites.	No known sites.	No known sites.
c. Flora & fauna	No known endang. species.	No known endang. species.	No known endang. species.	No known endang. species.	No known endang. species.	No known endang. species.	No known endang. species.
d. Flood/tsunami hazard	Above flood/tsunami zone.	Above flood/tsunami zone.	Above flood/tsunami zone.	Above flood/tsunami zone.	Above flood/tsunami zone.	Above flood/tsunami zone.	Above flood/tsunami zone.
V. Land Acquisition Criterion	Fair	Poor	Fair	Fair	Fair	Fair	Fair
a. Land Ownership	Dept. of Hawaiian Home Lands (DHHL). Next to ranch.	K. Kaisha Oban a Japan Corp. Middle of planned Lualualei Golf Course.	PVT Holdings, Inc.	State of Hawaii	Betsy Lum, Audrey Au, Betty Au	DHHL & PVT Holdings, Inc. (on 2 lots)	DHHL
b. City zoning & State land use designation	Agriculture (City & State)	Agriculture (City & State) Park/Golf Crs: Dev. Plan	Agriculture (City & State)	P-1, Preservation (City) Conservation (State)	Agriculture (City & State)	P-1, Preservation (City) Conservation (State)	Agriculture (City & State) Near urban bound. (State)
c. Subdivision/consolidation	Subdivision necessary.	Lot is already subdivided (div. not known presently)	Subdivision necessary.	Subdivision necessary.	Subdivision necessary.	Located on 2 lots, consolidation & subdivision necessary.	Subdiv. nec., may require acquisition of exist. subdiv. lot for access.
VI. Construction Cost Criterion	Good	Fair	Fair	Poor	Good (access from Waimanalo Gulch)	Poor	Fair
a. On-site improvements	\$7,200,000	\$8,800,000	\$9,700,000	\$13,400,000	\$8,300,000	\$12,500,000	\$9,100,000

Site "G"

Site "G" is located on the lower slope of Puu Heleakala Ridge. This site is approximately one-mile inland of Farrington Highway in Nanakuli Valley. Site "G" is moderately sloping and sparsely vegetated with grass.

Site "G" was selected for further study. However, poor subsurface conditions discovered during a soils investigation made this site unsuitable for the proposed reservoir.

Site "A"

Site "A" is located at the back of Nanakuli Valley just above the residential subdivision. The site is slightly to moderately sloping with moderate vegetation of kiawe trees and grass.

A soils investigation was also conducted for Site "A." The results of the investigation concluded that a shallow foundation system for the reservoir could be established at a reasonable cost.

BWS met with the Department of Hawaiian Home Lands (DHHL) to discuss siting a reservoir on DHHL lands. After receiving favorable response from DHHL and acceptable hydraulic analysis results of the local water system, Site "A" was selected as the preferred local reservoir site in Nanakuli by the BWS.

3.3 Alternative Alignments for 20-Inch Transmission Main

Alternative alignments for the 20-inch transmission main were studied. Two routes were investigated, one along Haleakala Avenue and the other along Nanakuli Avenue.

On July 27, 1999, the Board of Water Supply staff met with the Nanakuli Homestead Association to provide the community an opportunity to comment on the proposed action. One of the comments suggested an alternative route for the 20-inch transmission main along a ranch road adjacent to Nanakuli Stream. The Board of Water Supply agreed to study the alignment as a possible alternative.

Figure 8 shows the alignments of the alternative 20-inch transmission main routes. Further detailed study and analysis was conducted for the following possible alignments:

- Alignment A. Nanakuli Avenue and Maiaholena Place
- Alignment B. Haleakala Avenue, Nanakuli Avenue and Maiaholena Place
- Alignment C. Ranch road along Nanakuli Stream, Maiapolua Place, Nanakuli Avenue and Maiaholena Place.

ALIGNMENT:

- "A" ———
- "B" - - - -
- "C" ······

TRUE NORTH
SCALE: 1" = 1000'

PROPOSED NANAKULI 242 RESERVOIR

EXISTING NANAKULI 350 RESERVOIR

NANAKULI

MAIAIHOLENA PLACE

NANAKULI ELEM./INTER./HIGH SCHOOLS

HALEKALA AVENUE

MAIPOLUA PLACE
STREAM

CAMP ANDREWS

AVENUE

ROAD

RANCH

NANAKULI

FARRINGTON HIGHWAY

PACIFIC OCEAN

PREPARED FOR:

HONOLULU BOARD OF WATER SUPPLY

NANAKULI 242 RESERVOIR
NANAKULI, OAHU, HAWAII

ALTERNATIVE ALIGNMENTS FOR THE
PROPOSED 20-INCH TRANSMISSION MAIN

sey Shimabukuro, Endo & Yoshizaki, Inc.
ENGINEERS
Civil & Structural Engineers

FIGURE

8

Alignment "B" was eliminated due to its length. It is longer than Alignment "A" and more costly to construct. Traffic, noise and dust impacts caused by the construction of a transmission main along both roads would be similar. Haleakala Avenue, however, is also narrower than Nanakuli Avenue.

Alignment "C" was eliminated due to its location within the 100-year flood plain, which would present problems such as erosion of the earth cover over the water line and/or erosion of the foundation under the water line. Water line breaks may also occur during storm events. Flooding would hinder the timely restoration of water service; and it would make the repair of the waterline difficult and expensive. BWS repair crews need access to the waterline at all times of the day. The ranch road has security gates and is unpaved for the majority of its length.

Construction of the transmission main along Alignment "C" would require an easement and a license agreement from DHHL. Easement approval by DHHL is uncertain since BWS would want a non-relocation of transmission main clause for the easement agreement.

The Board of Water Supply selected Alignment "A" for the proposed action.

CHAPTER IV ENVIRONMENTAL SETTING

4.1 Description of Environmental Setting from a Regional Perspective

The Waianae District consists of 38,089 acres or 59.5 square miles of land, which comprise 10% of the island of Oahu. The landscape in Waianae consists of white sand beaches, narrow coastal plain, large valleys that extend from 3 to 5 miles inland, and the steep slopes of the Waianae Mountains. Steep basalt ridges separate the major valleys.¹

Before Western contact, the native ecosystems along the Waianae Coast consisted of lowland dry and mesic forests, lowland dry shrub lands and grasslands. Fish were abundant along the coast, especially deep sea fishing off Kaena. Wai'anae means mullet water.²

The climate of Waianae is generally hot and dry along the coastal areas and in the lower sections of the valleys. Cooler and wetter conditions prevail in the upper sections of the valleys.

The prevailing winds along the Waianae Coast are northeast trades that blow over the Koolau Mountain Range and then over the Waianae Mountain Range. The wind pattern and mountains causes water vapor to condense into rainfall. Most of the water vapor precipitates over the Koolau Mountain Range. These conditions are responsible for a relatively low rainfall average along the Waianae Coast. The average annual rainfall ranges from less than 20 inches along the coast to more than 75 inches at the summit of Mount Ka'ala.³

Today, most of the existing urban and suburban development in the Waianae District is clustered along Farrington Highway, in a developed strip that varies from ¼ to 1 mile in width. The valleys are largely agricultural or military lands, and the steeper ridges and mountains are generally undeveloped grasslands and forest.⁴

Access to and from the Waianae Coast is via Farrington Highway, which ends at Yokohama Beach Park.

Environmental Resources That Are Rare or Unique to the Region

Almost every valley in the Waianae District contains extensive archaeological sites associated with the past history of the area. Many of these sites are important to local people as traditional and cultural sites. The upper valleys, beyond the limits of today's housing developments and small farms, have numerous archaeological sites. The coastal dunes contain sites and burials that are hidden beneath the surface of the ground.⁵

Air Quality

The sparse air quality monitoring data from the Department of Health suggests that air quality standards is currently being met, due to the rural lightly developed character of the area. Air sampling conducted in 1991, at the intersection of Farrington Highway and Hakimo Road, for the proposed Lualualei Golf Course project reported carbon monoxide levels during peak traffic hours to be below State and Federal one-hour standards.⁶

Development in Waianae District

Figure 9 shows planned future residential developments within Waianae District. The Planning Department's forecast for housing increases by communities for the period 1990 to 2020 is:

Nanakuli:	1,431 units
Mali:	897 units
Lualualei	710 units
Waianae	841 units
Makaha	568 units

The total projected increase is 4,447 housing units in the Waianae District by the year 2020.⁷

The Board of Water Supply is planning to construct the Makaha 242 Reservoir, which will have a capacity of two million gallons. Construction of this reservoir will begin in the latter part of the year 2002. This reservoir will serve the low service area of Makaha.

Population Growth

The Waianae District's (Nanakuli, Mali, Waianae, and Makaha) population in the year 1950 was about 7,000 people.

Based on data from the 1980 and 1990 Census, the district's population was 31,487 in the year 1980 and 37,411 in the year 1990.⁸ The population increased by 18.8 percent or 5,924 people between the years 1980 and 1990. The population of the entire island of Oahu increased by 9.7 percent during the same time period.

By the year 1998, the population was about 41,000 people.⁹ The population has increased by about 3,589 people or 9.6 percent since the year 1990.

If growth trends continue for the next 20+ years, the Waianae District could add 10,000 to 20,000 people to its population between 1998 and the year 2020.¹⁰

4.2 Description of Environmental Setting from a Local Perspective

The ahupua'a of Nanakuli extends from the sea to the ridges of the Waianae Mountain Range. The elevation ranges from sea level to about 200 feet at the mauka boundary of the existing homes; the upper valley is about 600 feet elevation midway; and the elevation of the ridges at the back ranges from 2,000 feet to a peak of 3,000 feet.¹¹

The temperature ranges from a high of 85 degrees to a low of 65 to 70 degrees Fahrenheit. The average annual rainfall at sea level is less than 20 inches; at the mauka boundaries it is 30 inches.¹²

The vegetation in Nanakuli consists of native dry land forest (lama and wiliwili) covering the undisturbed slopes. Most of the land is koa haole and guinea grass pasture, or urban landscaping. The Forest Reserve is mostly introduced species, with pockets of lama.¹³

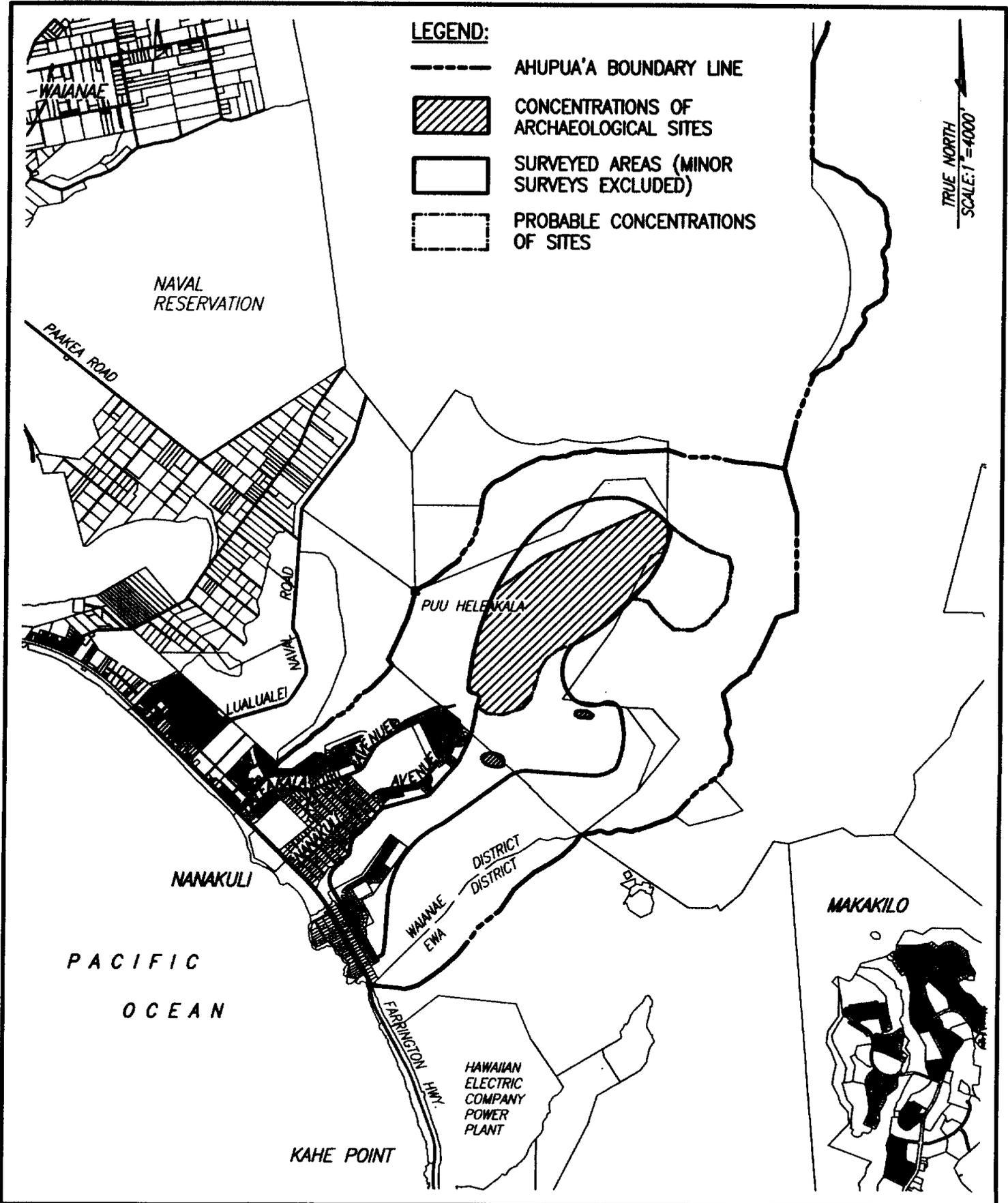
The lower Nanakuli Valley is on lands classified as shallow stony clay, with silt and loam; undeveloped areas are on a related variety of stony clay and extremely stony clay. The upper valley is on land classified as stony land; the soil among the stones consists of reddish silty clay loam. Steep ridge areas are on rock land. Nanakuli Stream is on land classified as clay loam.¹⁴

Access to and from Nanakuli Valley is via Farrington Highway. Urban standard roadways and storm drains serve the Hawaiian Home Lands residential area. Cesspools are being replaced with sewers. Electrical and telephone lines serve the area.¹⁵

Environmental Resources that are Rare or Unique to the Local Area

Large-scale archaeological surveys have been completed for upper Nanakuli Valley. The State Historic Preservation Division conducted the surveys. Figure 10 shows the location of cultural resources within the valley.¹⁶

The State Historic Preservation Division survey focused on the mauka areas of the valley, up beyond the current residential neighborhoods. According to Cordy (1997), nearly all of the flat land between the west and east branches of Nanakuli Stream is covered with the ruins of agricultural fields. The extensive nature of these ruins indicates that the entire upper valley floor, as well as the side valley, was landscaped to catch water run-off and create soil pockets. In addition to the ruins of agricultural fields, this survey recorded remnants of other, large enclosures, permanent and temporary house sites, field shelters, and work areas. A total of 26 permanent habitation sites were identified in the upper portion of Nanakuli Valley. Only two possible religious sites were identified; one small shrine and a large structure interpreted to be a possible heiau.¹⁷



PREPARED FOR:
HONOLULU BOARD OF
WATER SUPPLY

NANAKULI 242 RESERVOIR
NANAKULI, OAHU, HAWAII
**CULTURAL RESOURCES WITHIN
NANAKULI VALLEY**
SOURCE: WAIANAUE SUSTAINABLE COMMUNITY PLAN

sey Shimabukuro, Endo
& Yoshizaki, Inc.
Civil & Structural Engineers

FIGURE
10

View Planes

The scenic views along Farrington Highway include views up and down the Waianae coast and from Farrington Highway to the Waianae Mountains.¹⁸

Nanakuli Stream

Nanakuli Valley has a distinct system of intermittent streams that include Nanakuli Stream. Intermittent streams only flow after significant rainfall. Nanakuli Stream is within 200 feet of the proposed reservoir site as shown in Figure 11.

Wetlands

Wetlands are waters of the United States and are typically located along streams. The United States Army Corps of Engineers has jurisdiction over wetlands and controls encroachment into them via a system of permits. The Corp of Engineers has conducted a field survey of the proposed reservoir site and has stated in a letter, dated February 16, 1999 that the project does not require a permit.

Flood Plains

Figure 11 shows the approximate extent of flood hazards within Nanakuli Valley as shown on the Flood Insurance Rate Maps by the Federal Emergency Management Agency.¹⁹

The proposed reservoir site is located in Zone D, an area that flood hazards are undetermined. However, the project site is located outside of Zone A, which are special flood hazard areas that would be inundated by a 100-year flood. The proposed reservoir site is also outside of Zone X, which are areas determined to be outside of the 500-year flood plain.

Population

The extent of United States Census Tracts 96.01 and 96.04 is shown in Figure 12. These tracts also cover the Nanakuli high and low service areas. Based on these Census Tracts, the population in the area was 9,324 people in the year 1980. It increased to 10,707 people by the year 1990. The change in population was 14.8 percent or 1,383 people.

Social/Economic

Nanakuli is approximately 27 miles and 50 minutes driving time from downtown Honolulu on the Leeward side of Oahu. Nanakuli is considered to be a rural/ single family residential community.

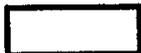
LEGEND:



SPECIAL FLOOD HAZARD AREAS
INUNDATED BY 100-YR. FLOOD.

- ZONE A NO BASE FLOOD ELEVATIONS DETERMINED.
- ZONE AE BASE FLOOD ELEVATIONS DETERMINED.
- ZONE VE COASTAL FLOOD WITH VELOCITY HAZARD (WAVE ACTION); BASE FLOOD ELEVATIONS DETERMINED.

OTHER AREAS



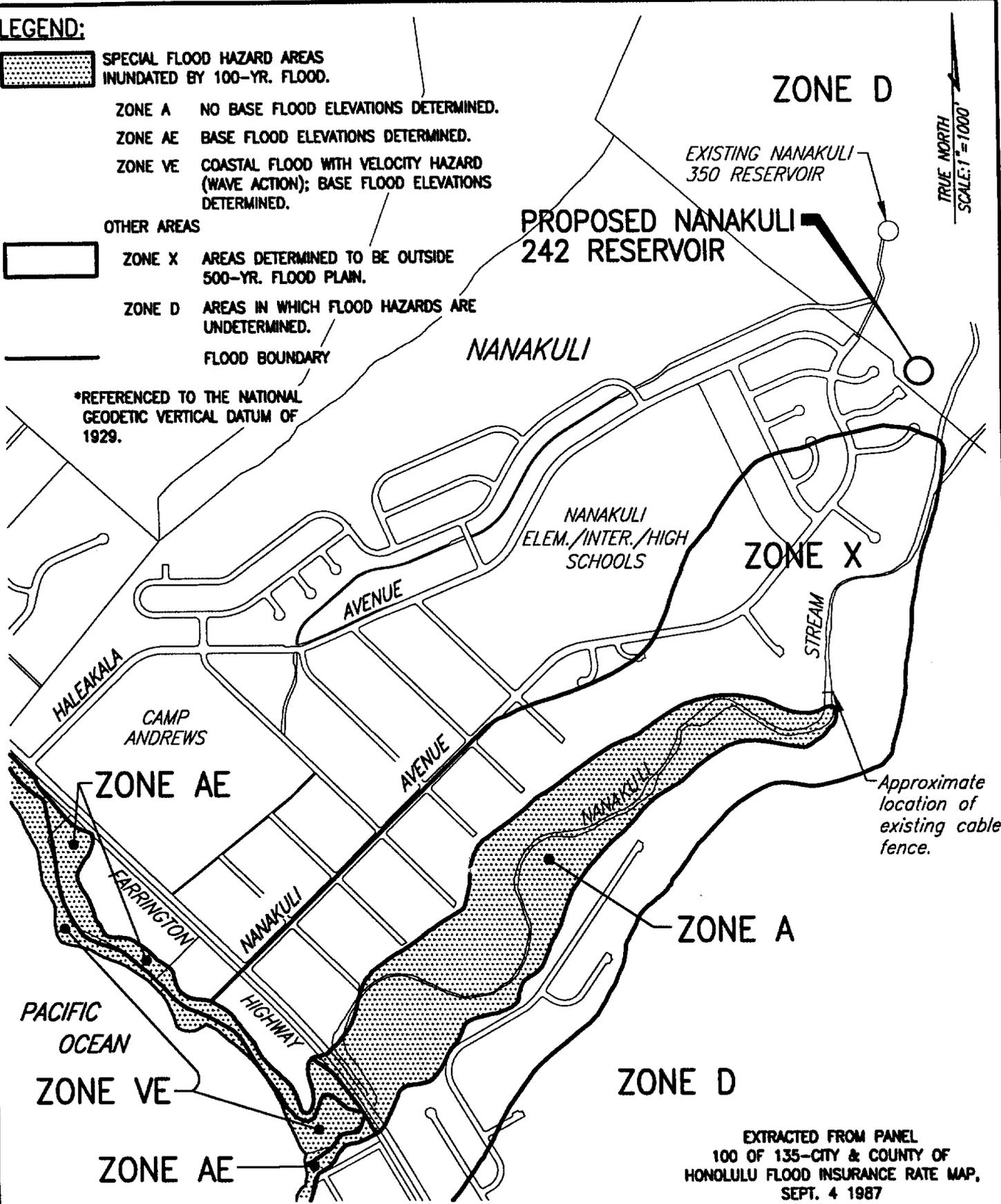
ZONE X AREAS DETERMINED TO BE OUTSIDE
500-YR. FLOOD PLAN.

ZONE D AREAS IN WHICH FLOOD HAZARDS ARE
UNDETERMINED.



FLOOD BOUNDARY

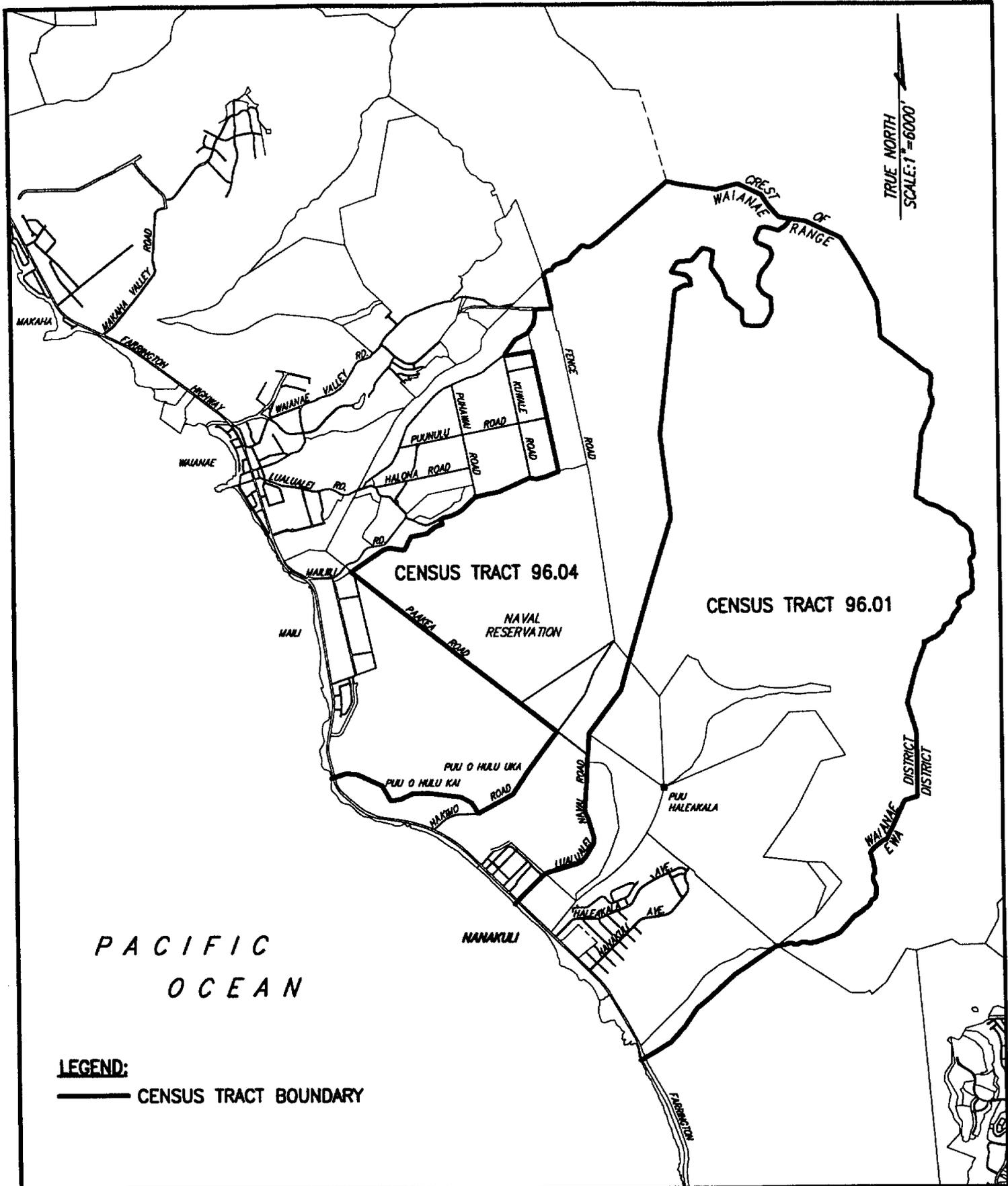
*REFERENCED TO THE NATIONAL
GEODETIC VERTICAL DATUM OF
1929.



TRUE NORTH
SCALE: 1" = 1000'

EXTRACTED FROM PANEL
100 OF 135-CITY & COUNTY OF
HONOLULU FLOOD INSURANCE RATE MAP,
SEPT. 4 1987

<p>PREPARED FOR: HONOLULU BOARD OF WATER SUPPLY</p>	<p>NANAKULI 242 RESERVOIR NANAKULI, OAHU, HAWAII NANAKULI STREAM AND FLOOD HAZARDS</p>	<p>sey Shimabukuro, Endo & Yoshizaki, Inc. Civil & Structural Engineers</p>	<p>FIGURE 11</p>
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LEGEND:
 ——— CENSUS TRACT BOUNDARY

PREPARED FOR:
**HONOLULU BOARD OF
 WATER SUPPLY**

NANAKULI RESERVOIR 242
 NANAKULI, OAHU, HAWAII
CENSUS TRACTS
 SOURCE: United States Census

sey Shimabukuro, Endo
 & Yoshizaki, Inc.
 ENGINEERS Civil & Structural Engineers

**FIGURE
 12**

The population within Census Tracts 96.01 and 96.04 for the year 1990 is made up of the following ethnic groups as shown below²⁰:

Census Tract	All Ethnic Groups	Caucasian	African American	American Indian, Eskimo, Aleutian	Chinese	Filipino	Japanese	Hawaiian	All Others
96.01	5,974	700	108	28	155	375	134	4,031	443
96.04	4,733	923	81	36	169	981	253	1,595	695
Total	10,707	1,623	189	64	324	1,356	387	5,626	1,138
% of Total		15.2%	1.8%	0.6%	3.0%	12.7%	3.6%	52.5%	10.6%
State Total	1,108,229	369,616	27,195	5,099	68,804	168,682	247,486	138,742	82,605
% of Total		33.4%	2.5%	0.5%	6.2%	15.2%	22.3%	12.5%	7.5%

The proportion of the Hawaiian ethnic group is significantly greater than all other groups in these Census Tracts due to the extent of Hawaiian Home Lands in this area.

Some selected social and economic information from Census Tracts 96.01 and 96.04 is shown below for the year 1990:

Census Tract	Education		% of Employed Persons in Professional/ Mgr. Occupation	% of Civilian Labor Force Unemployed	Median Income in 1989 Dollars		% of Persons Below Poverty Level
	% High Sch. Graduate or Higher	% College Graduate or Higher			Households	Families	
96.01	67.7%	5.4%	15.3%	9.1%	\$ 34,716	\$ 34,897	16.3%
96.04	68.2%	3.5%	13.4%	5.2%	\$ 33,517	\$ 33,795	25.1%
State	80.1%	22.9%	26.4%	3.5%	\$ 38,829	\$ 43,176	8.3%

The percentage of people below the poverty level is greater for these Census Tracts than the statewide percentage.

Traffic

Presently, motorists within Nanakuli Valley primarily consist of residents and those connected with Nanakuli High, Intermediate and Elementary Schools.

Development in Nanakuli Valley

The Department of Hawaiian Home Lands is planning a multi-service center on a portion of the Camp Andrews site along Farrington Highway. It will include recreational ball fields, a gym, commercial, and other uses.

The State of Hawaii is planning to construct a new elementary school on the remaining portion of Camp Andrews. It is planned to be open in the year 2003.

The Department of Hawaiian Home Lands is also planning the Nanakuli Valley Estates project, which will consist of about 850 residential lots above the existing subdivision in Nanakuli Valley. The new homes will be in the high service area. Figure 9 on page 36 shows the extent of the planned residential development.

4.3 Description of Environmental Setting at Project Site

The project site consists of the proposed reservoir site mauka of Maiaholena Place and the route of the new 20-inch transmission main along Nanakuli Avenue and Maiaholena Place.

Environmental Resources that are Rare or Unique to the Project Site

There are no known environmental resources that are rare or unique to the project site.

The U.S. Department of the Interior, Fish and Wildlife Service indicated in a letter, dated August 18, 1995, that to the best of their knowledge no endangered, threatened, or candidate species are found within the vicinity of the proposed reservoir site.

An archaeological inventory survey of the proposed reservoir site found no significant historic properties. An archaeological assessment of the route of the proposed 20-inch transmission main found no potentially significant historic properties located within the route of the main. There is the potential for significant subsurface cultural deposits, including human burials, in the sandy coastal deposits in the makai portions of Nanakuli Avenue. Subsurface deposits are unlikely mauka of the sandy coastal deposits, although there is the possibility of human burials.²¹

Topography

The proposed reservoir site is located on the floor of Nanakuli Valley between ground elevations 212 to 242 feet MSL. Ground slopes upward in the southwest to northwest direction, with ground slopes ranging from 5 to 35 percent. The existing topography in and around the reservoir site is sloped towards Nanakuli Stream.²² The topography along the proposed 20-inch transmission main has ground slopes ranging from about 1 percent to 7 percent.

Geology/Soils

The soils in the proposed reservoir site are Lualualei clay (LPE) and Pulehu very stony clay loam (PvC). LPE is generally a dark grayish brown color, very sticky, very plastic and stony throughout. Lualualei clay has a Unified Soil Classification of CH with a high shrink-swell potential. PvC is generally a dark brown clay loam found on alluvial fans and stream terraces. The shrink-swell potential of PvC is moderate to low.²³

Drainage and Flooding

The Waianae Neighborhood Board has commented that flooding may occur at the proposed reservoir site. Mr. John Higashi indicated that in times of heavy rains, there is sheet flow over the area of the reservoir site less than 6 inches deep.

As discussed earlier, the Flood Insurance Rate Maps indicate that the proposed reservoir site is located in an area that flood hazards are undetermined. No studies have been conducted in this area; there is no empirical data or studies that estimate the amount of runoff water, the depth of flow, and the extent of area covered by runoff water.

During a walk through of Nanakuli Stream, which flows only during heavy rains, a steel cable fence was found crossing the stream. It is possible that obstructions could cause flooding. Figure 11 shows the approximate location of the fence. The fence may be used to contain livestock.

Flora

A botanist has conducted a field survey of the flora on the proposed reservoir site.²⁴

The vegetation on the more or less level portions of the site is composed of kiawe scrub forest. Kiawe, a member of the pea family native to South America, forms a low-stature forest 15 to 25 feet tall with a canopy cover of about 60%. Ground cover is sparse to patchy with a few clumps of wild basil, buffelgrass, guinea grass, cheese weed, lion's ear, honohono, 'aheahea, swollen fingergrass, and lovegrass. Areas with small, rocky outcroppings tend to support a few more plants since it is somewhat difficult for the cattle and goats to graze in between the rocks.

On the northern portion of the property on the slopes, the vegetation is more open with the kiawe trees widely spaced, 10 to 15 feet tall with a canopy cover of about 30%. Prickly shrubs of klu are locally common. A few koa haole shrubs are also found here; most of the shrubs have been cut back to 2 to 5 feet tall. Small boulder piles and rocky outcrops are found in this area. Ground cover is denser in this area and there are more plant species since it is less heavily grazed. The native 'uhaloa shrub is locally common. Other plants found in this area include Portulaca pilosa, Trianthema portulacastrum, red pualele, honohono, lion's ear, spiny amaranth or pakai kuku, cheese weed, virgate minosa, wild basil, 'aheahea, lovegrass, saltbush, guinea

grass, swollen fingergrass, Boerhavia coccinea, Sida rhombifolia, and slender amaranth or pakai. Besides the 'uhaloa, two other native species occur on the site; these are popolo and 'ilima.

Noise

The character of Nanakuli Valley is residential with an elementary, intermediate and high school. Vehicles traveling on residential streets probably generate most of the noise in the community.

There are no dwellings within 150 feet of the proposed reservoir site. The Nanakuli High, Intermediate and Elementary Schools are located along the proposed route of the new 20-inch transmission main.

Native Hawaiian Gathering Rights

An archaeologist has conducted an assessment of the native Hawaiian gathering rights for the proposed action.²⁵

Research of the oral and historical records showed that information regarding the Hawaiian lifestyle during pre-contact and early post-contact periods up to the end of the 19th century was remarkably absent. At the time of the Mahele, King Kamehameha III owned Nanakuli.

A search of Mahele records indicated there was only one kuleana (commoner) claim made throughout the ahupua'a of Nanakuli. The claim was not awarded. Because Mahele records are lacking, there were no early maps to show kuleana or 'ili boundaries. The scant information regarding land use and gathering practices comes from one claim, which described a pond, a cultivated open field, and a valley planted in wauke. The record indicates that Hawaiian cultural activity was taking place, even if only on a limited basis.

The proposed reservoir site is located in an area that has been heavily utilized for cattle grazing and ranching since the last half of the 19th century. There are some native plants on the proposed reservoir site, but these plants are common.

The assessment found that there were no Hawaiian traditional customs and no gathering practices found to occur within the proposed reservoir site and along the route of the 20-inch transmission main.

Surrounding Land Use

Robert Lyman and Maryann Higashi currently rent the land for ranch use. They have revocable permits to use land from the Department of Hawaiian Home Lands.

Residential units are located 150 feet makai of the reservoir on Maiaholena Place. Nanakuli High and Intermediate School are located about 1500 feet makai of the proposed reservoir lot.

CHAPTER V
RELATIONSHIP TO POLICIES, LAND USE PLANS, AND CONTROLS

5.1 Policies

Hawaii State Plan

The Hawaii State Plan serves as a guide for the future long-range development of the State. It identifies goals, objectives, policies, and priorities for the State. The complete text of the Hawaii State Plan can be found in Chapter 226 Hawaii State Planning Act of the Hawaii Revised Statutes.

In general, the proposed action is consistent with the policies of the Hawaii State Plan. The policies with the most relevance are listed below.

1. Take into account the physical attributes of areas when planning and designing activities and facilities.
2. Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.
3. Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters.
4. Assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use.
5. Encourage increased awareness of the effects of proposed public and private actions on the integrity and quality of cultural and community lifestyles in Hawaii.
6. Ensure that responsible organizations are in a proper state of readiness to respond to major war-related, natural, or technical disasters and civil disturbances at all times.
7. Provide for necessary public goods and services not assumed by the private sector.
8. Pursue an openness and responsiveness in government that permits the flow of public information, interaction, and response.
9. Assure that government attitudes, actions, and services are sensitive to community needs and concerns.

During the planning for the proposed action, the physical attributes of potential sites were taken into account to select the site. For example, the need to preserve views and vistas lead to eliminating alternatives that would be highly visible. The action will likely only be visible from Maiaholena Place and from some backyards of homes close to the reservoir site. It will probably not effect any views and vistas from the ocean to the mountains. If any future homes are built very near to the reservoir, however, their view to the ocean may be affected. (This paragraph refers to Policies 1 and 2.)

The planning process for this action will seek input from the community on their concerns. Once aware of community concerns, the government can be more sensitive to these concerns where able. The environmental impact statement for the proposed action will also serve to increase public awareness of the effects or possible impacts of the proposed action on the community. (This paragraph refers to Policies 5, 8 and 9.)

The proposed action will help to reduce threat to life and property from fire. It will help responsible organizations to be ready in times of emergency. (This paragraph refers to Policies 3 and 6.)

The proposed action will provide infrastructure necessary for delivery of water, a necessary public good; improve the reliability of water service and the storage capability of the water system; serve domestic and may serve some agricultural uses. These goods and services are not provided by the private sector. (This paragraph refers to Policies 4 and 7.)

City & County of Honolulu General Plan

The General Plan is a statement of the long-range objectives and policies for the City & County of Honolulu. The complete text of the General Plan is available at the Municipal Library.

In general, the proposed action is consistent with the policies of the General Plan. The policies with the most relevance are listed below.

1. Develop and maintain an adequate supply of water for both residents and visitors.
2. Provide improvements to utilities in existing neighborhoods to reduce substandard conditions.
3. Design public structures to meet high aesthetic and functional standards and to complement the physical character of the communities they will serve.
4. Provide adequate fire protection and effective fire prevention programs.
5. Ensure that government attitudes, actions, and services are sensitive to community needs and concerns.

The General Plan policies listed above are very similar to the Hawaii State Plan policies listed in the preceding section. The explanation of the proposed action's relationship to the General Plan policies is the same as the preceding section on the Hawaii State Plan, except for one item.

The proposed action will conflict with Item 3, which states that public structures shall be designed to meet high aesthetic standards and to complement the physical character of the community they serve. A reservoir tank is not generally pleasing aesthetically and will not complement the physical character of the community. This negative aspect is outweighed; however, by the necessary function it provides the community.

BWS standards require a storage capacity of 1.5 times the average daily demand for water. Presently, there is insufficient storage capacity for the Nanakuli Valley low service area. The proposed action will provide adequate water storage in the Nanakuli Valley low service area.

5.2 Land Use Plans

City & County of Honolulu Development Plan Land Use Maps

Development Plans are relatively detailed guidelines for the physical development of Oahu. They are intermediate means of implementing the objective and policies of the General Plan. The Development Plans provide for land use and public facilities planning. They must implement and accomplish the objectives and policies of the General Plan.

Public Facilities Maps are an integral part of the Development Plans. The Public Facility Maps show the general locations of proposed facilities such as the proposed Nanakuli 242 Reservoir.

The Public Facilities Map must be amended to show a symbol for the proposed action. If the Waianae Sustainable Communities Plan is adopted by the City Council, however, Public Facility Maps for Waianae will be rendered obsolete.

Waianae Sustainable Communities Plan

In 1992 the City Charter Commission recommended, and the voters of Honolulu adopted, amendments to the City Charter. The Charter Commission had found that the Development Plans were overly detailed and had created processes that duplicated the zoning process. To eliminate this unnecessary duplication, the 1992 Charter amendments changed the definition of Development Plans from "relatively detailed plans" to "conceptual schemes."

The 1992 Charter amendments also established the purposes of the Development Plans. One of the purposes is to provide a policy guide for more detailed zoning maps.

In response to the 1992 Charter amendments, the Planning Department launched a thorough review of the Development Plans. The goal of that review was the revision of all eight of the

Development Plans to bring them into conformance with the Charter-mandated conceptual orientation.

Under the current revision program, the Primary Urban Center and Ewa plans retain the title "Development Plan." The plans for the other regions are now referred to as "Sustainable Communities Plan." The Waianae Sustainable Communities Plan (dated June 1999) has been prepared in accordance with the Charter amendments.

The Waianae Sustainable Communities Plan must be adopted by the City Council to take effect. Once adopted it will supercede existing Development Plans, including Public Facilities Maps. A new Public Infrastructure Map for Waianae will display existing and proposed infrastructure such as reservoirs. The proposed action would be required to be shown on the new infrastructure map for Waianae.

5.3 Controls

State Land Use Districts

All lands in the State are placed in one of four major land use districts: urban, rural, agricultural, or conservation. The State Land Use Commission sets the standards for determining the boundaries of each district. Figure 13 shows the State land use districts in Nanakuli Valley.

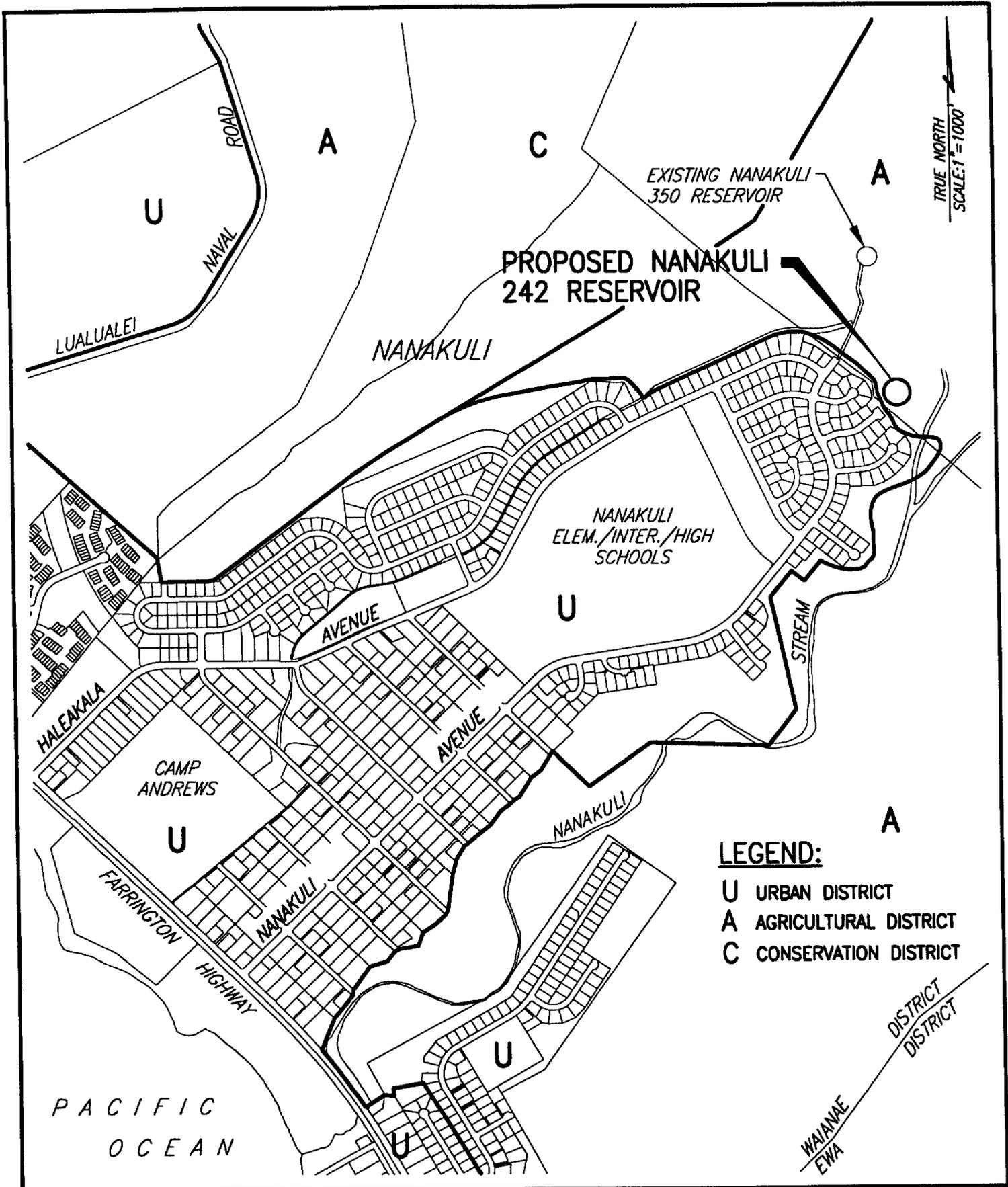
The proposed action is within land placed in the agriculture land use district. Permissible uses within agricultural land use districts are listed in the Hawaii Revised Statutes. Major water storage tanks are listed as a permissible use on land zoned Agricultural.

City & County of Honolulu Zoning

The powers granted to the City and County of Honolulu under the Hawaii Revised Statutes govern the zoning within districts, other than in conservation districts. The State Department of Land and Natural Resources governs conservation districts.

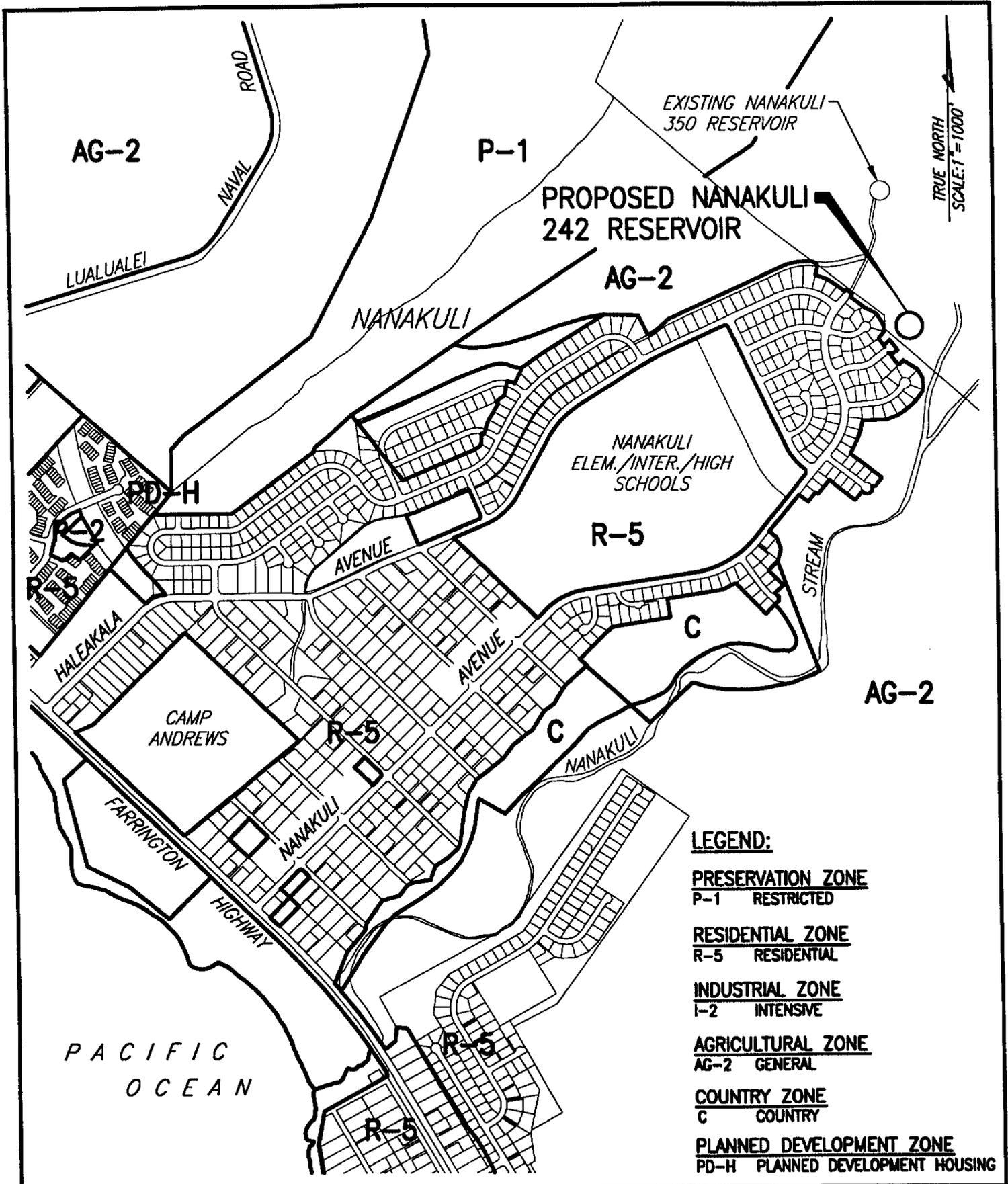
Zoning ordinances regulate the use of land within clearly demarcated zones and set detailed standards for such items as height and location of buildings. Zoning ordinances must conform to the General Plan and implement the Development Plans. Figure 14 shows the zoning classification for land in Nanakuli Valley.

The proposed action is within land classified as General Agricultural District AG-2 by the City and County of Honolulu. The proposed action is a public use and is a permitted principle use within the AG-2 District.



- LEGEND:**
- U URBAN DISTRICT
 - A AGRICULTURAL DISTRICT
 - C CONSERVATION DISTRICT

<p>PREPARED FOR: HONOLULU BOARD OF WATER SUPPLY</p>	<p>NANAKULI 242 RESERVOIR NANAKULI, OAHU, HAWAII</p> <p>STATE LAND USE DISTRICTS</p>	<p>sey Shimabukuro, Endo & Yoshizaki, Inc. ENGINEERS CML & Structural Engineers</p>	<p>FIGURE 13</p>
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TRUE NORTH
SCALE: 1" = 1000'

- LEGEND:**
- PRESERVATION ZONE
P-1 RESTRICTED
 - RESIDENTIAL ZONE
R-5 RESIDENTIAL
 - INDUSTRIAL ZONE
I-2 INTENSIVE
 - AGRICULTURAL ZONE
AG-2 GENERAL
 - COUNTRY ZONE
C COUNTRY
 - PLANNED DEVELOPMENT ZONE
PD-H PLANNED DEVELOPMENT HOUSING

PREPARED FOR:
HONOLULU BOARD OF
WATER SUPPLY

NANAKULI 242 RESERVOIR
NANAKULI, OAHU, HAWAII
CITY & COUNTY OF HONOLULU
ZONING CLASSIFICATIONS

sey Shimabukuro, Endo
& Yoshizaki, Inc.
ENGINEERS
Civil & Structural Engineers

FIGURE
14

CHAPTER VI PROBABLE IMPACTS

This chapter identifies the probable impacts of the proposed action on the environment.

The probable impact of the proposed action can be divided into two phases. The first phase is construction of the proposed action and the second phase is the operation of it. Impacts that may occur during construction are generally short-term impacts. Impacts that occur during operation are generally long-term impacts.

64.1 Short-Term Impacts

Federal laws, state laws, county laws and the contract specifications will govern construction of the proposed action. The contractor must adhere to certain construction practices required by law that will help to minimize the adverse impacts.

There are no known indirect short-term impacts.

The most prominent direct short-term impacts will be fugitive dust, exhaust emissions, noise, traffic, and erosion impacts. There is a possibility of impacts to underground cultural resources or burials. These impacts are discussed below.

Air Pollution

The construction of the proposed action will generate fugitive dust and exhaust emissions from construction equipment that may degrade the air quality in the vicinity.

The contractor will be required to comply with the provisions of Chapter 60, "Air Pollution Control," of Title 11, Administration Rules of the State of Hawaii Department of Health.

Noise

The construction of the proposed action will generate noise from construction equipment that will probably increase noise levels above what is normally found in residential areas.

Noise from the required construction equipment has been measured at levels ranging from 70 to 90 dBA (at 50 feet). There are no dwellings within 150 feet of the proposed reservoir site. There may be some homes within 50 feet of the 20-inch transmission main. The widths of the right-of-way for Nanakuli Avenue and Maiaholena Place are 80 feet and 50 feet, respectively. The Nanakuli High, Intermediate and Elementary Schools are located along Nanakuli Avenue, which is the route of the 20-inch transmission main.

The contractor will be required to obtain a permit from the Department of Health in order to exceed the maximum permissible sound level of 55 dBA for residential areas. The contractor will be required to comply with the provisions of Chapter 46, "Community Noise Control," and Chapter 42, "Vehicular Noise Control for Oahu," of Title 11, Administrative Rules, State of Hawaii Department of Health.

Traffic

The construction of the proposed action will cause periodic disruptions to normal traffic flow along Maiaholena Place and Nanakuli Avenue. Construction vehicles will add to the traffic on streets within Nanakuli Valley.

The 20-inch transmission main construction will likely require daily closures of one lane along portions of Nanakuli Avenue and Maiaholena Place. The closures would occur during work hours from 8:00 a.m. to 3:30 p.m. Construction during peak traffic hours will be avoided. Flagmen and/or police officers will be used to allow 2-way traffic on the one lane. At the close of each workday, the closed lane will be open to two-way traffic.

The contractor will be required to follow the safety precautions and requirements of the:

1. "Rules and Regulations Governing the Use of Traffic Control Devices at Work Sites on or Adjacent to Public Streets and Highways," adopted by the Highway Safety Coordinator, and
2. "Manual on Uniform Traffic Control Devices for Streets and Highways, Part VI, Traffic Controls for Highway Construction and Maintenance Operations" by the U.S. Federal Highway Administration.

Additionally, the contractor will be required to obtain a Street Usage Permit from the City and County Department of Transportation Services and conform to all conditions within. The contractor will be required to do the following to minimize traffic disruptions:

1. Continuous access to and from driveways and public streets shall be maintained.
2. During non-working hours, trenches shall be covered with safe non-skid bridging material and all lanes shall be open to traffic.
3. All walkways and intersections shall be maintained in passable condition for pedestrian traffic.

Erosion

The construction of the proposed action may cause erosion especially during rainfall and subsequent runoff of water. Areas that have been cleared, grubbed and graded will be susceptible to higher rates of erosion.

The contractor will be required to obtain a grading permit and comply with the provisions of the Grading Ordinance of the City and County of Honolulu.

Cultural Resources and Human Burials

The 20-inch transmission main will be located within Nanakuli Avenue and Maiaholena Place. The construction of these roads has extensively altered the land within the right-of-way making it unlikely that historic sites will remain. There is, however, the possibility that construction of the 20-inch transmission main may impact underground cultural resources and human burials along Nanakuli Avenue in the areas close to sea level with sand deposits.

The contractor will be required to comply with Chapter 6E Section 43.6 of the Hawaii Revised Statutes. The Board of Water Supply will have an on-call archaeologist present during excavation activities within sandy jaucus areas along lower Nanakuli Avenue and Farrington Highway.

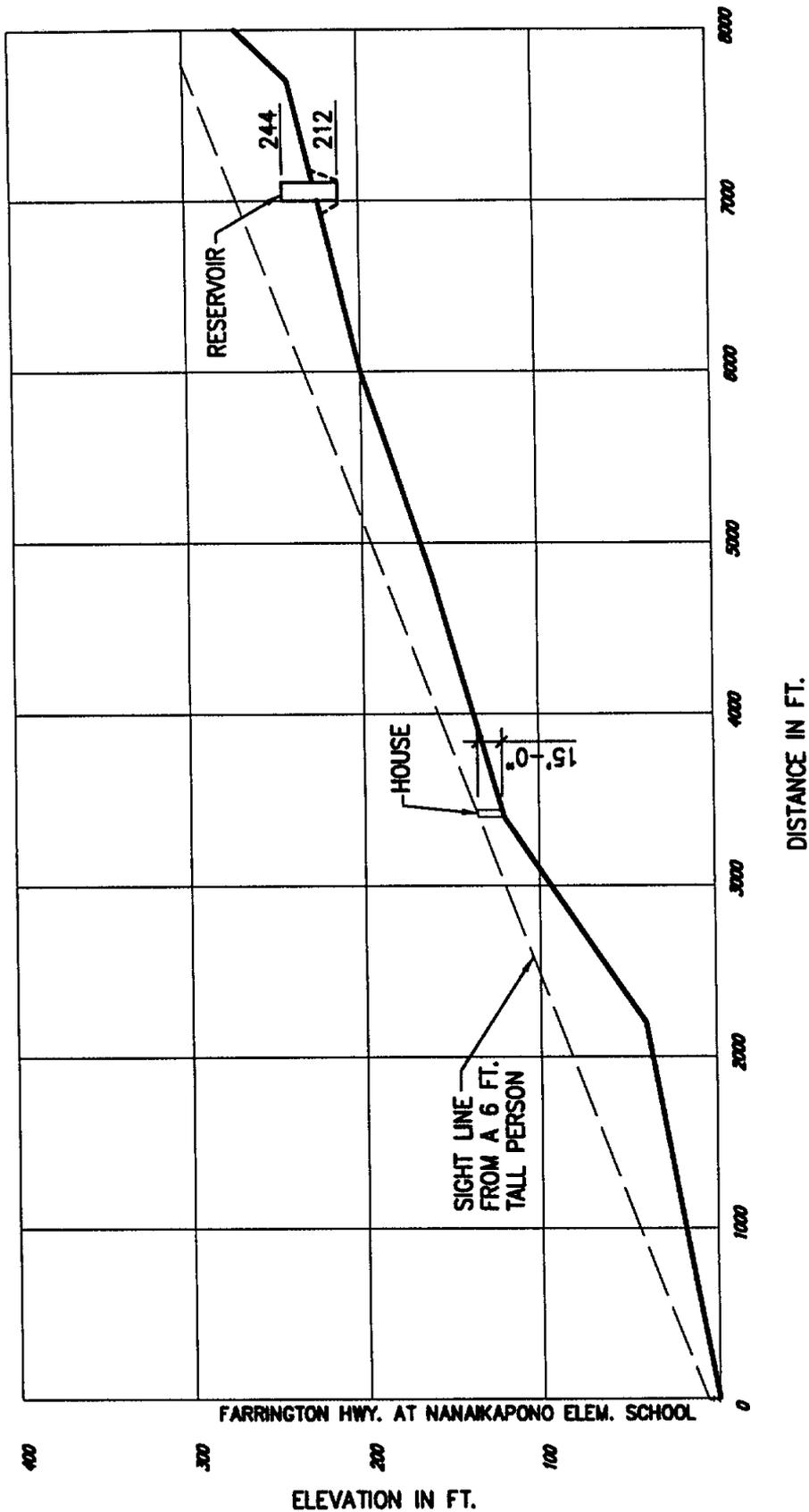
64.2 Long-Term Impacts

Visual

The reservoir will be located in the back of the valley behind the last residential subdivision. Excavation for the reservoir will create a cut slope in the northern side of the reservoir lot with excavation height matching the height of the reservoir. The tank finish floor elevation (212 feet) is lower than the top of pavement elevation (218 feet) at Maiaholena Place. The roof elevation (about 244 feet) of the tank will be higher than the roof elevation (about 233 feet) of homes along Maiaholena Place.

A view plane analysis was conducted to assess the impact of the proposed action on the view from Farrington Highway. Figure 15 shows the view profile from Farrington Highway to the reservoir site. The view profile indicates that the reservoir tank will probably not be visible for people walking along Farrington Highway looking towards the Waianae Mountains due to existing topographic features and buildings.

Photograph #1 on Figure 17 shows the view from Farrington Highway towards the proposed reservoir site. Figure 16 shows location where all the photographs were taken and the direction of the view. The approximate location of the reservoir is indicated on the photograph.



PROFILE OF VIEW FROM FARRINGTON HIGHWAY

SCALE: VERT: 1"=100'
 HORIZ: 1"=1000'

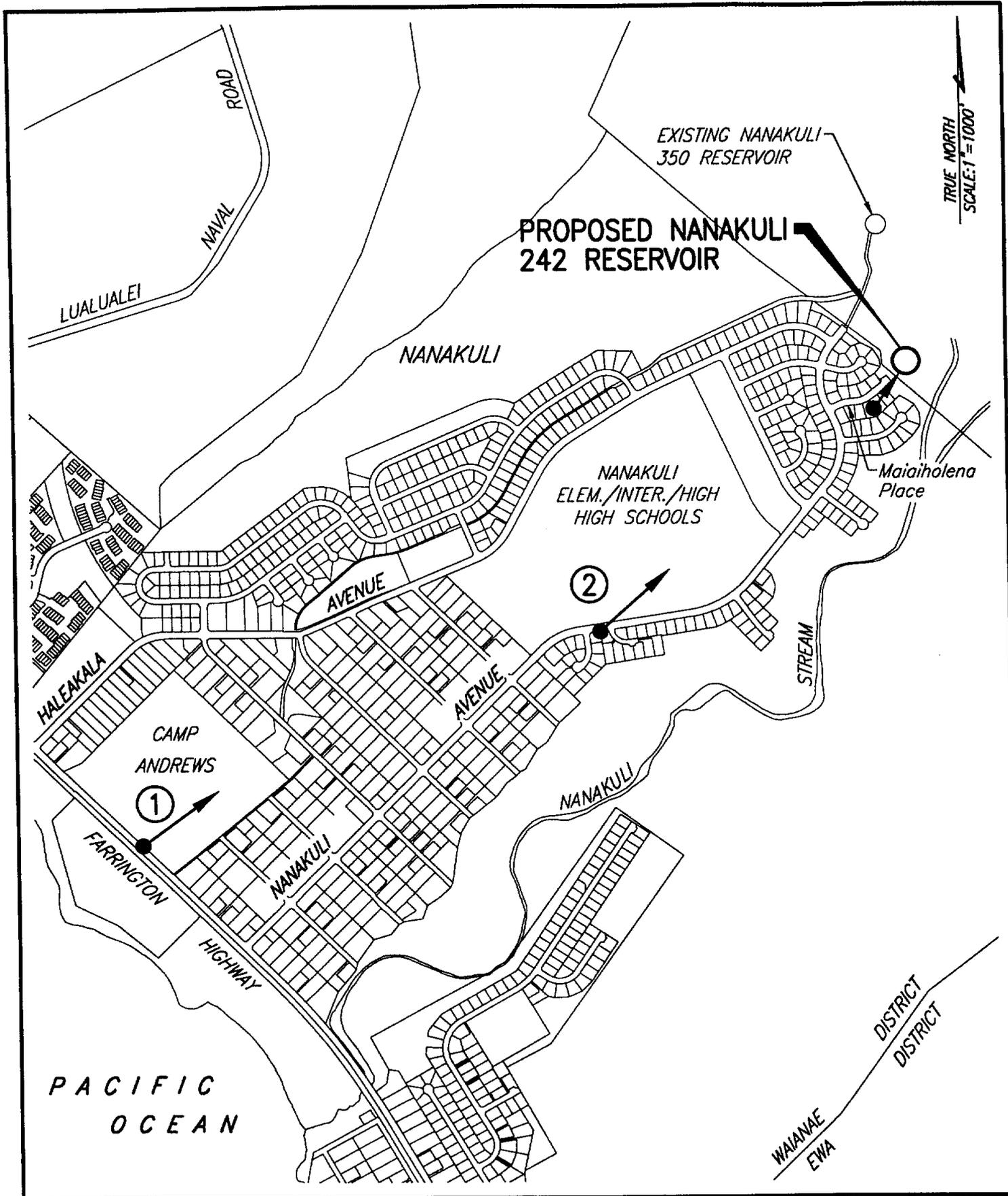
NOTE: BASED ON USGS QUAD MAP

PREPARED FOR:
 HONOLULU BOARD OF
 WATER SUPPLY

NANAKULI 242 RESERVOIR
 NANAKULI, OAHU, HAWAII
**PROFILE OF VIEW
 FROM FARRINGTON HIGHWAY**

sey Shimabukuro, Endo
 & Yoshizaki, Inc.
 ENGINEERS CMI & Structural Engineers

FIGURE
15



<p>PREPARED FOR: HONOLULU BOARD OF WATER SUPPLY</p>	<p>NANAKULI 242 RESERVOIR NANAKULI, OAHU, HAWAII</p> <p>LOCATION OF PHOTOGRAPHS & DIRECTION OF VIEW</p>	<p>sey Shimabukuro, Endo & Yoshizaki, Inc. ENGINEERS CMI & Structural Engineers</p>	<p>FIGURE 16</p>
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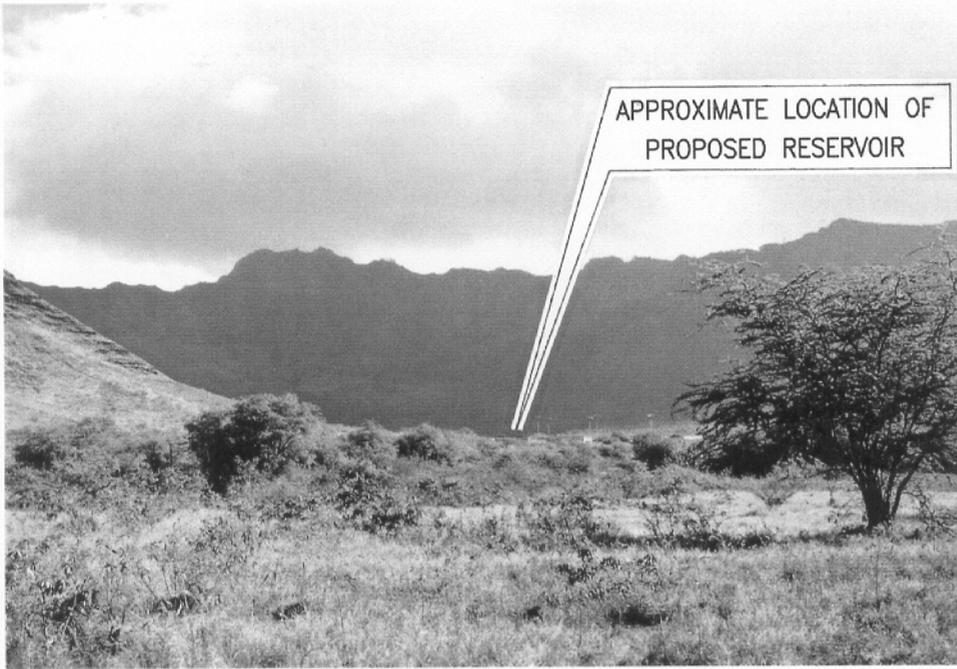


PHOTO ①
FARRINGTON HIGHWAY



PHOTO ②
NANAKULI AVENUE

PREPARED FOR:

HONOLULU BOARD OF
WATER SUPPLY

NANAKULI 242 RESERVOIR
NANAKULI, OAHU, HAWAII

PHOTOGRAPHS

sey Shimabukuro, Endo
ENGINEERS & Yoshizaki, Inc.
Civil & Structural Engineers

FIGURE

17

Photograph #2 on Figure 17 shows the view from Nanakuli Avenue towards the proposed reservoir site. The reservoir is probably shielded from view by existing buildings. It's approximate location is indicated on the photograph.

The reservoir will probably only be visible to people along Maiaholena Place and from some backyards of homes close to the reservoir site. Figure 18 shows two photographs at Maiaholena Place; one showing the existing condition without the reservoir and one with the proposed reservoir tank simulated on the photograph. Figure 19 shows a simulation of the reservoir with a half size berm.

Point Source Pollution

Point source pollution is defined as any discernible, confined, and discrete conveyance, including, but not limited to, any pipes from which pollutants are or may be discharged.

The reservoir will have a washout pipe that will be connected to the drainage system. Effluent or water discharging from the drain outlet will flow to Nanakuli Stream.

Before the reservoir is used, the contractor will clean the reservoir with chlorinated water and conduct leakage testing. The "wash" water will be dechlorinated and filtered to meet Department of Health (DOH) requirements and discharged into Nanakuli Stream.

The contractor will also clean the 20-inch transmission main with chlorinated water and conduct leakage testing. If the "wash" water is discharged into the existing drainage system in Nanakuli Valley, it will be dechlorinated and filtered to meet DOH requirements before discharge.

When the reservoir is in use, it will require periodic maintenance. Prior to cleaning, the water in the reservoir will be emptied as it is used in the water system. Board of Water supply staff will then clean the reservoir with chlorinated water. The "wash" water will be dechlorinated and filtered to meet DOH requirements and discharged into Nanakuli Stream.

Drainage and Flooding

Once completed, the proposed reservoir should not impact the existing drainage pattern towards Nanakuli Stream. The design of the drainage system will continue to convey runoff water to Nanakuli Stream.

The impact of the proposed action on the existing flood condition described by the Waianae Neighborhood Board is not known because there is no data to assess the impact.

Traffic

After completion, only maintenance vehicles will visit the reservoir periodically. Due to the small volume of traffic traveling along Nanakuli Avenue, little or no impact is expected.



BEFORE



AFTER

PREPARED FOR:

HONOLULU BOARD OF
WATER SUPPLY

NANAKULI 242 RESERVOIR

NANAKULI, OAHU, HAWAII

BEFORE AND AFTER VIEWS
OF RESERVOIR SITE

sey
ENGINEERS

Shimabukuro, Endo
& Yoshizaki, Inc.
Civil & Structural Engineers

FIGURE

18



PREPARED FOR:
HONOLULU BOARD OF
WATER SUPPLY

NANAKULI 242 RESERVOIR
NANAKULI, OAHU, HAWAII
VIEW OF RESERVOIR
WITH HALF SIZE BERM

sey ENGINEERS
Shimabukuro, Endo
& Yoshizaki, Inc.
Civil & Structural Engineers

FIGURE
19

Impacts to Permittees

The reservoir site and drainage easement are located in Robert Lyman's permit area. The access road easement is located in Mary Higashi's permit area. The proposed action will impact the permittees by taking away a portion of the land they currently use. The reservoir will affect 0.13% of Robert Lyman's area; the road easement will affect 4.21% of Mary Higashi's area. The permittees may continue to rent the remaining land from DHHL.

The reservoir site will impact existing fencing in Robert Lyman's permit area. The access road will impact an existing stable within Mary Higashi's permit area.

Interrelationships of the Propose Action and Other Projects

The proposed action is interrelated to some extent with most of the existing and future Board of Water Supply facilities. BWS facilities are connected to a system of waterlines that convey water to each facility. This network of waterlines span from community to community linking BWS facilities to one another. The interconnection allows flexibility in meeting emergency situations.

The only other BWS project in the Waianae District is the Makaha 242 Reservoir, which will have a capacity of two million gallons. Construction of this reservoir will begin in the latter part of the year 2002. This reservoir will serve the low service area of Makaha. The Board of Water Supply owns the land where the new Makaha 242 Reservoir will be constructed.

As discussed in Chapter III "Alternatives to Proposed Action," the BWS plan for the Waianae District low service area includes two new local reservoirs approximately two million gallons each. The proposed action in Nanakuli is one of those reservoirs and the second local reservoir will be planned for in the future by the BWS.

Cumulative Environmental Impacts of the Proposed Action and Other Related Projects

The cumulative environmental impacts of the proposed action and other related projects are as follows:

1. The Makaha 242 Reservoir, the future reservoir in Waianae, and the proposed action require land to accommodate these facilities.
2. The Makaha 242 Reservoir, the future reservoir in Waianae, and the proposed action will cumulatively increase the water storage capacity of the Waianae District low service area for domestic and fire fighting use.

The environmental impact statement for the Makaha 242 reservoir indicates that the adverse impacts of the project are:

1. Rock excavation and grading that will result in a permanent change to the existing topography at the project site,
2. Soil erosion during grading activities,
3. Fugitive dust and emissions from construction vehicles,
4. An increase in noise levels particularly during rock excavation, and
5. There will be additional construction vehicles along Kili Drive.

The construction related adverse impacts of the Makaha 242 reservoir and the proposed action are not considered cumulative. The construction of the two projects will not coincide.

It is currently not known what sites will be evaluated for the future BWS Waianae 242 Reservoir. A feasibility study will be conducted and environmental documents will be prepared pursuant to Chapter 343, HRS, for the proposed Waianae 242 Reservoir. Therefore, the environmental impacts are not known and cumulative impacts cannot be anticipated. A feasibility study and processing of environmental documents will be conducted in the year 2000.

Secondary Impacts

The proposed action is not expected to generate significant secondary impacts. An example of a secondary impact is population growth. Developing a source of water, such as a well, would increase the available water supply to Oahu. The population of Oahu could then theoretically grow because there is additional water to support more people.

The proposed action is essentially a storage tank; and will not increase the amount of water available for Oahu. Therefore, the proposed action is not expected to stimulate or induce secondary impacts such as population growth.

Indirect Impacts

The proposed action will generate the following indirect impacts. One impact will be the increase in consumption of petroleum based fuels such as crude oil, diesel and gasoline. Electricity is necessary to monitor and operate the proposed reservoir. Gasoline or diesel fuel is necessary to operate the maintenance vehicles that will visit the reservoir site. The other impact may be an increase in air pollutants from the emission of the byproducts of burning petroleum fuels at power plants and maintenance vehicles.

The proposed action will not generate significant indirect impacts. Crude oil is a resource that is not found naturally in Hawaii. Motor vehicles and power plants must meet government laws in regards to releasing air pollutants from their operation.

CHAPTER VIII
RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT
AND THE MAINTENANCE OF LONG-TERM PRODUCTIVITY

Presently, the land for the proposed reservoir site does not sustain any cultural or environmental resources, such as habitats of endangered flora or fauna. Therefore, the short-term uses of the environment for the proposed action would probably not effect the maintenance and enhancement of long-term productivity of the environment.

The proposed action involves tradeoffs between the following short-term and long-term losses:

1. The land for the reservoir site, access road and easements cannot be used for homes for DHHL beneficiaries.
2. The land for the reservoir site and access road cannot remain in its current state, used as a ranch. The land around the reservoir site can continue to be used as a ranch.

And the following short-term and long-term gains:

1. The proposed action will provide a more reliable water system.

The proposed action will have short-term and long-term losses in that it will foreclose the option of using the land for ranching or for providing homes for the beneficiaries of the Hawaiian Home Lands Act. It will, however, increase short-term and long-term reliability of water supply to existing residents in the Nanakuli Valley low service area. The large majority of these homes are owned by Department of Hawaiian Home Lands (DHHL).

A reliable water system is necessary to provide for the daily water consumption of residents and to protect their homes from fire. The short-term and long-term risks to health or safety are presently greater for the Nanakuli low service area than for service areas that satisfy BWS standards for water storage capacity. The more options available to supply water to the Nanakuli low service area in times of emergency, the more reliable the water system will be.

A reliable water system is a necessary utility that DHHL needs to meet its goal of providing homes to beneficiaries. The use of DHHL land for a reservoir instead of homes may be consistent with DHHL goals in one other way. If DHHL builds a new residential subdivision, they would either have to pay for and construct a new reservoir for that subdivision or pay BWS a proportionate share of the cost of a new reservoir as houses are constructed. If DHHL were to build a reservoir, DHHL land would likely be used for the reservoir site to minimize the cost of construction.

The proposed action will narrow the range of beneficial uses of the environment. There are, however, no significant environmental resources on the proposed reservoir site; and the land for the reservoir site is required by law to be used for Hawaiian Home Lands.

CHAPTER IX
DESCRIPTION OF IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF
RESOURCES

The proposed action will involve the commitment of certain resources, which once committed will be lost. The following resources will be irreversibly and irretrievably lost once expended:

1. The labor used in the design and construction of the proposed action.
2. Certain materials used in the construction. For example, gasoline to power construction vehicles.
3. The funds used to pay for design and construction of the proposed action.

There are no other known resources, which could be described as an irreversible and irretrievable commitment of resources. Presently, the land for the reservoir site does not sustain any unique or rare cultural or environmental resources, such as habitats of endangered flora or fauna.

The land for the reservoir site may appear to be an irreversible and irretrievable commitment of resources. The Department of Hawaiian Home Lands has a goal of building homes for beneficiaries. DHHL has only a limited supply of land for this purpose. However, DHHL will not sell the land to BWS for the reservoir, only a license for its use will be obtained. In the event the reservoir is eventually abandoned and removed from this site due to deterioration, the land will still be controlled by DHHL and could possibly be used for residential homes for beneficiaries. The life expectancy of a properly maintained reservoir is beyond 60 years.

There is a possibility of environmental accidents during the construction of the proposed action. During construction, the following accidents could possibly occur:

1. Soil erosion during storms at the reservoir site.
2. Release of chemicals such as gasoline for construction vehicles and chlorine during cleaning of reservoir tank and pipeline.
3. Others.

An accident at the proposed reservoir site and along the 20-inch transmission main would occur in areas of Nanakuli Valley, which do not sustain significant cultural resources or environmental resources such as endangered species. Therefore, an accident during construction of the proposed action would probably not cause the irreversible and irretrievable commitment of resources by damaging them.

CHAPTER X
PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE
AVOIDED

The proposed action will probably cause some adverse environmental effects, which cannot be avoided. The probable adverse effects, which cannot be avoided, include:

1. An increase in noise due to construction,
2. An increase in dust due to construction,
3. An increase in exhaust emissions due to construction vehicles,
4. An increase in construction traffic,
5. These will be inconveniences to motorists using Maiaiholena Place and Nanakuli Avenue during the construction of the 20-inch transmission main, and
6. Visual impact of the reservoir tank to residents along Maiaiholena Place and the backyard view to the mountains of some homes adjacent to the reservoir site.

Although these impacts can be minimized through mitigation measures, some impacts or inconveniences will still occur, such as closing portions of streets to construct the transmission main.

The proposed action does not have consequences that are adverse to the Department of Health's environmental goals and guidelines established by Chapter 342 and 344 of the Hawaii Revised Statutes.

The rationale for proceeding with the proposed action, notwithstanding the unavoidable effects, is that the benefits of the proposed action outweigh the negative aspects. The following governmental policies and other interests offset the adverse environmental effects of the proposed action:

1. Fostering safe, sanitary and decent homes.
2. Reduce the threat to life and property from fire.
3. Assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic use.
4. Ensure that responsible organizations are in a proper state of readiness to respond to major war-related, natural, or technical disasters and civil disturbances at all times.

5. Provide for necessary public goods and services not assumed by the private sector.
6. Creating job opportunities for the residents of Hawaii.

The above benefits could be realized by implementing other alternatives to the proposed action that would avoid some of the adverse environmental effects. However, there are reasons why these alternatives were eliminated as discussed in Chapter III titled, "Alternatives to Proposed Action."

There is one alternative 20-inch transmission main alignment that could achieve the same benefits but with a reduction of adverse impacts. The alignment along the ranch road, Nanakuli Avenue and Maiaiholena Place would help to decrease traffic, noise, and fugitive dust impacts of the proposed action on the community.

The alignment selected by BWS is approximately 7,500 feet in length along Nanakuli Avenue and Maiaiholena Place. The ranch road alternative would eliminate 4,800 feet along Nanakuli Avenue, but it would impact residents along about 400 feet of Maiapolua Place. The ranch road does not have residences adjacent to it and is not open to public traffic.

The ranch road alternative would decrease the dust, noise and traffic impacts to the Nanakuli High, Intermediate and Elementary Schools. About 2,300 feet of Nanakuli Avenue is adjacent to these schools. This alternative would eliminate 1,800 feet along Nanakuli Avenue adjacent to the schools; about 500 feet of the transmission main would run adjacent to the high school.

The ranch road alternative was eliminated due to its location within the 100-year flood plain, which would present problems such as erosion of the earth cover over the water line and/or erosion of the foundation under the water line. Water line breaks may also occur during storm events. Flooding would hinder the timely restoration of water service; and it would make the repair of the water line difficult and expensive. BWS repair crews need access to the water line at all times of the day. The ranch road has security gates and is unpaved for the majority of its length.

CHAPTER XI
MITIGATION MEASURES PROPOSED TO AVOID, MINIMIZE OR REDUCE IMPACT

This chapter describes the proposed mitigation measures that will be considered to minimize impacts.

Prior to the start of construction, the Board of Water Supply usually sends out letters to the residences adjacent to the construction site explaining the project, the work hours and providing a contact person to call if there are any questions. The residents of Nanakuli Valley can contact the BWS contact person to report any concerns they may have during construction.

11.1 Proposed Air Pollution Mitigation Measures

The construction of the proposed action will probably generate fugitive dust and exhaust emissions. The administrative rules and regulations of the Department of Health state that, "No person shall cause or permit visible fugitive dust to become airborne without taking reasonable precautions." The following mitigation measures are examples of reasonable precautions; and are proposed for consideration to minimize adverse impacts to air quality:

1. Use water or suitable chemicals to control fugitive dust during construction activities such as clearing the land and grading,
2. Cover all moving, open-bodied trucks transporting materials, which may result in fugitive dust,
3. Use asphalt, water or suitable chemicals on roads, materials stockpiles and other surfaces, which may result in fugitive dust,
4. Maintain roadways in a clean manner,
5. Remove earth or other materials promptly from paved streets, which have been transported there by trucking, earth-moving equipment, erosion, or other means, and
6. Provide fugitive dust screen between reservoir site and adjacent residential homes.
7. Maintain construction vehicles to meet emission levels required by law.

Some impact to air quality may occur during construction but the impact is considered acceptable. The basis for considering the level of impact acceptable is that the proposed action is consistent with the goals of the State's policy of fostering safe, sanitary and decent homes. It is also consistent with the City and County of Honolulu's policy of maintaining an adequate supply of water for both residents and fire protection. The construction of the proposed action will also be a temporary condition, lasting about one year.

11.2 Proposed Noise Pollution Mitigation Measures

The construction of the proposed action will probably generate noise levels higher than that normally found in residential areas; and may generate sound levels higher than the maximum permissible sound levels for residential areas specified in Department of Health (DOH) regulations. The contractor will be required to obtain a permit from the DOH to exceed the maximum sound levels.

The following mitigation measures are proposed for consideration to minimize adverse impacts to noise levels:

1. Schedule construction activities, which will generate significant noise levels, when schools are not in session.
2. Require the contractor to install mufflers and noise damping equipment on construction vehicles and equipment.

At certain times, the construction of the proposed action may generate noise levels higher than the maximum levels specified by DOH but the impact is considered acceptable. The basis for considering the level of impact acceptable is that the proposed action is consistent with the goals of the State's policy of fostering safe, sanitary and decent homes. It is also consistent with the City and County of Honolulu's policy of maintaining an adequate supply of water for both residents and fire protection. The construction of the proposed action will also be a temporary condition, lasting about one year.

11.3 Proposed Traffic Impact Mitigation Measures

The construction of the proposed action will cause periodic disruptions to normal traffic flow along Maiaholena Place and Nanakuli Avenue. The 20-inch transmission main will be constructed in portions; and will likely require daily closures of one lane along portions of Nanakuli Avenue and Maiaholena Place. Construction vehicles will add to the traffic on streets within Nanakuli Valley.

The following *best management practices* and mitigation measures are proposed for consideration to minimize adverse traffic impacts:

1. If required by the Department of Transportation Services, provide off duty police officers to control the flow of traffic.
2. Schedule large truck deliveries and routes to account for school sessions and pedestrian and vehicular traffic before and after school.

- 3. Provisions will be made in the project's plan and specifications to address the safety of students and parents prior to the beginning of the school day and at the completion of the school day as construction progresses along Nanakuli Avenue next to Nanakuli High and Intermediate School.**
- 4. Construction and traffic control plans will be prepared by the contractor to minimize disruptions and inconvenience to the students and the public using Nanakuli Avenue. The construction schedule will account for the school's schedule.**

Although construction of the proposed action will cause some traffic impacts, the impacts are considered acceptable. The basis for considering the level of impact acceptable is that the proposed action is consistent with the goals of the State's policy of fostering safe, sanitary and decent homes. It is also consistent with the City and County of Honolulu's policy of maintaining an adequate supply of water for both residents and fire protection. The construction of the proposed action will be a temporary condition, lasting about one year.

11.4 Proposed Erosion Mitigation Measures

The construction of the proposed action may cause erosion especially during rainfall and subsequent water runoff. Areas that have been cleared, grubbed and graded will be susceptible to higher rates of erosion.

The following mitigation measures or Best Management Practices are proposed for consideration to minimize adverse impacts from erosion:

1. Provide silt fences to catch silt before it leaves the project site to minimize erosion to Nanakuli Stream.
2. Upon completion of finish grading, grass areas that are bare and have no ground cover.
3. Provide ground cover for bare areas.

The basis for considering the level of impact acceptable is the Grading Permit rules and regulations of the City & County of Honolulu Department of Planning and Permitting. The contractor is expected to follow the laws pertaining to grading and erosion control, therefore, no significant impact is expected.

11.5 Proposed Point Source Pollution Mitigation Measures

The reservoir will have a washout pipe that will be connected to the drainage system. The effluent from the drain outlet flows to Nanakuli Stream.

Prior to completion, the contractor will clean the reservoir and 20-inch transmission main; and test them for leakage. After completion, the Board of Water Supply (BWS) staff will periodically clean and maintain the reservoir. Wash water will be discharged into Nanakuli Stream. The contractor will be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit if wash water is discharged into Nanakuli Stream. The BWS will also obtain a NPDES permit to discharge wash water into the stream.

The following mitigation measures are proposed for consideration to minimize adverse impacts from point source pollution:

1. Remove chlorine and filter out debris from wash water prior to discharge into Nanakuli Stream.
2. Sample effluent and test it for chlorine prior to discharge.

The basis for considering the level of impact acceptable is the laws relating to the Clean Water Act that is administered by the State Department of Health. The contractor and the Board of Water Supply are expected to follow the requirements of the law. Therefore, no significant impact is expected.

11.6 Proposed Visual Impact Mitigation Measures

The reservoir tank will probably not be visible to people walking along Farrington Highway looking towards the Waianae Mountains due to existing topographic features and buildings. The reservoir will probably only be visible to people along Maiaiholena Place and from some backyards of homes close to the reservoir site.

The following mitigation measures are proposed for consideration to minimize the visual impact of the reservoir tank:

1. Landscaping around reservoir to produce a masking effect.
2. Landscape excavation cuts and benches.
3. Paint concrete reservoir with earth tones to blend with existing background.
4. Place a half size earth berm around the reservoir with landscaping.

The first three items are the preferred mitigation measures to minimize the adverse visual impact of the reservoir tank. Placing a half size earth berm is not a preferred option due to its impact on permittees and the need to use more DHHL land.

The basis for considering the level of impact acceptable is the following:

1. The Hawaii State Plan policy, which states: "Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features."
2. The City & County of Honolulu General Plan policy, which states: "Design public structures to meet high aesthetic and functional standards and to complement the physical character of the communities they will serve."
3. Tradeoffs that would be involved to provide further mitigation.

The proposed action is consistent with the policy of the Hawaii State Plan relating to views. The reservoir will probably not be visible from Farrington Highway due to homes in front of the reservoir. The proposed action would have little, if any, visual impacts to the view from the ocean to the mountains.

The proposed action is not consistent with one policy of the General Plan. The reservoir will be visible to people along Maiaholena Place and from some backyards of homes close to the reservoir site. A reservoir tank is not generally pleasing aesthetically and will not complement the physical character of the community. This negative aspect is outweighed; however, by the necessary function it provides the community. The reservoir tank would not visually affect most of the existing community.

In order to meet as high aesthetic standards as possible, the reservoir will be landscaped to screen most of the tank from the view of existing residents below the reservoir site. The tank will also be painted with earth tones to blend with the existing background.

Full Size Berm

A full size berm, about 30 feet high (equal to the reservoir height) along the periphery of the reservoir site, was evaluated. This full size berm is shown in Figure 19. The width of the berm would be about 150 feet. This alternative would require:

1. Licensing more land from the Department of Hawaiian Home Lands (about 2 to 3 acres), and
2. Additional cost for construction and to obtain a license from DHHL to use land.
3. Removing more land from permittees,

This alternative may require the reservoir to be relocated about 150 feet north. This alternative was ruled out due to the aforementioned impacts.

Half Size Berm

Another possible mitigative measure is a smaller size earth berm (about 15 feet high) with landscaping. Figure 20 shows a section through the half size berm; a visual simulation of the berm is shown on Figure 19. This option would require licensing about one additional acre of Hawaiian Home Lands. The reservoir will have to be relocated or the access road realigned to accommodate the berm. The half size berm would cost about \$410,000 more to construct for a total cost of \$11,380,000.

The half size berm is an option that will be decided by BWS during design of the reservoir.

The BWS will submit construction plans to DHHL for review and comments during each phase of the design.

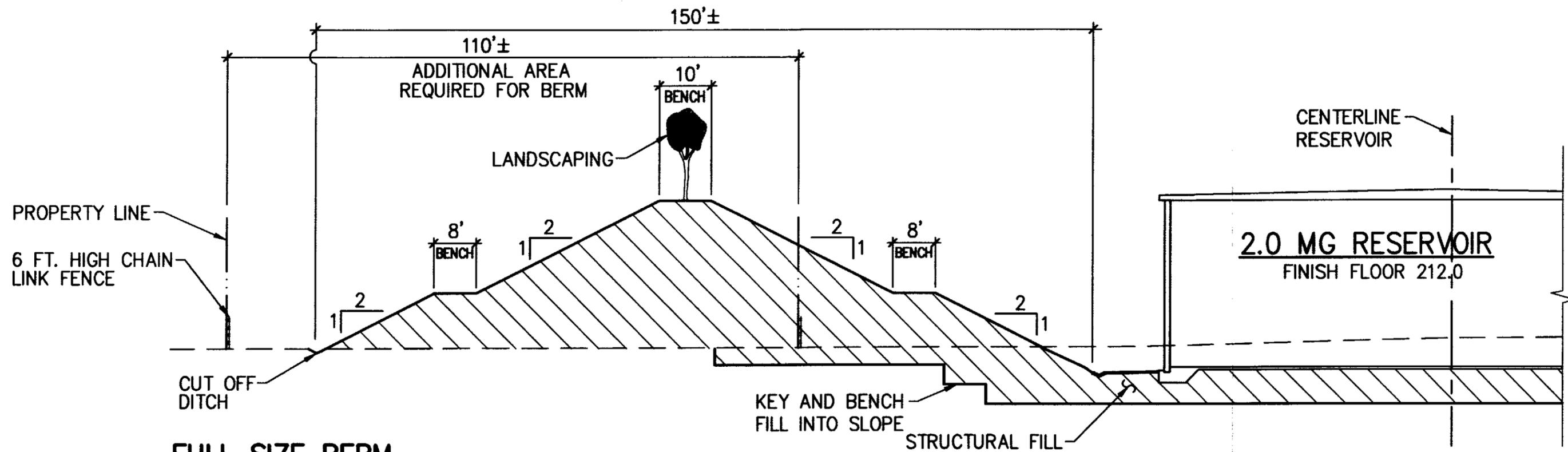
11.7 Proposed Measures to Mitigate Impact to Permittees

The following mitigation measures are proposed for consideration to minimize the impact to permittees, Mary Ann Higashi and Robert Lyman, that rent land from the Department of Hawaiian Home Lands:

1. Relocate existing stable on the permit area for Mary Ann Higashi.
2. Relocate existing fencing on the permit areas for Robert Lyman and Mary Ann Higashi.

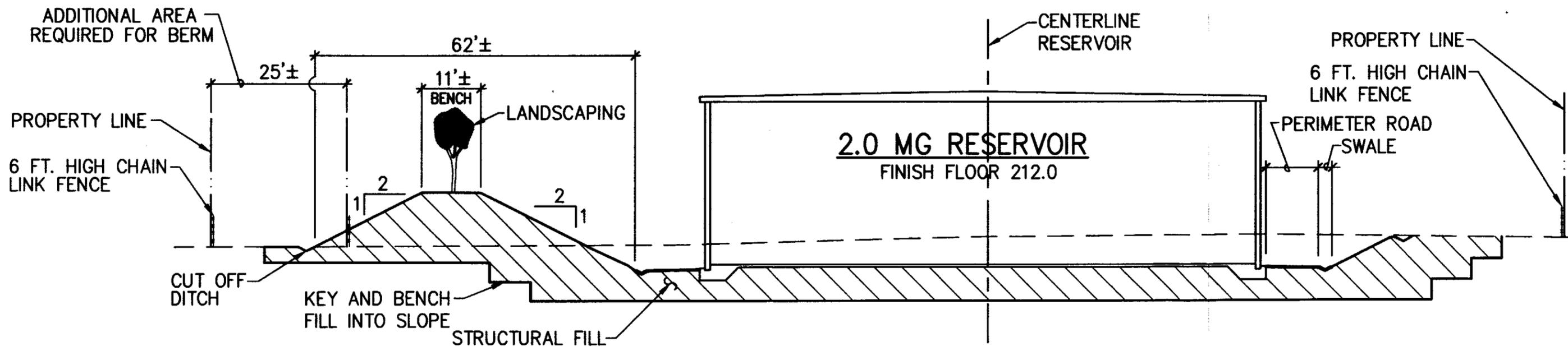
The basis for considering the level of impact acceptable is the following:

1. The proposed action is a necessary facility, which will benefit the residents of Nanakuli Valley. Most of the residents in Nanakuli Valley are Hawaiian Home Lands lessees.
2. The land at the reservoir site is under the jurisdiction of the Department of Hawaiian Home Lands. DHHL is responsible for providing homes to native Hawaiians. A necessary component of a home is a reliable water supply.
3. The permittees are using the land rented from DHHL for ranching. While permittees do generate revenue for DHHL, the ultimate purpose for DHHL is to provide homes.
4. The permittees have revocable permits to use DHHL land.
5. DHHL is planning to construct new residential housing mauka of the existing residential area. DHHL will revoke permits for ranching when the land is needed for homes.



FULL SIZE BERM

SCALE: 1"=20'



HALF SIZE BERM

SCALE: 1"=20'

PREPARED FOR: HONOLULU BOARD OF WATER SUPPLY	NANAKULI 242 RESERVOIR NANAKULI, OAHU, HAWAII FULL SIZE BERM AND HALF SIZE BERM	 sey Shimabukuro, Endo & Yoshizaki, Inc. Civil & Structural Engineers	FIGURE 20
--	---	---	---------------------

11.8 Proposed Measures to Mitigate Impact to Underground Cultural Resources or Burials

The following mitigation measures are proposed for consideration to minimize the impact to underground cultural resources and human burials during construction of the 20-inch transmission main:

1. Develop a program of archaeological monitoring during the installation of the 20-inch transmission main,
2. Provide full time monitoring by a qualified archaeologist for the sandy coastal deposits in the makai portion of Nanakuli Avenue and Farrington Highway, and
3. Once excavation has proceeded through terrigenous sediments, provide on call monitoring. (During on call monitoring if any suspected cultural deposits are located, work in the area will halt immediately and a qualified archaeologist will be called to assess the deposits.)

A monitoring plan outlining the expected finds and listing treatment of any encountered historic properties must be written and approved by the State Department of Land and Natural Resources Historic Preservation Division before subsurface work on the 20-inch transmission main can begin.

Section 6E-43.6 of the Hawaii Revised Statutes is the applicable legal authority that governs the treatment of inadvertently discovered human remains over fifty years old. Section 13-300-40 of the Hawaii Administrative Rules of Practice and Procedure Relating to Burial Sites and Human Remains is the applicable administrative authority which provides further procedures that govern the treatment of inadvertently discovered human remains over fifty years old. The monitoring plan may include the following elements:

1. A pre-construction meeting will be held with all construction workers to explain the proper procedures involved in the treatment of inadvertently discovered human remains and the penalties associated with non-compliance,
2. The contractor shall notify the State Historic Preservation Division (SHPD) staff immediately in the event of an inadvertent discovery,
3. The contractor shall notify the police immediately in the event of an inadvertent discovery for the purposes of clarifying jurisdiction over the remains with SHPD, and
4. The remains must be left in place until the police and SHPD arrive to inspect them for purposes of determining whether the remains are human and over fifty years old, and if so, to determine whether to preserve the remains in place or to relocate.

The contractor is expected to conduct construction operations in accordance with the monitoring plan. The level of impact to cultural resources and burials is therefore expected to be not significant. The basis for considering the level of impact acceptable is adherence to the monitoring plan.

In the event that Hawaiian burials are found, a burial treatment plan will be developed.

CHAPTER XII
SUMMARY OF UNRESOLVED ISSUES

There is one unresolved issue related to the proposed action. The Waianae Neighborhood Board has commented that flooding may occur at the proposed reservoir site. Mr. John Higashi who uses the site indicated that during heavy rainfall there is sheet flow over the surface less than 6 inches in depth. The cause and extent of flooding if any at the site are not known. Therefore, an assessment of the impact of the proposed action on the existing flooding condition cannot be made.

To resolve this issue prior to commencement of the proposed action, the action will be designed to meet the drainage standards of the City and County of Honolulu, Department of Planning and Permitting. A drainage study may be conducted during the design of the proposed action. This study may also include a flood analysis of the watershed and Nanakuli Stream. Necessary drainage improvements will be implemented to meet the drainage standards.

CHAPTER XIII
**LIST OF AGENCIES, ORGANIZATIONS OR PRIVATE INDIVIDUALS THAT WERE
CONSULTED IN PREPARING THE STATEMENT**

The following is a list of government agencies, organizations or individuals that were either consulted in preparing the environmental impact statement or that were sent the environmental impact statement preparation notice for review and comments. Comments were not received from all government agencies, organizations or individuals.

Federal Government:

U.S. Army Engineer District, Honolulu
U.S. Department of Interior, Fish & Wildlife Service

State Government:

State Legislature:

President of the Senate and Senator from District 21 Colleen Hanabusa
Speaker of the House and Representative from Districts 43 Michael Kahikina
Department of Accounting and General Services, Division of Public Works
Department of Business, Economic Development and Tourism
DBEDT Planning Office
Department of Education
Nanakuli High and Intermediate School
Department of Hawaiian Home Lands
Department of Health
Department of Land and Natural Resources (DLNR)
DLNR State Historic Preservation Office
Department of Transportation
Office of Environmental Quality Control
Office of Hawaiian Affairs
University of Hawaii, Environmental Center

City and County Government:

County Council
Councilmember John DeSoto
Department of Planning and Permitting
Department of Design and Construction
Fire Department
Police Department
Department of Facility Maintenance
Department of Transportation Services
Department of Parks and Recreation
Department of Environmental Services

7.4 Other Individuals and Organizations:

American Lung Assoc. of Hawaii
Burial Council
Hui Malama I No Kupuna O Hawaii Nei
Malama Nanakuli Ahupua'a
Naalahele Trail and Access
Nanakuli Ahupuaa Council
Nanakuli Homestead Association
Sierra Club, Hawaii Chapter
Waianae Coast Community Alternative Development Corporation
Waianae Coast Neighborhood Board No. 24
Ms. MaryAnn Higashi
Mr. Robert Lyman
The Gas Company
GTE Hawaiian Telephone
Hawaiian Electric Company
Oceanic Cable
Residents along Maiaiholena Place
Ms. Muriel C. Kaaihue
Ms. Dixie Kuulei Kalamau
Ms. Abbie Leinaala Sanchez
Ms. Effie Nalani Akoni
Mr. Abraham I.K. Naki
Ms. Violet F.K. Brown
Danyea O.L. Lopes
Ms. Gloria Jean Bailey
Mr. Charles K. Needham
Ms. Becky P. Dalere
Mr. Elmer K. Kanaiaupuni

CHAPTER XIV
LIST OF PERSONS, FIRMS OR AGENCIES THAT PREPARED THE STATEMENT

The following list identifies the persons, firms and government agency that were involved with the preparation of the environmental impact statement for the proposed action.

Government Agency:

Agency	Board of Water Supply City & County of Honolulu	Mr. Barry Usagawa, P.E. Mr. Scot Muraoka, P.E.
---------------	--	---

Engineering and Surveying Firms:

Civil Engineer	Shimabukuro, Endo & Yoshizaki, Inc.	Mr. Howard K. Endo, Ph.D. Mr. Conrad Higashionna, P.E.
Soils Engineer	Pacific Geotechnical Engineers, Inc.	Mr. Glen Y. Lau, P.E.
Topographic Survey	Control Point Surveying & Engineering, Inc.	Mr. Kataichi Ninomiya, P.L.S.

Technical Firms:

Archaeological & Native Hawaiian Gathering Rights	Cultural Surveys Hawai'i	Mr. Hallett H. Hammatt, Ph.D. Mr. Matt McDermott, B.A. Ms. Ka'ohulani Mc Guire, B.A.
Botanical	Char & Associates	Ms. Winona P. Char
Visual Simulation	Quality Graphics & Printing, Inc.	Mr. Gary Onishi

Endnotes

- ¹ "Waianae Sustainable Communities Plan - Final Draft," prepared by the Department of Planning and Permitting, dated June 1999.
- ² "Archaeological Inventory Survey of the Proposed Nanakuli 242 Reservoir Site, with Archaeological Assessment of the Proposed 20" Transmission Main along Nanakuli Avenue, Nanakuli, Waianae District, Island of Oahu," prepared by Cultural Surveys Hawaii, dated August 1999.
- ³ "Waianae Sustainable Communities Plan - Final Draft," prepared by the City & County of Honolulu Department of Planning and Permitting, dated June 1999.
- ⁴ "Waianae Sustainable Communities Plan - Final Draft," prepared by the City & County of Honolulu Department of Planning and Permitting, dated June 1999.
- ⁵ "Waianae Sustainable Communities Plan - Final Draft," prepared by the City & County of Honolulu Department of Planning and Permitting, dated June 1999.
- ⁶ "Lualualei Golf Course - Final Environmental Impact Statement," prepared by Hida, Okamoto & Associates, dated April 1991.
- ⁷ "Waianae Sustainable Communities Plan - Final Draft," prepared by the City & County of Honolulu Department of Planning and Permitting, dated June 1999.
- ⁸ "1990 Census of Population and Housing, Census Tracts, Hawaii" prepared by the United States Bureau of Census.
- ⁹ "Waianae Sustainable Communities Plan - Final Draft," prepared by the City & County of Honolulu Department of Planning and Permitting, dated June 1999.
- ¹⁰ "Waianae Sustainable Communities Plan - Final Draft," prepared by the City & County of Honolulu Department of Planning and Permitting, dated June 1999.
- ¹¹ "Administration of Native Hawaiian Home Lands - Part 1," prepared by Select Committee on Indian Affairs of the United States Senate and the Committee on Interior and Insular Affairs of the House of Representatives, dated August 7, 1989.
- ¹² "Administration of Native Hawaiian Home Lands - Part 1," prepared by Select Committee on Indian Affairs of the United States Senate and the Committee on Interior and Insular Affairs of the House of Representatives, dated August 7, 1989.
- ¹³ "Administration of Native Hawaiian Home Lands - Part 1," prepared by Select Committee on Indian Affairs of the United States Senate and the Committee on Interior and Insular Affairs of the House of Representatives, dated August 7, 1989.
- ¹⁴ "Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii," by the United States Department of Agriculture Soil Conservation Service, issued August 1972.
- ¹⁵ "Administration of Native Hawaiian Home Lands - Part 1," prepared by Select Committee on Indian Affairs of the United States Senate and the Committee on Interior and Insular Affairs of the House of Representatives, dated August 7, 1989.

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- ¹⁵ "Administration of Native Hawaiian Home Lands - Part 1," prepared by Select Committee on Indian Affairs of the United States Senate and the Committee on Interior and Insular Affairs of the House of Representatives, dated August 7, 1989.
- ¹⁶ "Waianae Sustainable Communities Plan - Final Draft," prepared by the City & County of Honolulu Department of Planning and Permitting, dated June 1999.
- ¹⁷ "Archaeological Inventory Survey of the Proposed Nanakuli 242 Reservoir Site, with Archaeological Assessment of the Proposed 20" Transmission Main along Nanakuli Avenue, Nanakuli, Waianae District, Island of Oahu," prepared by Cultural Surveys Hawaii, dated August 1999.
- ¹⁸ "Coastal View Study," prepared by the City & County of Honolulu Department of Land Utilization, dated 1987.
- ¹⁹ Panel 100 and Panel 130 of the "Flood Insurance Rate Map - City & County of Honolulu, Hawaii," prepared by the Federal Emergency Management Agency, dated September 4, 1987.
- ²⁰ "1990 Census of Population and Housing, Census Tracts, Hawaii" prepared by the United States Bureau of Census.
- ²¹ "Archaeological Inventory Survey of the Proposed Nanakuli 242 Reservoir Site, with Archaeological Assessment of the Proposed 20" Transmission Main along Nanakuli Avenue, Nanakuli, Waianae District, Island of Oahu," prepared by Cultural Surveys Hawaii, dated August 1999.
- ²² Topographic Survey of Proposed Nanakuli 242 Reservoir, prepared by Control Point Surveyors and Engineers.
- ²³ "Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii," by the United States Department of Agriculture Soil Conservation Service, issued August 1972.
- ²⁴ "Botanical Resources Assessment, Nanakuli 242 Reservoir, Waianae District, Oahu," by Char & Associates, dated July 1999.
- ²⁵ "Native Hawaiian Gathering Rights Assessment for the Proposed Nanakuli 242 Reservoir Site and 20" Transmission Main along Nanakuli Avenue, Nanakuli, Waianae District, Island of Oahu," prepared by Cultural Surveys Hawaii, dated August 1999.
- ²⁶ *"Water System Standards" Volume 1 prepared by Counties of Hawaii, 1985.*

APPENDIX A

Estimated Quantities and Cost Estimate

APPENDIX A

Cost Estimate for Nanakuli 242 Reservoir without Half Berm

Item No.	Description and Unit	Unit Cost	Quantity	Cost
1	Clearing and grubbing (ac)	\$9,000	2	\$18,000
2	Erosion & temporary dust control		LS	50,000
3	Reservoir mass excavation (cy)	40	17,000	680,000
4	Reservoir structural fill backfill (cy)	50	11,000	550,000
5	Drainage swale at top of cut (lf)	35	470	16,450
6	Perimeter road: ac & subgrade prep (lf)	35	380	13,300
7	Drainage swale along perimeter road (lf)	35	400	14,000
8	14' wide double swing gate		LS	3,000
9	6' high chain link fence (lf)	35	1,020	35,700
10	Landscaping and irrigation		LS	25,000
11	2 MG reservoir w/ altitude valve		LS	2,500,000
12	Instrument house & telemetering		LS	100,000
13	20-inch water main (lf)	700	7,630	5,341,000
14	Water system structures and appurt.		LS	60,000
15	18-inch drain line (lf)	100	300	30,000
16	Drainage structures		LS	30,000
17	Access road: ac & subgrade prep (lf)	35	220	7,700
18	Access road excavation (cy)	30	200	6,000
19	Access road embankment (cy)	40	700	28,000
20	HECO & HTCO utility charges		LS	400,000
21	Permits		LS	50,000
22	Field office		LS	15,000
Subtotal				\$9,973,150
Contingency 10%				997,315
Total Construction Cost				\$10,970,465
Say				\$10,970,000

APPENDIX A

Cost Estimate for Nanakuli 242 Reservoir with Half Berm

Item No.	Description and Unit	Unit Cost	Quantity	Cost	
1	Clearing and grubbing (ac)	\$9,000	2.5	\$22,500	
2	Erosion & temporary dust control		LS	50,000	
3	Reservoir mass excavation (cy)	40	19,000	760,000	
4	Reservoir structural fill backfill (cy)	50	16,500	825,000	
5	Drainage swale at top of cut (lf)	35	470	16,450	
6	Perimeter road: ac & subgrade prep (lf)	35	400	14,000	
7	Drainage swale along perimeter road (lf)	35	400	14,000	
8	14' wide double swing gate		LS	3,000	
9	6' high chain link fence (lf)	35	1,320	46,200	
10	Landscaping and irrigation		LS	25,000	
11	2 MG reservoir w/ altitude valve		LS	2,500,000	
12	Instrument house & telemetering		LS	100,000	
13	20-inch water main (lf)	700	7,630	5,341,000	
14	Water system structures and appurt.		LS	60,000	
15	18-inch drain line (lf)	100	300	30,000	
16	Drainage structures		LS	30,000	
17	Access road: ac & subgrade prep (lf)	35	220	7,700	
18	Access road excavation (cy)	30	200	6,000	
19	Access road embankment (cy)	40	700	28,000	
20	HECO & HTCO utility charges		LS	400,000	
21	Permits		LS	50,000	
22	Field office		LS	15,000	
				Subtotal	10,343,850
				Contingency 10%	1,034,385
				Total Construction Cost	11,378,235
				Say	\$11,380,000

APPENDIX B

Comments and Responses Received During Consultation Process

PRE-ASSESSMENT

COMMENTS



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Ecoregion
300 Ala Moana Blvd, Room 6307
P.O. Box 50167
Honolulu, HI 96850

In Reply Refer To: DLB

Mr. Todd A. Graham, P.E.
Shimabukuro, Endo, & Yoshizaki, Inc.
Civil and Structural Engineers
1126 12th Avenue, Room 309
Honolulu, Hawaii 96816

AUG 18 1995

Dear Mr. Graham:

The U.S. Fish and Wildlife Service (Service) has received your August 2, 1995, request for information on the presence of Federally listed, proposed, and candidate endangered and threatened species within seven alternative proposed sites for a 5.0 million gallon reservoir in the Nanakuli area on the island of Oahu, Hawaii. It is our understanding that Shimabukuro, Endo, & Yoshizaki, Inc. is requesting this information on behalf of the Board of Water Supply.

One of seven sites identified on the maps submitted with your request will be selected for the construction of the reservoir to provide additional storage capacity for the Board of Water Supply. The structure to be constructed is a circular tank that is 206 feet in diameter and 22 feet in height. It will occupy an area of 3.5 acres. An access road will be built to the selected site and a waterline and the electrical lines will be installed under this road.

The Service has reviewed the maps provided with your request along with pertinent information in our files, including maps prepared by the Hawaii Heritage Program of The Nature Conservancy. To the best of our knowledge, there are no endangered, threatened, or candidate species within the vicinity of the seven above referenced project sites nor within the areas indicated for construction of the access road for any of these sites.

We appreciate your concern for endangered species. If you have any questions, please contact our Branch Chief for Interagency Cooperation, Ms. Margo Stahl, or Fish and Wildlife Biologist Diane Bowen at 808/541-2749.

Sincerely,


for Brooks Harper
Field Supervisor
Ecological Services



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

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

August 29, 1995

Todd A. Graham, P.E.
Shimabukuro, Endo & Yoshizaki, Inc.
1126 12th Avenue
Honolulu, Hawaii 96816

LOG NO: 15258 ✓
DOC NO: 9508EJ28

Dear Mr. Graham:

SUBJECT: 5.0 MG Nanakuli 242' Reservoir
Nanakuli, Lualualei, Wai'anae, O'ahu
TMK: 8-7-6:02; 8-7-9:01,02; 8-9-07:01; 8-9-08:003;
Honouliuli, 'Ewa, O'ahu
TMK: 9-2-3:13

Thank you for the opportunity to review the plans for the construction of a 5.0 MG water reservoir in the Nanakuli area of O'ahu. Seven possible site locations have been selected for review. The structure will be 206 feet in diameter and 22 feet high situated, approximately 242 and 222 feet above mean sea level. The facility will cover approximately 3.5 acres.

A review of our records shows that there are no known historic sites at any of the proposed site locations. Our comments are as follows:

Site A, F, F/A, C and D

No sites were found during archaeological surveys conducted in the areas of Site A, F, F/A, C, or D.

Site B

Several historic era sites including an incinerator, a building/water tank foundation and an historic house were found during an archaeological survey conducted in the vicinity of site B. These sites are "no longer significant".

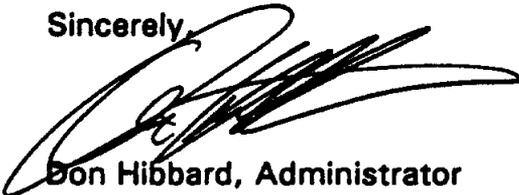
Todd A Graham
Page 2

Site E

No archaeological survey has been conducted at the Site E location although three petroglyphs were found during surveys conducted of Waimanalo gulch and the surrounding ridges inland of Site E. These figures are carved into the rocks on the opposite ridge from the Site E location. Site E shows signs of recent disturbance and it is unlikely that historic sites will be found.

We believe that this project will have "no effect" on historic sites at any of the proposed locations.

Sincerely,

A handwritten signature in black ink, appearing to read "Don Hibbard", written over a large, stylized flourish or scribble.

Don Hibbard, Administrator
Historic Preservation Division

EJ:jk

Post-It® Fax Note	7671	Date	6/3/97	# of pages	1
To	Howard Endo	From	SCOT MURAKA		
Co./Dept.		Co.	BWS		
Phone #		Phone #	527-6138		
Fax #	734-5516	Fax #			

May 28, 1997

Mr. Ray Soon, Administrator
 Land Management Division
 Department of Hawaiian Home Lands
 State of Hawaii
 P. O. Box 1879
 Honolulu, Hawaii 96805

Attention: Norbert Cordeiro

Dear Mr. Soon:

Subject: Right-of-Entry No. 172 for Proposed
 Nanakuli 242 Reservoir Site, Nanakuli
 Tax Map Key: 8-9-07:por. 01

Enclosed are three copies of Right-of-Entry No. 172 for further processing.

Please return a fully executed copy for our files.

If there are any questions, please call Jonathan Suzuki at 527-5244.

Sincerely,

Kenneth T. Yonamine

Kenneth T. Yonamine
 Land Administrator

ls
 Encl.

DEPARTMENT OF FACILITY MAINTENANCE
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 11TH FLOOR • HONOLULU, HAWAII 96813
Phone: (808) 523-4341 • Fax: (808) 527-5967

JEREMY HARRIS
MAYOR



ISIDRO M. BAQUILAR
ACTING DIRECTOR AND CHIEF
ENGINEER

IN REPLY REFER TO:

PRO 99-004

January 25, 1999

Mr. Wallace K. Endo, Vice President
Shimabukuro, Endo & Yoshizaki, Inc.
1126 12th Avenue
Honolulu, Hawaii 96816

Dear Mr. Endo:

Subject: Nanakuli 242 Reservoir for Board of Water Supply

Thank you for allowing us the opportunity to review the pre-assessment. However, we do not have any comments.

If you have any questions, please call Laverne Higa at 527-6246.

Very truly yours,


Isidro M. Baquilar
Acting Director and Chief Engineer



AC



200 Akamainui Street • Mililani HI 96789
(808) 625 - 2100

Transmittal

Date: January 29, 1999

RE: PROJECT LOCATION/WORK ORDER

To: Sey Engineers
1126 12th Ave.
Honolulu, HI 96816

Nanakuli 242 Reservoir Project

Attention: Howard Endo

GENTLEMEN: We are sending you the following:

- | | |
|---|---|
| <input type="checkbox"/> Pole / Conduit Application | <input type="checkbox"/> Preliminary / Final Drawings |
| <input type="checkbox"/> Permit Applications | <input type="checkbox"/> Return Prints |
| <input type="checkbox"/> Copy of Letter | <input type="checkbox"/> Other |

Copies	Sht / Appl. #	Description

The Above is transmitted:

- | | |
|---|--|
| <input type="checkbox"/> For Your Approval | <input checked="" type="checkbox"/> As Requested |
| <input type="checkbox"/> For Review and Comment | <input type="checkbox"/> As Approved |
| <input type="checkbox"/> For Your Use / Records | <input type="checkbox"/> Other _____ |

Comments / Remarks: We have reviewed the information contained in your letter dated January 20, 1999. At this time we have no concerns or comments regarding the above mentioned project.

Please contact me at 625-8347 if you have further questions.

CC: _____

Signed: Kyle Maglielino
Title: Field Engineer

Beyond the call

January 29, 1999

Attention: Mr. Howard K. Endo
Shimabukuro, Endo & Yoshizaki, Inc.
Civil & Structural Engineers
1126 12th Avenue
Honolulu, Hawaii 96816

Dear Mr. Endo:

Subject: **NANAKULI 242 RESERVOIR**

Thank you for the opportunity to review and comment on the preliminary environmental assessment for the Nanakuli 242 Reservoir project.

GTE Hawaiian Tel does not foresee any problems in providing telecommunication services to the proposed project. Nor does GTE Hawaiian Tel foresee any conflicts with the existing telecommunication facilities in the area. However, further review is required by GTE Hawaiian Tel during the design stages of the project.

If you have any questions or require assistance in the future on this project, please call Les Loo at 840-5861.

Sincerely,



Mark K. Taosaka
Section Manager
Access Design & Construction

c: B. Hashimoto (HIA5)

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 10TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 523-4182 • FAX: (808) 523-4054

JEREMY HARRIS
MAYOR



WILLIAM D. BALFOUR, JR.
DIRECTOR

MICHAEL T. AMII
DEPUTY DIRECTOR

February 3, 1999

Mr. Howard K. Endo, Vice President
Shimabukuro, Endo & Yoshizaki, Inc.
1126 12th Avenue
Honolulu, Hawaii 96816

Dear Mr. Endo:

Thank you for your letter of January 20, 1999, regarding the Nanakuli 242 Reservoir project.

The Department of Parks and Recreation does not foresee any conflict with the placement or construction of the reservoir.

Please contact Mr. Don Kusunoki, District Manager, at 671-0561 should you have any questions.

Sincerely,

A handwritten signature in black ink that reads "W. D. Balfour, Jr.".

WILLIAM D. BALFOUR, JR.
Director

WDB:kt

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 2ND FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567



JEREMY HARRIS
MAYOR

RANDALL K. FUJIKI, AIA
DIRECTOR

ROLAND D. LIBBY, JR., AIA
DEPUTY DIRECTOR

DCP 99-64

February 4, 1999

Mr. Howard K. Endo
Vice President
Shimabukuro, Endo & Yoshizaki, Inc.
1126 12th Avenue
Honolulu, Hawaii 96816

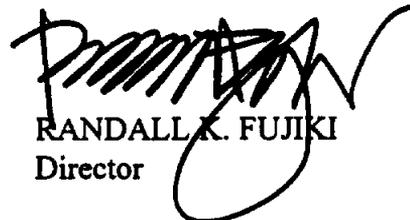
Dear Mr. Endo:

Subject: Pre-Assessment Consultation - Nanakuli 242
Reservoir Project (TMK: 8-9-8:3)

This is in response to your letter of January 20, 1999. We have reviewed the information provided and have no comments to offer at this time. The enclosed sewer system map is submitted for your information and file.

Should you have any questions, please contact Bill Liu of the Department of Design and Construction, Planning and Programming Division at 527-6871.

Very truly yours,


RANDALL K. FUJIKI
Director

Encl.

BENJAMIN J. CAYETANO
GOVERNOR



XXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX
Paul G. LeMahieu, Ph.D.
Superintendent

STATE OF HAWAII
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAII 96804

OFFICE OF THE SUPERINTENDENT

February 5, 1999

Mr. Howard K. Endo, Vice President
Shimabukuro, Endo & Yoshizaki, Inc.
1126 12th Avenue
Honolulu, Hawaii 96816

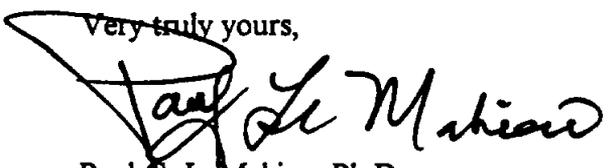
Dear Mr. Endo:

Subject: Nanakuli 242 Reservoir Project

The subject construction project should have negligible impact on the area schools. The Department of Education requests that during construction, the contractor implement measures to minimize the noise, dust, and traffic concerns affecting Nanakuli Elementary and Nanakuli High and Intermediate Schools as a result of the additional vehicular traffic and construction equipment accessing the subject project site in the valley.

Should there be any questions, please call the Facilities Branch at 733-4862.

Very truly yours,


Paul G. LeMahieu, Ph.D.
Superintendent of Education

PLeM:hy

cc: OBS
F. Fernandez, LDO



February 9, 1999

Shimabukuro, Endo and Yoshizaki, Inc.
1126 12th Avenue
Honolulu, Hawaii 96816

Attention: Mr. Howard K. Endo
Vice President

Gentlemen:

Subject: Nanakuli 242 Reservoir

We refer to your letter dated January 20, 1999, requesting pre-assessment comments for the subject project. Based on our review of the map provided, it has been determined that the area is currently clear of utility gas facilities.

Thank you for the opportunity to review the plans for the proposed project. Should there be any questions, or if additional information is desired, please call me at 594-5574.

Very truly yours,

The Gas Company

A handwritten signature in black ink, appearing to read "Keith K. Yamamoto", written in a cursive style.

Keith K. Yamamoto
Supervisor, Engineering

KKY:krs
99-117

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



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

DEPUTIES
GILBERT COLOMA-AGARAN
TIMOTHY E. JOHNS

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Kakuhikawa Building, Room 555
601 Kamehaha Boulevard
Honolulu, Hawaii 96707

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND RESOURCES

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

February 10, 1999

Howard K. Endo, Vice President
Shimabukuro, Endo & Yoshizaki, Inc
1126 12th Avenue
Honolulu, Hawaii 96816

LOG NO: 22987 ✓
DOC NO: 9902EJ01

Dear Mr. Endo:

**SUBJECT: Chapter 6E-8 Historic Preservation Review -- Honolulu Board of Water Supply, Nanakuli 242 Reservoir Project
Nanakuli, Wai'anae, O'ahu
TMK: 8-9-008:003**

Thank you for the opportunity to comment on the installation of a new 2 million gallon reservoir within Nanakuli Valley. A review of our records shows that there are no known historic sites at the proposed well site. This parcel has undergone extensive land alteration in the past making it unlikely that historic sites would remain. Therefore we believe that this project will have "no effect" on historic sites.

If you have any questions please call Elaine Jourdane at 692-8027.

Aloha,

A handwritten signature in black ink, appearing to read "Don Hibbard".

Don Hibbard, Administrator
State Historic Preservation Division

EJ:jk



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

REPLY TO
ATTENTION OF

February 16, 1999

Operations Branch

Mr. Howard K. Endo
Shimabukuro, Endo & Yoshizaki, Inc
1126 12th Avenue
Honolulu, Hawaii 96816

Dear Mr. Endo:

This letter responds to your request for a determination concerning Department of the Army (DA) permit requirements for the Nanakuli 242 Reservoir project. Based on the information you provided and a site visit by a member of my staff I have determined that a DA permit will not be required for this project.

If you have any questions concerning this determination, please contact William Lennan of my staff at 438-9258, extension 13, and reference File No. 990000166.

Sincerely,

A handwritten signature in cursive script, appearing to read "G. P. Young".

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

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

3375 KOAPAKA STREET, SUITE H425
HONOLULU, HAWAII 96819-1869



JEREMY HARRIS
MAYOR

ATTILIO K. LEONARDI
FIRE CHIEF

JOHN CLARK
DEPUTY FIRE CHIEF

February 17, 1999

Mr. Howard K. Endo
Vice President
Shimabukuro, Endo & Yoshizaki, Inc.
Civil & Structural Engineers
1126 12th Avenue
Honolulu, Hawaii 96816

Dear Mr. Endo:

Subject: Nanakuli 242 Reservoir Project
HFD Internal No. OL 99-024

This is in response to your letter dated January 20, 1999, requesting the Honolulu Fire Department's pre-assessment requirements for the proposed construction of the Nanakuli 242 Reservoir.

The following will be required for the proposed project:

1. Provide an access roadway with an unobstructed vertical clearance of not less than 13 feet 6 inches, designed and maintained to support the imposed loads of fire apparatuses, and an all-weather surface.
2. Provide a 2 1/2 inch outlet at the reservoir to assist fire personnel with utilizing that source of water in case of an emergency.

We request that a full set of plans be routed to the respective agencies prior to actual construction.

Should you have any questions, please call Battalion Chief Charles Wassman of our Fire Prevention Bureau at 831-7778.

Sincerely,

A handwritten signature in black ink, appearing to read "Attilio K. Leonardi".

ATTILIO K. LEONARDI
Fire Chief

AKL/RS:bh

PHONE (808) 594-1888

FAX (808) 594-1865



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

February 17, 1999

Mr. Howard K. Endo
Vice President
Shimabukuro, Endo & Yoshizaki, Inc.
1126 12th Avenue
Honolulu, HI 96816

PCR (98) 36

Re: Nanakuli 242 Reservoir Project for the Honolulu Board of Water Supply
TMK 8-9-008:003 Oahu

Dear Mr. Endo:

Thank you for the opportunity to provide preliminary comments in the environmental review process for the Nanakuli 242 Reservoir Project.

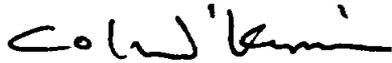
The Office of Hawaiian Affairs would also like your environmental review to discuss the possibility that native Hawaiian gathering rights may exist on the project site. The Hawaii Supreme Court has ruled that the existence of native rights must be addressed. We suggest that you seek expert opinion among the local Hawaiian community about this issue.

In addition, the document should note that the proposed project site is classified ceded lands. Since the lot is owned by the Department of Hawaiian Home Lands and the project will in part benefit the nearby Hawaiian residents, we feel that the project is an appropriate use of ceded lands. However, the document should clearly describe the other benefactors of this project and the relative water demands by each party.

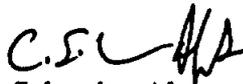
Mr. Howard K. Endo, Vice President
Shimabukuro, Endo & Yoshizaki, Inc.
February 17, 1999
Page two

Thank you for your attention in this matter. Should you have any questions concerning our comments, please contact Sebastian Aloit, Land and Natural Resources Officer, or Nami Ohtomo, Natural Resource Specialist at 594-1755. Please refer to the document number noted at the top of this letter in any future correspondence.

Sincerely,



Colin Kippen
Deputy Administrator



Sebastian Aloit
Land and Natural Resources Division Officer

cc: BOT



TIMOTHY E. JOHNS
CHAIRPERSON
ROBERT G. GIRALD
DAVID A. NOBRIGA
BRUCE S. ANDERSON
RICHARD H. COX
HERBERT M. RICHARDS, JR.

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

EDWIN T. SAKODA
ACTING DEPUTY DIRECTOR

February 17, 1999

Mr. Howard K. Endo
Shimabukuro, Endo & Yoshizaki, Inc.
1126 12th Avenue
Honolulu, HI 96816

Dear Mr. Endo:

Pre-assessment Comments, Proposed Nanakuli 242 Reservoir

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

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

- We recommend coordination with the county government to incorporate this project into the county's 20-year Water Use and Development Plan, which is subject to regular updates.
- We recommend coordination with the Land Division of the State Department of Land and Natural Resources to incorporate this project into the 20-year State Water Projects Plan, which is subject to regular updates.
- We are concerned about the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.
- A Well Construction Permit would be required before this well(s) is constructed and/or a Pump Installation Permit would be required before ground water is pumped from the well(s) for this project.
- The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the CWRM would be required prior to use of this source.
- Groundwater withdrawals from this project may affect streamflows. This may require an instream flow standard amendment.
- If the proposed project diverts additional water from streams or if new or modified stream diversions are planned, the project may need to obtain a stream diversion works permit and petition to amend the interim instream flow standard for the affected stream(s).
- If the proposed project performs any work within the bed and banks of a stream channel, the project may need to obtain a stream channel alteration permit and a petition to amend the interim instream flow standard for the affected stream(s).
- OTHER:

If there are any questions, please contact the Commission staff at 587-0218.

Sincerely,

Handwritten signature of Edwin T. Sakoda.
EDWIN T. SAKODA
Acting Deputy Director

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET • HONOLULU, HAWAII 96813
PHONE: (808) 523-4414 • FAX: (808) 527-6743



JEREMY HARRIS
MAYOR

JAN NAOE SULLIVAN
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

1999/CLOG-544 (DT)
'99 EA Comments Zone 8

February 19, 1999

Mr. Howard K. Endo
Vice President
SEY Engineers
1126 12th Avenue
Honolulu, Hawaii 96816

Dear Mr. Endo:

Preliminary Review
Nanakuli 242 Reservoir Project
Tax Map Key: 8-9-8: por. 3

We have reviewed the Board of Water Supply's proposal to construct a new 2 million gallon reservoir. The above property is zoned P-1 Restricted Preservation District and AG-2 General Agricultural District. The reservoir will be constructed within the AG-2 zoned area. As such, the reservoir is a public use and is a permitted principal use within the AG-2 District. Construction must be in accordance with the AG-2 development standards in the Land Use Ordinance.

A view plane analysis should be incorporated in the environmental assessment document for portions of the proposed project which will be visible from Farrington Highway. Profiles and elevation drawings showing the reservoir as seen from Farrington Highway should be included in the analysis.

Thank you for allowing us the opportunity to comment on the pre-assessment. We would like to review the draft environmental assessment when it becomes available.

Should you have any questions regarding this letter, please call Ms. Dana Teramoto of our staff at 523-4648.

Very truly yours,

A handwritten signature in black ink, appearing to read "Jan Naoe Sullivan", is written over the typed name.

For JAN NAOE SULLIVAN
Director of Planning
and Permitting

JNS:am



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

In reply, please refer to

March 5, 1999

99-011/epo

Mr. Howard Endo, Vice President
Shimabukuro, Endo & Yoshizaki, Inc.
1126 12th Avenue
Honolulu, Hawaii 96816

Dear Mr. Endo:

Subject: Pre-Assessment Comments
Nanakuli 242 Reservoir Project
Nanakuli, Oahu
TMK: 8-9-8: 3

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

Polluted Runoff Control

Proper planning, design and use of erosion control measures and management practices will substantially reduce the total volume of runoff and limit the potential impact to the coastal waters from polluted runoff. Please refer to the *Hawaii's Coastal Nonpoint Source Control Plan*, pages III-117 to III-119 for guidance on these management measures and practices for specific project activities. To inquire about receiving a copy of this plan, please call the Coastal Zone Management Program in the Planning Office of the Department of Business, Economic Development and Tourism at 587-2877.

The following practices are suggested to minimize erosion during construction activities:

1. Conduct grubbing and grading activities during the low rainfall months (minimum erosion potential).
2. Clear only areas essential for construction.

3. Locate potential nonpoint pollutant sources away from steep slopes, water bodies, and critical areas.
4. Protect natural vegetation with fencing, tree armoring, and retaining walls or tree wells.
5. Cover or stabilize topsoil stockpiles.
6. Intercept runoff above disturbed slopes and convey it to a permanent channel or storm drain.
7. On long or steep slopes, construct benches, terraces, or ditches at regular intervals to intercept runoff.
8. Protect areas that provide important water quality benefits and/or are environmentally sensitive ecosystems.
9. Protect water bodies and natural drainage systems by establishing streamside buffers.
10. Minimize the amount of construction time spent in any stream bed.
11. Properly dispose of sediment and debris from construction activities.
12. Replant or cover bare areas as soon as grading or construction is completed. New plantings will require soil amendments, fertilizers and temporary irrigation to become established. Use high planting and/or seeding rates to ensure rapid stand establishment. Use seeding and mulch/mats. Sodding is an alternative.

The following practices are suggested to remove solids and associated pollutants in runoff during and after heavy rains and/or wind:

1. Sediment basins.
2. Sediment traps.
3. Fabric filter fences.
4. Straw bale barriers.
5. Vegetative filter strips.

Mr. Howard Endo
March 5, 1999
Page 3

99-011/epo

Any questions regarding these matters should be directed to the Polluted Runoff Control Program in the Clean Water Branch at 586-4309.

Sincerely,

A handwritten signature in black ink, appearing to read "Gary Gill", written over the printed name.

~~GARY GILL~~
Deputy Director for
Environmental Health

c: CWB

May 27, 1999



Shimabukuro, Endo & Yoshizaki, Inc.
1126 12th Avenue
Honolulu, Hawaii 96816

Attention: Howard Endo

Dear Mr. Endo:

Re: Nanakuli 242 Reservoir at Maialoholena PI

HECO Work Order No: CE002017

This is in response to your request of January 20, 1999, regarding the subject request.

Attached, as you requested, is a copy of our "as-built" drawings (36010) showing our underground and overhead electrical facilities in the area of your project.

If not previously provided, you will find a copy of our revised HECO Notes attached. Please add these to your plans and keep them on file for future use.

This information is provided as a free service to you subject to the all of the following.

1. Please note that any review, information, documents, maps or drawings provided by HECO are provided solely for your convenience. HECO makes no representation or warranty regarding the accuracy, completeness or adequacy of such review, information, documents, maps or drawings. Review by HECO is not a professional design service, and shall in no way impose upon HECO any responsibility for any engineering, design, construction or other such work being performed. All underground electrical facilities are shown in their approximate locations according to our records. Review by HECO shall not relieve you or the contractor of your obligation to make independent field investigations
2. You acknowledge and agree that you are responsible for independently verifying the actual location of HECO surface lines, facilities and equipment



(poles, overhead lines, anchors, guy lines, manholes, hand holes, transformers, etc.).

3. Should you choose to go forward with plans for construction, we request that you include with sufficient accuracy all of the information on HECO's overhead and underground facilities on your plans (to include our underground profile) and provide us with two sets of your pre-final drawings along with the enclosed HECO reference drawing.

Please direct all future review and comment correspondence to me referring to the **HECO Work Order Number** shown above. Should you have any questions, I may be reached at 543-7590.

Sincerely,



Eric Shimono
Lead Engineer
Customer Installations Department

Attachments

cc: K. Morikami



MEETINGS OR TELEPHONE CONVERSATIONS
PROJECT: NANAKULI 242 RESERVOIR AND TRANSMISSION MAIN

DATE	AGENCY OR ORGANIZATION	SUMMARY OF DISCUSSION
10/2/95	City & County of Honolulu, Department of Land Utilization	No specific policies or regulations governing structures built on coastal land forms. DLU will review during EIS process. If structure in special management area (SMA), SMA guidelines must be followed.
3/19/96	State of Hawaii, Office of State Planning	If a Federal permit is required, then involve OSP. Otherwise, OSP will just review of environmental impact statement.
3/20/96	City & County of Honolulu, Planning Department	Public facilities map amendment may be needed. No land use amendment required. If in conservation land, Conservation District Use Amendment (CDUA) may be needed.
3/21/96	Department of the Navy PACDIV - Real Estate Division	To use Lualualei Naval Access Road for access to proposed reservoir sites, BWS needs to submit formal request stating action for which they seek approval. Navy should be consulted early in EIS process and often.
3/22/96	State of Hawaii, Department of Land and Natural Resources	DLNR's regulatory jurisdiction of Ulehawa Stream ends at 2nd bend of stream. Write to DLNR to confirm need for Stream Channel Alteration Permit (SCAP).
3/22/96	City & County of Honolulu, Department of Land Utilization	Land at Tax Map Key: 8-7-09: parcel 1 and 7 are not in Special Management Area (SMA). Parcel 1 zoned P-1. Parcel 7 zoned Ag-2.
3/22/96	Department of the Army, Corps of Engineers	If water line crosses Ulehawa Stream, it may require Nationwide Permit No. 7 for Utility Line Backfilling.
3/22/96	City & County of Honolulu, Planning Department	For Public Facility Map Amendment, over a million dollars in construction cost is considered a major project. Reservoirs are in major category.
7/9/96	PVT Land Company, Ltd.	Proposed reservoir Site "C" is located in middle of proposed landfill. PVT prefers locating reservoir outside of landfill.

**MEETINGS OR TELEPHONE CONVERSATIONS
PROJECT: NANAKULI 242 RESERVOIR AND TRANSMISSION MAIN**

DATE	AGENCY OR ORGANIZATION	SUMMARY OF DISCUSSION
8/5/96	State of Hawaii, Department of Health, Safe Drinking Water	No regulation or requirements for locating a reservoir or transmission main next to a land fill. No buffer zone required between the proposed landfill and proposed reservoir site.
4/29/97	State of Hawaii, Department of Hawaiian Home Lands	DHHL has no plans for development mauka of Ulei loop in Nanakuli Valley.
1/11/99	City & County of Honolulu, Department of Planning and Permitting	A waiver can be granted for substandard lot size (<2 acres), 10% lot coverage and height for proposed reservoir.
1/25/99	State of Hawaii, Department of Hawaiian Home Lands	DHHL comment: Why is area needed for reservoir? Response: The area beyond the tank is needed for aesthetic purposes, to hide the reservoir tank.
1/29/99	State of Hawaii, Department of Land and Natural Resources, State Historic Preservation Office	SHPO comment: Please send detailed map of proposed project.
2/5/99	GAS Company	No gas lines in area.
2/9/99	State of Hawaii, Department of Hawaiian Home Lands	Permittees: Lyman Ranch and Mary Higashi. They have revocable permits on 25 day notice. There are heiau sites above the reservoir site. There is a group maintaining heiau's call "Malama Nanakuli Ahupuaa".
2/10/99	State of Hawaii, Department of Hawaiian Home Lands	Nanakuli Series 7 residential subdivision is built out. At Camp Andrews site a new elementary school is planned and a multi-service center.

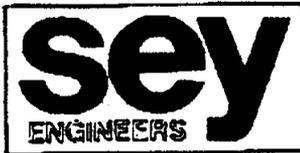
MEETINGS OR TELEPHONE CONVERSATIONS
PROJECT: NANAKULI 242 RESERVOIR AND TRANSMISSION MAIN

DATE	AGENCY OR ORGANIZATION	SUMMARY OF DISCUSSION
2/17/99	State of Hawaii, Department of Education	Nanakuli 4 Elementary School is planned to be open in middle of year 2002 at Camp Andrews site. Comment: Minimize noise, dust and traffic during construction of reservoir. Inform Nanakuli High and Intermediate School of reservoir project.
2/22/99	State of Hawaii, Department of Hawaiian Home Lands	Discussed native Hawaiian gathering rights in valley.
2/22/99	State of Hawaii, Department of Land and Natural Resources, State Historic Preservation Office	Discussed native Hawaiian gathering rights in valley.
2/22/99	Malama Nanakuli Ahupuaa	Discussed native Hawaiian gathering rights in valley and cultural sites.
2/23/99	Nanakuli Homestead Association	Discussed native Hawaiian gathering rights in valley and cultural sites.
2/24/99	Saint Rita's Parish	Provided information on reservoir project to church.
2/24/99	State of Hawaii, Department of Land and Natural Resources	Project site near Maiaiholena Place is on ceded lands.
3/16/99	State of Hawaii, Department of Hawaiian Home Lands	95% of DHHL land from ceded lands. All of Nanakuli Valley is ceded. Hawaii revised statutes state that OHA entitled to 20% for ceded land in public trust, except for land owned by DHHL.
3/30/99	U.S. Department of Fish and Wildlife Service	Comment: No candidate, endangered species at project site near Maiaiholena Place. No sensitive habitats.

ENVIRONMENTAL IMPACT STATEMENT

PREPARATION NOTICE

COMMENTS



SHIMABUKURO, ENDO & YOSHIZAKI, INC.

Civil & Structural Engineers
1126 12th Avenue, Honolulu, Hawaii 96816
Ph: (808) 737-1875 Fax: (808) 734-5516

June 15, 1999

pm: Department of Facility Maintenance
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

RECEIVED
DEPARTMENT OF
FACILITY MAINTENANCE
JUN 16 3 29 PM '99

Dear Sir or Madam:

Subject: Proposed Nanakuli 242 Reservoir
Environmental Impact Statement Preparation Notice

Shimabukuro, Endo & Yoshizaki Engineers, Inc. has been retained by the Honolulu Board of Water Supply (BWS) to fulfill the environmental review process for the Nanakuli 242 Reservoir project. The proposed 2 million gallon (MG) reservoir will be an integral part of the Nanakuli Valley water system, helping to alleviate the storage deficit in the valley. The proposed reservoir will also improve system performance and reliability in meeting domestic and fire protection needs as well as provide greater flexibility in emergency situations for the BWS.

The Board of Water Supply has determined that impacts associated with the subject project require an environmental impact statement. We are therefore submitting to you the enclosed environmental impact statement notice of preparation (EISPN) for your review and comments.

The EISPN for the subject project will be listed in the June 23, 1999 edition of the "The Environmental Notice," a bulletin of the Office of Environmental Quality Control. Please submit your comments, if any, by the 30 day comment deadline of July 23, 1999 to:

To: Mr. Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
630 S. Beretania Street
Honolulu, Hawaii 96843

Please send a copy of your comments to Shimabukuro, Endo & Yoshizaki Engineers, Inc. to my attention. If you have any questions, please call me at 737-1875.

Very truly yours,

Conrad Higashionna

Conrad Higashionna, P.E.

CSH:sno

Enclosure

June 17, 1999

We do not have any comments. If you have any questions, please call Laverne Higa at 527-6246.

R. S. Sasamura
Ross S. Sasamura
Director and Chief Engineer
Department of Facility Maintenance

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



July 9, 1999

COPY

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
FORREST C. MURPHY, Vice Chairman
JAN M.L.Y. AMI
BARBARA KIM STANTON
CHARLES A. STED

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

TO: MR. ROSS S. SASAMURA, DIRECTOR
DEPARTMENT OF FACILITY MAINTENANCE

FROM: 
CLIFFORD S. JAMILE

SUBJECT: YOUR MEMORANDUM OF JUNE 17, 1999
REGARDING THE ENVIRONMENTAL IMPACT STATEMENT
PREPARATION NOTICE FOR THE BOARD OF WATER
SUPPLY'S PROPOSED NANAKULI 242 RESERVOIR

Thank you for your memorandum regarding the Environmental Impact Statement Preparation Notice for the proposed reservoir project.

We acknowledge that you do not have any comments to offer.

If you have any questions, please contact Barry Usagawa at 527-5235.

cc: Conrad Higashionna, Shimabukuro, Endo and Yoshizaki, Inc.

RECEIVED
BD OF WATER SUPPLY

JUN 24 10 37 AM '99



STATE OF HAWAII

DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES

P.O. BOX 119, HONOLULU, HAWAII 96810

JUN 23 1999

P-1030/99

JUN 24 1999

Dep
PE
cc: Mar

LETTER NO. (P) 1446.9

JUN 24 3 12 PM '99

ENJAMIN J. CAYETANO
GOVERNOR

Mr. Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
630 S. Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Jamile:

Subject: Proposed Nanakuli 242 Reservoir
and Transmission Line
Environmental Impact Statement (EIS)

Thank you for allowing the Department of Accounting and General Services (DAGS) the opportunity to review the EIS document prepared by Shimabukuro, Endo & Yoshizaki, Inc. (SEY Engineers).

DAGS has ongoing projects for a new 8-classroom building (DAGS Job No. 12-16-2140) and playfield fencing with related site improvements (DAGS Job No. 12-16-2318) at Nanakuli Elementary School, as well as the Nanakuli IV Elementary School project at the old Camp Andrews site (DAGS Job No. 12-16-2285). As applicable, we will have the respective project consultants coordinate required planning and design work with Board of Water Supply (BWS) staff.

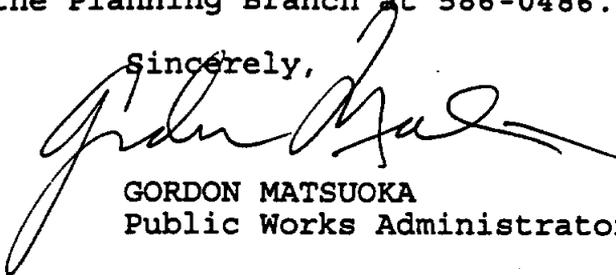
However, it is noted that DAGS is concerned about the timing (i.e. completion schedules) because Nanakuli IV Elementary School is currently scheduled to open in July or August 2002 and construction of the BWS Nanakuli 242 reservoir and 20-inch transmission line is estimated for completion in 2004. Therefore, Kober/Hanssen/Mitchell Architects (prime consultant for DAGS Job No. 12-16-2285) will be contacting BWS staff very soon to discuss coordination for the respective completion schedules and/or impacts on planning and design work for the Nanakuli IV Elementary School project.

Mr. Clifford S. Jamile
Page 2

Ltr. No. (P) 1446.9

Should you have any questions or concerns, please have your staff call Mr. Ralph Morita of the Planning Branch at 586-0486.

Sincerely,

A handwritten signature in cursive script, appearing to read "Gordon Matsuoka", written in dark ink.

GORDON MATSUOKA
Public Works Administrator

RM:mo

c: DOE-Facilities Branch with copy of EIS document
Kober/Hanssen/Mitchell Architects with copy of EIS document
PMB with 3 copies of EIS document (previously hand carried)

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



July 23, 1999

COPY

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
JAN M.L.Y. AMI
BARBARA KIM STANTON
CHARLES A. STED

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

Mr. Gordon Matsuoka,
Public Works Administrator
Department of Accounting
and General Services
State of Hawaii
P. O. Box 119
Honolulu, Hawaii 96810

Dear Mr. Matsuoka:

Subject: Your Letter of June 23, 1999 Regarding the Environmental
Impact Statement Preparation Notice for the Board of Water
Supply's Proposed Nanakuli 242 Reservoir Project

Thank you for your letter regarding the Environmental Impact Statement Preparation Notice for the proposed reservoir project and for the information on proposed school construction projects.

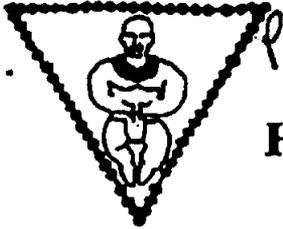
We are available to discuss the reservoir project's tentative schedule to ensure coordination with the planning and design work of the proposed Nanakuli IV Elementary School project.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,


CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: SEY Engineers, Inc.



P-1066/99

HUI MĀLAMA I NĀ KŪPUNA O HAWAI'I NEI

(GROUP CARING FOR THE ANCESTORS OF HAWAI'I)

June 24, 1999

JUL 1 1999

JUL 1 1999

Dep
PE
[Signature]

JUN 29 9 54 AM '99

RECEIVED
BO OF WATER SUPPLY

JUN 1 5 27 PM '99

Mr. Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
630 S. Beretania Street
Honolulu, Hawai`i 96843

Aloha Mr. Jamile:

The primary focus of Hui Malama I Na Kupuna O Hawai`i Nei (Hui Malama), is the care and protection of burial sites, and the repatriation and reburial of ancestral Native Hawaiian remains and funerary objects. As such, we focused on these aspects of the document.

Section 3.14 correctly identifies "the possibility of Hawaiian burial sites along Nanakuli Avenue in the areas close to sea level with sand deposits." We would urge the applicant to develop a burial treatment plan to be included in the final environmental impact statement. The plan should include the following:

- (1) an identification of section HRS 6E-43.6, as the applicable legal authority that governs the treatment of inadvertently discovered human remains over fifty years old;
- (2) an identification of section 13-300-40, of the Hawai`i Administrative Rules of Practice and Procedure Relating to Burial Sites and Human Remains as the applicable administrative authority with provides further procedures that govern the treatment of inadvertently discovered human remains over fifty years old;
- (3) an identification of the State Historic Preservation Division staff whom must be immediately contacted in the event of an inadvertent discovery, including Ka`iana Markell (Burial Sites Program) and Elaine Jourdane (O`ahu Archaeologist);
- (4) a statement that the police must be notified of the discovery for purposes of clarifying jurisdiction over the remains with the SHPD;
- (5) a statement that the remains must be left in place until the police and SHPD arrive to inspect for purposes of determining whether the remains are human and over fifty years old, and if so, to determine whether to preserve the remains in place or to relocate; and

P.O. Box 190 Hale`iwa, Hawai`i 96712-0190
huimalam@pixi.com

- (6) and a statement that a pre-excavation meeting will be held with all construction workers to explain to them the proper procedures involved in the treatment of inadvertently discovered human remains, and the penalties associated with non-compliance, as stated in HRS section 6E-11, and HAR section 13-300-43.

Finally, we would strongly urge the applicant to conduct ethnographic research to more confidently address the issue of cultural significance of sites located in the project area, as well as address the important issue of Native Hawaiian gathering rights. An archaeological study only attempts to identify physical evidence, then based on such presence, attempts to identify cultural significance. However, a location could hold cultural significance for its function in a cultural event where no physical evidence of any kind is left behind. Hence, the ethnographic research will help clarify whether "there is no known cultural significance to the project site."

Mahalo for the opportunity to comment on this matter. If there are any questions, please feel free to contact Edward Halealoha Ayau, Esq., at 599-7721 or by email at halealoha@hawaii.rr.com. In addition, please address any future correspondences to me at this mailing address. The Kailua address is used only for a specific reburial project in which Mr. Ayau serves as Project Director.

Ola Na Iwi,

Kunani Nihipali

Kunani Nihipali

Po O

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



August 17, 1999

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M.L.Y. AMI
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

Ms. Kunani Nihipali
Hui Malama I Na Kupuna O Hawai'i Nei
P. O. Box 190
Hale'iwa, Hawaii 96712-0190

Dear Ms. Nihipali:

Subject: Your Letter of June 24, 1999 Regarding the Environmental Impact Statement Preparation Notice for the Proposed Nanakuli 242 Reservoir Project, TMK: 8-9-08: 03

Thank you for reviewing the Environmental Impact Statement (EIS) Preparation Notice for the Nanakuli 242 Reservoir project.

We provide the following responses to your concerns:

1. After discussion with the State Historic Preservation Division (SHPD), the Board of Water Supply (BWS) plans to develop an Archaeological Monitoring Plan to be submitted and approved prior to construction. We will incorporate your six points of a burial treatment plan into the Draft EIS; however, a specific burial treatment plan will only be developed after any burials are encountered. Any burials inadvertently uncovered during the 20-inch water main construction will be coordinated through the SHPD in accordance with Chapter 6E-43.6 and a burial treatment plan will be developed at that time. The burial treatment plan will include consultation with appropriate parties.
2. The BWS has contracted an archaeologist to conduct ethnographic research to address the cultural significance and Native Hawaiian gathering rights at the project site.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,


CLIFFORD S. JAMILE
Manager and Chief Engineer

cc:  Conrad Higashionna, SEY Engineers, Inc.

P.

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

3375 KOAPAKA STREET, SUITE H425
HONOLULU, HAWAII 96819-1869

P-1044/99
Dep
PE

RECEIVED
BO OF WATER SUPPLY

JUN 28 1999

JUN 25 3 36 PM '99
JEREMY HARRIS
MAYOR

JUN 28 1999



ATTILIO K. LEONARDI
FIRE CHIEF

JOHN CLARK
DEPUTY FIRE CHIEF

June 24, 1999

JUN 28 8 37 AM '99

TO: CLIFFORD S. JAMILE
MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: ATILIO K. LEONARDI, FIRE CHIEF

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
PROPOSED NANAKULI 242 RESERVOIR
HFD INTERNAL NO. OL 99-137

We received a letter dated June 15, 1999, from Mr. Conrad Higashionna of Shimabukuro, Endo & Yoshizaki, Inc., regarding the subject project's Environmental Impact Statement Preparation Notice. We do not foresee any significant environmental impact with regard to this project. However, it should be emphasized that the conditions we identified in our February 17, 1999 memorandum should be included in the project's construction plans.

Should you have any questions, please call Battalion Chief Charles Wassman of our Fire Prevention Bureau at 831-7778.

ATTILIO K. LEONARDI
Fire Chief

AKL/CW:bh

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



JEREMY HARRIS, Mayor

EDDIE FLORES, Vice-Chairman
FORREST G. MURPHY, Vice-Chairman
JAN M.L.Y. AMI
BARBARA KIM STANTON
CHARLES A. STED

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

COPY

July 13, 1999

TO: MR. ATTILIO K. LEONARDI, FIRE CHIEF
FIRE DEPARTMENT

FROM: 
CLIFFORD S. JAMILE

SUBJECT: OUR MEMORANDUM OF JUNE 24, 1999 REGARDING THE
ENVIRONMENTAL IMPACT STATEMENT PREPARATION
NOTICE FOR THE BOARD OF WATER SUPPLY'S
PROPOSED NANAKULI 242 RESERVOIR

Thank you for your memorandum regarding the Environmental Impact Statement Preparation Notice for the proposed reservoir project.

We acknowledge that you do not foresee any significant environmental impact from the proposed project. We note that the conditions identified in your February 17, 1999 memorandum will be included in the project's construction plans.

If you have any questions, please contact Barry Usagawa at 527-5235.

cc: Conrad Higashionna, Shimabukuro, Endo and Yoshizaki, Inc.

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 527-6683 • FAX: (808) 527-6675



JEREMY HARRIS
Mayor

KENNETH E. SPRAGUE, P.E., Ph.D.
Director

BARRY FUKUNAGA
Deputy Director

ENV 99-71

JUN 24 1999

MEMORANDUM

TO: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM:  KENNETH E. SPRAGUE, DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
NANAKULI 242 RESERVOIR
TMK: 8-9-8: 3

We have reviewed the subject document and have the following comments:

1. The Environmental Impact Statement Preparation Notice should address best management practices (BMPs) to mitigate discharge of pollutants during construction.
2. Effluent discharge permits from the State Department of Health and the City Department of Environmental Services may be required.

Should you have any questions, please contact Mr. Alex Ho, Environmental Engineer, at 523-4150.

cc: Shimabukuro, Endo, & Yoshizaki Engineers, Inc. ✓
(Conrad Higashionna)

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
830 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



July 6, 1999

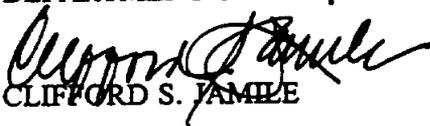
JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
FORREST C. MURPHY, Vice Chairman
JAN M.L.Y. AMII
BARBARA KIM STANTON
CHARLES A. STED

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

TO: MR. KENNETH E. SPRAGUE, DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

FROM: 
CLIFFORD S. JAMILE

SUBJECT: YOUR MEMORANDUM OF JUNE 24, 1999 REGARDING THE
ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR THE
PROPOSED NANA KULI 242 RESERVOIR PROJECT, TMK: 8-9-08: 03

Thank you for reviewing the Environmental Impact Statement (EIS) Preparation Notice for the proposed Nanakuli 242 Reservoir project.

We provide the following response to your concerns:

1. The Draft EIS will include the standard best management practices to mitigate discharges of potential pollutants during construction.
2. Effluent discharge permits from the State Department of Health and the City's Department of Environmental Services will be coordinated during the design phase of the project. The required permits will be listed in the Draft EIS under "Government Permits and Approvals."

If you have any questions, please contact Barry Usagawa at 527-5235.

cc: Conrad Higashionna, SEY Engineers, Inc.

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 2ND FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567

JEREMY HARRIS
MAYOR



RANDALL K. FUJIKI, AIA
DIRECTOR

ROLAND D. LIBBY, JR., AIA
DEPUTY DIRECTOR

DCP 99-456

June 29, 1999

MEMORANDUM

TO: MR. CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: *Randall K. Fujiki*
RANDALL K. FUJIKI, DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

SUBJECT: PROPOSED NANAKULI 242 RESERVOIR
ENVIRONMENTAL IMPACT STATEMENT
PREPARATION NOTICE (EISPN)

We have reviewed the subject EISPN, submitted by Shimabukuro, Endo & Yoshizaki, Incorporate Letter of June 15, 1999, and have no additional comments to offer.

Should you have any questions, please contact Bill Liu of the Department of Design and Construction, Planning and Programming Division at 527-6871.

cc: Shimabukuro, Endo &
Yoshizaki, Inc.

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



July 13, 1999

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman

FORREST G. MURPHY, Vice Chairman

JAN M.L.Y. AMI

BARBARA KIM STANTON

CHARLES A. STED

KAZU HAYASHIDA, Ex-Officio

ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE

Manager and Chief Engineer

TO: MR. RANDALL K. FUJIKI, DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

FROM: 
CLIFFORD S. JAMILE

SUBJECT: OUR MEMORANDUM OF JUNE 29, 1999 REGARDING THE
ENVIRONMENTAL IMPACT STATEMENT PREPARATION
NOTICE FOR THE BOARD OF WATER SUPPLY'S
PROPOSED NANAKULI 242 RESERVOIR

Thank you for your memorandum regarding the Environmental Impact Statement Preparation Notice for the proposed reservoir project.

We acknowledge that you do not have any comments to offer.

If you have any questions, please contact Barry Usagawa at 527-5235.

cc: Conrad Higashionna, Shimabukuro, Endo and Yoshizaki, Inc.



STATE OF HAWAII
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAII 96804

OFFICE OF THE SUPERINTENDENT

June 30, 1999

Mr. Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

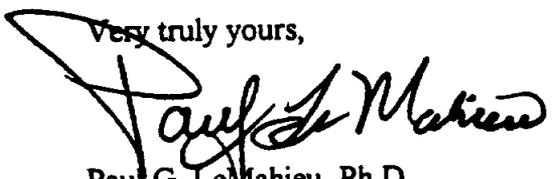
Dear Mr. Jamile:

Subject: Nanakuli 242 Reservoir EISPN

The Department of Education has no additional comments on the subject environmental impact statement preparation notice.

Thank you for the opportunity to respond.

Very truly yours,


Paul G. Lemahieu, Ph.D.
Superintendent of Education

PLeM:hy

cc: A. Suga, OBS
C. Higashionna, Shimabukuro, Endo & Yoshizaki Engineers, Inc.

JUL 8 12 32 PM '99

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BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



July 20, 1999

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
JAN M.L.Y. AMI
BARBARA KIM STANTON
CHARLES A. STED

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

COPY

Paul G. LeMahieu, Ph.D.
Superintendent
Department of Education
State of Hawaii
Honolulu, Hawaii 96804

Dear Dr. LeMahieu:

**Subject: Your Letter of June 30, 1999 Regarding the Environmental
Impact Statement Preparation Notice for the Proposed
Nanakuli 242 Reservoir, Nanakuli, Oahu, TMK: 8-9-08: 3**

Thank you for reviewing the Environmental Impact Statement Preparation Notice (EISPN) for the proposed Nanakuli 242 Reservoir Project.

We acknowledge that you have no additional comments on the EISPN.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,


CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Shimabukuro, Endo & Yoshizaki Engineers, Inc.



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

P-1086/99

July 2, 1999

REPLY TO
ATTENTION OF

Civil Works Technical Branch

Mr. Clifford S. Jamile
Manager and Chief Engineer
City and County of Honolulu
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Jamile:

Thank you for the opportunity to review and comment on the Environmental Impact Statement Preparation Notice (EISPN) for the Proposed Nanakuli 242 Reservoir, Nanakuli, Oahu (TMK 8-9-8: 3). The following comments are provided in accordance with Corps of Engineers authorities to provide flood hazard information and to issue Department of the Army (DA) permits.

a. Based on the information provided, a DA permit will not be required for the project.

b. The flood hazard information provided on page 23 of the EISPN is correct.

Sincerely,


James K. Hatashima
Acting Chief, Civil Works
Technical Branch

JUL 6 3 08 PM '99

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BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



July 22, 1999

JEREMY HARRIS, Mayor

COPY

EDDIE FLORES, JR., Chairman
JAN M.L.Y. AMI
BARBARA KIM STANTON
CHARLES A. STED

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

Mr. James K. Hatashima, Acting Chief
Civil Works Technical Branch
Department of the Army
U.S. Army Engineer District
Fort Shafter, Hawaii 96858-5440

Dear Mr. Hatashima:

Subject: Your Letter of July 2, 1999 Regarding the Environmental
Impact Statement Preparation Notice for the Proposed
Nanakuli 242 Reservoir, Nanakuli, Oahu, TMK: 8-9-08: 3

Thank you for reviewing the Environmental Impact Statement Preparation Notice for the proposed Nanakuli 242 Reservoir Project.

We acknowledge that a Department of the Army permit will not be required for the proposed project and that the flood hazard information provided is correct.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Shimabukuro, Endo & Yoshizaki Engineers, Inc.

Beyond the call

July 2, 1999

Attention: Mr. Conrad Higashionna
Shimabukuro, Endo & Yoshizaki, Inc.
Civil & Structural Engineers
1126 12th Avenue
Honolulu, Hawaii 96816

Dear Mr. Higashionna:

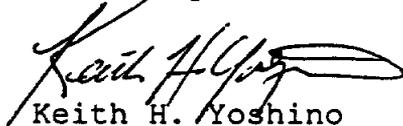
Subject: **NANAKULI 242 RESERVOIR**

Thank you for the opportunity to review and comment on the preliminary environmental assessment for the Nanakuli 242 Reservoir project.

GTE Hawaiian Tel does not foresee any problems in providing telecommunication services to the proposed project. Nor does GTE Hawaiian Tel foresee any conflicts with the existing telecommunication facilities in the area. However, further review is required by GTE Hawaiian Tel during the design stages of the project.

If you have any questions or require assistance in the future on this project, please call Les Loo at 840-5861.

Sincerely,



Keith H. Yoshino
Section Manager
Access Design & Construction

c: K. Ayano (HIA5)

BOARD OF WATER SUPPLY

**CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843**



July 22, 1999

COPY
JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
JAN M.L.Y. AMI
BARBARA KIM STANTON
CHARLES A. STED

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

Mr. Keith H. Yoshino
Section Manager, Access Design and Construction
GTE Hawaiian Telephone
P. O. Box 2200
Honolulu, Hawaii 96841

Dear Mr. Yoshino:

Subject: Your Letter of July 2, 1999 to Shimabukuro, Endo and Yoshizaki, Inc.,
Regarding the Environmental Impact Statement Preparation Notice for
the Board of Water Supply's Proposed Nanakuli 242 Reservoir Project

Thank you for your letter regarding the Environmental Impact Statement Preparation Notice for the proposed reservoir project.

We acknowledge that GTE Hawaiian Tel does not foresee any problems in providing telecommunication services to the proposed project. We note that further review is required by GTE Hawaiian Tel during the design stages of the project.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,


CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Shimabukuro, Endo and Yoshizaki, Inc.



200 Akamainui Street • Mililani, Hawaii 96789-3999 • Telephone: (808) 625-2100

July 7, 1999

SEY Engineers
Shimabukuro, Endo, and Yoshizaki, Inc.
Civil & Structural Engineers
1126 12th Avenue, Honolulu 96816
Ph: 737-1875, Fax: 734-5516

Attention: Mr. Conrad Higashionna, P.E.

Re: Proposed Nanakuli 242 Reservoir Environmental Impact Statement Preparation
Notice

Dear Mr. Higashionna,

Oceanic has reviewed the Environmental Impact Statement Preparation Notice in the Nanakuli area. Currently Oceanic has an underground system along Nanakuli Avenue from Pililaa Avenue up to and including Maiaholena Place. A map indicating this section is enclosed. If you have further questions, you may contact me at 625-8458,

Sincerely,

A handwritten signature in black ink, appearing to read 'Darryl Osato'.

Darryl Osato
Field Engineer

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
830 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



August 6, 1999

COPY

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman

JAN M.L.Y. AMII

BARBARA KIM STANTON

CHARLES A. STED

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

Mr. Darryl Osato, Field Engineer
Oceanic Cable
200 Akamainui Street
Mililani, Hawaii 96789-3999

Dear Mr. Osato:

Subject: Your Letter of July 7, 1999 to Shimabukuro, Endo and Yoshizaki, Inc. Regarding the Environmental Impact Statement Preparation Notice for the Board of Water Supply's Proposed Nanakuli 242 Reservoir Project

Thank you for your letter regarding the Environmental Impact Statement Preparation Notice for the proposed reservoir project.

We acknowledge that Oceanic Cable has an underground system along Nanakuli Avenue from Pililaau Avenue to Maiaiholena Place.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Shimabukuro, Endo and Yoshizaki, Inc.



University of Hawai'i at Mānoa

Environmental Center
A Unit of Water Resources Research Center
2550 Campus Road • Crawford 317 • Honolulu, Hawai'i 96822
Telephone: (808) 956-7381 • Facsimile: (808) 956-3980

July 9, 1999

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PE

JUL 11 9 37 AM '99

Mr. Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
630 S. Beretania Street
Honolulu, Hawaii 96843

PN:0091

Dear Mr. Jamile:

EIS Preparation Notice Proposed Nanakuli 242 Reservoir Nanakuli, Oahu

Thank you for your letter of June 15th apprising us of the proposed development of a new water reservoir in Nanakuli and the pending preparation of an Environmental Impact Statement (EIS). As part of our usual interdisciplinary review process, the Environmental Center will be circulating the Draft EIS to our University reviewers when it becomes available and provide you with our comments.

Several issues have come to our attention over the years with regard to the construction of water reservoirs, and we would like to call them to your attention for possible address in the DEIS.

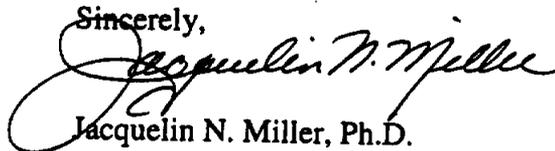
1. Water reservoirs are frequently located at the back of valleys at some elevation above the residences to be served. For this reason, they tend to be highly visible and are often considered aesthetically unpleasant. We note that the location of the Nanakuli 242 reservoir will be quite close to an existing residential neighborhood. Figure 10 in the prep notice provides a simulated view of the structure, which seems fairly obtrusive to the neighborhood. The prep notice indicates that landscaping, a possible partial earthen berm, and "color blending" tones, will be used to mitigate the visual impacts. The DEIS should be very clear that these mitigative measures will be implemented in a timely manner, during construction, and that funds will be set aside to assure that these mitigative measures will, in fact, take place prior to completion of the project.
2. In the past, we have seen occasions where the baseyard facilities for reservoirs, wells, or pipeline construction projects have been placed on archaeologically or environmentally sensitive sites. In one case, a grave marker was damaged, in another a religious platform

was disturbed, not by the project but by the heavy equipment being stored for use on the project. The DEIS for the Nanakuli reservoir should indicate where the baseyard construction facilities will be housed and for how long.

3. It seems likely that the primary physical impacts will be short term and occur during the construction phase of the project. Impacts during operation of the reservoir should be minimal, except for impinging the views.
4. We note that the Prep. Notice suggests no historic or cultural sights are known to be affected by the project. We would encourage you to have a thorough check of the area and baseyard facility by an professional archaeologist prior to drawing conclusions on the presence or absence of archaeological materials.

We appreciate the opportunity to offer comments at this time and look forward to reviewing the draft EIS during the public review period.

Sincerely,



Jacquelin N. Miller, Ph.D.
Associate Environmental Coordinator

cc. John Harrison
Shimabukuro, Endo & Yoshizaki Engineers
OEQC

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



August 18, 1999

JEREMY HARRIS, Mayor **COPY**

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M.L.Y. AMI
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

Jacquelin N. Miller, Ph.D.
Associate Environmental Coordinator
Environmental Center
University of Hawaii
2550 Campus Road, Crawford 317
Honolulu, Hawaii 96822

Dear Dr. Miller:

Subject: Your Letter of July 9, 1999 (Ref. PN: 0091) Regarding the Environmental Impact Statement Preparation Notice for the Proposed Nanakuli 242 Reservoir Project, TMK: 8-9-08: 03

Thank you for reviewing the Environmental Impact Statement (EIS) Preparation Notice for the Nanakuli 242 Reservoir project.

We provide the following response to your concerns:

1. The Draft EIS will expand on the visual mitigation measures, such as low profile landscaped berms and earth-tone paint. These measures will be reviewed during the environmental process and those deemed appropriate will be incorporated into the design of the reservoir.
2. The location of the construction baseyard will be determined when the contractor is selected to construct the proposed Nanakuli 242 Reservoir. The contractor will be required to obtain approval of the baseyard site from the Board of Water Supply contract archaeologist prior to construction. The estimated construction length is 18 months.
3. An archaeological survey of the reservoir site and preferred transmission main alignment is being conducted for the EIS. An archaeologist will also be monitoring the excavation of the Makai segment of the proposed transmission main where burials may be encountered.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Conrad Higashionna, SEY Engineers, Inc.



WAI'ANAE COAST NEIGHBORHOOD BOARD NO. 24

c/o NEIGHBORHOOD COMMISSION • CITY HALL, ROOM 400 • HONOLULU, HAWAII 96813

WAI'ANAE COAST NEIGHBORHOOD BOARD NO. 24
 PLANNING & ZONING COMMITTEE MINUTES
 WAI'ANAE NEIGHBORHOOD COMMUNITY CENTER
 MONDAY, JULY 12, 1999

ATTENDANCE:

Neighborhood Board

Members Present:

Charlie Herrmann Jr., Patty Teruya, Cynthia Rezentes, David Keawe, James Manaku,
 Karen Awana, Frank Slocum.

Guests:

Chester Koga and Debra Towill (R.M. Towill), Barry Usagawa, Howard Endo, Conrad
 Higashionna (Board of Water Supply).

CALL TO ORDER: Co-Chair Herrmann and Teruya called the meeting to order at 6:15 p.m.

NEW BUSINESS:

AT&T MAKAHA CABLE STATION (MAHAKA, OAHU, HAWAII TMK: 8-4-02-PARCEL 41 - Chester Koga was available to provide a brief background for the proposed expansion of the current cable station located at Makaha.

The proposal is to expand the current facility in Makaha by doubling its current floor area. Currently, the AT&T facility is 95% underground. The proposed action is to build above the current facility and thereby double its floor area. AT&T will require its site 2.02 acres to be rezoned from existing P-1 (Preservation to Country zone). Telecommunication service demand around the world is rising faster than new facilities are being built to serve them and Hawaii is no exception. The demand for new internet circuits, new video conference facilities, and new data transmission circuits will continue unabated within the foreseeable future.

Proposed improvements include: construction of additional floor area atop the existing facility; relocate parking/loading stalls and shift the existing security fence to maintain a secure perimeter around the entire facility; add landscaping to maintain the park-like design of the surrounding area; conduct planning and engineering studies; prepare and process an Environment Assessment (EA); and process a Country Zone Change and Conditional Use Permit application.

Questions and concerns were discussed: 1) the height variance should not go over 25 feet; 2) to add more greenery and landscape; 3) the proposed bypass route would not impact the existing facility; 4) is this a long term zone change or will you then come back to the community to propose another facility?; 5) will there be any future employment for the community?; 6) when will the EIS be available.

Rezentes moved, seconded by Manaku, to support the rezone change from the existing P-1 (preservation) to Country zone, and to return to the Board with the final EIS of the proposed project. The motion was supported by members: Rezentes, Manaku, Herrmann, Teruya, Keawe D., Awana, Slocum. 7-0-0.

The recommendation from the Planning & Zoning Committee will be on the following motion above. This item to be place on the August 1999 regular meeting agenda for the full board.

NANAKULI 242 RESERVOIR, NANAKULI, OAHU - TAX MAP KEY: 8-9-8:3

Barry Usagawa, Conrad Higashionna and Howard Endo was available to provide information and displayed several maps for the proposed site. Usagawa distributed a draft EIS statement with a brief background for the proposed project. To meet the emergency needs in a valley that has had occasional water shortages, the Board of Water Supply wants to build a 2-million gallon reservoir makua of Hawaiian homestead housing in Nanakuli. Under this proposal, work will begin as earlier as 2003. The project will connect the reservoir to an existing main on Farrington Highway that supplies the Wai'anae Coast with about 5 million gallons of water a day, half of the region's supply. A connecting pipe, 20 inches in diameter, would run mauka-makai under Nanakuli Avenue, one of two main access roads into the homestead. It was also said that the water from the Pearl Harbor aquifer would be used to fill the reservoir. This will bring Nanakuli up to emergency standards.



Currently, Wai'anae, Makaha and Luakulei valleys all have water reservoirs, and construction is underway for an additional 2-million gallon reservoir at Mahaka. The Board of Water Supply has received initial approval from the state Department of Hawaiian Homes Lands to buy 1.5 acres of land makua of Maiaholena Place. Purchase price for the land has not yet been determined but estimate as much as \$11 million. Usagawa also mentioned that the reservoir will be 107 feet across, with 32-foot high walls of reinforced concrete designed to withstand strong earthquakes. The landscape will blend in with the surrounding property, crews laying the pipeline would work between peak traffic hours. One lane of Nanakuli Avenue would always be open. Currently, no historic sites have been identified at the project site or pipeline path, and archaeologist would be monitoring the digging.

The department is open to the proposal because it believes it would benefit the homestead, and would be used for the entire Nanakuli Valley.

In response to a question, Usagawa made note that the Nanakuli Stream is within 200 feet of the project site, existing topography in and around the project site is sloped towards Nanakuli Stream. The construction of the reservoir should not impact Nanakuli Stream. The project site is not within the base flood plain. It is also outside the 500 year flood area.

Usagawa also stated that the community of Nanakuli Valley low service area will benefit from the additional storage capacity of the proposed 2 MG reservoir. It will increase system performance and reliability in meeting domestic and fire protection needs and provide greater flexibility in emergency situations.

The following of questions and concerns were asked: 1) As mentioned BWS stated there would be no increase for the consumers on their water bills; 2) BWS stated that the Office of Hawaiian Affairs (OHA) supports this project under the condition that historical/archaeological sites and Native Hawaiian gathering rights have been address; 3) the extreme sensitivity of the stream near by, the proposed project will affect the stream; 4) will we see future growth in the area?; 5) has BWS looked at other proposed sites? 6) request for flooding or high rain disaster of the 2 million tank reservoir; 7) was a drainage study done for the entire valley? 8) will the reservoir design to be built to stand an earthquake, flood and what will happen of future erosion; 9) the runoffs and flow is in poor condition in Nanakuli, there is no drainage in our streams banks and roadways now. Other concerns brought to their attention were: 1) traffic impact, air pollution, noise, construction cost, land development, environmental impact, existing utility integration.

Teruya recommended that the Board of Water Supply meet with the Nanakuli Homestead Association President, Kamaki Kanahale and members of the community. At this time the Planning & Zoning Committee will not make any decisions or recommendations to the full Board until the Board of Water Supply meet with the Nanakuli Homesteaders to do a full presentation. The full Board will then request another presentation from the Board of Water Supply. (Tentatively in October or November)

Usagawa, BWS, agreed and will contact the Nanakuli Homestead Association to set up a meeting.

Herrmann thanked the BWS representatives for their presentation.

Without further objections, Herrmann adjourned the meeting at 7:25 p.m.

Submitted by: Patty A. Teruya, Co-Chair Planning & Zoning Committee

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



December 10, 1999

COPY
JEREMY HARRIS, Mayor
EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M. LY AMM
HERBERT S. K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

Mr. Charlie Herrmann, Jr., Co-Chair
Planning and Zoning Committee
Waianae Coast Neighborhood Board No. 24
c/o Neighborhood Commission
City Hall, Room 400
Honolulu, Hawaii 96813

Dear Mr. Herrmann:

Subject: Board of Water Supply's Proposed 2.0 Million Gallon
Nanakuli 242 Reservoir and 20-Inch Transmission Main

Thank you for the opportunity to meet with the Waianae Planning and Zoning committee. We welcome your input into the environmental review process for the subject project.

We provide the following response to the general comments and questions from the Planning and Zoning Committee's meeting minutes:

Comment 1. The Planning and Zoning Committee requested that the Board of Water Supply (BWS) contact the Nanakuli Homestead Association to set up a meeting.

Response: BWS staff and I met with the Nanakuli Homestead Association on July 27, 1999 to discuss the reservoir project and solicit input into the environmental review process. Our response of October 19, 1999 to the Nanakuli Homestead Association summarized the main issues of that meeting.

Comment 2. Will the proposed project affect the Nanakuli stream?

Response: During construction of the reservoir, the contractor will be required to follow applicable laws and regulations to minimize impacts to the stream. Erosion control measures and best management practices will be implemented to minimize soil erosion and impacts to water quality.

Mr. Charlie Herrmann, Jr.
December 10, 1999
Page 2

Comment 3. Will we see future growth in the area?

Response: The Department of Hawaiian Home Lands is planning future developments in the Nanakuli area. The planned reservoir size is two million gallons of additional water storage capacity in the Nanakuli area. Presently, the existing storage capacity is less than BWS standards. About 1.5 million gallons of additional storage is needed. The extra half million gallons will provide storage capacity for future planned development in the lower Nanakuli area, below the 142' elevation.

Comment 4. Has BWS looked at other proposed sites?

Response: Several proposed sites have been identified and studied. Two sites were identified in Nanakuli Valley. Five other sites were identified between Kahe Point and Lualualei Valley. The other sites were eliminated for various reasons including significant visual impacts, poor soil conditions, inadequate existing water transmission systems, detrimental impact on planned use of the property, and land constraints. The Draft Environmental Impact Statement (EIS) will discuss the site selection process in more detail.

Comment 5. Flooding at the 2 million gallon reservoir site during heavy storm events. Was a drainage study done for the entire valley?

Response: Since the site is at the 250' elevation and outside the 500-year flood zone, there may be localized flooding along the stream flood way area. A walk through revealed a steel cable fencing across the Nanakuli Stream just downstream of the reservoir site, apparently to contain grazing animals. Large debris will be caught by the fence, creating a flow restriction and localized flooding. During the reservoir design, a drainage study of the upper valley may be conducted to address this situation.

Comment 6. Will the reservoir be designed and constructed to withstand earthquake and floods? What will happen if there is future erosion?

Response: The reservoir will be designed and constructed to meet earthquake and flooding requirements. The proposed reservoir will be inspected and maintained by BWS staff. If there is erosion, it will be repaired.

Comment 7. The runoff and flow is in poor condition in Nanakuli, there is not drainage in our stream banks and roadways now.

Response: We will inform and coordinate the reservoir drainage design with the City Department of Design and Construction. The reservoir design will meet storm drainage standards of the City and County of Honolulu.

Comment 8. Other concerns were traffic impact, air pollution, noise, construction cost, land development, environmental impact and existing utility integration.

Response: These concerns will be discussed in the draft EIS for the subject project, which will be sent to the Waianae Neighborhood Board No. 24 for review and comments.

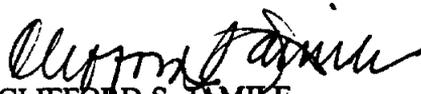
The proposed reservoir project will have short term impacts to air quality, noise levels, and traffic that will occur during construction. Each of the impacts will be adequately mitigated.

Mr. Charlie Herrmann, Jr.
December 10, 1999
Page 4

We hope we have addressed your major concerns and we are available to discuss them further. Otherwise, we request that the Waianae Planning and Zoning Committee allow our staff to present the project to the full neighborhood board. The environmental process will continue with the draft EIS, which will provide further opportunity to express community concerns.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,


CLIFFORD S. JAMILE
Manager and Chief Engineer

Attachment

cc: Patty Teruya, Neighborhood Commission
~~SEY Engineers, Inc.~~

THE GAS COMPANY 
Citizens Energy Services

July 14, 1999

City and County of Honolulu
Board of Water Supply
603 South Beretania Street
Honolulu, Hawaii 96843

Attention: Mr. Clifford S. Jamile
Manager and Chief Engineer

Gentlemen:

Subject: Proposed Nanakuli 242 Reservoir
Plan Review and Comment

We refer to your letter dated June 15, 1999, requesting the comments on the environmental impact statement notice of preparation (EISPN). Based on our review of the information provided, it has been determined that the area is currently clear of utility gas facilities.

Thank you for the opportunity to review the EISPN for the proposed project. Should there be any questions or if additional information is desired, please call me at 594-5574.

Very truly yours,

The Gas Company



Keith K. Yamamoto
Supervisor, Engineering

KKY:krs
99-191

✓cc: Conrad Higashionna, P.E., SEY Engineers

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



August 13, 1999

COPY
JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M.L.Y. AMII
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

Mr. Keith K. Yamamoto
The Gas Company
515 Kamakee Street
Honolulu, Hawaii 96802-3000

Dear Mr. Yamamoto:

Subject: Your Letter of July 14, 1999 Regarding the
Environmental Impact Statement Preparation
Notice for the Board of Water Supply's
Proposed Nanakuli 242 Reservoir Project

Thank you for your letter regarding the Environmental Impact Statement Preparation Notice for the proposed reservoir project.

We acknowledge that the proposed project area is currently clear of utility gas facilities.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,


CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Shimabukuro, Endo and Yoshizaki, Inc.

BENJAMIN J. CAYETANO
GOVERNOR



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

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MINAJI
GLENN M. OKIMOTO

IN REPLY REFER TO:

HWY-PS
2.4533

JUL 14 1999

Mr. Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Jamile:

Subject: Proposed Nanakuli 242 Reservoir
Environmental Impact Statement Preparation Notice

Thank you for your transmittal of June 15, 1999, requesting our review and comments regarding the above subject.

The proposed construction work (connecting the new 20-inch transmission main to the existing 24-inch water main at Farrington Highway) within Farrington Highway's rights-of-way requires the submittal of construction plans for our review and approval.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Kazu Hayashida".

KAZU HAYASHIDA
Director of Transportation

✓cc: Shimabukuro, Ido & Yoshizaki, Inc.

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
330 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



August 6, 1999

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
JAN M.L.Y. JAMIL
BARBARA KIM STANTON
CHARLES A. STED

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

COPY

Mr. Kazu Hayashida, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Hayashida:

Subject: Your Letter of July 14, 1999 Regarding the Environmental Impact Statement Preparation Notice for the Board of Water Supply's Proposed Nanakuli 242 Reservoir Project

Thank you for your letter regarding the Environmental Impact Statement Preparation Notice for the proposed reservoir project.

The construction plans for the proposed pipeline installation work within Farrington Highway will be submitted for your review and approval.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: SEY Engineers, Inc.

P



DEPUTIES
JANET E. KAWELO

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Kakuhiihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

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

JUL 23 10 06 AM '99

July 16, 1999

Handwritten initials

Mr. Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
630 S. Beretania Street
Honolulu, Hawaii 96843

LOG NO: 23791 ✓
DOC NO: 9907EJ08

**SUBJECT: Chapter 6E-8 Historic Preservation Review --
Environmental Impact Statement Preparation Notice:
Honolulu Board of Water Supply Nanakuli 242 Reservoir
and Proposed 20-inch Transmission
Main Along Nanakuli Avenue, Nanakuli, Wai'anae, O'ahu
TMK: 8-9-008:003, various**

Thank you for the opportunity to provide comments on the EISPN for this project. Our earlier comments (Logs 15258; 22987), included in the EISPN, state that we believe that the project will have "no effect" on historic sites. But these comments were specific to the proposed reservoir site within Nanakuli Valley. When we were notified of the transmission line along Nanakuli Avenue in May 1999, we added comments that archaeological monitoring must be conducted in all areas where Jaucus sand deposits may occur within the 20-inch transmission main (Log 22378). This would be the seaward areas of the line. The reason for this recommendation was (1) historical documents from the early 1800s indicate that a coastal settlement was present in Nanakuli and (2) in similar areas along the Wai'anae coast, remnants of such settlements often survive as subsurface archaeological deposits in sand substrates. Some portions of the proposed transmission line might contain such archaeological sites -- thus, the need for the archaeological monitor.

The EISPN in section 3.14 indicates that further archaeological study will be conducted to assess the impact of the project on historical/archaeological sites. However, our specific Chapter 6E requirement for this project is that archaeological monitoring be conducted during all ground disturbing activities within the proposed 20-inch main transmission line, from Farrington highway and inland for all areas where Jaucus sand substrate is encountered. No other archaeological or historic preservation work or assessment is needed.

The next step in the historic preservation review process would

Handwritten mark

C. Jamile
Page 2

be the submittal of a scope of work for the monitoring (an archaeological monitoring plan), which needs to be approved by our Division. Once we approve the plan, then from our perspective, construction work could begin with the presence of the archaeological monitor.

If you have any questions please call Sara Collins at 692-8026 or Elaine Jourdane at 692-8027.

Aloha,



DON HIBBARD, Administrator
State Historic Preservation Division

EJ:amk

Encl: Log 22378

cc: c. Conrad Higashionna, P. E. Shimabukuro, Endo & Yoshizaki, Inc.
1126 12th Avenue, Honolulu, Hawaii 96816

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



August 11, 1999

COPY

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M.L.Y. AMI
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

Mr. Don Hibbard, Administrator
State Historic Preservation Division
Department of Land and Natural Resources
Kakuhihewa Building, Room 555
Kapolei, Hawaii 96707

Dear Mr. Hibbard:

Subject: Your Letter of July 16, 1999 Regarding the Environmental Impact Statement Preparation Notice for the Board of Water Supply's Proposed Nanakuli 242 Reservoir Project

Thank you for your letter regarding the Environmental Impact Statement (EIS) Preparation Notice for the proposed reservoir project.

We provide the following response to your concerns:

1. An archaeological survey of the proposed reservoir site and the preferred 20-inch transmission main alignment is being conducted. In addition, the archaeologist is currently preparing a Native Hawaiian Gathering Rights Assessment per the Office of Hawaiian Affairs request and will be included in the Draft EIS.
2. We understand construction monitoring will be necessary along the Makai segments of the transmission mains. An archaeological monitoring plan will be prepared for the 20-inch transmission main portion from Farrington Highway and inland for all areas where Jaucus sand and substrate is encountered. The monitoring plan will be submitted for your review and approval prior to construction of the transmission main.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,


CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: SEY Engineers, Inc.



Scott W.H. Seu, P.E.
Manager
Environmental Department

July 20, 1999

Mr. Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
630 S. Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Jamile:

Subject: Proposed Nanakuli 242 Reservoir

Thank you for the opportunity to comment on your June 1999 EIS Preparation Notice for the Proposed Nanakuli 242 Reservoir, as proposed by Board of Water Supply. We have reviewed the subject document and have the following comments:

Presently there is no electrical service available at the site. Single phase service would have to extend from our transformers approximately 250 feet away. If three phase service is required, then 2000 feet of primary will need to be extended underground from Nanakuli Avenue.

Please keep HECO informed on the proposed energy usage for the project so we can determine the system requirements to serve this project.

Our point of contact for this project, and the originator of these comments, is Bill Muench (543-5657) senior customer engineer. I suggest your staff and consultants deal directly with Bill to coordinate HECO's continuing input on this project.

Sincerely,

cc:
Shimabukuro, Endo & Yoshizaki Engineers, Inc.
1126 12th Ave
Honolulu, HI 96816
Attention Conrad Higashionna, P.E.

B. Muench

WINNER OF THE EDISON AWARD
FOR DISTINGUISHED INDUSTRY LEADERSHIP



BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



August 9, 1999

JEREMY HARRIS, Mayor

COPY
EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M.L.Y. AMII
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

Mr. Scott W.H. Seu, P.E.
Manager, Environmental Department
Hawaiian Electric Company, Inc.
P. O. Box 2750
Honolulu, Hawaii 96840-0001

Dear Mr. Seu:

Subject: Your Letter of July 20, 1999 Regarding the Environmental
Impact Statement Preparation Notice for the Board of Water
Supply's Proposed Nanakuli 242 Reservoir Project

Thank you for your letter regarding the Environmental Impact Statement Preparation Notice for the proposed reservoir project.

We acknowledge that presently there is no electrical service available at the proposed reservoir site. We will inform the Hawaiian Electric Company of the proposed energy usage for the proposed project once this information is available.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Shimabukuro, Endo and Yoshizaki, Inc.

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



July 20, 1999

COPY

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
JAN M.L.Y. AMM
BARBARA KIM STANTON
CHARLES A. STED

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

Mr. Raynard Soon, Chairman
Department of Hawaiian Home Lands
State of Hawaii
P.O. Box 1879
Honolulu, Hawaii 96805

Dear Mr. Soon:

Subject: Request for a Representative to Attend a Meeting with the Nanakuli Homestead Association to Discuss the Board of Water Supply's Nanakuli 242' Reservoir Project

We request representation from the Department of Hawaiian Home Lands (DHHL) to attend a meeting with the Nanakuli Homestead Association to discuss our Nanakuli 242' Reservoir project. Their meeting is tentatively scheduled for July 27, 1999, 7:00 p.m. at the Nanakuli Elementary School cafeteria.

The Nanakuli 242' Reservoir project an important facility improvement to increase the water service reliability of the Nanakuli Valley, where the current storage is substandard. Additionally, the reservoir is being oversized to accommodate incremental growth in the Nanakuli area which is primarily Hawaiian home lands.

The project includes the construction of a 2.0 million gallon reinforced concrete reservoir at the end of Maiaiholena Place and 7,500 linear feet of 20-inch main along Nanakuli Avenue to our transmission mains along Farrington Highway.

The environmental impact statement preparation notice and environmental assessment were previously sent to your department. There were some community concerns expressed because the reservoir site is located on DHHL lands. We are constructing water facilities in Nanakuli, in part, to assist your department's efforts to develop housing projects.

We appreciate your assistance in addressing the Nanakuli community's concerns and will inform you of the meeting date and place as it becomes available. If you have any questions, please contact me at 527-6180.

Very truly yours,


CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Waianae Neighborhood Board,
Planning and Zoning Committee
Neighborhood Commission
SEY Engineers

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



July 21, 1999

COPY

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
JAN M.L.Y. AMI
BARBARA KIM STANTON
CHARLES A. STED

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

Mr. Kamaki Kanahele
Nanakuli Homestead Association
89-188 Farrington Highway
Waianae, Hawaii 96792

Dear Mr. Kanahele:

**Subject: Request for a Meeting with the Nanakuli Homestead Association to
Discuss the Board of Water Supply's Nanakuli 242' Reservoir Project**

We request an opportunity to meet with you and the Nanakuli Homestead Association to discuss our Nanakuli 242' Reservoir project. We understand you have scheduled the meeting on July 27, 1999 and we confirm our attendance.

The Nanakuli 242' Reservoir project is an important facility improvement to increase the water service reliability of the Nanakuli Valley, where the current storage is substandard. The project includes the construction of a 2.0 million gallon reinforced concrete reservoir at the end of Maiaholena Place and 7,500 linear feet of 20-inch main along Nanakuli Avenue to our transmission mains along Farrington Highway.

We are presently in the environmental impact statement preparation notice (EISPN) phase, and have therefore, developed sufficient conceptual designs and presentation materials to start the community information sharing. We have already sent a copy of the EISPN to you. We would like to discuss any community concerns and incorporate them into the upcoming Draft Environmental Impact Statement.

We appreciate your assistance in addressing the Nanakuli community's concerns. If you have any questions, please contact me at 527-6180.

Very truly yours,


CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Waianae Neighborhood Board,
Planning and Zoning Committee
Neighborhood Commission
SEY Engineers

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



October 19, 1999

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M.L.Y. AMII
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

Mr. Kamaki Kanahale, President
Nanakuli Homestead Association
89-188 Farrington Highway
Waianae, Hawaii 96792

COPY

Dear Mr. Kanahale:

Subject: Board of Water Supply's Proposed 2.0 MG Nanakuli 242
Reservoir and 20-Inch Transmission Main Project

Thank you for the opportunity to meet with you and the Nanakuli Homestead Association members. We welcome your input into the environmental review process for the subject project.

As discussed, we are providing responses to the general concerns from the meeting:

1. How will the Board of Water Supply (BWS) compensate the Department of Hawaiian Home Lands (DHHL) for the use of land for the project? There are non-homestead lands from Hakimo Road to Nanakuli, what are the benefits to native Hawaiians?
 - a. BWS will negotiate with DHHL for the use of lands at the reservoir site and access roads. A license agreement for non-beneficiary use will be acquired from DHHL based on the fair market value of the property.
 - b. DHHL has benefited by being able to construct residential homes without first providing a water system (i.e. reservoir storage and water mains) and source (i.e. well).

Large developers are usually required by BWS to construct water system improvements to meet the needs of their development prior to building homes.

In this case, the BWS is proposing to construct the Nanakuli Reservoir to address the storage deficit in Nanakuli, which consists primarily of Hawaiian home lands.

The BWS is also constructing the Waipahu Wells III station which will provide 0.5 million gallons per day (mgd) of source for Hawaiian home lands. Basically, the BWS is providing the initial capital costs for water infrastructure and DHHL has the option to repay BWS in a lump sum or incrementally as building permits and applications for water service are approved.

- c. The entire Nanakuli Community benefits from this reservoir project because public health and safety is increased with more reliable water service and fire protection. Adequate water service allows economic growth and additional homes for Hawaiians which have social and cultural benefits as well.

2. Are there alternative routes for the 20-inch transmission from Farrington Highway to the reservoir other than along Nanakuli Avenue?

- a. Yes, there are other routes. BWS has studied the viability of using other routes requested at the Nanakuli Homestead Association meeting. However, these routes are either more costly, do not provide the necessary access for maintenance purposes or are in areas that are flood-prone.
- b. One alternative is to construct the 20-inch transmission main along Halealaka Avenue. This option is a longer distance from Farrington Highway to the reservoir site (than along Nanakuli Avenue) and therefore, would be more costly. Haleakala Avenue is also narrower than Nanakuli Avenue, which makes two-way traffic during construction more difficult.

It also presents many of the same concerns as using Nanakuli Avenue such as traffic, safety, noise, etc.

- c. Another alternative suggested by the association is to construct the 20-inch transmission main along the partially paved road adjacent to Nanakuli Stream.

Our staff inspected this alternative route and found the alignment of the waterline would be within the Nanakuli Stream flood way and the 100-year flood plain. This presents problems such as erosion of the foundation and cover over the waterline. Waterline breaks during storm events will hinder the timely restoration of water service. The access road would have to be fully paved and the existing security gates must be accessible by BWS personnel. Pipeline easements and additional compensation for use of Hawaiian Home Lands would be required.

4. There is a safety hazard at the schools if the 20-inch transmission main is constructed along Nanakuli Avenue.

- a. Construction and traffic control plans will be prepared by the contractor to minimize disruptions and inconvenience to the students and the public using Nanakuli Avenue. The construction schedule will account for the school's schedule.
- b. Appropriate signs and barriers will be required to provide safe flow of traffic, bus stops and pedestrian access.
- c. Off-duty police officers and/or trained construction flagmen will be provided to improve traffic flow and pedestrian crossings.

5. How much DHHL land will be taken for this project?

No DHHL land will be taken for the reservoir or 20-inch transmission main. BWS will obtain a license to use the land for the reservoir. The transmission main would be placed within the public right-of-way. The current lessees at the reservoir site will be impacted but mitigation to minimize the impacts are expected as conditions of the licenses.

If the 20-inch transmission main remains in the existing roadways (i.e. Nanakuli Avenue and Maiaholena Place), then residential lease property in the gulch, is not expected to be affected.

6. Are there alternative locations for the reservoir? What happens if the reservoir breaks?

- a. Yes, there are alternative locations for the reservoir. BWS has explored two other locations within Nanakuli Valley. The current reservoir site has been selected based on the least environmental impact and costs.
- b. One alternative reservoir site that was not selected is on the ridge between Haleakala Avenue and Lualualei Naval Road. This site would have significant visual impact. The top of the ridge would be cut flat to provide a foundation for the reservoir, which would be highly visible.
- c. Another alternative that was studied is located mauka of the intersection of Ulei Loop and Mokiawe Street. This site was not selected due to the poor soils conditions at the site and the high cost of the reservoir's foundation.
- d. BWS reservoirs are designed to withstand larger earthquakes than required by government regulations. The proposed reservoir will be designed and constructed according to the Uniform Building Code's Seismic Zone 3 standards although the entire island of Oahu is only classified as a Seismic Zone 2B area.

The reservoir site located near Maiaholena Place is generally sloping towards Nanakuli Stream through undeveloped areas. If there is a leak or break, water would probably flow to the stream without affecting the residential lots.

7. How much time will it take to complete the construction of the project?

- a. Construction of the project is anticipated to last about 18 months and is projected to be funded in the 2001 - 2002 fiscal year.

Mr. Kamaki Kanahele
October 19, 1999
Page 4

We hope we have responded adequately to the Nanakuli Homestead Association's major concerns. The environmental process will continue with the draft environmental impact statement, which will provide further opportunity to express community concerns.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,



CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Waianae Neighborhood Board Planning & Zoning Committee
Patty Teruya, Neighborhood Commission
SEY Engineers, Inc.

BENJAMIN J. CAYETANO
GOVERNOR



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

July 22, 1999

Mr. Barry Usagawa
Board of Water Supply, City and County of Honolulu
630 South Beretania Street
Honolulu, Hawai'i 96843

Dear Mr. Usagawa:

The Office of Environmental Quality Control has reviewed the May 1999, final environmental assessment/environmental impact statement preparation notice (FEA/EISPN) prepared by Shimabukuro, Endo & Yoshizaki Inc. for the Nanakuli 242 Reservoir, Tax Map Key 8-9-8:3. We submit the following comments for your response.

CULTURAL IMPACT STUDY: Page 22 of the FEA/EISPN briefly discusses cultural sites and native Hawaiian gathering rights. Section 3.1.5 states that "[t]here is no known cultural significance to the project site, Nanakuli Avenue and Maiaiholena Place. The historical/archaeological sites mauka of the project site are currently not used for cultural activities based on discussions with DLNR." Since you already plan to do research on native gathering rights, we recommend that you prepare a cultural impact study for inclusion in the draft environmental impact statement which addresses cultural concerns as well as native Hawaiian gathering rights. Please consult with the Office of Hawaiian Affairs regarding cultural significance. Also, please find enclosed a copy of the Environmental Council's November 19, 1997, *Guidelines for Assessing Cultural Impacts* to assist you in preparing such a study.

LANDSCAPING TO MINIMIZE VISUAL IMPACTS: Page 28 of the FEA/EISPN provides various measures, including landscaping, to mitigate the visual impact of the reservoir. We recommend that you consider the use of xerophagic native plants for landscaping purposes. A list of these various plants, their propagation and care requirements along with their cultural significance can be found by visiting our website at <http://www.hawaii.gov/health/oeqc/eioeqc00.htm> and clicking on the Native Hawaiian Garden link.

Thank you for the opportunity to comment. If you have any questions, please call Leslie Segundo at 586-4185.

Sincerely,


GENEVIEVE SALMONSON
Director

Enclosures

 Mr. Conrad Higashionna, Shimabukuro, Endo & Yoshizaki Inc. (with enclosure)

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
830 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



August 24, 1999

JEREMY HARRIS, Mayor

COPY
EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M.L.Y. AMII
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

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

Dear Ms. Salmonson:

Subject: Your Letter of July 22, 1999 Regarding the Environmental Impact Statement Preparation Notice for the Proposed Nanakuli 242 Reservoir Project, TMK: 8-9-08: 03

Thank you for reviewing the Environmental Impact Statement Preparation Notice/Environmental Assessment for the Nanakuli 242 Reservoir project.

We provide the following response to your concerns:

1. A cultural impact assessment, described in the Office of Environmental Quality Control (OEQC) guidelines, will not be conducted for the subject project for the following reasons:
 - a. A native Hawaiian gathering rights assessment related to traditional cultural practices and land use will be conducted for the project.
 - b. The methodology and content of the native Hawaiian gathering rights assessment will be similar to the OEQC guidelines for assessing cultural impacts. Traditional cultural properties and practices will be identified through consulting historical and cultural source materials and conducting ethnographic interviews with persons having knowledge of the potentially affected areas.
 - c. We feel that the reservoir site, which is 2 acres and about 1.5 miles away from the coast, is too small to warrant conducting a cultural impact assessment in accordance with the OEQC guidelines.
 - d. Those aspects of the OEQC guidelines that are appropriate to the size and nature of the subject project will be included within the native Hawaiian gathering rights assessment.
2. The Board of Water Supply will consider the use of xerophagic native plants for landscaping purposes.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,


CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Conrad Higashionna, SEY Engineers, Inc.

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU

801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 - AREA CODE (808) 529-3111
<http://www.honolulu.police.org>



JEREMY HARRIS
MAYOR

LEE D. DONOHUE
CHIEF
WILLIAM B. CLARK
MICHAEL CARVALHO
DEPUTY CHIEFS

OUR REFERENCE CS-KL

July 22, 1999

TO: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: LEE D. DONOHUE, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

SUBJECT: PROPOSED NANAKULI 242 RESERVOIR
ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE

We have reviewed the subject document and have the following comments.

In spite of mitigation measures, during the construction phase of the proposed project, we anticipate receiving calls for police service in the area because of fugitive dust, construction noise, smells, and traffic. However, after the project is completed, we do not expect it to have any significant impact on police services.

If there are any questions, please call me at 529-3255 or Captain George Yamamoto of District 8 at 674-8802.

LEE D. DONOHUE
Chief of Police

By *Eugene Uemura*
EUGENE UEMURA, Assistant Chief
Support Services Bureau

cc: Shimabukuro, Endo
and Yoshizaki, Inc.

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



August 13, 1999

JEREMY HARRIS, Mayor **COPY**

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M.L.Y. AMII
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

TO: MR. LEE D. DONOHUE, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

FROM: 
CLIFFORD S. JAMILE

SUBJECT: YOUR MEMORANDUM OF JULY 22, 1999 REGARDING THE ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR THE NANAKULI 242 RESERVOIR, KOOLAUPOKO, OAHU

Thank you for reviewing the Environmental Impact Statement Preparation Notice for the proposed Nanakuli Reservoir project.

We provide the following responses to your concerns:

1. The Board of Water Supply currently requires all construction work to comply with dust and noise limits set forth by the Department of Health. Should these limits be exceeded, the contractor's work will be stopped until corrective measures are taken.
2. Traffic concerns along Maiaholena Place, Nanakuli Avenue and Farrington Highway will be addressed with an approved traffic control plan. Police services may be requested for critical sections of the transmission main portion.
3. We acknowledge that these impacts are short-term, during construction.

If you have any questions, contact Barry Usagawa at 527-5235.

cc: Shimabukuro, Endo and Yoshizaki, Inc.



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

July 22, 1999

Mr. Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
630 S. Beretania Street
Honolulu, Hawaii 96843

EIS #321

Re: Proposed Nanakuli 242 Reservoir

Dear Mr. Jamile,

Thank you for the opportunity to review the environmental impact notice of preparation (EISPN) for the Nanakuli 242 Reservoir. This proposed 2 million gallon (MG) reservoir will alleviate the existing potable water storage deficit in the Nanakuli low service area. Additional storage will improve water system performance and reliability in meeting domestic and fire protection needs as well as provide greater flexibility in emergency situations. Moreover, the proposed reservoir will satisfy the required storage capacity for some planned development on Hawaiian Homelands in Nanakuli Valley.

In addition, a 20-inch transmission main approximately 7500 feet long will be constructed to connect the proposed Nanakuli 242 Reservoir to a transmission main along Farrington Highway.

According to the EISPN, the Department of Land and Natural Resources' (DLNR) State Historic Preservation Division (SHPD) records indicate no known historic sites at the proposed reservoir site. The project site has undergone extensive land alteration in the past making it unlikely that historic sites would remain.

Also, the 20-inch transmission main will be located within Nanakuli Avenue and Maiaiholena Place. The construction of these roads has extensively altered the land within the right-of-way making it unlikely that historic sites remain. There is, however, the possibility of Hawaiian burial sites along Nanakuli Avenue in the areas close to sea level with sand deposits. The O'ahu Burials Council should be contacted if any human burials, artifacts, or other cultural remains or deposits are encountered within the project site.

1:1: Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
July 22, 1999
page two

Although there are no known cultural sites on the proposed project site, there are, historical/archaeological sites mauka of the project. Again, Burials Council and SHPD should be contacted if any human burials, artifacts, or other cultural remains or deposits are encountered within the project site.

As indicated in the EISPN, the issue of Native Hawaiian Gathering Rights will be researched and discussed in the draft environmental impact statement. OHA believes that **Article XIII, Section 7**, of the Hawai'i State Constitution as stated below, must be upheld:

"The State reaffirms and shall protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by ahupua'a tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778, subject to the right of the State to regulate such rights."

At this time the Office of Hawaiian Affairs has no objections to the project. However, OHA anticipates the draft environmental assessment for our further review and comment.

If you have any questions, please contact Mark A. Mararagan, Policy Analyst-Government Regulations at 594-1945.

Sincerely,



C. Sebastian Aloit
Hawaiian Rights Division Director

cc: OHA Board of Trustees
Shimabukuro, Endo & Yoshizaki Engineers
Colin Kippen, Deputy Administrator

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



October 11, 1999

JEREMY HARRIS, Mayor **COPY**

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M.L.Y. AMI
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMBLE
Manager and Chief Engineer

Mr. C. Sebastian Aloat
Hawaiian Rights Division Director
State of Hawaii
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Dear Mr. Aloat:

Subject: Your Letter of July 22, 1999 Regarding the Environmental Impact Statement Preparation Notice for the Board of Water Supply's Proposed Nanakuli 242 Reservoir Project

Thank you for your letter regarding the Environmental Impact Statement (EIS) Preparation Notice for the proposed reservoir project.

We provide the following response to your concerns:

1. We acknowledge that the Office of Hawaiian Affairs has no objections to the proposed project at this time.
2. The Board of Water Supply will develop an Archaeological Monitoring Plan to be submitted and approved by the State Historic Preservation Division prior to construction. Any burials and artifacts inadvertently uncovered during the 20-inch water main construction will be treated in accordance with Chapter 6E HRS.
3. A Native Hawaiian Gathering Rights assessment is being prepared as part of the draft EIS.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,


CLIFFORD S. JAMBLE
Manager and Chief Engineer

cc: SEY Engineers, Inc.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
PO BOX 3378
HONOLULU, HAWAII 96801

In reply, please refer to
File:

July 23, 1999

99-011A/epo

JUL 23 1 28 PM '99

Mr. Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
630 S. Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Jamile:

Subject: Environmental Impact Statement Preparation Notice
(EISPN)
Nanakuli 242 Reservoir
Nanakuli, Oahu
TMK: 8-9-8: 3

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

Noise

Chapter 11-43 "Community Noise Control for Oahu" was incorrectly referenced on page 27 of the Environmental Impact Statement Preparation Notice. Chapter 11-43 was superseded by Chapter 11-46, Hawaii Administrative Rules, "Community Noise Control" on September 23, 1996.

Mr. Clifford S. Jamile
July 23, 1999
Page 2

99-011A/epo

1. Activities associated with the construction of the project must comply with the Department of Health's Administrative Rules, Chapter 11-46, "Community Noise Control."
 - a. The contractor must obtain a noise permit if the noise levels from the construction activities are expected to exceed the maximum permissible sound levels of the regulations as stated in Section 11-46-6(a).
 - b. Construction equipment and on-site vehicles requiring an exhaust of gas or air must be equipped with mufflers as stated in Section 11-46-6(b)(1)(A).
 - c. The contractor must comply with the requirements pertaining to construction activities as specified in the rules and the conditions issued with the permit as stated in Section 11-46-7(d)(4).
2. Sound levels emanating from stationary equipment such as water pumps or generators must be attenuated to comply with the provisions of the Department of Health, Administrative Rules, Chapter 11-46, "Community Noise Control."

Should there be any questions on this matter, please call Mr. Jerry Haruno, Environmental Health Program Manager, Noise, Radiation and Indoor Air Quality Branch at 586-4701.

Water Pollution

A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for each of the following activities which discharges into State waters:

Mr. Clifford S. Jamile
July 23, 1999
Page 3

99-011A/epo

1. Discharge of storm water runoff associated with construction activities, including clearing, grading, and excavation that result in the disturbance of equal to or greater than five (5) acres of total land area;
2. Discharge of hydrotesting water; and
3. Discharge associated with construction activity dewatering.

The Notice of Intent Form(s) for those discharges which need to obtain an NPDES General Permit coverage will be provided by the Clean Water Branch upon request.

If you have any questions on this matter, please call Ms. Joanna L. Seto, P.E., Engineering Section of the Clean Water Branch, at 586-4309.

Sincerely,

Virginia Pressler
for

GARY GILL
Deputy Director for
Environmental Health

c: CWB
NR&IAQB

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



August 17, 1999

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M.L.Y. AMII
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

Mr. Gary Gill
Deputy Director for Environmental Health
Department of Health
State of Hawaii
P. O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Gill:

Subject: Your Letter of July 23, 1999 Regarding the Environmental Impact Statement Preparation Notice for the Board of Water Supply's Proposed Nanakuli 242 Reservoir Project

Thank you for your letter regarding the Environmental Impact Statement (EIS) Preparation Notice for the proposed reservoir project.

We provide the following response to your concerns:

1. We acknowledge that Chapter 11-43, "Community Noise Control for Oahu", was incorrectly referenced in the EIS Preparation Notice. We understand Chapter 11-43 was superseded by Chapter 11-46. The Draft EIS will reflect this change.
2. The contractor will be required to comply with all applicable Noise Control regulations of Chapter 11-46. In addition, sound levels emanating from stationary equipment such as water pumps or generators will comply with Chapter 11-46.
3. Effluent discharge permits will be coordinated during the design phase of the project. The required permits will be listed in the Draft EIS under "Government Permits and Approvals."

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,


CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Conrad Higashionna, SEY Engineers, Inc.

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4414 • FAX: (808) 527-6743



JEREMY HARRIS
MAYOR

JAN NAOE SULLIVAN
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

1999/CLOG-3946(ST)
`99 EA Comments Zone 8

July 23, 1999

MEMORANDUM

TO: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

ATTN: BARRY USAGAWA, PROJECT MANAGER

FROM: JAN NAOE SULLIVAN, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE (EISPN)
NANAKULI 242 RESERVOIR, NANAKULI, OAHU
TAX MAP KEY: 8-9-8: POR. 3

We have reviewed the EISPN information for the above-referenced project received on June 16, 1999, and our comments are as follows:

Section 2.1 Proposed Action/Technical Characteristics

This section fails to describe the actual construction process required for the development of the proposed facility. The Draft Environmental Impact Statement should elaborate on what type of construction activity will be required for the preparation of the reservoir site. This section should describe whether blasting will be required and what machinery will be employed (i.e., backhoes with impact hammers, etc.).

Estimates should be provided on the amounts of excavation necessary for the preparation of the actual reservoir site, as well as for the construction of the access road and 20-inch water main. This section should also disclose how spoils from these components of the project will be disposed or reused.

Section 3.4 State and County Land Use Designations/Development Plan

This section correctly states that an amendment to the existing Waianae Development Plan Public Facilities Map would be required to identify the proposal as a major public facility to be implemented. The Waianae Development Plan (DP) is currently being reviewed. Upon the adoption of a new DP for Waianae, a new Waianae Public Infrastructure Map would also be adopted. The proposed reservoir would be required to be shown on the new Waianae Public Infrastructure Map.

CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
Page 2
July 23, 1999

The project site is located outside the Special Management Area (SMA), and therefore will not require the approval of an SMA Use Permit.

Please note that future subdivision or designation of easements for the project site will require the submission of a Subdivision application in accordance with the Subdivision Rules and Regulations.

Section 3.13 View Planes

The photographs used to analyze the visual impacts of the project (Figure 9) should include an indicator of reservoir location from Nanakuli Avenue and Farrington Highway (e.g., Photos 2 and 3).

Thank you for the opportunity to comment on this matter. Should you have any questions, please contact Steve Tagawa of our staff at Extension 4817.


JAN NAOE SULLIVAN
Director of Planning
and Permitting

JNS:am

cc: Conrad Higashionna, SEY Engineers
Office of Environmental Quality Control

POSSE 6025

COPY

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



October 5, 1999

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M.L.Y. AMII
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

TO: MS. JAN NAOE SULLIVAN, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: 
CLIFFORD S. JAMILE

SUBJECT: YOUR LETTER OF JULY 23, 1999 REGARDING THE ENVIRONMENTAL
IMPACT STATEMENT PREPARATION NOTICE FOR THE PROPOSED
NANAKULI 242 RESERVOIR PROJECT, TMK: 8-9-08: 03

Thank you for reviewing the Environmental Impact Statement Preparation Notice (EISPN) for the Nanakuli 242 Reservoir project.

We provide the following response to your concerns:

1. "Section 2.1 Proposed Action/Technical Characteristics" will be revised to describe the construction process for the subject project. The actual construction process will be known when a contractor is awarded the contract to construct this project. Blasting, however, will not be allowed. The draft environmental impact statement (DEIS) will describe the construction process in general terms. This section will be revised to disclose how spoils from the project will be disposed of or reused.

The EISPN does provide an estimate of the amount of excavation necessary for the preparation of the proposed reservoir site, as well as for the construction of the access road (See EISPN Appendix A). The DEIS will provide an estimate of the amount of excavation for the proposed 20-inch transmission main.

2. The DEIS will indicate that the proposed reservoir will be required to be shown on the Waianae Public Infrastructure Map and that future subdivision or designation of easements for the project site will require the submission of a Subdivision application in accordance with the Subdivision Rules and Regulations. The reservoir is outside of the Special Management Area.
3. The photographs used to analyze the visual impacts of the project (Figure 9) will be revised to include an indicator of the reservoir location from Nanakuli Avenue and Farrington Highway.

If you have any questions, please contact Barry Usagawa at 527-5235.

cc: Conrad Higashionna, SEY Engineers, Inc.



Ka'ala Farm, Inc.

CULTURAL LEARNING CENTER AT KA'ALA

...If you plan for a year, plant kalo;

if you plan for ten years, plant koa;

if you plan for a hundred years, teach the children.....Aloha 'Aina

July 23, 1999

Mr. Clifford S. Jamile
Manager and Chief Engineer
Board of Water of Supply
630 S. Beretania Street
Honolulu, Hawaii 96843

Aloha, my name is Eric Enos, I am representing Malama Nanakuli Ahupuaa regarding the proposed Nanakuli 242 Reservoir, Environmental Impact Statement Preparation Notice.

I have reviewed the EIS and the comments from existing agencies and community groups. We believe they reflect the concerns we share and is adequately documented. There are, however, areas of question and issues that I would need some clarification and kokua:

The first is regarding the precious use and scarcity of water in Nanakuli valley. In the future drawdown of water from the reservoir are their times when water is being "flushed" out to a nearby drainage ditch? The reason we ask is that we are doing a dry land reforestation project with the Nanakuli community and schools. This is a partnership with the Department of Hawaiian Home Lands (DHHL), Malama Nanakuli Ahupua'a, Department of Education, Ka'ala Farm, Inc., The Nature Conservancy of Hawaii, support from the Department of Land and Natural Resources (DOFAW), Queen Liliuokalani Childrens Center, Consuelo Alger Foundation, and other agencies and private foundations. If water is being flushed out what is the possibility of doing a project to create a secondary storage system for use as a holding tank or reservoir for drip irrigation to outplanting of native dry land forest plants. Once established these desert like plants can survive in periods of drought.

The second point of question is related to the first: the community project of Malama Nanakuli Ahupuaa is receiving community development funds from DHHL to restore cultural sites in Nanakuli valley (see summary copy of grant). How can we form a partnership with the Board of Water Supply to assist the Nanakuli community in the establishment of dry forest replanting in the upper Nanakuli valley to catch the winter rains and restore ground water catchments?

Malama Nanakuli Ahupuaa has garnered technical assistance and funding to establish native plant nurseries and we are already doing outplantings of coastal native plants along the shore line

with the community and schools. We are also in the process of development of a dry forest curriculum for the schools along with research and development of practical applications.

We would like to use this opportunity to sit down with your department, various contributing agencies and community partners to discuss what is possible. Personal conversations with Mr. Ray Soon, Chairman, Hawaiian Homes Commission, and DHHL planning staff has been supportive of the potential opportunities to create stronger and positive community based efforts in this specific project.

Please call or write to me as to how we might proceed and points of contact within your organization. I can be reached at 696-7241, or 696-4954, please ask for me or Diana, my assistant. Our address is :

Ka'ala Farm, Inc.,
c/o Eric Enos
PO Box 630
Waianae, HI 96792

Aloha Aina



Eric Enos - Project Director, Ka'ala Farm, Inc.

cc : Shimabukuro, Endo and Yoshizaki Engineers, Inc

Lehua Kapaku, President, Malama Nanakuli Ahupuaa

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



October 20, 1999

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M.L.Y. AMI
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

Malama Nanakuli Ahupuaa
c/o Eric Enos
Ka'ala Farm, Inc.
P. O. Box 630
Waianae, Hawaii 96792

COPY

Gentlemen:

Subject: Environmental Impact Statement Preparation Notice for the
Proposed Nanakuli 242 Reservoir Project, TMK: 8-9-08: 03

Thank you for reviewing the Environmental Impact Statement Preparation Notice for the Nanakuli 242 Reservoir project.

We provide the following response to your request:

1. We have no objections to redirecting the reservoir drainage water for irrigation needs, rather than into Nanakuli Stream. However, the maintenance and drainage of the reservoir will occur infrequently, once every several years. Most of the reservoir water will be drained into the water system leaving less than 1/4 to drain to waste. Due to the infrequency, it is not feasible to construct a permanent holding tank for drip irrigation although the drainage water could supplement your irrigation needs via a water truck. There are other options which may assist your project including:
 - a. Reactivating the Nanakuli Well, State Well No. 2308-01 which is located in the gulch adjacent to Nanakuli Avenue and opposite of the entrance to Nanakuli High School. Please contact the Department of Hawaiian Home Lands to discuss reactivating this well. We estimate about 60,000 gallons per day can be produced from the well with a chloride content of about 200 parts per million.
 - b. A water meter could be installed to provide temporary water service. A temporary meter is intended for interim construction use such as dust control or a job site office. The establishment of dryland plants may be considered under this criteria especially if the plantings are used for erosion control. The type of temporary meter, whether in-ground or fire hydrant, shall be determined when the applicant applies for the temporary water service. The

Malama Nanakuli Ahupuaa
October 20, 1999
Page 2

length of time the meter may be issued to the project will be based on a reasonable time period to establish the dryland plants. The temporary meter will not be issued for an extended period of time and should not be depended upon to provide water on a permanent or long-term basis.

- c. A water meter could be installed to provide permanent service. The type of permanent water service, either agricultural or irrigation service for the establishment of dryland plants, will be determined when more information on the proposed project is provided. Our Water System Facilities Charges for resource development, transmission and daily storage would be applicable to permanent water services. In general, Board of Water Supply (BWS) Rules and Regulations do not accommodate non-residential services above the service limit. However, BWS will consider issuing a 5/8-inch meter for irrigation or agricultural use above the service limit on a case-by-case basis depending on the information required above. If the water service is granted, an informal low water pressure agreement will also need to be processed.

Please contact Barry Usagawa at 527-5235 to set up a meeting with BWS staff to discuss what is possible to assist Malama Nanakuli Ahupuaa's efforts.

Very truly yours,


CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Department of Hawaiian Home Lands
Conrad Higashionna, SEY Engineers, Inc.



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P.O. BOX 621
HONOLULU, HAWAII 96809

AUG. 2 1999

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

Ref:PS:EH

Mr. Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Jamile:

Subject: Environmental Impact Statement Preparation
Notice (EISPN) for the Nanakuli 242 Reservoir

We have reviewed the subject EISPN document and offer the following comment for your consideration.

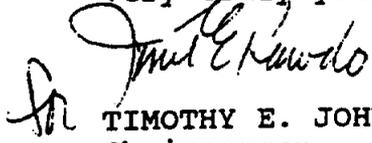
Engineering Branch:

The proposed project site according to FEMA Community Panel Number 150001 0100 C, is located in Zone D. This is an area which flood hazards are undetermined.

Thank you for the opportunity to comment on the proposed project.

Should you have any questions or require further assistance, please contact staff planner Ed Henry at 587-0380.

Very truly yours,


TIMOTHY E. JOHNS
Chairperson

c.c. Engineering Branch
Shimabukuru, Endo & Yoshizaki Engineers, Inc.
Atten. Conrad Higashionna, P.E.

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



August 18, 1999

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M.L.Y. AMII
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

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

Dear Mr. Johns:

Subject: Your Letter of August 2, 1999 Regarding the Environmental
Impact Statement Preparation Notice for the Proposed
Nanakuli 242 Reservoir Project, Nanakuli, Oahu, TMK: 8-9-08: 03

Thank you for reviewing the Environmental Impact Statement Preparation Notice for the
proposed Nanakuli 242 Reservoir Project.

We acknowledge that the proposed project site is located within Zone D where flood hazards
are undetermined.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,


CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Conrad Higashionna, Shimabukuro, Endo & Yoshizaki Engineers, Inc.

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4529 • FAX: (808) 523-4730



JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

August 11, 1999

TPD6/99-02993R
TPD99-00473

MEMORANDUM

TO: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: PROPOSED NANAKULI 242 RESERVOIR

In response to the June 15, 1999 letter from Shimabukuro, Endo & Yoshizaki Engineers, Inc., the environmental impact statement preparation notice was reviewed. The following comments are the result of this review:

1. The subject project should have minimal long-term impact on the surrounding City roadway network.
2. The proposed reservoir access road shown in Figure 2 (Page 6) should be constructed as a drop driveway where it connects to Maiaiholena Place.
3. In consideration of the schools in the project area, as an added safety measure, the contractor should schedule large truck deliveries to occur when classes are in session to minimize conflicts with children walking to/from school and parents dropping off/picking up their children from school. Truck drivers should also be encouraged to use only the main roadways (i.e. Nanakuli and Haleakala Avenues) leading to the project site and discouraged from using local residential streets.
4. The fourth paragraph of Section 3.21 (Page 25) should be corrected to reflect that Street Usage Permits are issued by the Department of Transportation Services, not the Department of Planning and Permitting.

Clifford S. Jamile
August 11, 1999
Page 2

5. The third measure to minimize traffic disruptions cited in the fourth paragraph of Section 3.21 (Page 25) should be revised to read, "If required by the Department of Transportation Services, the contractor shall provide off duty police to control the flow of traffic."

Should you have any questions regarding these comments, please contact Faith Miyamoto of the Transportation Planning Division at 527-6976.



CHERYL D. SOON

cc: ✓ Mr. Conrad Higashionna
Shimabukuro, Endo & Yoshizaki Engineers, Inc.

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
830 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



October 12, 1999

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M.L.Y. AMII
HERBERT S.K. KAOPIA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

COPY

TO: MS. CHERYL D. SOON, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: 
CLIFFORD S. JAMILE

SUBJECT: YOUR LETTER OF AUGUST 11, 1999 REGARDING THE ENVIRONMENTAL
IMPACT STATEMENT PREPARATION NOTICE FOR THE PROPOSED
NANAKULI 242 RESERVOIR PROJECT. TMK: 8-9-08: 03

Thank you for reviewing the Environmental Impact Statement Preparation Notice for the Nanakuli 242 Reservoir project.

We provide the following response to your concerns:

1. The proposed reservoir access road will be constructed as a drop driveway where it connects to Maiaiholena Place.
2. The contractor will be required to schedule large truck deliveries and routes to account for the school sessions and pedestrian and vehicular traffic before and after school.
3. The draft environmental impact statement (DEIS) will indicate that Street Usage Permits are issued by the Department of Transportation Services.
4. The DEIS will include the following statement concerning minimizing traffic disruptions: "If required by the Department of Transportation Services, the Contractor shall provide off duty police to control the flow of traffic."

If you have any questions, please contact Barry Usagawa at 527-5235.

cc: Conrad Higashionna, SEY Engineers, Inc.

DRAFT
ENVIRONMENTAL IMPACT STATEMENT
COMMENTS

10-0043
Laverne



January 20, 2000

RECEIVED DEPARTMENT OF FACILITY MAINTENANCE
SHIMABUKURO, ENDO & YOSHIZAKI, INC.

Civil & Structural Engineers
1126 12th Avenue, Honolulu, Hawaii 96816
Ph: (808) 737-1875 Fax: (808) 734-5976

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETAMA STREET
HONOLULU, HAWAII 96843



February 7, 2000

JEREMY HARRIS, Manager
EDDIE FLORES, Jr., Chairman
CHARLES A. STEWART, Vice Chairman
JAN M. L. AMI
HERBERT S. K. KAOPUA, SR.
BARBARA KIM STANTON
KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio
CLIFFORD S. JAMILE
Manager and Chief Engineer

Mr. Ross S. Sasamura, Director & Chief Engineer
Department of Facility Maintenance
City and County of Honolulu
630 South King Street
Honolulu, Hawaii 96813

Dear Mr. Sasamura:

Attached for your review is a Draft Environmental Impact Statement (DEIS) which was prepared pursuant to the EIS Law (Hawaii Revised Statutes, Chapter 343) and the EIS rules (Administrative Rules, Title 11, Chapter 200).

TITLE OF PROJECT: Nanakuli 242 Reservoir
LOCATION: ISLAND: Oahu DISTRICT: Waiānae
TAX MAP KEY NUMBERS: 8-8-8:3
AGENCY ACTION: APPLICANT ACTION:

Your comments must be received or postmarked by (min. 45 day comment period): March 10, 2000.

Please send original comments to the:

APPLICANT: Board of Water Supply
ADDRESS: 630 South Beretania Street
Honolulu, Hawaii 96843
CONTACT: Mr. Barry Usagawa PHONE: 527-5235

Copies of the comments should be sent to the following:

APPROVING AGENCY OR
ACCEPTING AUTHORITY: Governor, State of Hawaii
ADDRESS: c/o Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813
CONTACT: PHONE: 596-4185

CONSULTANT: Shimabukuro, Endo & Yoshizaki, Inc.
ADDRESS: 1126 12th Avenue, Room 309
Honolulu, Hawaii 96816
CONTACT: Howard K. Endo PHONE: 737-1875

If you no longer need this EIS, please recycle it. Thank you for your participating in the EIS process.

Very truly yours,

SHIMABUKURO, ENDO & YOSHIZAKI, INC.

Howard K. Endo, Ph.D.
President

Enclosure

January 21, 2000
We do not have any comments. If you have any questions, please call Laverne Higa at 527-6246.

ROSS S. SASAMURA
Director and Chief Engineer
Department of Facility Maintenance

TO: MR. ROSS S. SASAMURA, DIRECTOR
DEPARTMENT OF FACILITY MAINTENANCE

FROM:
CLIFFORD S. JAMILE

SUBJECT: YOUR MEMORANDUM OF JANUARY 21, 2000
REGARDING THE DRAFT ENVIRONMENTAL
IMPACT STATEMENT FOR THE BOARD OF WATER
SUPPLY PROPOSED NANAKULI 242 RESERVOIR

Thank you for your memorandum regarding the Draft Environmental Impact Statement for the proposed reservoir project.

We acknowledge that you do not have any comments to offer.

If you have any questions, please contact Scot Muraoka at 527-5221.

cc: Howard K. Endo, Shimabukuro, Endo & Yoshizaki, Inc.



BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



February 8, 2000

JEREMY HARRIS, Mayor
EDDIE FLORES, Vice President
CHARLES A. STEIN, Vice President
JAN M. L. Y. AMI
HERBERT S. K. KAOPIA, SR.
BARBARA KIM STANTON
KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio
CLIFFORD S. JAMILE
Manager and Chief Engineer

January 28, 2000

Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

Attention: Mr. Barry Usagawa

Gentlemen:

Subject: Nanakuli 242 Reservoir

We refer to Shimabukuro, Endo and Yoshizaki, Inc.'s letter dated January 20, 2000, requesting the review of the Draft Environmental Impact Statement (DEIS). Based on our review of the information provided, it has been determined that the area is currently clear of utility gas facilities.

Thank you for the opportunity to review the DEIS for the proposed project. Should there be any questions or if additional information is desired, please call me at 594-5574.

Very truly yours,

The Gas Company

Keith K. Yamamoto
Supervisor, Engineering

KKY:bs
00-105

Cc: Governor, State of Hawaii
✓Howard K. Endo, Shimabukuro, Endo and Yoshizaki, Inc.

Mr. Keith K. Yamamoto
The Gas Company
515 Kamakee Street
Honolulu, Hawaii 96802-3000

Dear Mr. Yamamoto:

Subject: Your Letter of January 28, 2000 Regarding
the Draft Environmental Impact Statement
for the Board of Water Supply's Proposed
Nanakuli 242 Reservoir Project

Thank you for your letter regarding the Draft Environmental Impact Statement for the proposed reservoir project.

We acknowledge that the proposed project area is currently clear of utility gas facilities.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,

CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Shimabukuro, Endo and Yoshizaki, Inc.

GTE Hawaiian Tel

Beyond the call

GTE Hawaiian Telephone Company Incorporated
P.O. Box 2200 • Honolulu, HI 96841 • (808) 546-4511

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



February 10, 2000

JEREMY HARRIS, Chairman
EDDIE FLORES, Vice Chairman
CHARLES A. STED, Vice Chairman
JAN M. LY. AMB
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASABURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

January 28, 2000

Attention: Mr. Howard K. Endo
Shimabukuro, Endo & Yoshizaki, Inc.
Civil & Structural Engineers
1126 12th Avenue
Honolulu, Hawaii 96816

Dear Mr. Endo:

Subject: **NANAKULI 242 RESERVOIR**

Thank you for the opportunity to review and comment on the Draft Environmental Impact Statement for the Nanakuli 242 Reservoir project.

As stated in our letter dated July 2, 1999, GTE Hawaiian Tel does not foresee any problems in providing telecommunication services to the proposed project. Currently, GTE Hawaiian Tel has underground facilities along Haleakala and Nanakuli Avenues from Piliilaau Avenue to the proposed reservoir site. Also, GTE Hawaiian Tel requires further review during the design stages of the project.

If you have any questions or require assistance in the future on this project, please call Les Loo at 840-5861.

Sincerely,

Jill Z. Lee
Section Manager
Access Design & Construction

c: K. Ayano (HIA5)

Ms. Jill Z. Lee
Section Manager
Access Design & Construction
GTE Hawaiian Tel
P. O. Box 2200
Honolulu, Hawaii 96841

Dear Ms. Lee:

Subject: Your Letter of January 28, 2000 to Shimabukuro, Endo & Yoshizaki, Inc. Regarding the Draft Environmental Impact Statement for the Board of Water Supply's Proposed Nanakuli 242 Reservoir Project

Thank you for your letter regarding the Draft Environmental Impact Statement for the proposed reservoir project.

We acknowledge that GTE Hawaiian Tel does not foresee any problems in providing telecommunication services to the proposed project. We note that further review is required by GTE Hawaiian Tel during the design stages of the project.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,

CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Shimabukuro, Endo & Yoshizaki, Inc.

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
829 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 527-8883 • FAX: (808) 527-8875 • Website: www.cc.honolulu.hi.us



JEREMY HARRIS
Mayor

KENNETH E. SPRAGUE, P.E., Ph.D.
Director

BARRY FUKUNAGA
Deputy Director

ENV 00-10

JAN 31 2000

MEMORANDUM

TO: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

ATTENTION: BARRY USAGAWA

FROM:  KENNETH E. SPRAGUE, DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)
NANAKULI 242 RESERVOIR
TMK: 8-9-8: 3

We have reviewed the subject DEIS and wish to restate our previous comment that effluent discharge permit from the City Department of Environmental Services may be required.

Should you have any questions, please contact Alex Ho at 523-4150.

cc: SOH - OEQC
Mr. Howard Endo - Shimabukuro, Endo & Yoshizaki, Inc. ✓

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
830 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



February 11, 2000

JEREMY HARRIS, Mayor
EDDIE FLORES, Jr., Chairman
CHARLES A. STED, Vice Chairman
JAN M. LY AMI
HERBERT S. K. KAOPIA, Sr.
BARBARA KIM STANTON
KAZU HAYASHIDA, Ex-Officio
ROSS S. SASANURA, Ex-Officio
CLIFFORD S. JAMILE
Manager and Chief Engineer

TO: MR. KENNETH E. SPRAGUE, DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

FROM:  CLIFFORD S. JAMILE

SUBJECT: YOUR MEMORANDUM OF JANUARY 31, 2000 REGARDING
THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR
THE BOARD OF WATER SUPPLY'S PROPOSED NANAKULI 242
RESERVOIR PROJECT. TMK: 8-9-08: 03

Thank you for reviewing the Draft Environmental Impact Statement (EIS) for the proposed Nanakuli 242 Reservoir project.

Effluent discharge permits from the State Department of Health and the City's Department of Environmental Services will be coordinated during the design phase of the project. The required permits are listed in the Draft EIS under "Government Permits and Approvals."

If you have any questions, please contact Scot Muraoka at 527-5221.

cc: Howard K. Endo, Shimabukuro, Endo & Yoshizaki, Inc.



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

REPLY TO
ATTENTION OF

February 2, 2000

Civil Works Technical Branch

Mr. Barry Usagawa
City and County of Honolulu
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Usagawa:

Thank you for the opportunity to review and comment on the Draft Environmental Impact Statement for the Nanakuli 242 Reservoir, Nanakuli, Oahu. We do not have any additional comments to offer beyond those provided in our previous letter dated July 2, 1999.

Sincerely,

James Pennaz, P.E.
Chief, Civil Works
Technical Branch

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



February 10, 2000

JERRY TORRES, Chairman

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M. LY. AMI
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMBLE
Manager and Chief Engineer

Mr. James Pennaz, P.E.
Chief, Civil Works Technical Branch
Department of the Army
U.S. Army Engineer District, Honolulu
Ft. Shafter, Hawaii 96858-5440

Dear Mr. Pennaz:

Subject: Your Letter of February 2, 2000 Regarding the Draft Environmental Impact Statement for the Board of Water Supply's Proposed Nanakuli 242 Reservoir Project

Thank you for your letter regarding the Draft Environmental Impact Statement (EIS) for the proposed reservoir project.

We acknowledge that you do not have any additional comments to your July 22, 1999 letter on the EIS Preparation Notice.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,

CLIFFORD S. JAMBLE
Manager and Chief Engineer

cc: Shimabukuro, Endo & Yoshizaki, Inc.

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

3375 KOAPAKA STREET, SUITE H425
HONOLULU, HAWAII 96818-1889



February 3, 2000

TO: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

ATTN: BARRY USAGAWA, LONG RANGE PLANNING SECTION
PLANNING AND ENGINEERING DIVISION

FROM: ATILIO K. LEONARDI, FIRE CHIEF

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE
NANAKULI 242 RESERVOIR
WAIANAE, OAHU
TAX MAP KEY: 8-9-008: 003

We received the letter from Howard K. Endo, Ph.D., dated January 20, 2000, regarding the Nanakuli 242 Reservoir.

The Honolulu Fire Department requests compliance with the following:

1. Maintain fire apparatus access throughout the construction site for the duration of the project.
2. Notify the Fire Communication Center (523-4411) of any interruption in the existing fire hydrant system during the project.

Should you have any questions, please call Battalion Chief Kenneth Silva of our Fire Prevention Bureau at 831-7778.


ATTILIO K. LEONARDI
Fire Chief

AKL/KS:jo

cc: Office of Environmental Quality Control
Howard K. Endo, Shimabukuro, Endo & Yoshizaki, Inc.

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
830 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



February 25, 2000

TO: MR. ATILIO K. LEONARDI, FIRE CHIEF
FIRE DEPARTMENT

FROM: 
CLIFFORD S. JAMILE

SUBJECT: YOUR LETTER DATED FEBRUARY 3, 2000 REGARDING THE
DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED
NANAKULI 242 RESERVOIR, WAIANAE, OAHU, HAWAII, TMK: 8-9-08: 03

Thank you for reviewing the Draft Environmental Assessment for the proposed Nanakuli 242 Reservoir project.

We provide the following comments to your concerns:

1. Access for fire apparatus will be maintained throughout the construction site for the duration of the project.
2. The Fire Communication Center will be notified of any interruptions in the existing fire hydrant system during the project.

If you have any questions, please contact Kathryn Kami at 527-5221.

cc: Howard K. Endo, Shimabukuro, Endo & Yoshizaki, Inc.

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M. L. Y. AMI
HERBERT S. K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASABURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

BENJAMIN J. CAYetano
GOVERNOR
STATE OF HAWAII



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

RAYNARD C. SOON
CHAIRMAN
HAWAIIAN HOME COMMISSION
JOSE M. E. M. YAMAGUCHI
DEPUTY TO THE CHAIRMAN

Mr. Barry Usagawa
February 4, 2000
Page 2

February 4, 2000

Mr. Barry Usagawa
Board of Water Supply
630 South Beretania Street
Honolulu, HI 96843

Dear Mr. Usagawa:

Subject: Nanakuli 242 Reservoir, Draft Environmental Impact
Statement, TMK 8-9-8:03, Nanakuli, Oahu, Dated
December, 1999

Thank you for the opportunity to review the subject application. The Department of Hawaiian Home Lands (DHHL) has reviewed the Board of Water Supply (BWS) proposal to develop a 2 million gallon (MG) reinforced concrete reservoir, 20-inch transmission main, access road and associated appurtenances in Nanakuli and provides the following comments for your consideration:

1. Chapter IV, Environmental Setting

The subject document does not discuss the source and availability of potable water to be used at Nanakuli 242. What is the source of water to be supplied to the proposed Nanakuli 242? How will this impact the availability of potable water on Oahu?

Figure 9, Planned Housing Projects as of July 1997, incorrectly illustrates the development of 100 units at Camp Andrews. No residential uses are proposed at Camp Andrews.

Figure 9 also misrepresents the location of a proposed 272 unit development. See the enclosed map for the correct location.

2. Chapter V, Relationship to Policies, Land Use Plans and Controls

The draft EIS supports a beneficial relationship between the subject project and State and City & County plans; however, it does not address the relationship to the existing DHHL Nanakuli Development Plan (DP).

The Nanakuli DP proposes residential uses in the upper Nanakuli valley. DHHL recommends that the BWS work with the department to evaluate alternative locations and strategies to develop the proposed 2 MG reservoir to the benefit of the Hawaiian home lands trust as well as the Waianae Coast community.

3. Chapter X, Probable Adverse Environmental Effects Which Cannot Be Avoided

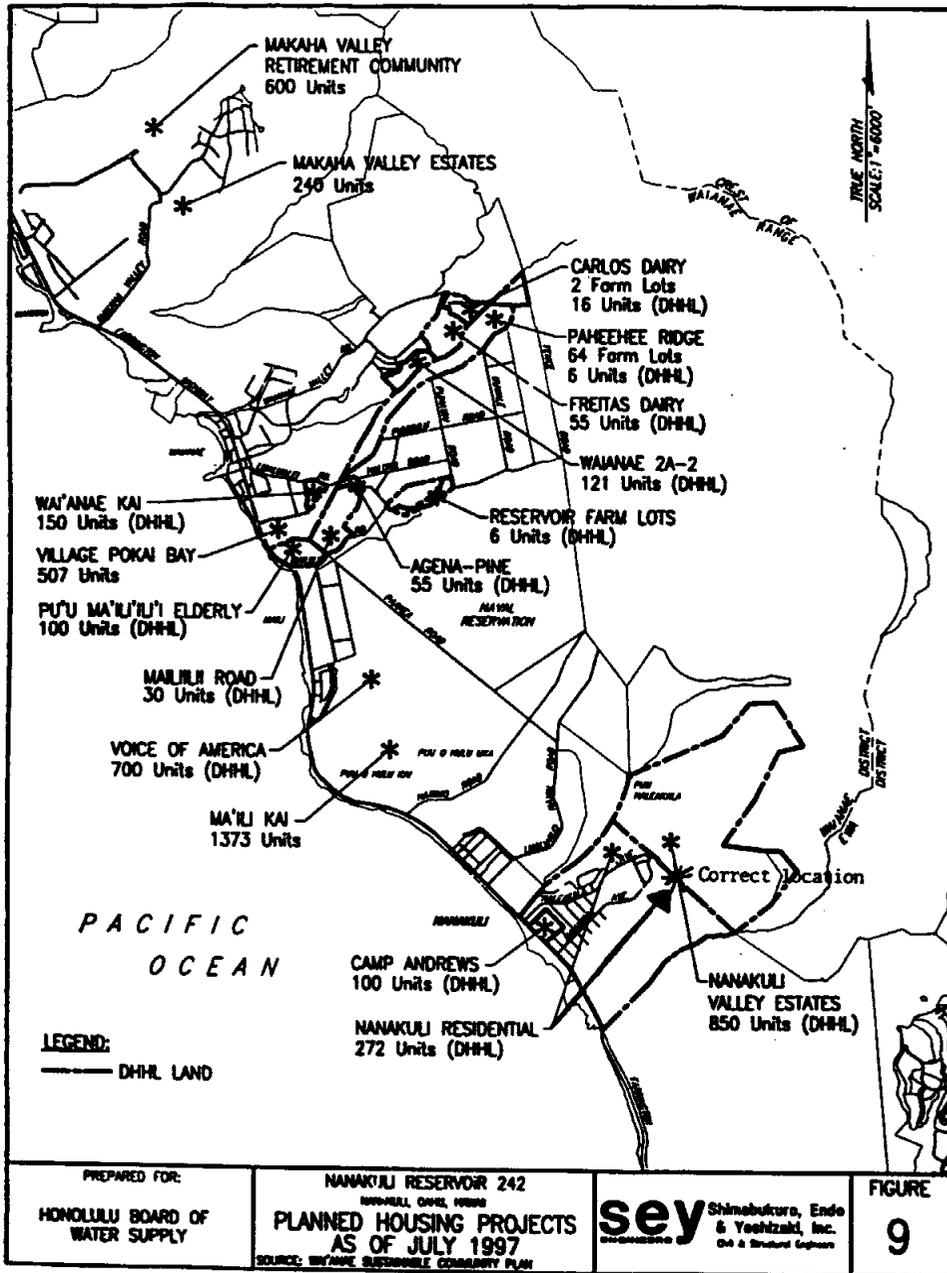
The development of the proposed 2 MG reservoir will cause long term visual impacts. The department recommends that the BWS work with the department to determine necessary mitigation measures, namely berms, to reduce the visual impact of the subject project.

If you have any questions, please call me at 586-3801 or contact Daniel Ornellas of our Planning Office at 586-3836.

Aloha,

Raynard C. Soon
Raynard C. Soon, Chairman
Hawaiian Home Commission

Enc.



BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



March 31, 2000

COPY

JEREMY HARRIS, Manager
EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice-Chairman
JAN M.L.Y. AMI
HERBERT S.K. KAPOUA, SR.
BARBARA KIM STANTON
KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio
CLIFFORD S. JAMILE
Manager and Chief Engineer

Mr. Raynard Soon, Chairman
Department of Hawaiian Home Lands
State of Hawaii
P. O. Box 1879
Honolulu, Hawaii 96805

Dear Mr. Soon:

Subject: Your Letter of February 4, 2000 Regarding the Draft Environmental Impact Statement for the Board of Water Supply's Proposed Nanakuli 242 Reservoir Project

Thank you for your letter regarding the Draft Environmental Impact Statement (DEIS) for the proposed reservoir project.

We have the following response to your concerns:

- Chapter IV, Environmental Setting:** Figure 9 will be revised to show no residential use at Camp Andrews and the relocation of the proposed 272-unit Nanakuli development from the Kaena side to the Ewa side of the valley.
- Chapter V, Relationship to Policies, Land Use Plans and Controls:** We acknowledge that the Department of Hawaiian Home Lands (DHHL) will develop residential units in upper Nanakuli Valley. The proposed reservoir will satisfy the needs of existing and future developments in the Nanakuli low service area which is the lower half of the valley as shown in Figure 2 of the DEIS. The reservoir is not intended to serve future developments in upper Nanakuli Valley, which is the high service area. However, the Nanakuli 242 Reservoir will be able to allow larger booster pumps to boost water to the upper valley area. We are available to discuss potential future reservoir sites and strategies for upper Nanakuli Valley with your staff.
- Chapter X, Probable Adverse Environmental Effects Which Cannot Be Avoided:** Our design consultant is evaluating visual impact mitigative measures including berms, in coordination with DHHL. We will submit construction plans to DHHL for review and comments during each phase of the design.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,

Clifford S. Jamile
CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: SEY Engineers, Inc.

Prepared for: HONOLULU BOARD OF WATER SUPPLY

PREPARED FOR:
HONOLULU BOARD OF
WATER SUPPLY

NANAKULI RESERVOIR 242
1000-0001, CIVIL, 10/99
PLANNED HOUSING PROJECTS
AS OF JULY 1997
SOURCE: BUREAU OF SUSTAINABLE COMMUNITY PLAN

sey Shimabukuro, Ende
& Yoshizaki, Inc.
Civil & Structural Engineers

FIGURE
9

BENJAMIN J. CAYETANO
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF EDUCATION
P.O. BOX 2388
HONOLULU, HAWAII 96804

P-110/00

PAUL G. LEMAHIEU, Ph.D.
SUPERINTENDENT

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



March 24, 2000

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M. Y. ANI
HERBERT S.K. KAOPIA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMBLE
Manager and Chief Engineer

OFFICE OF THE SUPERINTENDENT

February 9, 2000

Mr. Barry Usagawa
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Usagawa:

Subject: Nanakuli 242 Reservoir Draft EIS

The Department of Education has no comment on the subject draft environmental impact statement.

Thank you for the opportunity to respond.

Very truly yours,

Paul G. LeMahieu, Ph.D.
Superintendent of Education

PLeM:hy

cc: P. Yoshioka, OBS
H. Sumile, LDO
OEQC
H. Endo, Shimabukuro, Endo & Yoshizaki, Inc.

Mar 13 9 38 AM '00

Paul G. LeMahieu, Ph.D.
Superintendent of Education
Department of Education
State of Hawaii
P. O. Box 2360
Honolulu, Hawaii 96804

Dear Dr. LeMahieu:

Subject: Your Letter of February 9, 2000 Regarding the Draft Environmental Impact Statement for the Board of Water Supply's Proposed Nanakuli 242 Reservoir Project

Thank you for your letter regarding the Draft Environmental Impact Statement for the proposed reservoir project.

We acknowledge that you do not have any comments to offer.

Very truly yours,

CLIFFORD S. JAMBLE
Manager and Chief Engineer

cc: Shimabukuro, Endo and Yoshizaki, Inc.



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

February 17, 2000

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MIHAHI
GLENN M. OKIMOTO

IN REPLY REFER TO:
STP 8.9408

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



March 17, 2000

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M. L. Y. AMI
HERBERT S. K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

Mr. Clifford Jamile
Manager & Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

Attention: Mr. Barry Usagawa

Dear Mr. Jamile:

Subject: Nanakuli 242 Reservoir
Draft Environmental Impact Statement (DEIS)
TMK: 8-9-8: 3

Thank you for your transmittal requesting our review and comments on the subject project.

Our prior comments of July 14, 1999, HWY-PS 2.4533 (copy attached), are still applicable.

We appreciate the opportunity to provide comments.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

Attach.

c: Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Howard K. Endo, Shimabukuro, Endo & Yoshizaki, Inc.

Mr. Kazu Hayashida, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Hayashida:

Subject: Your Letter of February 17, 2000 Regarding the Draft Environmental Impact Statement for the Proposed Nanakuli 242 Reservoir, Waianae, Oahu. TMK: 8-9-08: 03

Thank you for reviewing the Draft Environmental Impact Statement for the proposed Nanakuli 242 Reservoir project.

The construction plans for the proposed pipeline installation work within Farrington Highway will be submitted for your review and approval.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,

CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Howard K. Endo, Shimabukuro, Endo & Yoshizaki, Inc.



STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Kamokila Building, Room 555
501 Kamokila Boulevard
Honolulu, Hawaii 96813

TIMOTHY JOHN CHAMBERLAIN
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES
- ANNE KAMELO

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

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



March 24, 2000

JEREMY HARRIS, Chairman

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M. LY, AMM
HERBERT S. K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAKURA, Ex-Officio

CLIFFORD S. JAMBLE
Manager and Chief Engineer

February 18, 2000

Mr. Clifford S. Jamble
Manager and Chief Engineer
Board of Water Supply
630 S. Beretania Street
Honolulu, Hawaii 96843
Attn: Barry Usagawa

LOG NO: 24909 ✓
DOC NO: 0002EJ12

Dear Mr. Jamble:

SUBJECT: Chapter 6E-8 Historic Preservation Review -- Draft Environmental Impact Statement: Honolulu Board of Water Supply Nanakuli 242 Reservoir and Proposed 20-inch Transmission Main Along Nanakuli Avenue Nanakuli, Wai'anae, O'ahu
TMK: 8-9-008-003, various

Thank you for the opportunity to provide comment on the Draft Environmental Impact Statement (DEIS) for the Nanakuli 242 Reservoir and 20-inch Transmission main at Nanakuli. The DEIS includes in Section 11.8 and in Appendix B, our earlier comments that archaeological monitoring be conducted during all ground disturbing activities within the proposed 20-inch main transmission line, from Farrington highway and inland for all areas where Jaucus sand substrate is encountered. If these steps are taken, then we believe that the proposed reservoir and 20-inch transmission main will have "no adverse effect" on significant historic sites.

The next step in the historic preservation review process would be the submittal of an acceptable archaeological monitoring plan, which needs to be approved by our Division. Once we approve the plan, then from our perspective, construction work could begin with the presence of an on-site archaeological monitor.

If you have any questions please call Sara Collins at 692-8026 or Elaine Jourdane at 692-8027.

Aloha

DON HIBBARD, Administrator
State Historic Preservation Division

EJ:jk

c: ✓ Howard K. Endo, Shimabukuro, Endo & Yoshizaki, Inc. 1126 12th Avenue Rm 309, Honolulu, Hawaii 96816
Governor, State of Hawaii c/o Office of Environmental Quality Control, 235 S. Beretania St., Suite 702, Honolulu, HI 96813

Mr. Don Hibbard, Administrator
Historic Preservation Division
Department of Land and Natural Resources
501 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707

Dear Mr. Hibbard:

Subject: Your Letter of February 18, 2000 Regarding the Draft Environmental Impact Statement for the Board of Water Supply's Proposed Nanakuli 242 Reservoir Project

Thank you for your letter regarding the Draft Environmental Impact Statement for the proposed reservoir project.

We acknowledge your comments regarding continuous archaeological monitoring during all ground disturbing activities from Farrington Highway and inland for all areas where Jaucus sand is encountered. An acceptable archaeological monitoring plan will be submitted for your approval prior to any construction work in the area.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,

CLIFFORD S. JAMBLE
Manager and Chief Engineer

cc: Howard K. Endo, Shimabukuro, Endo & Yoshizaki, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

P-93/00

PAUL LAMAHIEU, PH.D.
SUPERINTENDENT

STATE OF HAWAII
DEPARTMENT OF EDUCATION
NANAKULI HIGH AND INTERMEDIATE SCHOOL
89-980 NANAKULI AVENUE
WAIANAЕ, HAWAII 96792

February 22, 2000

Mr. Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Attention: Mr. Barry Usagawa, Project Manager

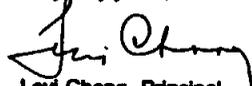
Dear Mr. Jamile:

Subject: ENVIRONMENTAL IMPACT STATEMENT FOR THE
NANAKULI 242 RESERVOIR

Thank you for the giving us the opportunity to review and comment on the subject project. After a close review of the DEIS and accompanying comments, we have the following concerns:

1. There is some concern as to the threat of safety hazards to students and parents prior to the beginning of the school day and at the completion of the school day, as construction progresses along Nanakuli Ave.
2. We also agree with Ms. Cheryl D. Soon, Director of the Department of Transportation, and her concern as stated in paragraph 3 of her letter dated August 11, 1999. The contractor needs to schedule large truck deliveries and equipment movement to be done during class time to minimize the danger to students.

Very truly yours,



Levi Chang, Principal
Nanakuli High & Intermediate School

cc: Governor, State of Hawaii
Shimabukuro, Endo & Yoshizaki, Inc.

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



March 31, 2000

Mr. Levi Chang, Principal
Nanakuli High and Intermediate School
Department of Education
State of Hawaii
89-980 Nanakuli Avenue
Waianae, Hawaii 96792

Dear Mr. Chang:

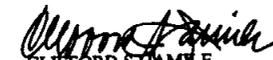
Subject: Your Letter of February 22, 2000 (P-93/100) Regarding the
Draft Environmental Impact Statement for the Board of Water
Supply's Proposed Nanakuli 242 Reservoir Project

Thank you for your letter regarding the Draft Environmental Impact Statement for the proposed reservoir project.

We acknowledge your comments regarding construction safety hazards prior, during and after school hours. Provisions will be made in the project's plan and specifications to include these concerns to minimize dangers to students and parents affected by the construction activities during these periods.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,


CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Shimabukuro, Endo & Yoshizaki, Inc.

Pure Water... our greatest need - use it wisely

COPY
JEREMY HARRIS, Mayor
EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice-Chairman
JAN M.L.Y. AMI
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON
KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio
CLIFFORD S. JAMILE
Manager and Chief Engineer

Mar 2 1 54 PM '00



P-163/00

University of Hawai'i at Mānoa

Environmental Center
A Unit of Water Resources Research Center
2550 Campus Road • Crawford 317 • Honolulu, Hawai'i 96822
Telephone: (808) 956-7381 • Facsimile: (808) 956-3980

March 10, 2000
RE: 0701

Mar 29 10 42 AM '00

Mr. Barry Usagawa
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Usagawa:

Draft Environmental Impact Statement
Nanakuli 242 Reservoir
Nanakuli, Oahu

The City and County of Honolulu Board of Water Supply (BWS) proposes to develop a 2-million gallon capacity reservoir mauka of Maiaholena Place in Nanakuli, with a 20-inch transmission main connecting the new reservoir to the existing transmission main along Farrington Highway. Also included in the project are an access road to provide routine inspections and maintenance, and associated appurtenances. The purpose of this project is to maintain safe and reliable water supply to residents of the Nanakuli low service area, which currently does not have sufficient water storage capacity to meet BWS standards.

This review was prepared with the assistance of Henry Gee, Water Resources Research Center; Roger Babcock, Civil Engineering; Mark Merlin, Botany; and Sherri Hiraoka, Environmental Center.

General Comments

This was an adequately prepared Draft Environmental Impact Statement (EIS) which covers the archaeological values and traditional land uses particularly well. There were however, several points that our reviewers request clarification or elaboration in the Final document.

Nanakuli Valley

The Draft EIS states on page 12 that Nanakuli Valley possesses "poor water...resources" and that there were "no perennial streams in the valley." One of our reviewers, Dr. Mark Merlin, noticed a seep, during a hike in the back of the valley, about 20 years ago. This could possibly indicate an abandoned water source that may be unrecorded. This may or may not be of significance, but was worth noting.

Mr. Usagawa
March 10, 2000
Page 2

Summary of Technical Data

The discussion on page 19 states that "the reservoir, water mains, roads, drainage structures, landscaping, and perimeter fences will be constructed according to Board of Water Supply standards." Please indicate where these standards may be found. It would also be helpful to cite the title of these standards to allow for reference if necessary.

Access Road

Our reviewers were not clear why a 214-foot access road (mentioned on page 19) will require only a 110-foot easement (page 18). Will the rest of the alignment be located on lands other than those that are managed by the Department of Hawaiian Home Lands?

Other Facilities

Landscaping is proposed to "consist of plantings around the reservoir and the cut slopes" (page 22). Will the landscaping include native Hawaiian plants?

No Action Alternative

The Draft EIS states on page 26 that "without the proposed five million gallon reservoir, chances are greater that there will be a shortage of water..." It was not clear what the chances for this shortage are greater than.

Description of Environmental Setting From a Local Perspective

The temperature range given for Nanakuli on page 37 indicates "a high of 85 degrees to a low of 65 to 70 degrees Fahrenheit." The lower end of the range should not be another range. A low temperature should be used.

Development in Nanakuli

Both the DHHL and the State of Hawaii are planning various development projects. Included in these proposed developments are an elementary school, a multi-service center, and the Nanakuli Estates Project. What are the projected water needs for these developments listed on page 43? Will the proposed half million gallons in excess of current requirements be sufficient to accommodate the additional 1,431 additional residential developments predicted for Nanakuli by the year 2020 (page 35)?

Probable Impacts

Chapter VI, Probable Impacts, beginning on page 52 is numbered incorrectly. It is numbered as sections 4.1, 4.2. et cetera. This section should be redone with the correct numbering to avoid confusion.

Short-Term Impacts

This section states that "there are no known indirect short-term impacts." Our reviewers found this statement difficult to believe. One possible indirect impact includes sedimentation caused by erosion, which is carried into the stream and eventually into the ocean.

Drainage and Flooding

The discussion on drainage and flooding mentions the concerns of the Waianae Neighborhood Board on page 58. No assessment of this possible problem was done due to a lack of data. Considering the knowledge of the area that local residents often have, it would be prudent to assume that this may be a problem, and to therefore speculate on the possible outcomes under the conditions that they describe.

Cumulative Environmental Impacts of the Proposed Action and Other Related Projects

Water is an important resource and should be managed carefully. We feel that one of the ways to do this is to develop a Master Plan for water resource management on Oahu. Such a Master Plan would ensure sustainable use of water and watershed management.

The Makaha 242 Reservoir is referred to on page 61 as a future project that is being planned for the Makaha low service area. Is this the same project as the Waianae 242 Reservoir on page 62?

Impacts to Permittees

The proposed project will traverse the properties of Robert Lyman and Mary Higashi. Although page 73 of the DEIS states that these actions will be mitigated by the relocation of the fence and stable that will be affected, it was unclear to our reviewers if Mr. Lyman and Ms. Higashi had opinions on these impacts to the properties that they are leasing. It was noted that they were consulted but there is no statement of whether or not they responded to the notice. If they did, what was their response?

Archaeological Inventory Survey

Appendix D of the DEIS consists of the Archaeological Inventory Survey for the proposed project site. The scientific name of the koa hole plant is misspelled. Instead of "*Leucana hlauca*", as it reads on page 6, the scientific name should read *Leucaena glauca*. The koa haole species cited in the botanical survey in Appendix C indicates that the koa haole species found at the project site is *Leucaena leucocephala*.

The survey also states on page 6 that "the undeveloped site of the 242 reservoir consists of kiawe." It should read that "the undeveloped site of the 242 reservoir consists predominantly of kiawe..." as there are few other species of plants as is stated in the Botanical Resources Assessment in Appendix C.

Thank you for the opportunity to comment on this Draft EIS.

Sincerely,



Peter Rappa
Assistant Environmental Coordinator

cc: Shimabukuro, Endo, & Yoshizaki, Inc.
OEQC
James Moncur, WRRC
Henry Gee, WRRC
Roger Babcock, Civil Engineering
Mark Meriin, Botany
Sherri Hiraoka, Environmental Center

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



April 28, 2000

JEREMY HAYNES, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice-Chairman
JAN M.L.Y. AHI
HERBERT S.K. KAOPIA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASABURA, Ex-Officio

CLIFFORD S. JAMBLE
Manager and Chief Engineer

Mr. Peter Rappa
April 28, 2000
Page 2

Mr. Peter Rappa
Assistant Environmental Coordinator
University of Hawaii
Environmental Center
2550 Campus Road, Crawford 317
Honolulu, Hawaii 96822

Dear Mr. Rappa:

Subject: Your Letter of March 10, 2000 Regarding the Draft Environmental Impact Statement for the Board of Water Supply's Proposed Nanakuli 242 Reservoir Project

Thank you for reviewing the Draft Environmental Impact Statement (EIS) for the Nanakuli 242' Reservoir project.

We provide the following response to your concerns in each associated section:

1. Nanakuli Valley

We acknowledge that a water seep was noticed by one of your reviewers in the back of Nanakuli Valley.

2. Summary of Technical Data

The reference for the Board of Water Supply (BWS) standards is the City and County of Honolulu, BWS "Water System Standards," Volume 1 dated 1985. This reference will be cited and listed in the Final EIS.

3. Access Road

The easement is needed between Maiaiholena Place and the reservoir lot. The correct length of the easement is approximately 150 feet and not 110 feet as presented in the Draft EIS. The 214-foot road mentioned on page 19 includes the easement and the roadway within the reservoir lot. The length will be revised in the Final EIS. The reservoir site and access roadway are located entirely on the Department of Hawaiian Home Lands.

4. Other Facilities

The types of plants incorporated into the landscape plan will be selected by the landscape architect to blend in with the existing vegetation during the design stage. Consideration will be given to native Hawaiian plants.

5. No Action Alternative

The reservoir increases the water system's reliability. The chances of water shortage will be greater without the proposed reservoir.

6. Description of Environmental Setting from a Local Perspective

The lower limit for temperature will be stated at 65 degrees.

7. Development in Nanakuli

The proposed reservoir will provide two million gallons of additional water storage capacity in the Nanakuli area. As noted in the Draft EIS, the existing storage capacity is less than BWS standards. About 1.5 million gallons of additional storage is needed to meet existing storage requirements. The additional half million gallons will provide storage capacity for future planned development in the Nanakuli area below the 142-foot elevation. The additional 1,431 additional residential units projected in the year 2020 are primarily in the Upper Nanakuli Valley and above the low service water zone. Additional reservoirs will be required if this projection is realized.

8. Probable Impacts

Section numbers will be revised in the Final EIS.

Mr. Peter Rappa
April 28, 2000
Page 3

Mr. Peter Rappa
April 28, 2000
Page 4

9. Short-Term Impacts

Erosion is considered to be a direct short-term impact as noted on Page 52 along with fugitive dust, exhaust emissions, noise and traffic. Short term erosion impacts are discussed on Page 54.

10. Drainage and Flooding

Mr. John Higashi who leases the site adjacent to the proposed reservoir site indicated that during heavy rainfall there is sheet flow over the surface less than 6 inches in depth. A walk through inspection of Nanakuli Stream revealed a steel cable fencing across the stream downstream of the proposed reservoir site, apparently to contain grazing animals. Large debris could be caught by the fence and other obstructions and constrictions in the stream resulting in a flow restriction and localized flooding.

Drainage improvements at the reservoir site will be designed to meet the drainage standards of the City and County of Honolulu, Department of Planning and Permitting. A drainage study may be conducted during the design of the reservoir.

11. Cumulative Environmental Impacts of the Proposed Action and Other Related Projects

The Makaha 2.0 MG 242' reservoir is currently under construction. The Waianae 242 reservoir is a separate project and is in the planning stage.

12. Impacts to Permittees

Both permittees, Mr. Lyman and Mr. Higashi were sent the EIS Preparation Notice and the Draft EIS. They did not respond to either document.

13. Archaeological Inventory Survey

The koa haole species has been changed to *Leucaena leucocephala*. The second referenced statement has been corrected to read "the undeveloped site of the 242' reservoir consists predominantly of Kiawe.."

Thank you again for your thorough review.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,


CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Shimabukuro, Endo & Yoshizaki, Inc.

BERNARD J. CAVETANO
GOVERNOR OF HAWAII



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

February 25, 2000

P-98/00

BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

In reply, please refer to
File

99-011B/epo

MAR 6 4 19 PM '00

Mr. Brian Usagawa
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Usagawa:

Subject: Draft Environmental Impact Statement
Nanakuli 242 Reservoir
Waianae District, Oahu
TMK: 8-9-8: 3

Thank you for allowing us to review and comment on the subject document. We do not have any comments to offer at this time, as the issues of concern to us have been adequately addressed.

Sincerely,

GARY GILL
Deputy Director for
Environmental Health

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



March 21, 2000

JEREMY HAYES, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice Chairman
JAN M. LY AMI
HERBERT S. K. KAOPIA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Sr. Officer
ROSS S. SASAKURA, Sr. Officer
CLIFFORD S. JAMILE
Manager and Chief Engineer

Mr. Gary Gill, Deputy Director
Environmental Health
Department of Health
State of Hawaii
P. O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Gill:

Subject: Your Letter of February 25, 2000 Regarding the Draft
Environmental Impact Statement for the Board of Water
Supply's Proposed Nanakuli 242 Reservoir Project

Thank you for your letter regarding the Draft Environmental Impact Statement for the proposed reservoir project.

We acknowledge that you do not have any comments to offer at this time.

Very truly yours,

CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Shimabukuro, Endo and Yoshizaki, Inc.

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 - AREA CODE (808) 529-3111
<http://www.honolulu.police.org>
www.co.honolulu.hi.us



JEREMY HARRIS
MAYOR

LEE D. DONOHUE
CHIEF
MICHAEL CARVALHO
ROBERT AU
DEPUTY CHIEFS

OUR REFERENCE CS-DL

February 28, 2000

TO: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

ATTENTION: BARRY USAGAWA

FROM: LEE D. DONOHUE, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE
NANAKULI 242 RESERVOIR IN WAIANA'E, TMK: 8-9-8:3

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

We have noted that our previous concerns on construction-related problems have been addressed and that mitigation measures are being proposed. Therefore, we have no further comments to offer at this time.

If there are any questions, please call me at 529-3255 or Captain George Yamamoto of District 8 at 674-8802.

LEE D. DONOHUE
Chief of Police

Eugene Uemura

By
EUGENE UEMURA
Assistant Chief
Support Services Bureau

cc: Ofc. of Environmental
Quality Control

✓ Mr. Howard K. Endo
Shimabukuro, Endo &
Yoshizaki, Inc.

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843



March 20, 2000

JEREMY HARRIS, Mayor
EDDIE FLORES, JR., Chairman
CHARLES A. SYED, Vice Chairman
JAN M. L. Y. AMI
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON
KAZU HAYASHIDA, Ex-Officio
ROSS S. SASABURA, Ex-Officio
CLIFFORD S. JAMILE
Manager and Chief Engineer

TO: MR. LEE D. DONOHUE, CHIEF OF POLICE
POLICE DEPARTMENT

FROM: *Clifford S. Jamile*
CLIFFORD S. JAMILE

SUBJECT: YOUR MEMORANDUM OF FEBRUARY 28, 2000 REGARDING THE
DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE BOARD OF
WATER SUPPLY'S PROPOSED NANAKULI 242 RESERVOIR PROJECT

Thank you for reviewing the Draft Environmental Impact Statement (DEIS) for the proposed Nanakuli 242 Reservoir project.

We acknowledge that you have no further comments to offer at this time as your previous concerns on construction-related problems and mitigation measures have been addressed in the DEIS.

If you have any questions, please contact Scot Muraoka at 527-5221.

cc: Howard K. Endo, Shimabukuro, Endo & Yoshizaki, Inc.

F-132/00

PHONE (808) 594-1886

FAX (808) 594-1886



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPIOLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

March 9, 2000

Mr. Barry Usagawa
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

EIS #00-321

Re: Nanakuli 242 Reservoir, Waianae, O'ahu, TMK: 8-9-8:3

Dear Mr. Usagawa:

Thank you for the opportunity to review the Draft Environmental Impact Statement (DEIS) for the proposed Nanakuli 242 Reservoir. The reservoir will be built on land licensed by the Department of Hawaiian Home Lands (DHHL) to the Board of Water Supply.

There is currently insufficient water capacity for the Nanakuli area. In response to both the current water deficit and DHHL's future development plans, the Board of Water Supply is planning to build a new 2 million-gallon water reservoir at the end of Maiaiholena Place. The reservoir will be built on a portion of land currently used by ranchers Mary Ann Higashi and Robert Lyman.

At this time, the Office of Hawaiian Affairs has no concerns with this project. However, we would like to have the opportunity to review the final EIS. If you have any question concerning our comments, please contact Lynn J. Lee at 594-1936.

Sincerely,

Colin C. Kippen, Jr.
Deputy Administrator

cc: Board of Trustees

MAR 21 9 18 AM '00

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



April 14, 2000

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice-Chairman
JAN M.L.Y. AMB
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

HAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

Mr. Colin C. Kippen, Jr.
Deputy Administrator
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Dear Mr. Kippen:

Subject: Your Letter of March 9, 2000 Regarding the Draft Environmental Impact Statement for the Board of Water Supply's Proposed Nanakuli 242 Reservoir Project

Thank you for reviewing the Draft Environmental Impact Statement (EIS) for the Nanakuli 242 Reservoir project.

We acknowledge that you have no concerns on this project at this time. The Final EIS will be forwarded to the Office of Hawaiian Affairs for your information and use.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,

CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Shimabukuro, Endo & Yoshizaki, Inc.

BENJAMIN J. CAYETANO
GOVERNOR



STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 968-4188
FACSIMILE (808) 968-4188

GENEVIEVE SALMONSON
DIRECTOR

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



April 5, 2000

COPY

JEREMY HAWAII (Mayor)
EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice-Chairman
JAN M.L.Y. AMI
HERBERT S.K. KAOPIA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SABAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

March 10, 2000

Mr. Clifford Jamile, Manager and Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu, Hawai'i 96813

Dear Mr. Jamile:

Having reviewed the draft environmental impact statement for the Nanakuli 242 Reservoir, we offer the following comments for your consideration.

1. **Signatory Statement:** On the cover sheet of the environmental impact statement, please include a signatory statement using the language provided in Section 11-200-20(d), Hawai'i Administrative Rules.
2. **Native Hawaiian Gathering Rights Assessment:** We concur with your August 24, 1999, response to our July 22, 1999, letter. We commend you on preparing this assessment, which we believe to be the first of its kind for the Wai'anāe district in a Chapter 343, HRS document. We believe that this document is an invaluable resource for future environmental documentation in the general region.

Thank you for the opportunity to comment. If there are any questions, please call Mr. Leslie Segundo of my staff at 586-4185.

Sincerely,

GENEVIEVE SALMONSON
Director

c: Mr. Barry Usagawa, BWS
Mr. Howard K. Endo, Shimabukuro, Endo and Yoshizaki, Inc.

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

Dear Ms. Salmonson:

Subject: Your Letter of March 10, 2000 Regarding the Draft Environmental Assessment for the Board of Water Supply's Proposed Nanakuli 242 Reservoir Project

Thank you for your letter regarding the Draft Environmental Impact Statement (EIS) for the proposed reservoir project.

We provide the following response to your concerns:

1. A signatory statement will be inserted into the EIS cover sheet as set forth in Section 11-200-18, Hawaii Administrative Rules.
2. We acknowledge your comments regarding the Native Hawaiian Gathering Rights Assessment documentation for this project.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,

CLIFFORD S. JAMILE
Manager and Chief Engineer

/cc: Shimabukuro, Endo & Yoshizaki, Inc.

Howard K. Endo

Page 2

- 1) all project-related materials should be placed or stored in ways to avoid or minimize disturbance to the aquatic environment;
- 2) all project-related material should be free of pollutants;
- 3) no contamination of the aquatic environment (trash, debris disposal, etc.) should result from project activities;
- 4) a contingency plan to control accidental spills of petroleum products should be developed. Absorbent and containment booms should be stored on-site to facilitate the clean-up of petroleum spills;
- 5) turbidity and siltation from excavation activities should be minimized and contained to the immediate vicinity of excavation through the use of silt containment devices and the curtailment of excavation during adverse weather conditions; and
- 6) removal of riparian vegetation should not occur.

The Service believes that incorporation of these measures into the project will greatly minimize the potential for project-related impacts to fish and wildlife resources. We appreciate the opportunity to provide comments on the proposed project. If you have questions regarding these comments, please contact Fish and Wildlife Biologist Gordon Smith at 808/541-3441.

Sincerely,



Paul Henson
Field Supervisor
Ecological Services



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Pacific Islands Ecoregion
300 Ala Moana Boulevard, Room 3-122
Box 50088
Honolulu, Hawaii 96850

MAR 14 2000

In Reply Refer To: GCS

Howard K. Endo, President
Shimabukuro, Endo and Yoshizaka, Inc.
1126 12th Ave
Honolulu HI 96816

Re: Draft Environmental Impact Statement for the Nanakuli 242 Reservoir, Oahu, Hawaii

Dear Mr. Endo:

The U.S. Fish and Wildlife Service (Service) has reviewed the Draft Environmental Impact Statement (DEIS) for the Nanakuli 242 Reservoir prepared for the City and County of Honolulu Board of Water Supply by Shimabukuro, Endo and Yoshizaka, Inc. The Service offers the following comments for your consideration.

The proposed project involves the construction of a 2 million-gallon reinforced concrete reservoir, a 20-inch transmission main, an access road, and associated appurtenances. The project location is in Nanakuli Valley at the upper end of Maiaiholena Place on lands that are currently leased for ranching.

Based on our review, no federally threatened or endangered species are known to occur in the vicinity of the proposed project site. Please refer to our correspondence with your office dated August 18th 1995.

The proposed project involves construction activities adjacent to an intermittent stream, which flows during periods of heavy rain. The Service recommends that the following measures be incorporated into the project to minimize the degradation of water quality and impacts to fish and wildlife and riparian resources in the event that a significant rainfall event occurs during construction of the reservoir:

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



April 5, 2000

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice-Chairman
JAN M.L.Y. AMI
HERBERT S.K. KAOPIA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

Mr. Paul Henson, Field Supervisor
Ecological Services
United States Department of the Interior
Fish and Wildlife Service
Pacific Islands Ecoregion
300 Ala Moana Boulevard, Room 3-122
Box 50088
Honolulu, Hawaii 96850

Dear Mr. Henson:

Subject: Your Letter of March 14, 2000 Regarding the Draft
Environmental Impact Statement for the Board of
Water Supply's Proposed Nanakuli 242 Reservoir Project

Thank you for your letter regarding the Draft Environmental Impact Statement for the proposed reservoir project.

We acknowledge that there are no federally threatened or endangered species known in the vicinity of the proposed site. Your recommendations on measures to be taken to minimize degradation of water quality and impacts to fish, wildlife and riparian resources in the event that a significant rainfall event occurs during construction, will be incorporated into the project's plans and specifications.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,


CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Shimabukuro, Endo & Yoshizaki, Inc.



STATE OF HAWAII

DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 118, HONOLULU, HAWAII 96810

BENJAMIN J. CAYetano
GOVERNOR

P-137/00

LETTER NO (P) 1120.0

MAR 17 2000

Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

Attention: Barry Usagawa

Gentlemen:

Subject: Nanakuli 242 Reservoir
Nanakuli, Oahu, Hawaii
Draft Environmental Impact Statement

Thank you for the opportunity to review the subject document. The proposed project does not impact any of our facilities, therefore we have no comments.

If there are any questions regarding the above, please call Mr. Ralph Yukumoto of the Planning Branch at 586-0488.

Sincerely,

GORDON MATSUOKA
Public Works Administrator

RY:mo
c: Office of Environmental Quality Control
Shimabukuro, Endo & Yoshizaki, Inc.

MAR 22 8 58 AM '00

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



March 31, 2000

COPY

JEREMY HARRIS, Mayor
EDDIE FLORES, JR., Chairman
CHARLES A. STEG, Vice-Chairman
JAN M.L.Y. AMI
HERBERT S.K. KAOPUA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROSS S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

Mr. Gordon Matsuoka
Public Works Administrator
Department of Accounting and
General Services
State of Hawaii
P. O. Box 119
Honolulu, Hawaii 96810

Dear Mr. Matsuoka:

Subject: Your Letter of March 17, 2000 Regarding the Draft
Environmental Impact Statement for the Board of Water
Supply's Proposed Nanakuli 242 Reservoir Project

Thank you for your letter regarding the Draft Environmental Impact Statement for the proposed reservoir project.

We acknowledge that the proposed project will not impact any of your facilities.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,

CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Shimabukuro, Endo & Yoshizaki, Inc.

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4525 • FAX: (808) 523-4730



March 28, 2000

CHERYL D. SOON
DIRECTOR

JOSEPH H. MAGALDI, JR.
DEPUTY DIRECTOR

TPD1/00-00344R

MEMORANDUM

TO: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

ATTN: BARRY USAGAWA

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: NANAKULI 242 RESERVOIR

In response to the January 20, 2000 letter from Shimabukuro, Endo & Yoshizaki, Inc., the draft environmental impact statement (EIS) for the subject project was reviewed. The following comments are the result of this review:

1. The comments provided in our August 11, 1999 memorandum regarding the EIS preparation notice are still valid.
2. The draft EIS should clearly state what measures are being proposed to mitigate the adverse construction related impacts on school and residential pedestrian and vehicular traffic in the project area.

Should you have any questions regarding these comments, please contact Faith Miyamoto of the Transportation Planning Division at Local 6976.


CHERYL D. SOON

cc: Office of Environmental
Quality Control

Mr. Howard K. Endo
Shimabukuro, Endo & Yoshizaki, Inc.

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



April 11, 2000

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice-Chairman
JAN M.L.Y. AMI
HERBERT S.K. KAOPIA, SR.
BARBARA KIM STANTON

KAZU HAYASHIDA, Ex-Officio
ROBB S. SASAMURA, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

TO: MS. CHERYL D. SOON, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: 
CLIFFORD S. JAMILE

SUBJECT: YOUR MEMORANDUM OF MARCH 28, 2000 REGARDING THE
DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED
NANAKULI 242 RESERVOIR PROJECT. TMK: 8-9-08: 03

Thank you for reviewing the Draft Environmental Impact Statement (EIS) for the proposed Nanakuli 242 Reservoir project.

We provide the following response to your concerns:

1. We acknowledge that your comments of August 11, 1999 on the EIS Preparation Notice are still valid.
2. The Final EIS will include best management practices to mitigate construction related impacts on school and residential pedestrian and vehicular traffic in the project area.

If you have any questions, please contact Scot Muraoka at 527-5221.

cc: Howard Endo, SEY Engineers, Inc.

APPENDIX C
Botanical Resources Assessment

**BOTANICAL RESOURCES ASSESSMENT
NANAKULI 242 RESERVOIR
WAI'ANAE DISTRICT, O'AHU**

by

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

Prepared for: **SHIMABUKURO, ENDO & YOSHIZAKI, INC.**

July 1999

**BOTANICAL RESOURCES ASSESSMENT
NANAKULI 242 RESERVOIR
WAI'ANAE DISTRICT, O'AHU**

INTRODUCTION

The Board of Water Supply, City and County of Honolulu, proposes to construct a 2.0 million gallon reservoir and access road on the Nanakuli site located at the end of Maiaiholena Place in upper Nanakuli Valley. The project site is approximately 1.5 acres. The 20-foot wide access road is 110 feet long from the project site to Maiaiholena Place.

The proposed action will require acquisition of the project site from the Department of Hawaiian Home Lands. At present, the site and the immediately surrounding lands are used for grazing cattle and goats and other ranch use.

Field studies to assess the botanical resources found on the Nanakuli 242 reservoir site as well as the access road were conducted on 09 March 1999. The primary objectives of the survey were to:

- 1) provide a general description of the vegetation on the site;
- 2) search for threatened and endangered plants as well as species of concern; and
- 3) identify areas of potential environmental problems or concerns and propose appropriate mitigation measures.

SURVEY METHODS

Prior to the field studies, a topographic map of the site was examined to determine terrain characteristics, access, boundaries,

and reference points. The site visit was made with the engineers from Shimabukuro, Endo and Yoshizaki, Inc. (SEY). The locations of the proposed reservoir, chain link fence, and access road were flagged and staked prior to our field studies.

Notes were made on plant associations and distribution, substrate types, topography, disturbances, etc. The plant names used in the report follow Wagner et al. (1990), and Evenhuis and Miller (1995-1998) for the few recent name changes.

DESCRIPTION OF THE VEGETATION

Most of the project site is located on a fairly level area. However, a steep bank is found on the northern portion of the reservoir site. Parts of the bank/hillside will be excavated for placement of the reservoir.

The vegetation on the more or less level portions of the site is composed of kiawe scrub forest. Kiawe (Prosopis pallida), a member of the pea family (Fabaceae) native to South America, forms a low-statured forest 15 to 25 feet tall with a canopy cover of about 60%. Ground cover is sparse to patchy with a few clumps of wild basil (Ocimum gratissimum), buffelgrass (Cenchrus ciliaris), Guinea grass (Panicum maximum), cheese weed (Malvastrum coromandelianum), lion's ear (Leonotis nepetifolia), honohono (Commelina benghalensis), 'aheahea (Chenopodium murale), swollen fingergrass (Chloris barbata), and lovegrass (Eragrostis amabilis). Areas with small, rocky outcroppings tend to support a few more plants since it is somewhat difficult for the cattle and goats to graze in between the rocks.

On the northern portion of the property on the slopes, the vegetation is more open with the kiawe trees widely spaced, about 30% canopy cover, and 10 to 15 feet tall. Prickly shrubs of klu

(Acacia farnesiana) are locally common. A few koa haole shrubs (Leucaena leucocephala) are also found here; most of the shrubs have been cut back to 2 to 5 feet tall. Small boulder piles and rocky outcrops are found in this area.

Ground cover is denser in this area and there are more plant species since it is less heavily grazed. The native 'uhaloa (Waltheria indica), a small shrub with fuzzy leaves, is locally common. Other plants which also occur here in localized patches in somewhat large numbers are Portulaca pilosa and Trianthema portulacastrum, both introduced species. Other plants found here in smaller numbers include red pualele (Emilia fosbergii), hono-hono, lion's ear, spiny amaranth or pakai kuku (Amaranthus spinosus), cheese weed, virgate mimosa (Desmanthus virgatus), wild basil, 'aheahea, lovegrass, saltbush (Atriplex suberecta), Guinea grass, swollen fingergrass, Boerhavia coccinea, Sida rhombifolia, and slender amaranth or pakai (Amaranthus viridus). Besides the 'uhaloa, two other native species occur on the site; these are the popolo (Solanum americanum) and 'ilima (Sida fallax).

DISCUSSION AND RECOMMENDATIONS

The vegetation on the proposed project site is dominated by introduced or alien plants such as kiawe, koa haole, Guinea grass, buffelgrass, and an assortment of weedy, mostly annual species. Introduced species are all those plants which were brought to the islands by humans, intentionally or accidentally, after Western contact, that is, Cook's discovery of the Hawaiian Islands in 1778.

Only three native plants were found during this survey; these plants are the 'uhaloa, popolo, and 'ilima. These three species are all indigenous, that is, they are native to the Hawaiian

Islands and elsewhere.

The 'uhaloa (also called 'ala 'ala pu loa, hala 'uhaloa, hi'aloa, and kanakaloa) is a pantropical species. 'Uhaloa was used medicinally by the Hawaiians; the bitter inner bark or roots were used as a pain killer especially for sore throat (Wagner et al. 1990; Abbott 1992). Popolo (also called 'olohua, polopolo, and popolohua on Ni'ihau) is widely distributed in tropical and warm temperate areas. The raw juice of leaves and ripe berries were used medicinally by the Hawaiians for digestive tract and respiratory tract ailments, skin eruptions, cuts and wounds, and sore throats (Wagner et al. 1990; Abbott 1992). Young shoots are also eaten as a pot herb throughout the Pacific. Popolo was regarded as one of the visible embodiments of Kane (Abbott 1992). 'Ilima is widespread on Pacific islands to China. The flowers are used in lei making usually employing the kui style in which the flowers are strung through the center one behind another (Abbott 1992).

None of the plants found during the field studies is a threatened or endangered species; nor is any plant a species of concern (U.S. Fish and Wildlife Service 1999). All of the plants can be found in similar dry, lowland, disturbed environments throughout the Hawaiian Islands.

Given the findings above, there are no botanical reasons to impose any restrictions, conditions or impediments to the proposed use of the site for a reservoir. It is recommended, however, that the site be grassed over as soon as possible to prevent soil erosion and generation of dust, especially on the steeper portions of the property.

LITERATURE CITED

- Abbott, I.A. 1992. La'au Hawai'i, Traditional Hawaiian Uses of Plants. B.P. Bishop Museum Press, Honolulu.
- Evenhuis, N.L. and S.E. Miller, eds. 1995-1998. Records of the Hawaii Biological Survey. Bishop Museum Occasional Papers Nos. 41-56.
- U.S. Fish and Wildlife Service. 1999. U.S. Fish and Wildlife Service species list, plants. March 23, 1999. Pacific Islands Ecoregion Office, Honolulu, HI.
- Wagner, W.L., D.R. Herbst and S.H. Sohmer. 1990. Manual of the flowering plants of Hawai'i. 2 vols. University of Hawai'i Press and B.P. Bishop Museum Press, Honolulu. B.P. Bishop Museum Special Publication 83.

APPENDIX D

Archaeological Inventory Survey of Proposed Nanakuli 242 Reservoir
Site, with Archaeological Assessment of the Proposed 20"
Transmission Main Along Nanakuli Avenue

**ARCHAEOLOGICAL INVENTORY SURVEY
OF THE PROPOSED NĀNĀKULI 242 RESERVOIR SITE, WITH
ARCHAEOLOGICAL ASSESSMENT OF THE PROPOSED 20"
TRANSMISSION MAIN ALONG NĀNĀKULI AVENUE,
NĀNĀKULI, WAI ANAE DISTRICT, ISLAND OF O`AHU
(TMK 8-9-8:3)**

by

Matt McDermott, B.A.
and
Hallett H. Hammatt, Ph.D

Prepared for

Shimabukuro, Endo, and Yoshizaki (SEY), Inc.

for

Honolulu Board of Water Supply

Cultural Surveys Hawai`i
August 1999

ABSTRACT

At the request of Mr. Conrad Higashionna of Shimabukuro, Endo, & Yoshizaki, Inc., Cultural Surveys Hawai'i completed two archaeological projects related to the construction of the Honolulu Board of Water Supply's proposed Nānākuli 242 Reservoir in the *Ahupua`a* of Nānākuli, District of Wai`anae, Island of O`ahu. The first project consisted of the archaeological inventory survey of the approximately 2 acre construction site of the 242 reservoir site itself. The second project was an archaeological assessment of the route of the proposed 20" transmission main down Mai`aiholena Place and Nānākuli Avenue to connect with the transmission main beneath Farrington Highway. This document reports the findings of both archaeological projects. Cultural, historical, and archaeological background research for both projects was completed in June and July of 1999. Field work for both projects was completed on May 13th and June 30th 1999. Inventory survey of the reservoir site included cultural, historical, and archaeological background research, interviews with knowledgeable local informants, and 100% pedestrian inspection of the project area for the purposes of site inventory. Background research for the proposed reservoir site indicated that there was low potential of finding significant historic properties within the project area. Inventory survey field work in the reservoir project area found no significant historic properties. The results of the inventory survey confirmed that construction of the reservoir will have no adverse effect on significant historic properties. No further historic preservation work is recommended for the reservoir site. The archaeological assessment of the 20" transmission main alignment consisted of background research, interviews with knowledgeable local informants, and a walk-over of the transmission main route. Based on the assessment results, it is unlikely that cultural deposits or features will be found in the *mauka* portion of the 20" transmission main. It is only in the sand deposits near Farrington Highway that there is potential for subsurface cultural deposits, including human burials. For this reason it is recommended that full time archaeological monitoring by a qualified archaeologist take place during the installation of the transmission main in the coastal (sandy) areas along Farrington Highway. Once the excavation for the transmission main is progressing through terrigenous sediments there is much less potential to encounter historic properties. On call monitoring is recommended for the excavation of the 20" transmission main through terrigenous sediments.

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I. INTRODUCTION

A. Project Background

The Honolulu Board of Water Supply has proposed the construction of the Nānākuli 242 Reservoir and the installation of a 20-inch transmission main in Nānākuli Valley to alleviate the water storage deficit there. The reservoir site is proposed for mid-valley with the transmission main running down Nānākuli Avenue to Farrington Highway. This report documents both the findings of the inventory survey of the reservoir construction site itself, as well as the archaeological assessment of the transmission main alignment. Cultural Surveys Hawai'i, Inc.(CSH) was contracted by Shimabukuro, Endo, & Yoshizaki, Inc.(SEY) to conduct both the archaeological inventory survey and reconnaissance assessment in May of 1999.

In addressing the need for an archaeological inventory survey at the project site the Department of Land and Natural Resources (DLNR) State Historic Preservation Division (SHPD) stated that "...there are no known historic sites at the proposed well [reservoir] site...". The SHPD "...believes that the project will have 'no effect' on historic sites". However there have been no archeological surveys preformed along the Nānākuli Avenue transmission main right-of-way. Due to historic and prehistoric settlements in Nānākuli *ahupua`a* SHPD expects that archaeological remnants of coastal settlements are likely to survive in areas that have not undergone extensive land alteration (SHPD Letter from Don Hibbard to Doug Borthwick LOG #: 22378 DOC#: 9905EJ03, May 11, 1999).

B. Project Area Description

The proposed site for the Nānākuli 242 reservoir and the associated 20" transmission main is within Nānākuli Valley (*Ahupua`a* of Nānākuli), on the leeward side of O`ahu, within the Wai`anae District. Southeast (*makai*) of the project area the valley is subdivided into residential housing lots, While northwest (*mauka*) the area is undeveloped *kiawe* scrub-land. Nānākuli Valley encompasses a total area of 1,602 acres (Juvik and Juvik 1998; 306) and is presently home to 9,575 residents, see Figures 1, 2, and 3.

The 242 reservoir site (TMK 8-9-8:3) measures approximately 250 feet wide and 260 feet long. The elevation of the reservoir spill way, once constructed, will be 242 feet AMSL. An access road will be built extending from the *mauka* end of Mai`aiholena Place to the reservoir site. The transmission main will extend from the reservoir site down Mai`aiholena Place and Nānākuli Avenue to Farrington Highway, 7,500' -- see Figures 4 and 5.

Nānākuli Valley is cut into the eroded remnants of the Wai`anae shield volcano, the first volcano to form what is now O`ahu (Abbott, Macdonald, Peterson 1983; 426). Nānākuli Valley is an amphitheater-headed erosional feature of the southeast rift zone of the Wai`anae shield volcano (*Ibid*; 218-221, 426). Nānākuli Valley sits between Lualualei *ahupua`a* to the northwest and Honouliuli *ahupua`a* to the southeast. Also northwest of the project area, dividing Lualualei

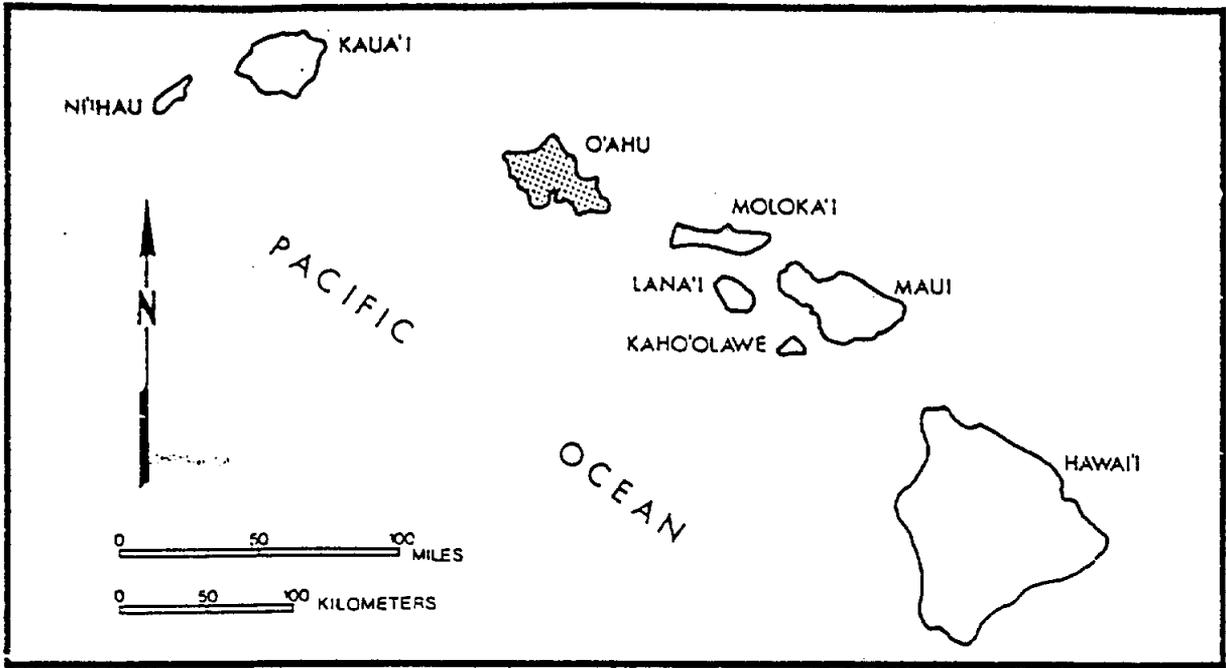


Fig. 1 State of Hawai'i

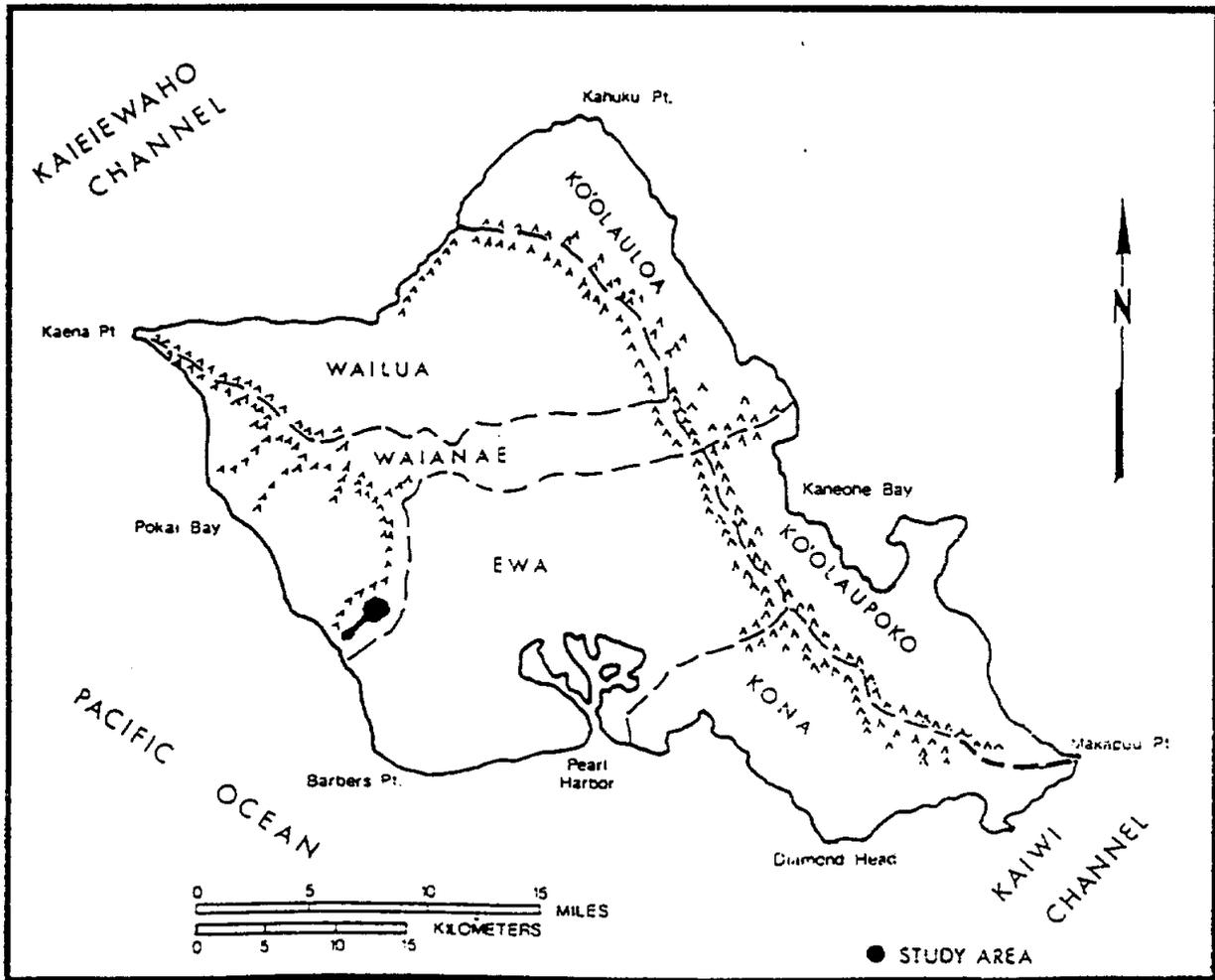


Fig. 2 O'ahu Island Location Map

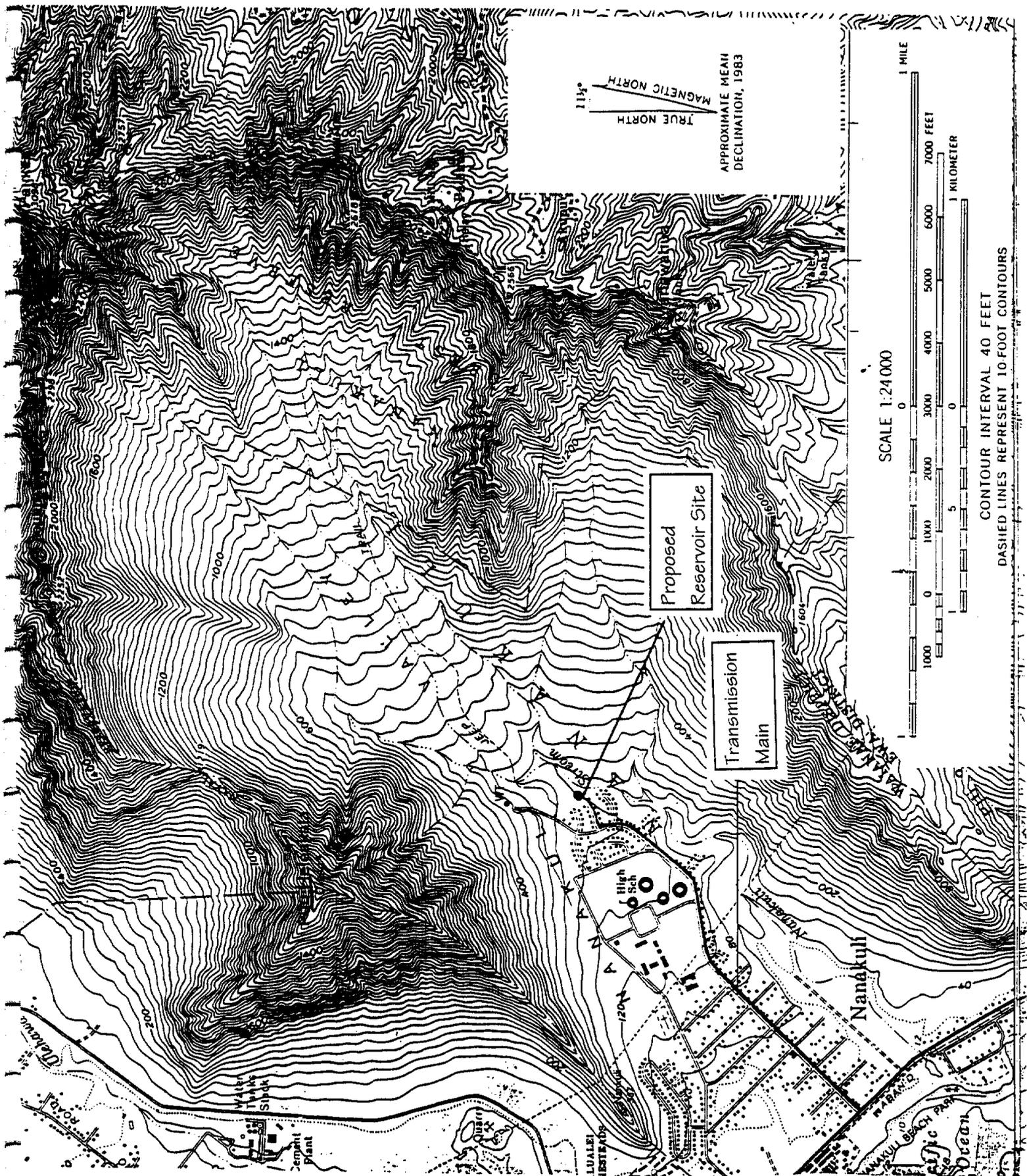


Figure 3

A Portion of the (1983) USGS Schofield Barracks Quad Showing the Nānākuli 242 Reservoir and 20" Transmission Line Project Areas.

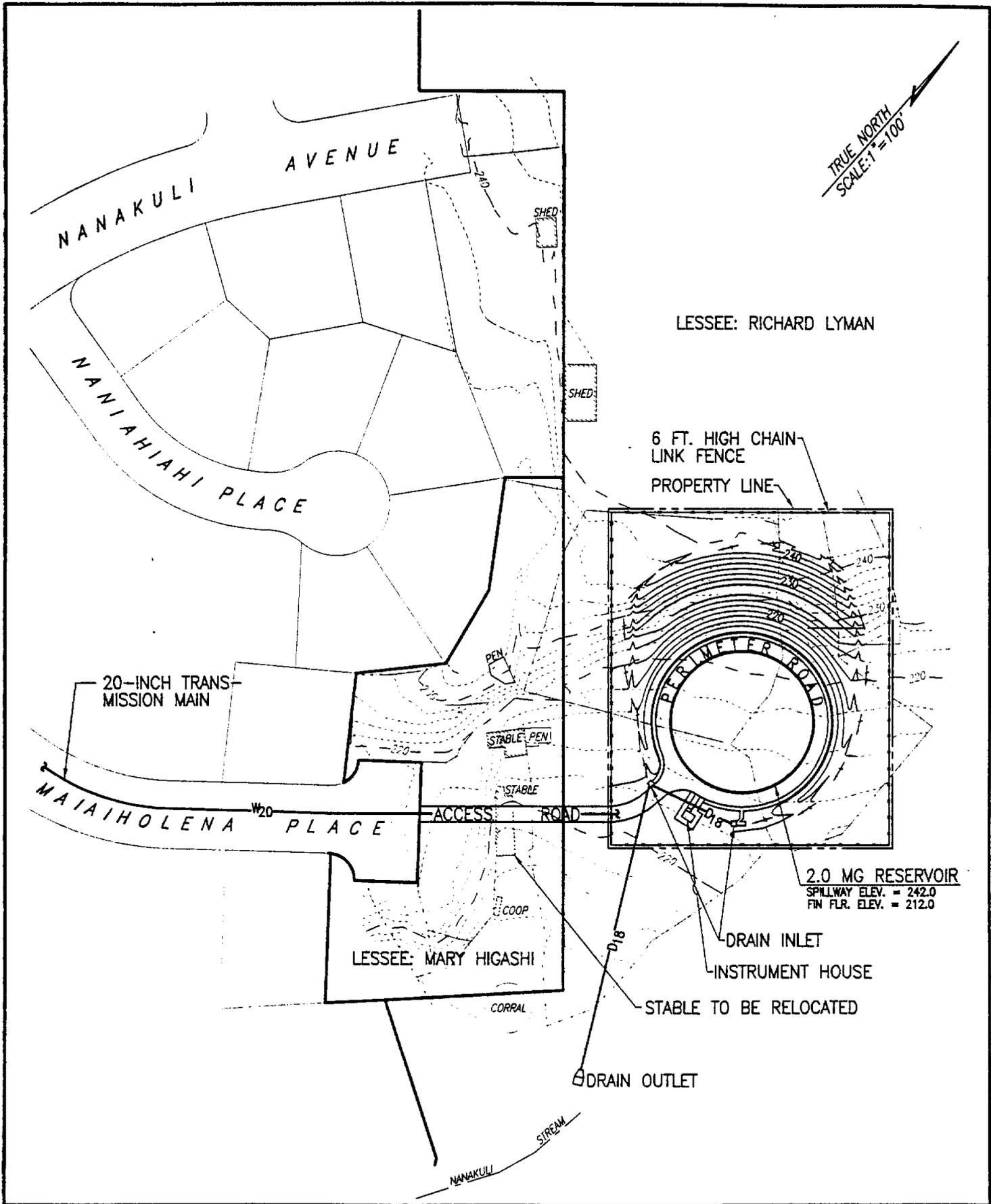
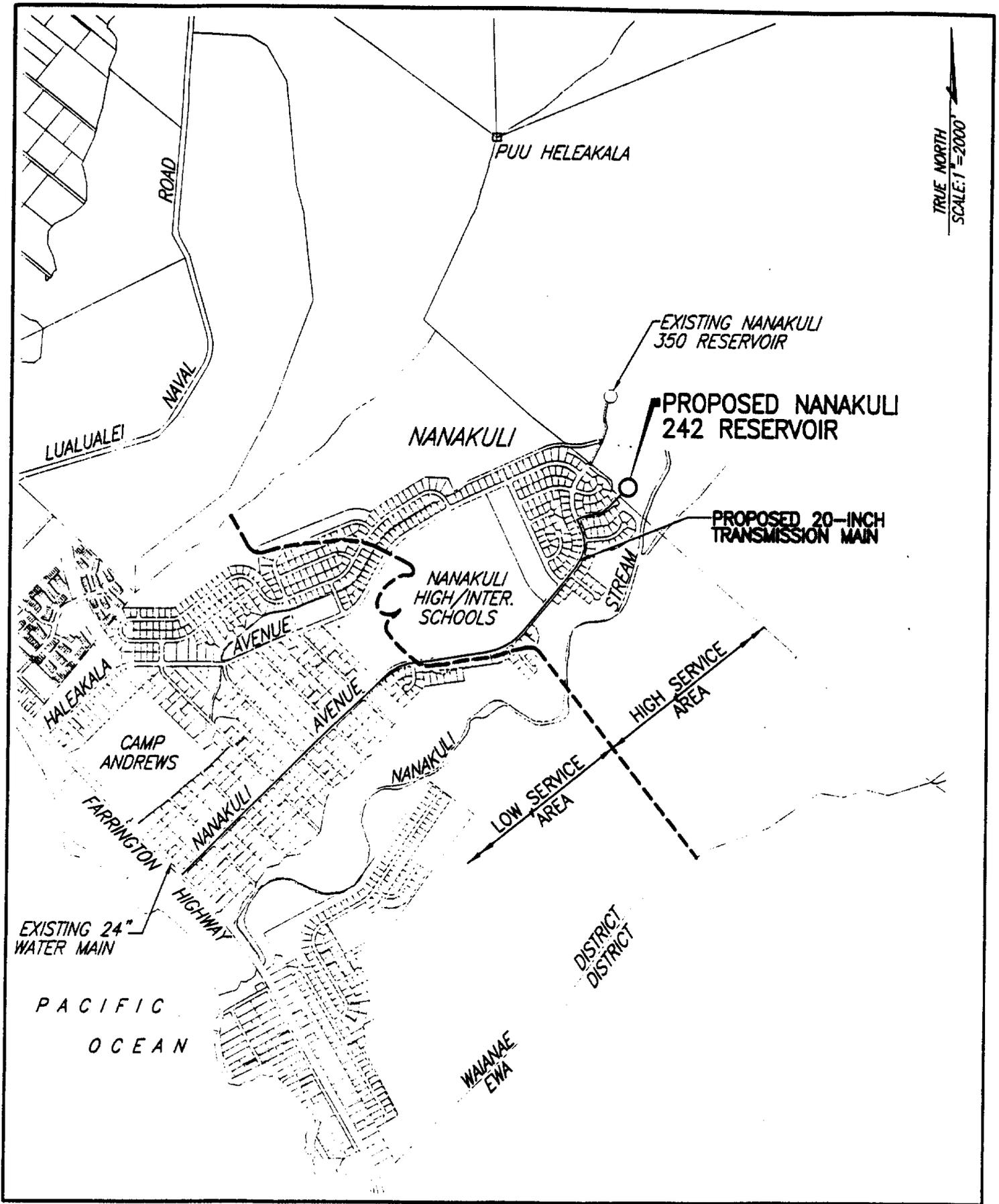


Figure 4 Map of Residential Area of Nānākuli Showing Project Areas



TRUE NORTH
SCALE: 1" = 2000'

Figure 5 Map of the 242 Reservoir Location Showing the Proposed Access Road from Mai' aiholena Place

ahupua`a from Nānākuli *ahupua`a* lies Pu`u Heleakalā. At 1890 feet AMSL Pu`u Heleakalā is the highest point on the ridge. Northeast of the project area lies Pu`u Manawahua, approximately 1800 feet AMSL. Nānākuli beach is located approximately 1.1 km (3/4 of a mile) southwest of the project area, see Figure 4.

The prevailing winds in the area are the northeast trades that blow over the Ko`olau mountains then continue over the Wai`anae range and head out over the southwest portion of the island (Juvik and Juvik 1998; 55). This wind pattern is responsible for the relatively low rainfall averages on the leeward side of the island. The winds cause the rain to hit the Ko`olau Range first releasing most of their moisture there and then continue on over the Wai`anae Range releasing what moisture may be left (Abbott, Macdonald, Peterson 1983; 224). Based on data from the *Rainfall Atlas of Hawai`i* the mean annual rainfall around the project area is 31.5 inches (Giambelluca, Nullet, Schroeder 1986; 138). The majority of precipitation occurs during the rainy season, October-April, and less precipitation occurs May-September (*Ibid*; 139-150). Temperatures in the area range from 43-88 degrees Fahrenheit in January to 58-95 degrees Fahrenheit in July (UH-Department of Geography [Armstrong ed.] 1973; 58).

Before the introduction of the exotic species with Western contact, the native ecosystems of the area consisted of lowland dry and mesic forests, lowland dry shrub lands, and grasslands. These areas range from warm to very hot and dry. Today practically the entire area has been altered by human activity (Juvik and Juvik 1998; 122-123). Vegetation is markedly different in the developed and undeveloped portions of the study area. The undeveloped site of the 242 reservoir consists predominantly of *kiawe* (*Prosopis pallida*), *koa haole* (*Leucana leucocephala*), lantana (*Lantana camara*) and grasses. Within the developed lands along the 20" transmission main vegetation consists of well maintained lawns, fruit trees, and various exotic ornamental species.

Nānākuli stream lies east of the study area. It runs parallel to Nānākuli Avenue and exits into the ocean at Nānākuli Beach Park just north of Laumania Avenue.

The soils in the project area consist of Lualualei extremely stony clay (LPE), 3-35percent slopes and possibly `Ewa silty clay loam (EaB) . The LPE soil is particularly stony, and in order to be cultivated the stones must be removed. The EaB soils near the project area may include Honouliuli and Malama soils (Foote et al 1972; 85, 29). Only in the coastal sections of the 20" transmission main, near where Nānākuli Avenue meets Farrington Highway, are there calcareous beach sand deposits. These sandy sediments are derived from the adjacent beach and extend up Nānākuli Avenue for an undetermined distance, but it is most likely less than a block or two.

C. Scope of Work

The scope of work for these two projects were drawn up in consultation with the client and Department of Land and Natural Resources (DLNR) / State Historic Preservation Division (SHPD). Different scopes of work were agreed upon for each of the two archaeological projects related to the 242 Reservoir. Scope 1, which is standard for satisfying the State and County requirements for an inventory survey, consisted of the following:

1. A complete ground survey of the entire project area for the purpose of site inventory. All sites were located, described, and mapped with evaluation of function, interrelationships, and significance. Documentation included photographs and scale drawings of selected sites and complexes.
2. Research on historic and archaeological background, including search of historic maps, written records, Land Commission Awards, and Native Testimony. This research focused on the specific area with general background on the *ahupua`a* and district and emphasized settlement patterns.
3. Oral interviews of a limited number of individuals with specific knowledge of the project area.
4. The preparation of a survey report which includes the following:
 - a. A topographic map of the survey area showing all archaeological sites and site areas;
 - b. Description of all archaeological sites with selected photographs, scale drawings, and discussions of function;
 - c. Historical and archaeological background sections summarizing prehistoric and historic land use as they relate to the archaeological features;
 - d. A summary of site categories, their significance in an archaeological and historic context;
 - e. Documentation of oral interview data.
 - f. Recommendations based on all information generated which will specify what steps should be taken to mitigate impact of development on

archaeological resources - such as data recovery (excavation) and preservation of specific areas. These recommendations will be developed in consultation with the landowner and the State and County agencies.

Scope 2 provided the guidelines for the archaeological assessment of the 20" transmission main alignment. It included:

1. Historical research to include 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 to identify any surface archaeological features and to investigate and assess the potential for impact to such sites. This assessment will identify any sensitive areas that may require further investigation or mitigation before the project proceeds.
3. Preparation of a report to include 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.

The scope(s) of work also included full coordination with the Archaeologist of the State Historic Preservation Division (SHPD) and City and County Honolulu relating to archaeological matters.

III. CULTURAL AND HISTORICAL BACKGROUND

A. The Greater Region of Wai`anae

Nānākuli in times of old, as today, was part of the District of Wai`anae on the leeward shore of O`ahu. In ancient times the District of Wai`anae was known for its multitude of fish and especially for deep sea fishing off Ka`ena where the ocean currents meet. The meaning of Wai`anae (mullet water) also implies an abundance of fish — `anae, which is the full-grown mullet. (Puku`i *et al.*, 1976) Handy and Handy (1972) attribute the naming of Wai`anae to a large fresh water pond for mullet called *Pueha* [*sic*]. (*Puehu*) Today, Wai`anae is still considered one of the best fishing grounds on O`ahu.

Wai`anae was also known for the independent lifestyle and attitudes of its inhabitants, another trend that continues into the modern day. This independence was a factor in many of the political struggles of the prehistoric and early historic period when the district was the scene of battles and rebellions and often the refuge of dissident and/or contentious factions. This independent spirit is often attributed to the conditioning of generations having to cope with marginal environments, as many areas of Wai`anae, especially Nānākuli, were notorious for their inhospitable climate. In Nānākuli, the lack of water for cultivation and consumption, was precariously balanced by the productivity of the marine resources available off-shore.

In January of 1778, Captain James Cook sighted Wai`anae from a distance, but chose to continue his journey and landed off Waimea, Kaua`i instead. Fifteen years later, Captain George Vancouver approached the coast of Wai`anae from Pu`uloa and wrote in his log:

The few inhabitants who visited us [in canoes] from the village earnestly entreated our anchoring . . . And [they] told us that, if we would stay until morning, their chief would be on board with a number of hogs and a great quantity of vegetables; but that he would not visit us then because the day was taboo poory [a *kapu* day]. The face of the country did not however, promise an abundant supply [of water]; the situation was exposed" (Vancouver quoted in McGrath *et al.* 1973:17).

Vancouver was not impressed with what he saw of the Wai`anae coastline, stating in his log that the entire coast was "one barren, rocky, waste nearly destitute of verdure, cultivation or inhabitants" (*Ibid.*).

Vancouver did not anchor at Wai`anae. But had he done so, he would have been pleasantly surprised, at least by portions of the coastline. Even though the dry, arid coast presented a dismal forecast, the ocean provided an abundant supply of fish, the lowlands provided `uala (*Ipomoea batatas*) and niu (*Cocos nucifera*), and the inland valley areas were planted in kalo (*Colocasia*

esculenta) and *wauke* (*Broussonetia papyrifera*). The upland forest regions provided various woods needed for weapons and canoes. By this time, there was probably a good variety of introduced vegetables being planted in the valley, as well.

B. Nānākuli Traditional and Mythological Accounts

Clearly many areas of Wai`anae were verdant, well watered, and productive, contrary to Early Western explorer's accounts. However, from what traditional information is available regarding Nānākuli itself, the generalizations of the early explorers appear to have held true. Previous research of the traditional history and mythology of Nānākuli Valley has revealed a dearth of information. A common perception is that Nānākuli was a poor land, with little agriculture, the few residents relying instead on marine resources. One translation of the naming of the *ahupua`a*, which seems to support this perception, is that Nānākuli means "to look deaf" (Sterling & Summers 1978:61-2). This is said to refer to the behavior of Nānākuli residents, who, embarrassed about not being able to offer food to passing strangers, pretended to be deaf. Cultural specialist, Mary Puku`i Kawena, relates a story told to her in 1945:

Simeona Nawa`a came in to the [Bishop] Museum and sat down to talk to me. In the course of the conversation he told me these things:

Nānākuli - it was Kanui, a native woman of Wai`anae who told him why this place was so named. In the olden days, this place was sparsely inhabited because of the scarcity of water. The fishing was good but planting very poor. When it rained, some sweet potatoes would be put into the ground, but the crops were always poor and miserable.

There were a few brackish pools from which they obtained their drinking water and it is only when they went to the upland of Wai`anae that they were able to get fresh water. They carried the water home in large calabashes hung on *māmaka* or carrying sticks and used their water very carefully after they got it home. They spent most of their time fishing and most of the fish they caught were dried as gifts for friends and relatives in the upland. Sometimes they carried dried and fresh fish to these people in the upland and in exchange received poi and other vegetable foods. As often as not, it was the people of the upland who came with their products and went home with fish.

Because of the great scarcity of water and vegetable food, they were ashamed to greet passing strangers. They remained out of sight as much as possible. Sometimes they met people before they were able to hide, so they just looked at strangers with expressionless faces and acted as though they were stone deaf and did not hear the greeting. This was so that the strangers would not ask for water which they did not have in that locality.

The strangers would go to other places and mention the peculiar, deaf people who just stared and they would be told that the people were not deaf but ashamed of their inability to be hospitable. So the place they lived was called *Nānā*, or “look”, and *kuli*, “deaf” - that is, Deaf mutes who just look.

(Sterling & Summers 1978:61-2, referring to Hawaiian Ethnological Notes at the B.P. Bishop Museum, March 6, 1945).

Another explanation for the meaning of *Nānākuli* was reported on March 20, 1933 by an old time resident of the area, Wm. Z. H. `Olepau:

There were two women who went up the hill of Pu`u Hakila or Pu`u Hela to dry their *Kapas*. While the *kapas* were being dried they left and went down the hill to the pool for some water. They heard dogs barking, so they stood, looking around for the barking was deafening.

- (1) Women used to go to the top of the hill to dry their *kapa*, and when they got there they looked at their knees - *nānā kuli*.
- (2) Royalists of the valley used to sit with their knees up and watch their knees - *nānā kuli*.

(In Sterling & Summers 1978:62).

A further explanation of the name *Nānākuli* is reprinted from Thrum's *Hawaiian Annual*, 1922, page 87:

The name of “*Nānā-kuli*”, a section of *Wai`anae*, meaning “knee examination”, is said to relate to an incident in the travels of the famous *Kuali`i*, when his attendants wished to see and press his knees, to relieve the king's fatigue after the journey.

(Sterling & Summers 1978:62).

A final explanation for the origin of the name *Nānākuli*:

After his return from *Moloka`i*, when he had ruled six years over *O`ahu* and *Moloka`i*, *Kahahana* abandoned the advice of *Ka`ōpulupulu* and began to lay burdens upon the country people and to dig up the bones from their burial places to make arrows for rat-shooting and hooks for fishing. The bones of chiefs were bartered for skirts for chiefesses and handles for *kāhili*. *Ka`ōpulupulu* came in vain to remonstrate with him,

and the *kahuna* and all his followers, relatives, and members of his household tattooed their knees [*kuli*] as a sign of the chief's deafness [*kuli*] to his admonitions (Kamakau 1992:133).

C. Early Historic Period

Native accounts and those of early foreign observers paint only general sketches of indigenous life and culture in the *ahupua`a* of Nānākuli. Specific information regarding Nānākuli Valley during the early historic period is sparse. One of the first mentions of a coastal settlement in Nānākuli comes from a description by John Papa `Īī describing a visit to an aunt in the early 1800s. No specific description of the settlement was given, other than an indication that breadfruit trees were growing near the shore (`Īī 1983:28).

Taken as a whole, the Wai`anae region has a greater historic resource base for recreating the changes that were coming about during the first half of the 19th century as Western influence percolated into the region. As mentioned earlier, Captain James Cook sighted O`ahu and the Wai`anae coast, but did not stop to anchor on that historic voyage of 1778. In 1793, Captain George Vancouver sailed along the Wai`anae coast from Pu`uloa (Pearl Harbor). He described the coast as "one barren rocky waste nearly destitute of verdure, cultivation or inhabitants" (Vancouver in McGrath 1973:17). The only village Vancouver observed was "at Wai`anae, located in a grove of coconut and other trees on the southern side of a small sandy bay." (*Ibid.*) Along the rest of the coast he reported seeing only "a few straggling fishermen's huts" and "a small grove of shabby cocoanut trees." (*Ibid.*) Undoubtedly there were also small settlements subsisting mainly on sweet potato, in the valleys where constant streams were lacking (Nānākuli and Mākua). In famine times, then, there was reef fishing, and the Wai`anae Mountains had wild banana, *tī*, fern, and other roots that were edible (Handy & Handy 1972:270-71).

Warfare touched the lives of all inhabitants during this tumultuous era. The decisive battle of Kūki`iahu was fought in 1794 at Kalauao, `Ewa between Ka`eokūlani and Kalanikūpule. It is said that warriors from Waialua and Wai`anae joined the ranks of Ka`eokūlani to war against Kalanikūpule. (Kamakau 1992:168). In 1796, Kamehameha I unsuccessfully tried to launch his war fleet of canoes from Wai`anae in an attempt to conquer the island of Kaua`i. The fleet got caught in a storm and was forced to return to Wai`anae (Kamakau 1992:173; `Īī 1983:15-16). Both strategic events would have influenced the lives of Nānākuli's inhabitants, either through direct or indirect means.

The `ōku`u epidemic of 1804 (thought to be cholera) undoubtedly had a major effect on the native Hawaiian population, not only in Wai`anae, but throughout the rest of the islands as well. John Papa `Īī tells us that the `ōku`u "broke out, decimating the armies of Kamehameha I [on O`ahu]" (1983:16).

By 1811, sandalwood merchants began actively exploiting the Hawai`i market and huge amounts of sandalwood were exported to China. (Traditionally, Hawaiians used sandalwood for medicinal purposes and as a scent to perfume their *kapa*.) Kamehameha I and a few other chiefs controlled the bulk of the sandalwood trade. Kamakau writes, "The chiefs also were ordered to send out their men to cut sandalwood . . . The chief immediately declared all sandalwood to be the property of the government" (1992:204).

The sandalwood trade greatly impacted Hawaiian culture and the traditional lifestyle Hawaiians had always pursued was altered drastically. In an effort to acquire western goods, ships, guns and ammunition, the chiefs had acquired massive debts to the American merchants. (ʻĪī 1983:155) These debts were paid off in shiploads of sandalwood. When Kamehameha found out how valuable the sandalwood trees were, he ordered the people not to let the felled trees fall on the young saplings, to ensure their protection for future trade (Kamakau 1992:209-210). According to Samuel Kamakau:

The debts were met by the sale of sandalwood. The chiefs, old and young, went into the mountains with their retainers, accompanied by the king and his officials, to take charge of the cutting, and some of the commoners cut while others carried the wood to the ships at the various landings; none was allowed to remain behind. Many of them suffered for food . . . and many died and were buried there. The land was denuded of sandalwood by this means (*Ibid*:252).

Kamakau comments about the plight of the common people and the general state of the land during this time:

This rush of labor to the mountains brought about a scarcity of cultivated food throughout the whole group. The people were forced to eat herbs and tree ferns, hence the famine called Hīlaulele, Hāhāpilau, Laulele, Pualele, `Ama`u, or Hāpu`u, from the wild plants resorted to (*Ibid*:204).

In 1816, Boki Kama`ule`ule was made governor of O`ahu (and chief of the Wai`anae district) and served in that capacity until 1829 when he sailed to New Hebrides in search of sandalwood. ʻĪī writes:

It was Boki's privilege to assign work, for he had been governor of the island of O`ahu from the time Kamehameha I ordered all the chiefs to O`ahu in 1816 to expel the Russians (1983:145).

The sandalwood era was short-lived and by 1829, the majority of the sandalwood trees had been harvested and the bottom fell out of the trade business. It is unclear how extensive Nānākuli's sandalwood resources were, however, the effects of the sandalwood

gathering, the population shifts and disruption of traditional lifestyles and subsistence patterns, would undoubtedly have affected the population of Nānākuli.

The Rev. William Ellis visited the Hawaiian Islands in 1823. At that time, he estimated the population on the island of O`ahu to be about 20,000 (Ellis 1974:19). The missionaries were the first to gather systematic figures regarding population statistics throughout the various districts on each island. The first census figures were gathered from 1831-1832 and 1835-1836. Population figures for Nānākuli were not given, however population numbers given for Wai`anae were 1,868 and 1,654 respectively (Schmitt 1973:9).

Nānākuli, no doubt, sustained a sparse population, but to what extent is not exactly known. Environmental factors such as the dry, arid climate, low rainfall and geologic limitations, "much of the seaward portion of the valley is uplifted coral limestone that in some areas is thinly disguised with a shallow layer of soil" (Kelly in Haun *et al.*, 1991:310), were likely determinative constraints upon population density along the coast.

D. Mid-1800's: Land Commission Awards (LCAs)

At the time of the *Māhele*, the *ahupua`a* of Wai`anae, which included Lualualei and Nānākuli, was listed as *Crown* lands and was claimed by King Kamehameha III as his personal property (Board of Commissioners 1929:28). As such, the land was under the direct control of the King. Many of the chiefs had run up huge debts to American merchants throughout the early historic period and continuing up into the mid 1800's. A common practice at the time was to lease (or mortgage) large portions of unused land to other high chiefs and foreigners to generate income and pay off these earlier debts acquired.

Until the passage of the Act of January 3, 1865, which made Crown Lands inalienable, Kamehameha III and his successors did as they pleased with the Crown Lands, selling, leasing, and mortgaging them at will. (Chinen 1958:27)

In 1850, the Privy Council passed resolutions which would affirm the rights of the commoners or native tenants. To apply for fee-simple title to their lands, native tenants were required to file their claim with the Land Commission within the specified time period of February 1846 and February 14, 1848. The *Kuleana* Act of 1850 confirmed and protected the rights of native tenants. Under this act, the claimant was required to have two witnesses who could testify they knew the claimant and the boundaries of the land, knew that the claimant had lived on the land for a minimum of two years, and knew that no one had challenged the claim. The land also had to be surveyed.

Not everyone who was eligible to apply for *kuleana* lands did so and, likewise, not all

claims were awarded. Some claimants failed to follow through and come before the Land Commission, some did not produce two witnesses, some did not get their land surveyed. For whatever reason, out of the potential 2,500,000 acres of Crown and Government lands “less than 30,000 acres of land were awarded to the native tenants.” (*Ibid*:31)

In Nānākuli there was only one application for quiet title to lands during the time of the *Māhele*. Even though this award was not granted, it does give some insight into land use in Nānākuli Valley. In testimony taken from the Native Register, Kuluahi speaks of his lands in the `ili of Hāpai:

To the Land Commissioners: `Ili of Hāpai, *Ahupua`a* of Nānākuli, Wai`anae District, O`ahu. I, the one whose name is below, have a *muliwai*, a pond, a cultivated *kula* and for firewood also, a valley planted in *wauke mauka*, and a *kula* house lot. It is finished. Kuluahi, X, his mark. January 17, 1848. (Native Register Vol. 5:342)

Unfortunately, these are the only clues remaining from the *Māhele* records which give any indication of traditional land use in Nānākuli.

Tax records for Nānākuli list eight people who paid a total of \$26 for taxes in 1855. These people lived in the area, but did not file land claims. The tax payment in currency suggests that the traditional way of life is coming to an end and that people have switched over to a monetary system. (Hawai`i State Archives: J.W. Makalena Tax Records)

E. Late 1800s

Ranching

Much of the Crown lands, of which Nānākuli were a part, were either sold, borrowed against as collateral or leased to generate income for the King (Kamehameha III) and his family. In the case of Nānākuli and nearby Lualualei, large portions were leased for the purposes of ranching.

In the mid-1800's the back of the valley appears to have been used solely for ranching purposes and probably did not support permanent habitation. Tax records from the mid-1800's exist for coastal Nānākuli which indicate that possibly as many as 50 people resided along the shore. The population in the area dropped precipitously during the 1800's, and in 1888, the Hawaiian Island Directory referenced only four residents of Nānākuli (Hawai`i State Archives: J.W. Makalena Tax Records:7).

The first longhorn cattle were brought to O`ahu from Hawai`i island in 1809 by John Young and Kamehameha I (Kamakau 1992:268). One of the first areas to be utilized for

ranching on the Wai`anae coast was Lualualei. Bureau of Conveyance records show that William Jarrett leased approximately 17,000 acres of land from Kamehameha III in 1851. The lease was written for 30 years with a lease fee of \$700 per year. (B.C. Liber 4:616-618.) It seems that Jarrett sold Paul F. Marin (son of Don Francisco de Paula Marin) one-half of his interest in the ranch. Marin lived on the ranch and managed it until 1864 when a dispute arose over the profits of the ranch. (Apparently, Marin had never turned over any ranch profits to Jarrett during the time he managed it.) After the dispute was settled, Jarrett took on George Galbraith as a new partner. (B.C. Liber 18:31)

In 1869, Jarrett sold the remaining years of his son's interest in Lualualei Ranch to James Dowsett. (B. C. Liber 29:16-18) James Dowsett was a descendant of a British sea captain and is noted for being the first anglo-saxon child born in Honolulu. (Nakamura *et al.*, 1994:21) Dowsett was an entrepreneur of sorts and dabbled in many different business ventures, such as:

. . . a whaling fleet, a dairy, a salt works, an extensive trade in *awa* (a Hawaiian narcotic drink) and numerous land holdings . . . He also ran cattle at different times in Nānākuli, Mikilua and Lualualei. (McGrath 1973:32)

In 1880, George Bowser traveled through Wai`anae and writes about Lualualei in his journal:

Leaving Wai`anae, a ride of about two miles brought me to the Lualualei Valley, another romantic place opening to the sea and surrounded in every other direction by high mountains. This valley is occupied as a grazing farm by Messrs. Dowsett & Galbraith, who lease some sixteen thousand acres from the Crown. Its dimensions do not differ materially from those of the Wai`anae Valley, except that it is broader — say, two miles in width by a length of six or seven miles. The hills which enclose it, however, are not so precipitous as those at Wai`anae, and have, therefore, more grazing land on their lower slopes, a circumstance which adds greatly to the value of the property as a stock farm. Although only occupied for grazing purposes at present, there is nothing in the nature of the soil to prevent the cultivation of the sugar cane, Indian corn, etc. Arrangements for irrigation, however, will be a necessary preliminary to cultivation. (Bowser 1880:493-94)

At the time of Bowser's visit, sugar cane production had not yet reached Lualualei from Wai`anae. Continuing on his journey, Bowser writes about Nānākuli:

From the Lualualei Valley to the Nānākuli Valley I had a rather dreary ride of three miles. The intervening country towards the sea is barren, with a

little pasturage at the base of the mountains. The track, however, is in very good order, much better than I expected to find it, looking to the mountainous and rocky character of the country through which it passes. At Nānākuli and at Hō`ae`ae, close adjoining, the Messrs. Robinson have cattle ranches. The pasture here cannot be compared with that in the valleys I had just left behind, but inland among the mountain ranges it is much better. (*Ibid.*, 494)

In 1894, Link McCandless entered the ranching scene:

...he and a man named Tom King chartered the brigantine Oakland in Seattle, filled her hold with cattle and the cabins with feed, and sailed for Hawai`i. By the turn of the century, McCandless' ranching empire covered much of the Wai`anae Coast, including land at Nānākuli, 4,000 acres at Lualualei, San Andrews' property in Mākua and pastures toward Ka`ena Point. (McGrath 1973:31)

O`ahu Railway and Land Company

The O`ahu Railway and Land Company (OR&L) signed its charter on February 4, 1889. The Railway was the brainchild of Benjamin Franklin Dillingham. Along with James Castle and others, he had invested in large tracts of land for speculation and resale, but the idea was slow to catch on because "the land lay too far from Honolulu, at least 12 miles. (McGrath 1973:54) He foresaw an economic opportunity. The railway was a means to provide transportation to the country and promote development of unoccupied lands, as well as connect with the sugar plantations in `Ewa, Wai`anae, Waialua and Kahuku. Construction on the railway began in March of 1889. The first length of the railway was completed and opened to the public by January 1, 1890. Five years later, on July 4, 1895 the railway finally reached Wai`anae. The Railway served the Wai`anae coast until 1946 when the Wai`anae Sugar Plantation closed down.

In the latter half of the 19th century, ranching became the leading industry in the Wai`anae coast. During this time and prior to 1865, when the King's lands were declared inalienable, large tracts of Crown lands in the Wai`anae district were sold in fee simple or leased out to various entrepreneurial families like Samuel Adams in Mākua Valley, the Dowsetts in Lualualei, Nānākuli and Mikilua, the Robinson brothers in Nānākuli and the Holt clan in Mākaha. Toward the end of the 19th century, The Wai`anae Sugar Plantation began to grow sugar cane on large tracts of leased land. This new economic venture would change the landscape and put an end to traditional Hawaiian ways of life forever.

F. Early 1900's to Present

Homesteading

There were two different waves of homesteading on the Wai`anae Coast. The first had less of an impact on Nānākuli, while the second resulted in development of Nānākuli as a residential area.

After the overthrow of the Hawaiian monarchy in 1893, the Crown Lands and the Government Lands were combined to become Public Lands. The Crown Lands were no longer indistinguishable and inalienable. In 1895, the Republic of Hawai`i decided to open up lands for homesteading in the hopes of attracting a “desirable class of immigrants” — Americans and those of Caucasian decent. (Kuykendall & Day 1961:204) In anticipation of the Dowsett-Galbraith lease expiring in 1901, the Government intended to auction off these lands to the highest bidder.

In 1902, the Government ran ads in the local newspapers stating their intent to open up land in Lualualei for homesteads. Due to the lack of water, the lots were classified as second class pastoral land, rather than agricultural land. An installment payment plan of one-fifth down and the balance of payments over a period of 4 years was the incentive to attract prospective homesteaders. There were other stipulations as well, in which the homesteader was required to make specific improvements to the property over the five-year period. (Dept. of the Interior, October 6, 1902, Hawai`i State Archives)

The homesteads were sold in three series. The first series consisted of nine lots which were sold between 1903 and 1909. These lots were much larger than the second and third series of lots sold. Seven of these lots averaged about 585 acres each. The two largest lots were 1,479.1 acres and 1,149.9 acres. The big-name families that obtained homestead lots at this time were Von Holt, McCandless and Dowsett. The majority of the Dowsett land was used to pasture cattle, with other portions being leased to the Sandwich Island Honey Company for apiaries. (B.C. Liber 376:237; B.C. Liber 288:324,331)

Despite promises by the Government to supply water, there was none and what little there was, was not enough to go around. Competition between the Wai`anae plantation and the homesteaders for water caused friction within the community. The lack of water placed a hardship on the homesteaders. Water had to be carried in and many lost their crops. The Wai`anae Sugar Company had a lease with the Government to take 2.5 million gallons of water daily from Government lands. But even after their lease had expired, the plantation continued to take the water. In 1924, the Government made an agreement with the plantation to release 112,000 gallons of water daily for the homesteaders.

The early wave of homesteading passed by dry, barren Nānākuli:

Because of its water shortage, parched Nānākuli had never attracted many residents. It remained a kiawe wilderness. Yet, the very fact that nobody wanted it turned the area into a kind of informal public park. Its magnificent beaches attracted a growing colony of squatters from all over O`ahu who were running out of places to camp. . . . The entire island had been hung with Kapu signs. But not Nānākuli. There the tawny, crescent beaches were open to anyone. Some came for the summer. Others camped all year round. Most of them were Hawaiians (McGrath 1973:103).

In the mid-1920s, not counting the squatters, there were only ten residents in all of the Nānākuli (McGrath 1973:107).

A second wave of homesteading was brought about in the late 1920s and 1930s with the passing by U. S. Congress of the Hawaiian Homes Commission Act in 1920. This law established almost 200,000 acres for homesteaders of Hawaiian Blood. Previous leases of Nānākuli land had expired at this time and the land was subdivided for residential lots. Whether there would be sufficient water for the new residential habitation, particularly because of the continued consumption of the Wai`anae Plantation Sugar Fields, was in question. Water came in through a 2 inch pipe from the Lualualei water system--this was often dry. By 1930 over 200 residential lots had been taken. The new homesteaders found themselves embroiled in the water rights issue with Wai`anae Plantation. (McGrath 1973:108-118).

Military

The number of troops stationed and trained on the Wai`anae Coast during World War II at times reached 15, 000 to 20,000 (McGrath 1973:136). The Beaches were fortified with barbed wire and concrete bunkers--many of which are still visible today. Martial law severely curtailed the movements of the local population. In Nānākuli, the Japanese attack on Pearl Harbor resulted in the explosion of misdirected Japanese bombs on the steep southeast valley wall. Evidently this aerial bombing was misdirected from the nearby targets of Camp Andrews and the military installations at Lualualei. Camp Andrews, located along present day Farrington Highway developed into a sizeable military base, with the buildings camouflaged to blend in with the kiawe trees on the property (Mr. Walter Kamanā, personal communication 7/6/99). The O. R. and L. railroad line transported troops and materials from Pearl Harbor and Honolulu.

Following the war the lower portions of Nānākuli Valley develop into the residential housing area visible today. The installation of paved roads, utilities, and Nānākuli Highschool had their affect on the landscape. *Mauka* of the residential area, cattle grazing and pig and poultry raising operations continue to the present day.

IV. PREVIOUS ARCHAEOLOGICAL RESEARCH

The first archaeological survey of Nānākuli Valley was conducted in 1929-1930 by J. Gilbert McAllister as part of an island-wide survey of archaeological sites on O`ahu. McAllister's survey focused on locating larger religious, habitation, and traditional/mythological sites. It is not surprising that he identified only one site in Nānākuli, the approximate location of the now-destroyed `Ilihune *heiau* (McAllister site 147). `Ilihune *heiau* was located in the mouth of Nānākuli Valley, on the southeastern slope of Pu`u Heleakalā (Sterling & Summers 1978:80). The remnants of `Ilihune *heiau* was apparently used in the mid-1890's as a cattle pen (McAllister 1933:110).

The next cultural study of Nānākuli Valley was done as part of an island wide survey of ethnographic agricultural practices. According to a study by Handy (1940), there were remnants of Hawaiian habitation high in the head of the valley, in the form of abandoned terraces, stone platforms, and paving stones (Sterling & Summers 1973:61). That most of the identifiable sites in Nānākuli are located in the upper valley, beyond where the streams converge, has been recently confirmed by the research for the Hawaiian Homelands in the Valley, see discussion below.

It is thought that Nānākuli Valley was initially settled as early as A.D. 1300 (Pak & Cordy 1990:4). As a relatively dry and inhospitable area, Nānākuli was probably settled last among areas in the Wai`anae District. Likely, early habitation occurred along the sandy coast as abundant marine resources were readily available. Today, these coastal areas, including the sand beach, low dunes and sand flats, have been significantly altered, and are covered by Nānāikapono Elementary School, Nānākuli Beach Park, Farrington Highway, and nearby houses and other structures *mauka* of the Highway (Cordy 1997:12). Interestingly, data from the tsunami that struck the Islands on April 1, 1946 indicates that the surge reached a height of approximately 20 feet at Nānākuli (Shepard *et al.* 1950:419). It is possible that this event had a significant impact on the sand beaches and any burials or cultural materials that they may have contained.

Only one archaeological study has been done to date in the coastal portion of Nānākuli, at the site of the Milcon P-313 Range Operations Center Naval Undersea Warfare Engineering Station Detachment. The subsurface testing here found no traces of cultural deposits over 50 years old. This is not surprising as the land form within the Milcon P-313 project area is shallow, most likely recent fill material sediments, over emerged reef and/or beach rock (Ogden Environmental and Energy Services, Co. 1995:11). No historic properties have been recorded in the coastal zone of Nānākuli. However, immediately to the north of Nānākuli the Ulehawa Beach Park parcel was the focus of subsurface archaeological inventory survey investigations. Two different areas of subsurface, apparently prehistoric or early historic deposits were located (McDermott and Hammatt 1999 in prep.). Based on these results it is likely that Nānākuli sandy deposits will

contain similar remains of past traditional Hawaiian habitation, including burials. Mr. Walter Kamanā, a long time resident of Nānākuli suggested that burials would be found in the Nānākuli's sandy coastal deposits (Mr. Walter Kamanā, personal communication 7/6/99). Cordy (1997:14) agrees that there is the potential for cultural deposits in the coastal areas of Nānākuli.

Nānākuli's central lowlands, including the currently developed areas, are highly eroded and lack indications of archaeological sites (Ogden Environmental and Energy Services, Co. 1995:9). If surface structures related to such agricultural pursuits did exist in the lower valley portions of Nānākuli *ahupua`a*, they may have been eradicated by historic cattle ranching and development activities.

By far the most extensive archaeological investigations in Nānākuli were conducted as part of the joint Department of Hawaiian Homelands/Department of Land and Natural Resources (State Historic Preservation Division) archaeological inventory survey. This study focused on the *mauka* areas of the valley, up beyond the current residential neighborhoods. According to Cordy (1997), nearly all of the flat land between the west and east branches of Nānākuli Stream is covered with the ruins of agricultural fields (Cordy 1997:8; Pak & Cordy 1990: 2). The extensive nature of these ruins indicates that the entire upper valley floor, as well as the side valley, were landscaped to catch water run-off and create soil pockets. In addition to the ruins of agricultural fields, this survey recorded remnants of other, large enclosures, permanent and temporary house sites, field shelters, and work areas (Cordy 1997:8). A total of 26 permanent habitation sites were identified in the upper portion of Nānākuli Valley. Only two possible religious sites were identified: one small shrine and a large structure interpreted to be a possible *heiau* (*Ibid.*:10). The sites identified in Nānākuli are thought to be excellent examples of sites of their types in the Wai`anae district, and may reflect broad patterns of settlement and of the development of dry-land agriculture systems (Pak & Cordy 1990:6).

Below is a table summarizing the previous archaeological investigations in Nānākuli *ahupua`a*, the location of these studies are plotted on Figure 6:

Reference	Location	Description and Results
Cordy <i>et al.</i> 1990	Nānākuli <i>Ahupua`a</i> TMK 8-9	This Status Report 3 of the archaeological inventory survey of Nānākuli <i>ahupua`a</i> covered the undeveloped areas of the valley and is summarized in Cordy 1997.
Pak Cordy 1990	Nānākuli <i>Ahupua`a</i> TMK 8-9-07, 08	This Status Report 4 of the archaeological inventory survey of Nānākuli <i>ahupua`a</i> covered the undeveloped areas of the valley and is summarized in Cordy 1997.

Reference	Location	Description and Results
Nakamura Pantaleo 1994	Nānākuli & Lualualei <i>Ahupua`a</i>	This survey of 11 candidate sites for two State of Hawai`i projects indicated that had been extensive surface disturbance in the region. This report predicts the discovery of mainly historic era surface features related to agriculture, ranching, and military activities.
Ogden Environ- mental and Energy Services Company	Nānākuli <i>Ahupua`a</i> TMK 8-9	This report details the results of archaeological subsurface testing in conjunction with Milcon P-313, Range Operations Center Naval Undersea Warfare Engineering Station Detachment, Lualualei. No significant prehistoric or historic cultural deposits were identified. All strata have 20 th Century components which indicates recent land use.
Cordy 1997	Nānākuli <i>Ahupua`a</i> TMK 8-9	This archaeological survey of the undeveloped portions of Nānākuli Valley (up to the Forest Reserve Line) revealed extensive ruins of agricultural sites, scattered permanent and temporary house sites, and possible religious structures in the upper portion of the valley. Very few sites were located in the lower portions of the valley. This report did not include the beach areas, as they have been urbanized, but did postulate that these sandy areas likely contain sites.

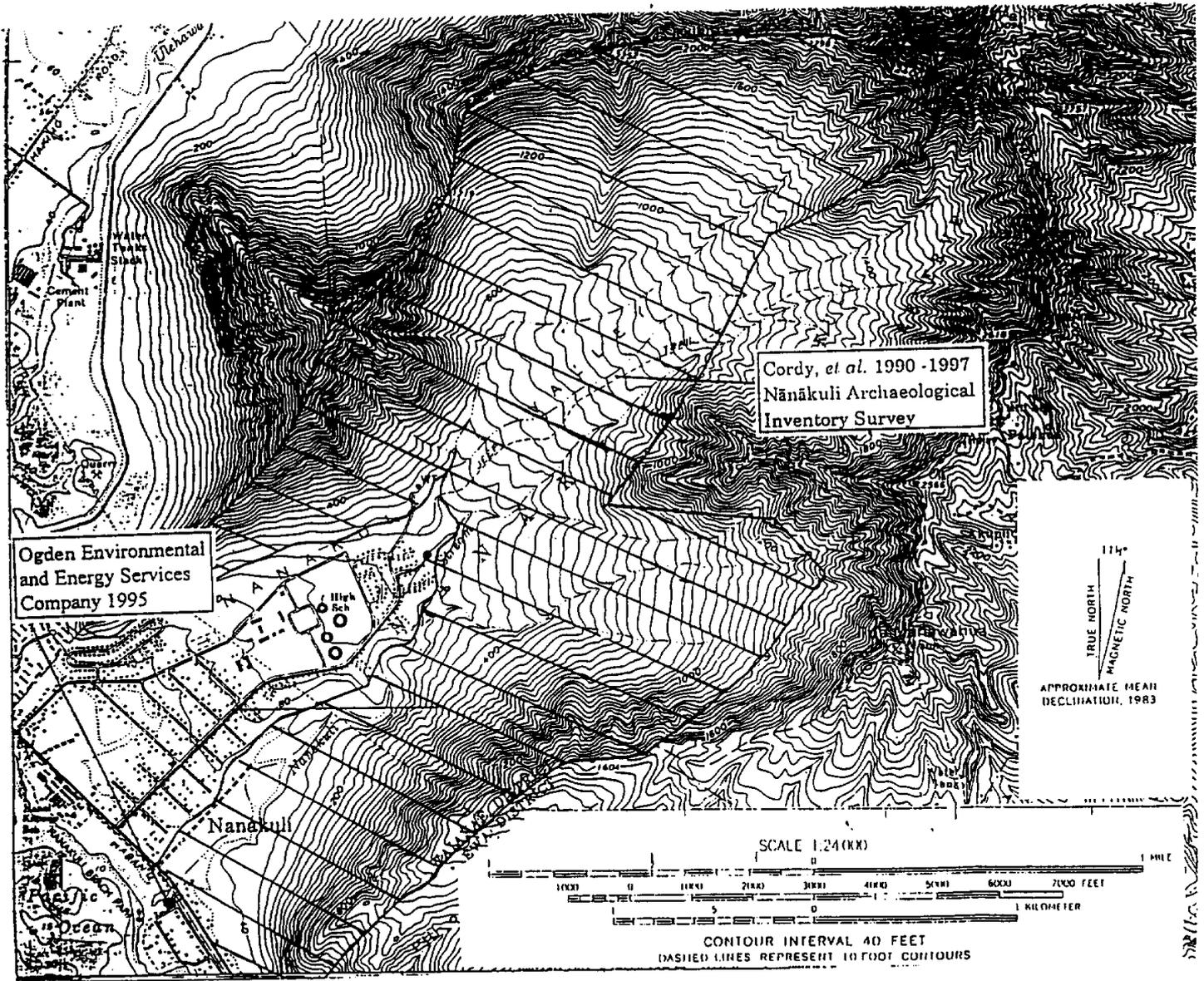


Figure 6 Portion of the 1983 U.S.G.S. Schofield Barracks Quadrangle Showing the Location of Previous Archaeological Investigations in Nānākuli.

V. LOCAL INFORMANT INTERVIEWS

Two interviews were done with knowledgeable long-time residents of Nānākuli. The primary focus of the interviews was to identify any cultural, historical, or archaeological areas of concern within the 242 Reservoir site and the alignment of the 20" transmission main down Nānākuli Avenue. Questions were also directed to gather further information regarding the cultural and historical background research that had already been done. Neither of the two informants felt that the proposed construction would have any impact on significant historic properties.

Both interviews were done on July 6, 1999 at the residences of the informants. The interviews were taped. A detailed written synopsis of the interviews was later prepared from the tapes. The following information is derived from these synopses.

The first interviewee was Mr. Walter Kamanā. He is a born and raised, full Hawaiian, resident of Nānākuli whose ancestors have lived in Nānākuli for at least seven generations. He was born in Nānākuli in approximately 1930, but lived the first years of his life in Mākua Valley. After Pearl Harbor the military took over Mākua Valley, and Mr. Kamanā moved back to Nānākuli, where he was raised by his grandparents. Mr. Kamanā is a cultural specialist in many respects, particularly the gathering of marine resource.

Mr. Kamanā does not feel that the water reservoir site or the installation of the 20" water main down Nānākuli Ave. will disturb Hawaiian cultural or archaeological sites. He does mention that Heleakalā Ave., the parallel street to the north, would be a bad location for subsurface excavation--with a high probability of finding Hawaiian burials. He describes this area as an old graveyard.

Mr. Kamanā relates that during the construction of Nānākuli High School dirt was brought in from Waimalu to build up the school area, including the football field. The dirt came from a Waimalu burial ground. Mr. Kamanā suggests, half jokingly, that the presence of burial remains in the dirt fill below the school and football field is the reason that Nānākuli High School football team never wins.

According to Mr. Kamanā World War II activities did not move a lot of sediment on the beaches of Nānākuli, although troops were camping along the beach areas. Camp Andrews was just bushes before the military moved in and developed the area as a camp. The military limed the area--covered it with lime, but they left the mesquit trees as camouflage with the painted green buildings. Bombs from Pearl harbor attack fell on the south valley wall of Nānākuli valley--they missed Lualualei. The bunkers along the beach at were put up after the Pearl Harbor attack, and the military closed the beach and installed barbed wire.

The second interviewee was Mr. Clarence Lopez. Mr. Lopez was born in 1921 in Honolulu, and spent his early years in a place then known as Watertown, in the location of present day Hickam Air Force Base. The Watertown area was turned over to the Federal government in approximately 1929, and the area residents had to relocate. Mr. Lopez' family moved to Dillingham street in Honolulu. Because his mother was full Hawaiian, they qualified for Hawaiian Homestead land in Nānākuli. The family applied for one of the ½ acre lots, which they got in 1932 and the family relocated. According to Mr. Lopez--you had to be at least 3/4 Hawaiian to qualify for one.

Mr. Lopez lived in the Nānākuli area for over 40 years. He worked at the Lualualei ammunition depot. When Mr. Lopez retired from the Lualualei job, he got a job for the City and County at Nānākuli Beach Park. During Hurricane *Iwa* sediment at the Nānākuli Beach Park was deposited inland--not taken away. Mr. Lopez doesn't know of any burials being discovered as a result of the storm surges over the years. In 11 years working for the City and County at Nānākuli Beach Park, Mr. Lopez did not hear of any burials being exposed in the area.

He has no specific information about the 1946 tidal wave. He avoided the area at the time. His brother in law and others were down at the present day Nānākuli Beach park area picking up fish that were deposited inland from the tidal wave.

During W.W. II nobody could go down to the beach. Across from the Navy camp at Camp Andrews, on the makai side, you had a Marines camp.

Railroad remembrances:

At the present day corner of Heleakalā Ave. and Farrington Highway (in Nānākuli) there was a water tank for the railroad. The train used to stop to replenish its water supply. The train used to go all the way to Kahuku to pick up pineapples and come back the same way around Ka'ena Point. Mr. Lopez used to take the train into Honolulu, 20 cents a day fare, to go to school. The train used to go past Kahe Point, past the present day `Ihilani hotel, through the cane fields of the Barber's Point area. It would pick up passengers in `Ewa, in Honouliuli, Waipahu, Pearl City, `Aiea, all the way to Kalihi where the school was.

Regarding early life on the Nānākuli Homesteads:

The life in early Nānākuli Homesteads was rough. Getting water was always work, filling the 55 gallon drums when the water was turned on. They had to pile up rocks, pull stumps, cut the kiawe back. Mr. Lopez' father, with help from his coworkers at Pearl Harbor, built the family home. The cattle used to come down from *mauka* to get water in the night--they would go after the 55-gallon drums. When Mr. Lopez' mother died, the family had two years to stay on the land before it was taken away, because it had to go to Hawaiians. But they managed to have the land transferred to Mr. Lopez' older sister's husband who was Hawaiian. In

that way the homestead stayed in the family. Mr. Lopez used to pick oranges up *mauka*, above the area where the 242 water reservoir is being built today (in Nānākuli). Mr. Lopez was part of the first graduating class of the Nānāikapono school.

VI. PREDICTIVE MODEL

Prehistorically land use in Nānākuli was greatest at the sea, where marine resources were plentiful, and in the *mauka* portion of the *ahupua`a*, which received sufficient rainfall for agriculture and contained forest resources. Archaeological survey of the upper portions of Nānākuli Valley have located the remains of habitation, ceremonial, and agricultural structures. The extensive archaeological survey of the *mauka* portions of the valley is offset by a paucity of archaeological investigation in the coastal portions of the *ahupua`a*. However, based on context, information from long time residents of the area, and traditional accounts, it is likely that the coastal areas of Nānākuli will contain cultural deposits related to habitation, including human burials. Both prehistorically and historically the central portion of the valley, the location of the current 242 Reservoir project area, was much less intensively utilized. This area, prehistorically as well as now, would have been scrub-forest and grass land, although the predominant species have changed in the historic period. From the mid 19th century until the present day this central portion of Nānākuli Valley was used for cattle grazing and for pig and poultry raising. It is less likely that this portion of the valley was used prehistorically for cultivation or habitation because of the lack of water. In the later 1920s, the lower portion of Nānākuli Valley was subdivided into residential lots as part of the Hawaiian Homelands Homesteading program. It is unclear how this development would have effected cultural and historic deposits, however, it is likely that the deposits in this area were not extensive, with the exception of the *makai*-most lots.

Based on background research it is unlikely that significant historic properties will be found within the 242 Reservoir site. This area was probably not used during the prehistoric period. In the historic period use would have been confined to animal husbandry. Although less likely, it is possible that remains of this activity (cattle walls and/or fences, animal pens) will be found within the project area. The residential development of the lower portion of Nānākuli Valley is expected to have removed what little surface traces of historic and prehistoric land use that may have predated the development. Subsurface deposits, including buried cultural deposits and burials, are a possibility, but only likely to be encountered in the *makai*-most portions of the proposed 20" transmission main along Nānākuli Avenue. Accordingly, the archaeological assessment of the 20" transmission main down Nānākuli avenue is not expected to locate significant historic properties.

VII. INVENTORY SURVEY RESULTS

A. Findings

During the inventory survey field work access to the 242 Reservoir project area was from Mai`aiholena Place. The proposed access road and the reservoir construction area itself were inspected through systematic pedestrian sweeps. All findings were plotted on the project area map provided by Shimabukuro, Endo, and Yoshizaki, Inc.--see Figure 7. Landmarks on this map, including existing structures, marked as "coral", "stable", etc., were more than sufficient to orient the field crews to the project area boundaries. Figures 8-11 are photographs taken of the 242 Reservoir project area. Visibility was good because of the dispersed kiawe trees and lack of undergrowth.

No significant historic properties were found within the project area. The access road alignment goes through existing structures, see Figure 7. This area is currently being used for animal husbandry including goats, ducks, and pigs. The structures, including coops, pens, and troughs, are all clearly modern constructions. The 242 Reservoir site itself contained some old barbed wire fence alignments and was clearly used for grazing. There were no other surface features and there did not appear to be much likelihood of subsurface cultural deposits. The northwest portion of the project area is steeper and rockier. Past bulldozer activity has pushed boulders and large metallic debris into piles in this area. The southeast portion of the project area is more level with fewer surface boulders. Southeast of the project area the Nānākuli stream drainage is a steep drop off.

A single stacked stone alignment was located and documented outside the project area to the east. The location of this alignment is shown on Figure 7 as the area labeled "A". Figure 12 is a plan view of the feature. The alignment is 4.5 meters long by 1.5 meters wide and varies between 0.9 and 1.3 meters tall. It is constructed of rounded basalt boulders, the same type that are scattered all over the surrounding landscape, stacked 4-6 courses high. The eastern side of the alignment is well faced. East of the alignment the land surface drops off steeply into Nānākuli Stream drainage. Two barbed wire fence lines extend off of the alignment. Because of its incorporation into a system of barbed wire fences, the alignment is most likely related to ranching activity. Although potentially older than 50 years, the alignment is not considered a significant historic property. No state site number was assigned to the feature.

In summary, no significant historic properties were located within the project area. A single, most-likely ranching related stacked stone alignment was located and documented outside the project area to the east. This feature was not considered a significant historic property.

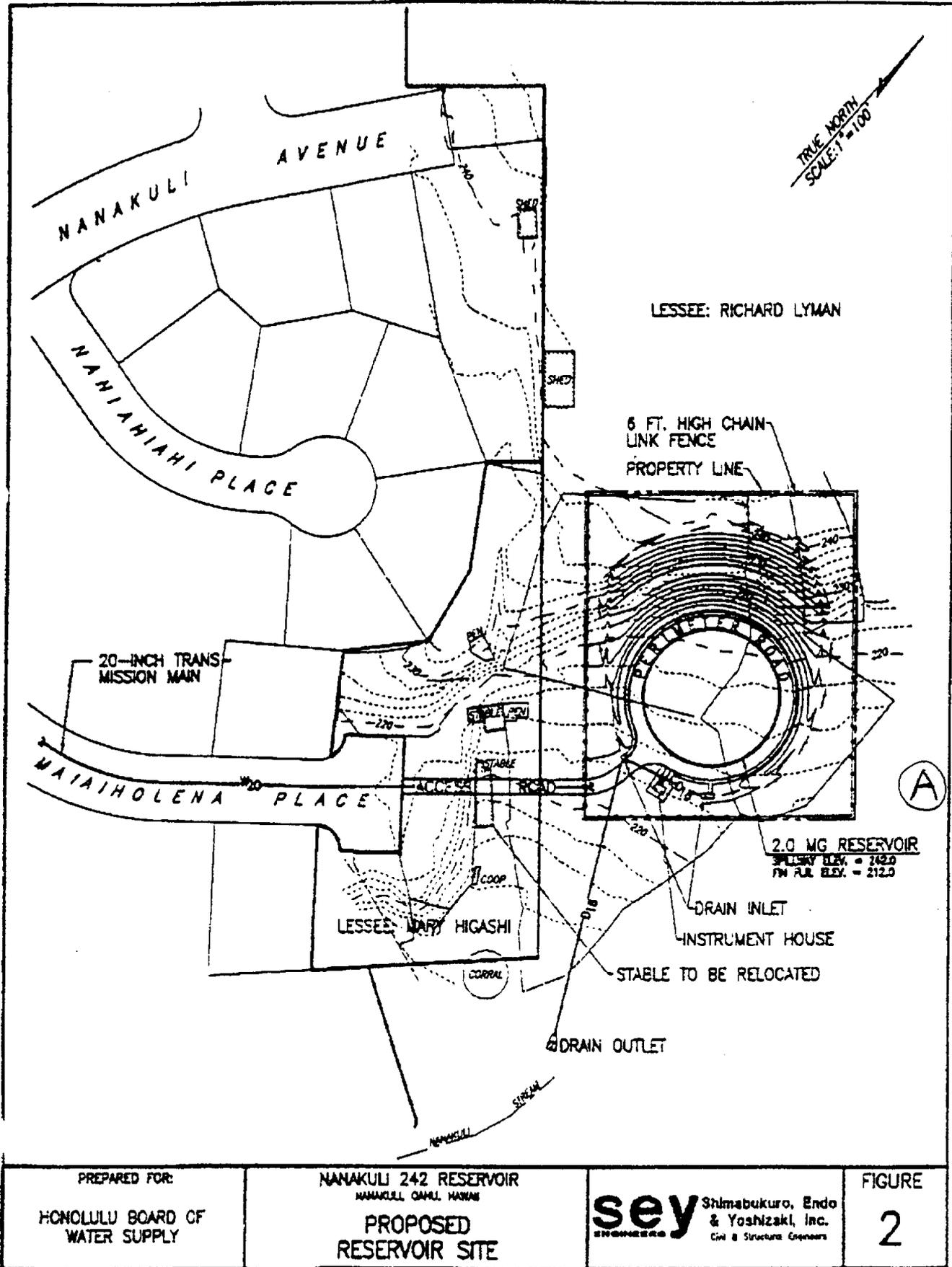


Figure 7 242 Reservoir Construction Site Showing the Location of the Stacked Stone Wall Alignment (Labeled "A") Outside of the Project Area.



Figure 8 Shot Northeast of the End of Maiaiholena Place, Overlooking the Alignment of the Proposed Access Road and Southeastern Reservoir Project Area.



Figure 9 Shot Southeast of 242 Reservoir Project Area Showing Typical Terrain and Vegetation.



Figure 10 Shot East from the Central Portion of the 242 Reservoir Project Area Showing Typical Terrain, Vegetation, and a Modern Fence Line.

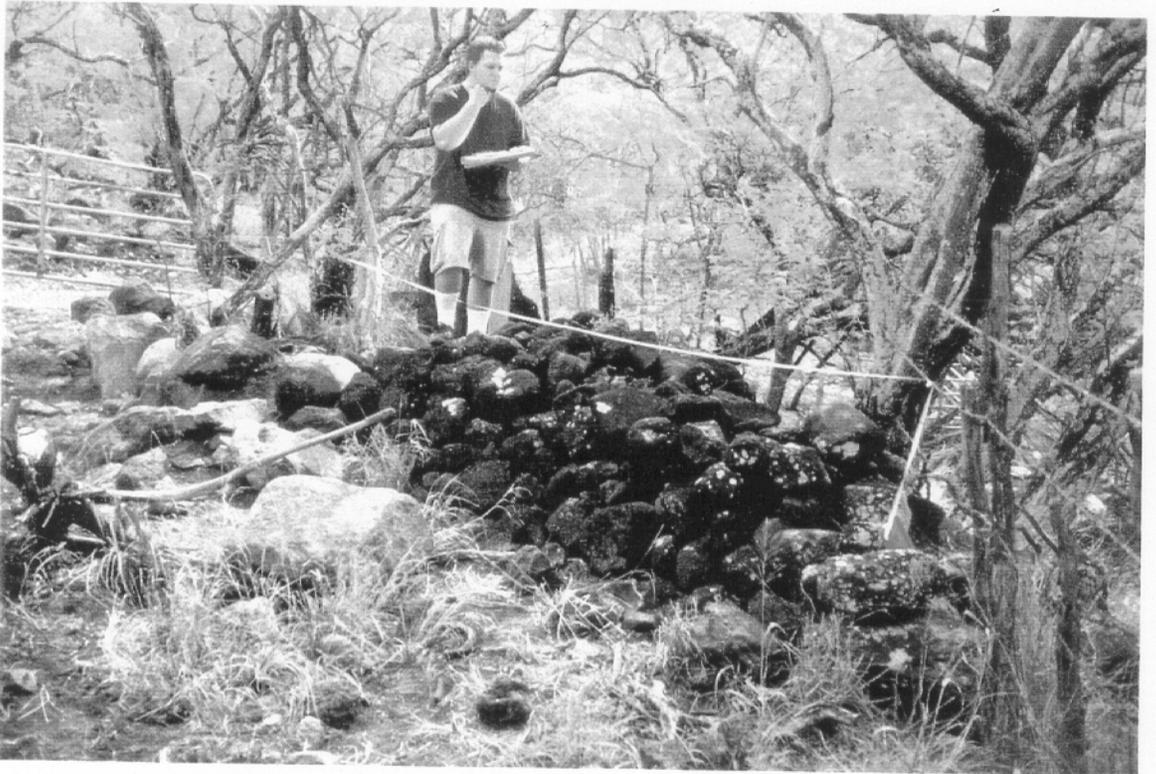


Figure 11 Shot Northeast of Stacked Stone Alignment (Located Outside the 242 Reservoir Project Area).

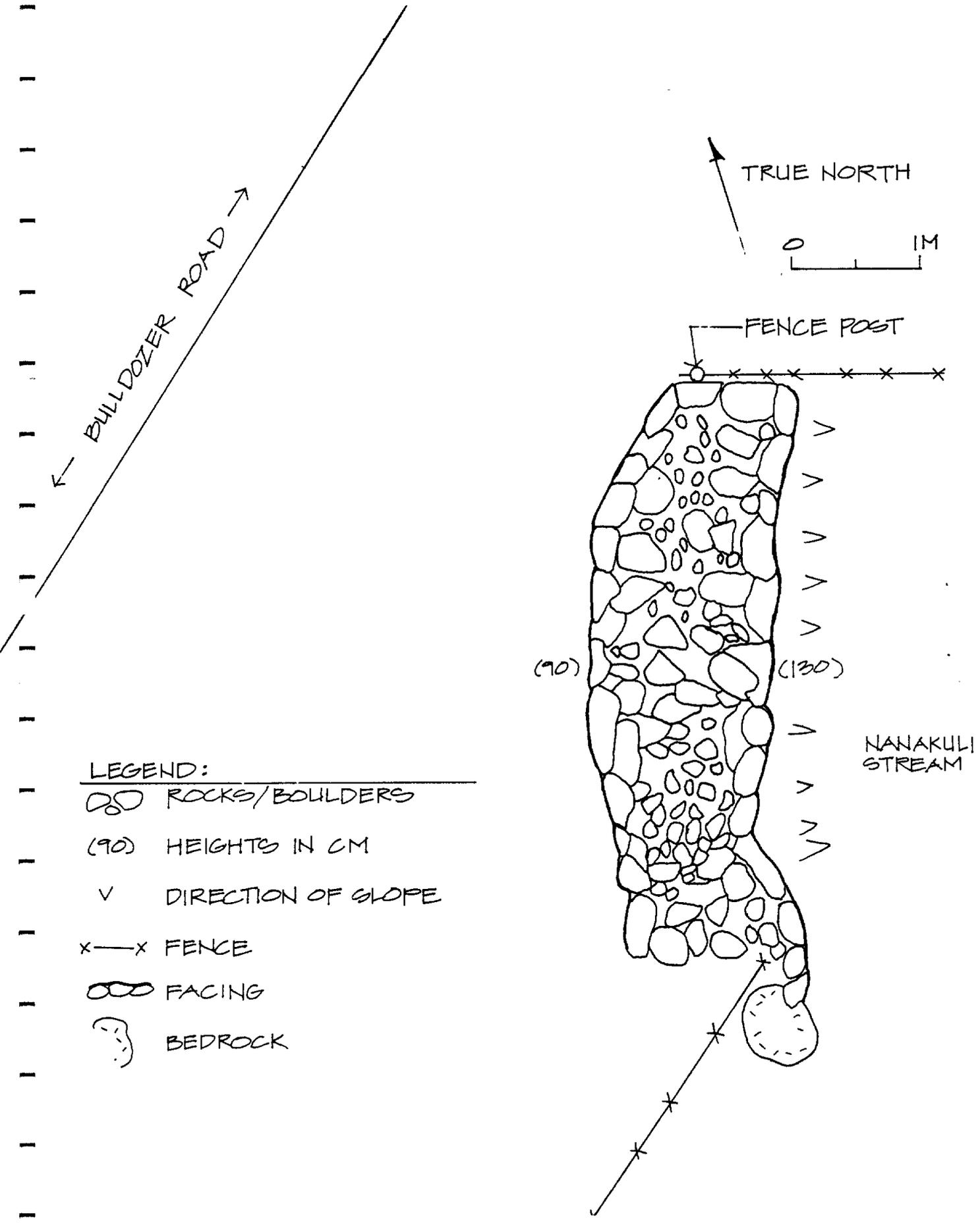


Figure 12 Plan view of Stacked Stone Alignment Located Outside the 242 Reservoir Project Area to the East.

B. Significance

No significant historic properties were located in the 242 Reservoir project area.

C. Recommendations

Construction of the 242 Reservoir will have no effect on significant historic properties. No further historic preservation work is recommended for this project.

VIII. ASSESSMENT RESULTS

A. Findings

The alignment of the proposed 20" transmission main down Mai`aiholena Place and Nānākuli Avenue to Farrington Highway was walked by two archaeologists. Figures 13 and 14 show the typical developed, residential neighborhoods that line these streets. Mai`aiholena Place and the upper reaches of Nānākuli Avenue are more recent housing developments. With their subsurface utilities lines these developments clearly post-date the original homestead lots, which are visible along the lower reaches of Nānākuli Avenue (with the overhead utilities).

As expected no potentially significant historic properties were located with the 20" main alignment. Clearly the installation of the roadways have removed all surface features. Several potential historic properties, thought to be over 50 years old, were located along Nānākuli Avenue. These consist of houses and other structures. Figure 15 shows a modified, apparently W. W. II Quonset hut, that is being used as a family home. There are many such structures in Nānākuli and the entire Wai`anae Coast. Figure 16 shows a church building that appears to be over 50 years old. These potentially significant historic properties are not located with the 20" transmission main and will not be affected by its installation.

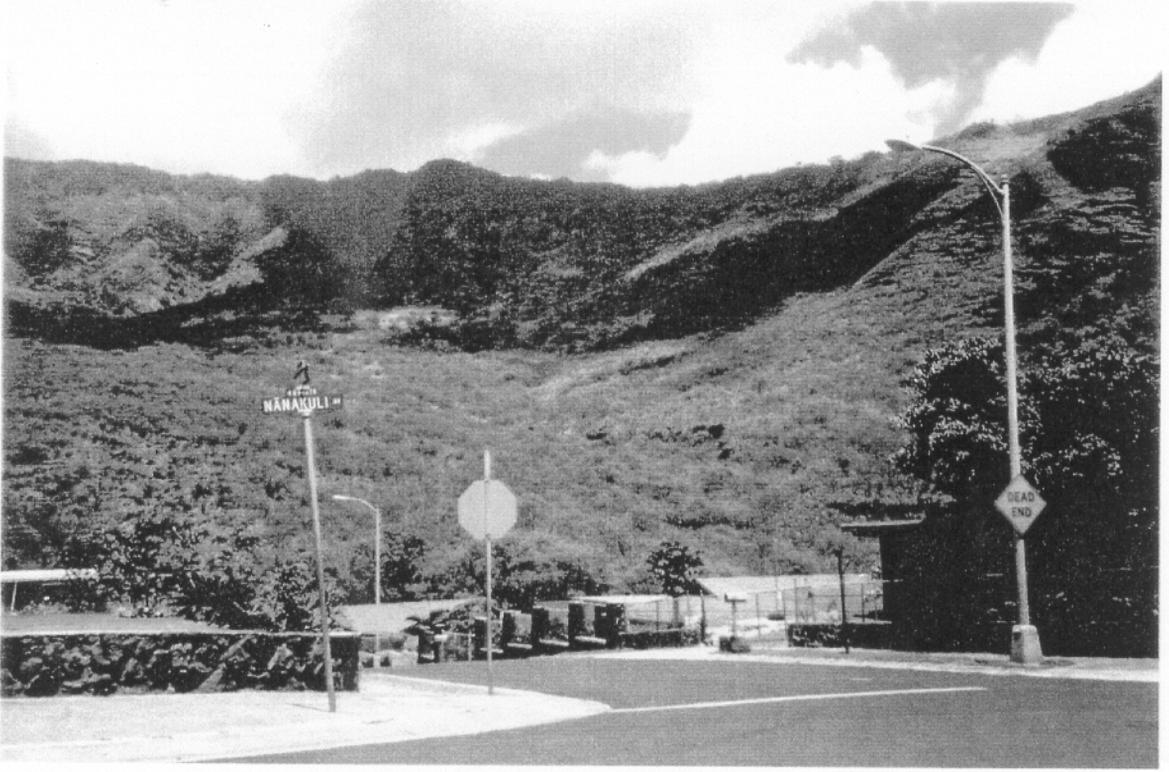


Figure 13 Shot Southeast of the intersection of Maiaiholena Place and Nānākuli Avenue Showing Typical Conditions in the 20" Transmission Line Assessment Project Area.



Figure 14 Shot Southwest Down Nānākuli Avenue Showing Typical Conditions in the 20" Transmission Line Project Area.

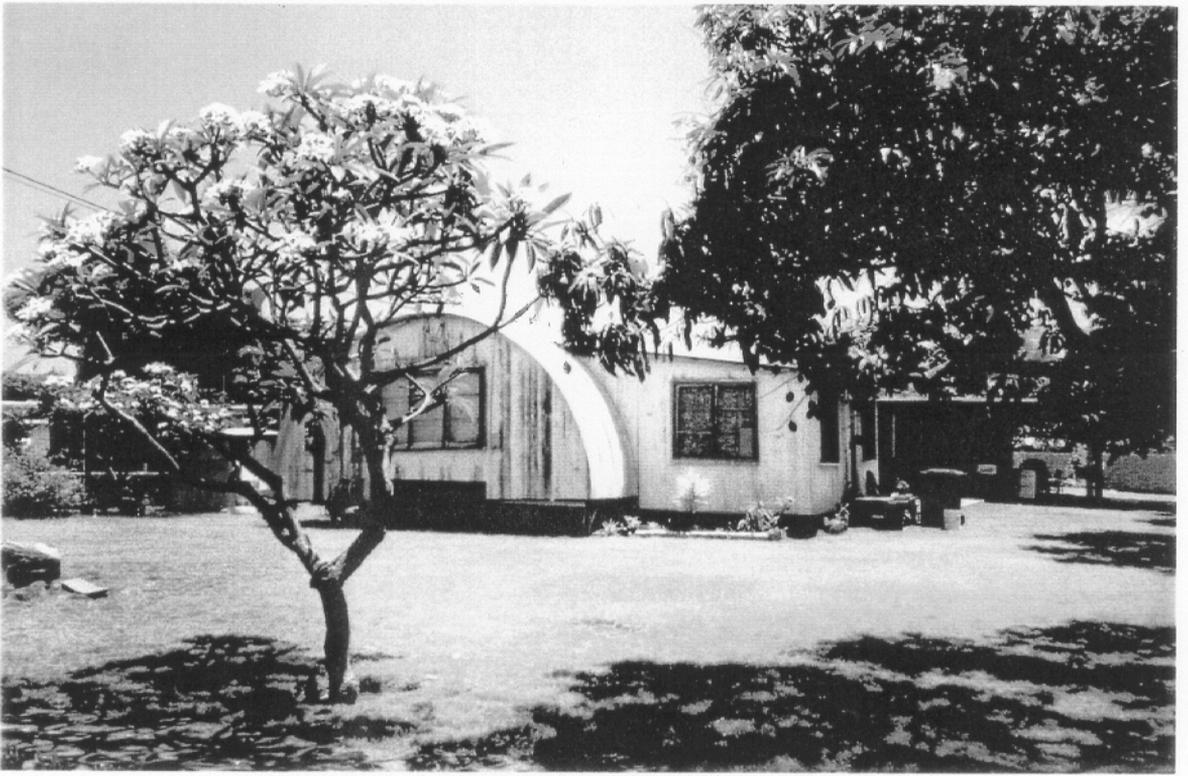


Figure 15 Typical Structure (Military Quonset Hut) Along Nānākuli Avenue, Potentially a Historic Property (Older than 50 years), But Outside the 20" Transmission Project Area.

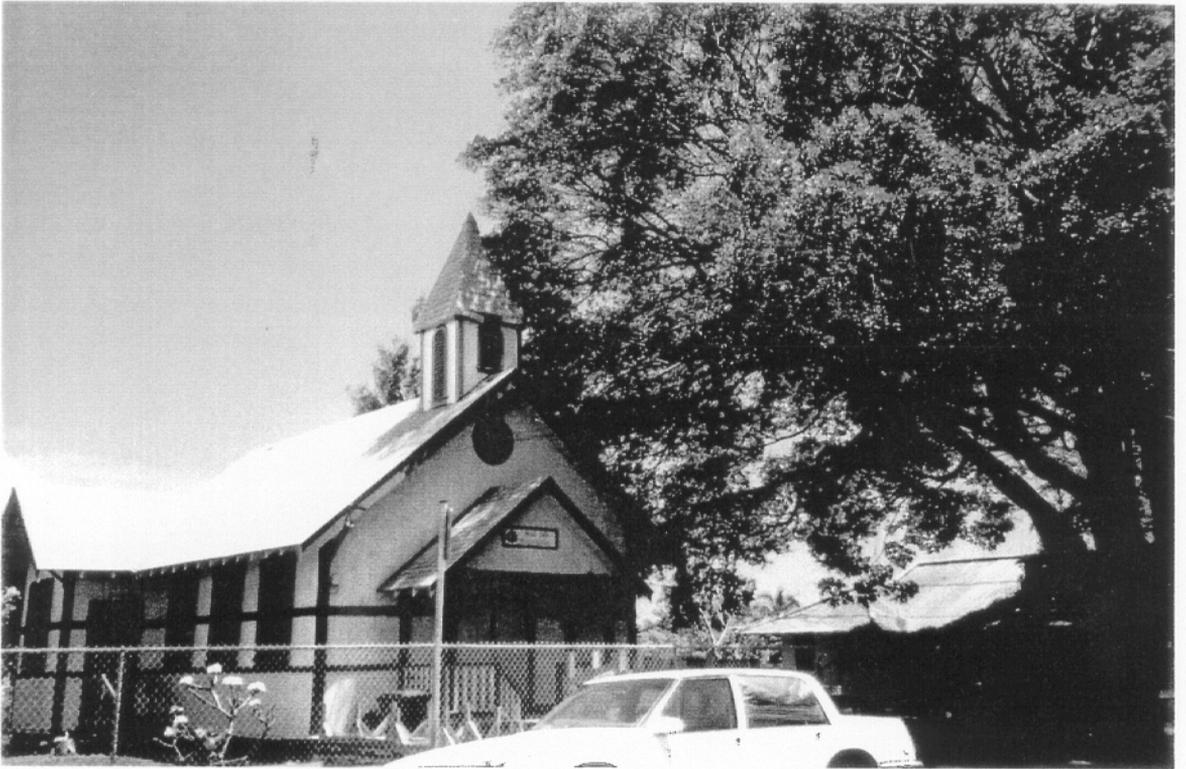


Figure 16 Typical Structure (Church Building) Along Nānākuli Avenue, Potentially a Historic Property (Older than 50 years), But Outside the 20" Transmission Project Area.

B. Significance

No significant historic properties were located within the alignment of the 20" transmission main. Based on background research there is potential for significant subsurface cultural deposits, including human burials, in the sandy coastal deposits in the *makai* portions of Nānākuli Avenue. Subsurface deposits are thought unlikely *mauka* of the sandy coastal deposits--although there is potential of encountering human burials. On the *makai* side of Farrington Highway is the right of way of the O. R. and L railroad line. The remains of this railroad line, consisting of track and cross-ties, are a significant historic property, State Site number 50-80-12-9714. Work crews should be made aware of this site so that it is not damaged during the tie of the 20" transmission main, with the water lines that run under Farrington Highway.

C. Recommendations

A program of archaeological monitoring is recommended during the installation of the 20" transmission main along Mai`aiholena Place and Nānākuli Avenue. A monitoring plan outlining expected finds and listing treatment of any encountered historic properties must be written and approved by DLNR/SHPD before subsurface work on the 20" transmission main installation can begin. Full time monitoring by a qualified archaeologist is recommended for the sandy coastal deposits in the *makai* portion of Nānākuli Avenue. It is currently unknown how far *mauka* these deposits extend. However, monitoring should continue until it is clear that the excavation is continuing through terrigenous sediments. Once the excavation is proceeding through terrigenous sediments it is much less likely that cultural deposits and/or burials will be encountered. During the excavation of terrigenous sediments on call monitoring is recommended. With on call monitoring it should be made clear that if any suspected cultural deposits are located, work in the area will halt immediately and a qualified archaeologist will be called to assess the deposits.

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APPENDIX E

**Native Hawaiian Gathering Rights Assessment for the Proposed
Nanakuli 242 Reservoir Site and 20" Transmission Main Along
Nanakuli Avenue**

**Native Hawaiian Gathering Rights Assessment
for the Proposed Nānākuli 242 Reservoir Site and
20" Transmission Main Along Nānākuli Avenue,
Nānākuli, Wai`anae District, Island of O`ahu
(TMK: 8-9-8:3)**

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and

Honolulu Board of Water Supply

Cultural Surveys Hawai`i
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ABSTRACT

A native Hawaiian gathering rights assessment (*Pono`Ōwi Study*) for the proposed Nānākuli 242 Reservoir site and the installation of a 20-inch transmission main down Nānākuli Avenue to Farrington Highway to alleviate the water storage deficit in the valley was requested by Shimabukuro, Endo & Yoshizaki (SEY), Inc. on behalf of the Honolulu Board of Water Supply.

The proposed reservoir project area (TMK: 8-9-8:3) is located in the *ahupua`a* of *Nānākuli* on a lot owned by the Department of Hawaiian Home Lands (DHHL). The lot is approximately 250 feet wide by 260 feet long. Currently, the lot including the proposed reservoir site is being leased by DHHL to Mr. Robert Lyman. The proposed access road to the lot is at the end of Mai`aiholena Place and is also on DHHL land which is presently being leased by Maryann Kuahine Higashi. Mrs. Higashi states that the area at the end of Mai`aiholena Place, where the proposed access road is slated to be built, was a dumping spot and trash dump for the community until she took over the lease in 1994, put in improvements and cleaned up the area. Mrs. Higashi also shared that in times of heavy rains, perhaps every two to three years, the area of the reservoir site is known to flood.

Research of the oral and historical record showed that information regarding traditional Hawaiian lifestyle during the pre-contact and early post-contact periods up to the end of the 19th century was remarkably absent. At the time of the *Māhele*, Nānākuli was *Crown* lands and was owned by Kamehameha III. A search of the *Māhele* records indicated there was only one *kuleana* (commoner) claim made throughout the *ahupua`a* of Nānākuli. The claim was not awarded. Because the *Māhele* records were virtually lacking, there were no early maps to show *kuleana* or `ili boundaries. The scant information regarding land use and gathering practices comes from the one unawarded claim. The exact location of Hāpai`ili, which was named in the claim, is not known. If any mention is made at all, early explorer and journal entries regarding Nānākuli are limited to a scant few lines at the most.

The proposed site of the 242 Reservoir is located in an area that has been heavily utilized for cattle grazing and ranching since the last half of the 19th century. Native plants have been identified in upper Nānākuli Valley at higher elevations above the proposed site. What plants might have previously existed in the area of the proposed site are no longer there today. There were no native plants identified in the immediate vicinity of the reservoir site. The current vegetative growth consists of introduced species of predominantly *kiawe* (*Prosopis pallida*), *koa haole* (*Leucaena leucocephala*), lantana (*Lantana camara*) and finger grass (*Chloris specie*).

A companion archaeological study (McDermott and Hammatt, 1999) and the present study found no evidence for burials in either the 242 Reservoir site or the proposed 20" transmission main route along Nānākuli Avenue. As discussed in the report, any burials are most likely to be confined to sandy areas near the coast and the lower-*makai* portions of Nānākuli Avenue.

Based on the remnant stands of native vegetation in the upper portion of Nānākuli Valley it is probable that nineteenth century gathering was practiced there, but no indication was given in the oral history records or any of the historical documents consulted. No known gathering practices were found to occur within the proposed 242 Reservoir site. The lower portion of the valley through which the transmission main will pass has been altered by development and human activity.

The issue of religious or historic sites is unlikely to arise as there were no such sites found within the proposed reservoir site or along the transmission main route.

In summary, there were no Hawaiian traditional customs and practices found to occur within the proposed reservoir site and the proposed path of the 20-inch transmission main along Nānākuli Avenue. The only potential impact would be if burials are discovered in the sandy deposits along the *makai* side of Nānākuli Avenue while installing the transmission main. It is not expected that native Hawaiian gathering and access rights will be an issue.

Note: Throughout this report the spelling of Hawaiian vocabulary and place names has been standardized to present orthography.

ACKNOWLEDGEMENTS

Cultural Surveys Hawai'i wishes to acknowledge the following people without whom this report would not have been possible. First and foremost, we wish to thank those who gave of their valuable time by consenting to be interviewed: Fred Cachola, Black Ho'ohuli, Lehua Kapaku and Jay Landis. We also wish to thank the following people in the community who were helpful in giving referrals and for informally "talking story" and sharing what they knew about the proposed 242 Reservoir site and the transmission main route along Nānākuli Avenue: Paige Barber, Ross Cordy, Linda Gallano, Kinohi Gomes, John and Mary Ann Higashi, Walter Kamanā, Julius Ku'uipo (Queen Lili'uokalani Children's Center), Clarence Lopez, Robert Lyman, 'Aukai Pieper, and Tony Turbeville.

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I. INTRODUCTION

This native Hawaiian Gathering Rights Assessment (*Pono`Ōiwi Study*) was prepared at the request of Shimabukuro, Endo & Yoshizaki (SEY), Inc. in association with the Honolulu Board of Water Supply for the proposed Nānākuli 242 Reservoir site and the associated 20-inch transmission main. The proposed reservoir is to alleviate the water deficit within Nānākuli Valley.

The Hawai`i State Constitution, Article XII, Section 7 protects "all rights" of native Hawaiians that are "customarily and traditionally exercised for subsistence, cultural and religious purposes". The purpose of this Native Hawaiian Gathering Rights Assessment is to consider the effects proposed development may have on native Hawaiians as it pertains to their right to practice traditional customs. The process for evaluating cultural impacts is still evolving and Public Access Shoreline Hawai`i (PASH) issues pertaining to traditional access and gathering rights continue to be unresolved. There is no foreseeable easy solution at hand and it is unlikely that the many complexities surrounding PASH issues will be resolved in the immediate and near future.

This assessment is meant to be informational for the purpose of disclosing any impacts proposed development might have on native Hawaiian culture and to meet the requirements of the Office of Hawaiian Affairs (OHA) and any other state and county agencies involved in the review process for the proposed development.

Scope of Work

In addressing any Hawaiian customary and traditional rights and their applicability to the project area, the following scope of work was followed:

- 1) Examination of historical documents, Land Commission Awards, historic maps, with the specific purpose of identifying traditional Hawaiian activities including gathering of plant, animal and other resources or agricultural pursuits as may be indicated in the historic record.
- 2) A review of the existing archaeological information pertaining to the project area to aid in reconstructing traditional land use activities, to identify and describe the cultural resources, practices and beliefs associated with the parcel, and to identify present uses.
- 3) Conduct oral interviews with knowledgeable persons about the historic and traditional practices in the project area and region.
- 4) Preparation of a report on the above items to assess the impact of the proposed development on any cultural practices and features identified.

Biographical Sketches of Interviews

Four in-depth interviews were conducted with knowledgeable people of the Nānākuli community. The interviews lasted approximately 1 to 1 ½ hours and were conducted at the interviewee's home or workplace. The interviews were taped and transcribed. Portions of the interviews are quoted throughout the report. All of the interviews are presented in their entirety in the Appendices of this report. Following are brief biographical sketches of the four interviewees.

Fred Cachola

Mr. Cachola is of Hawaiian and Filipino heritage and was born on Kohala, Hawai'i. On the Hawaiian side, he traces his lineage back to his great-great-great-grandparents, Kupaianalua and Halulukamanawaululanipili, from Kohala. Upon graduating from college in 1960, he moved to Wai`anae where he began his first teaching assignment at Wai`anae Intermediate. Since teaching Hawaiian history for 7th-graders was part of his job, Mr. Cachola took a keen interest in the people, the history and legends of the Wai`anae Coast area. He was very involved in the community and lived there for over 30 years. Mr. Cachola has since retired, but he spends his time as a docent at `Iolani Palace and conducts historical tours of the Wai`anae Coast, Kohala and other areas of interest.

Black Ho`ohuli

Mr. Ho`ohuli was born in Wai`anae and raised in Nānākuli all of his life. His family was one of the first homesteaders in Nānākuli. Mr. Ho`ohuli attended Nānākuli High School and is currently employed there as a custodian. Mr. Ho`ohuli is very involved in the community. He is active in community planning meetings and is concerned about Nānākuli's welfare. He was very willing to share his knowledge. Black Ho`ohuli and Fred Cachola are friends and many of the stories Mr. Cachola shared with me were stories he had heard from Mr. Ho`ohuli.

Lehua Kapaku

Mrs. Kapaku is of Hawaiian ancestry and was born in Waipi`o Valley on the island of Hawai'i. She is currently the curator of Nānāikapono Community School Museum. She moved to O`ahu to attend the University of Hawai'i at Mānoa. In 1960, she moved to Nānākuli and has lived there for the past 39 years. Because of the nature of her job at the Museum, Mrs. Kapaku is well-connected with the local community. She is also the President of "Mālama Nānākuli Ahupua`a, Inc." whose purpose is to "restore, preserve and establish an educational place for the people of Nānākuli." The organization has a partnership with three schools and other community associations. Mrs. Kapaku works

with Ross Cordy, State archaeologist, who is very involved in Mālama Nānākuli *Ahupua`a* and has been conducting archaeological studies in upper Nānākuli Valley over the past few years.

Jay Landis

Mr. Landis is of part-Hawaiian ancestry and was born in 1919 in San Francisco, California. He was *hānai* to an aunt and moved to Wai`anae about 1933 at the age of 14 years. He is related to the McCandless family and lives on family land at Lualualei, where he was raised. He was described to me by many people in the community as someone who would be a good resource for information because he was involved in community organizations, grew up in the area, and knew a lot about the history of the Wai`anae Coast.

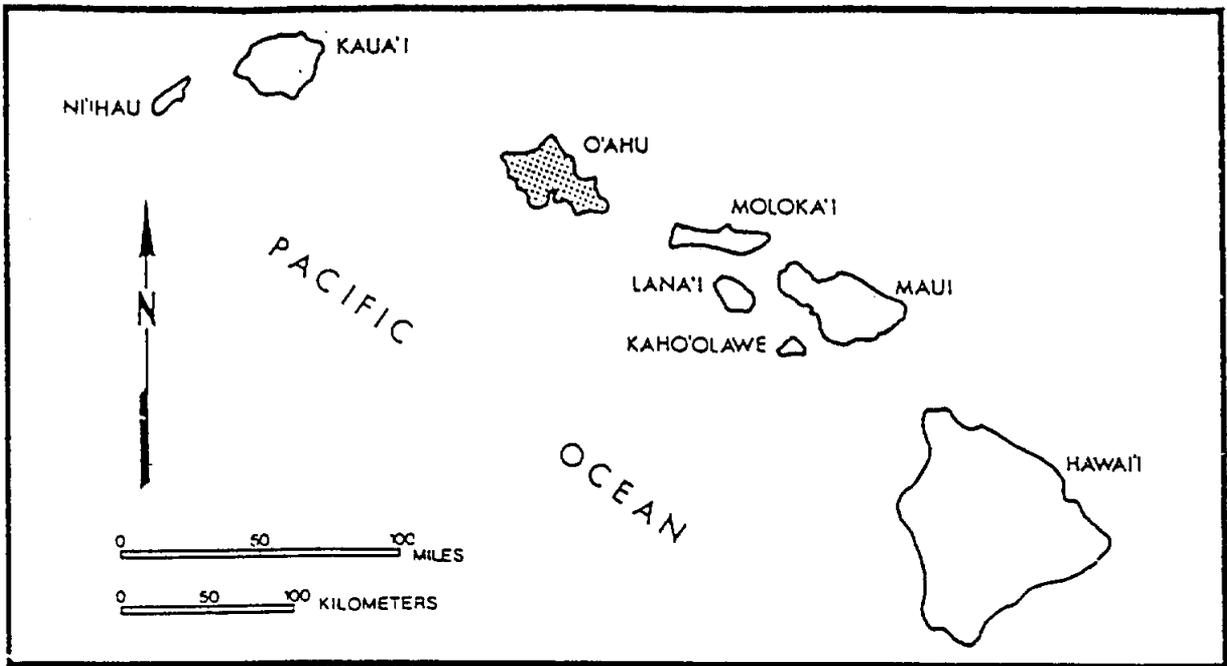


Fig. 1 State of Hawai'i

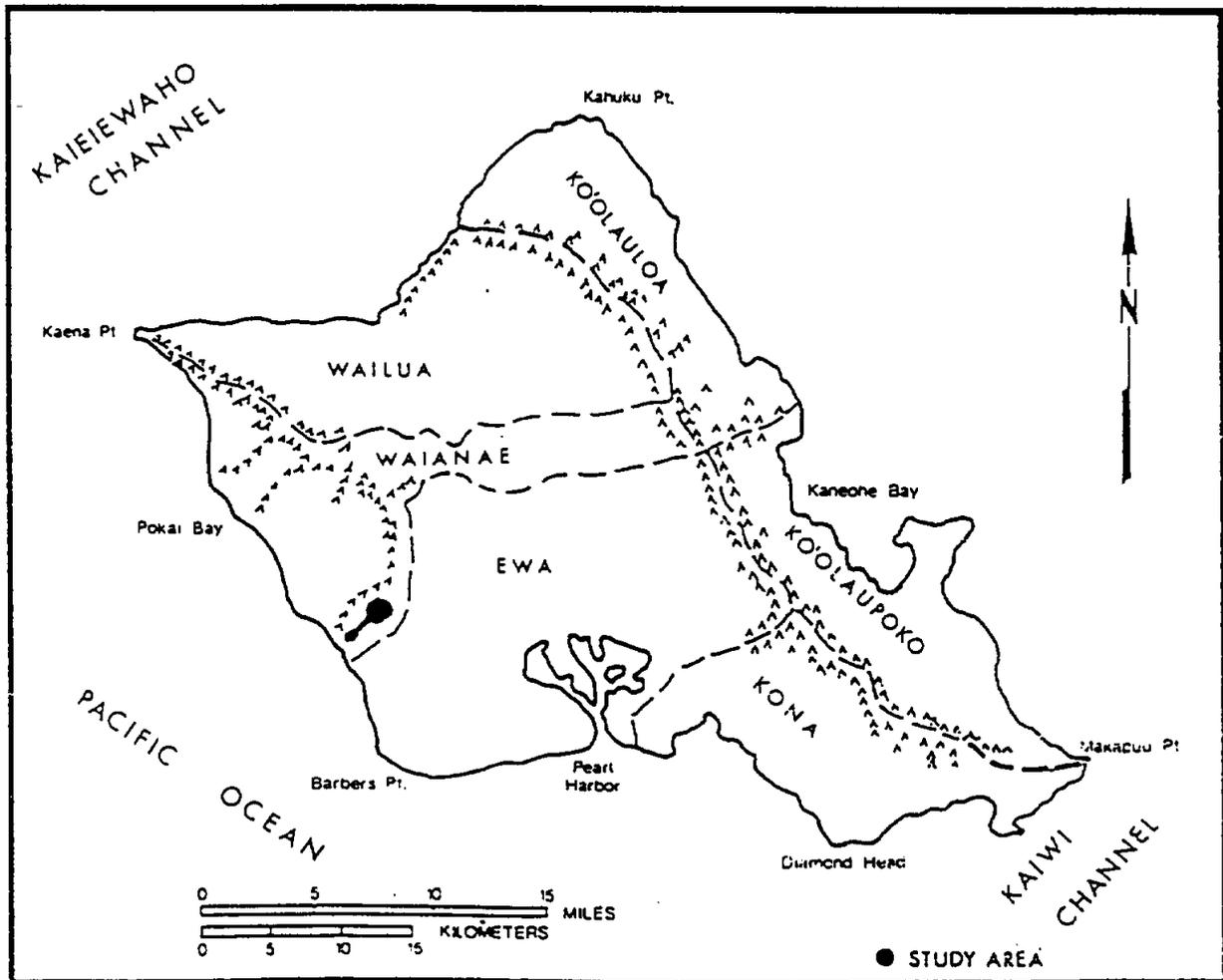


Fig. 2 O'ahu Island Location Map

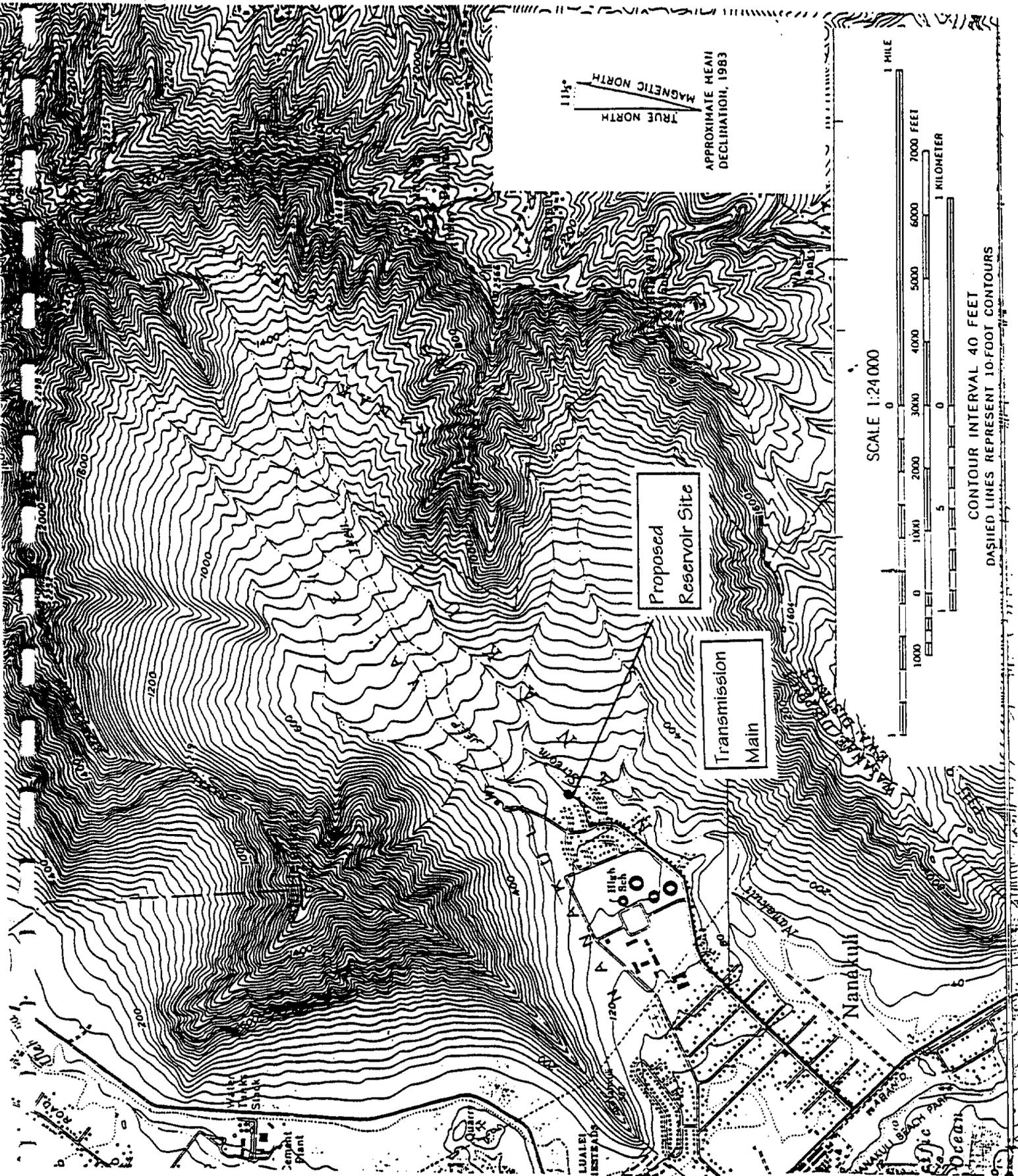
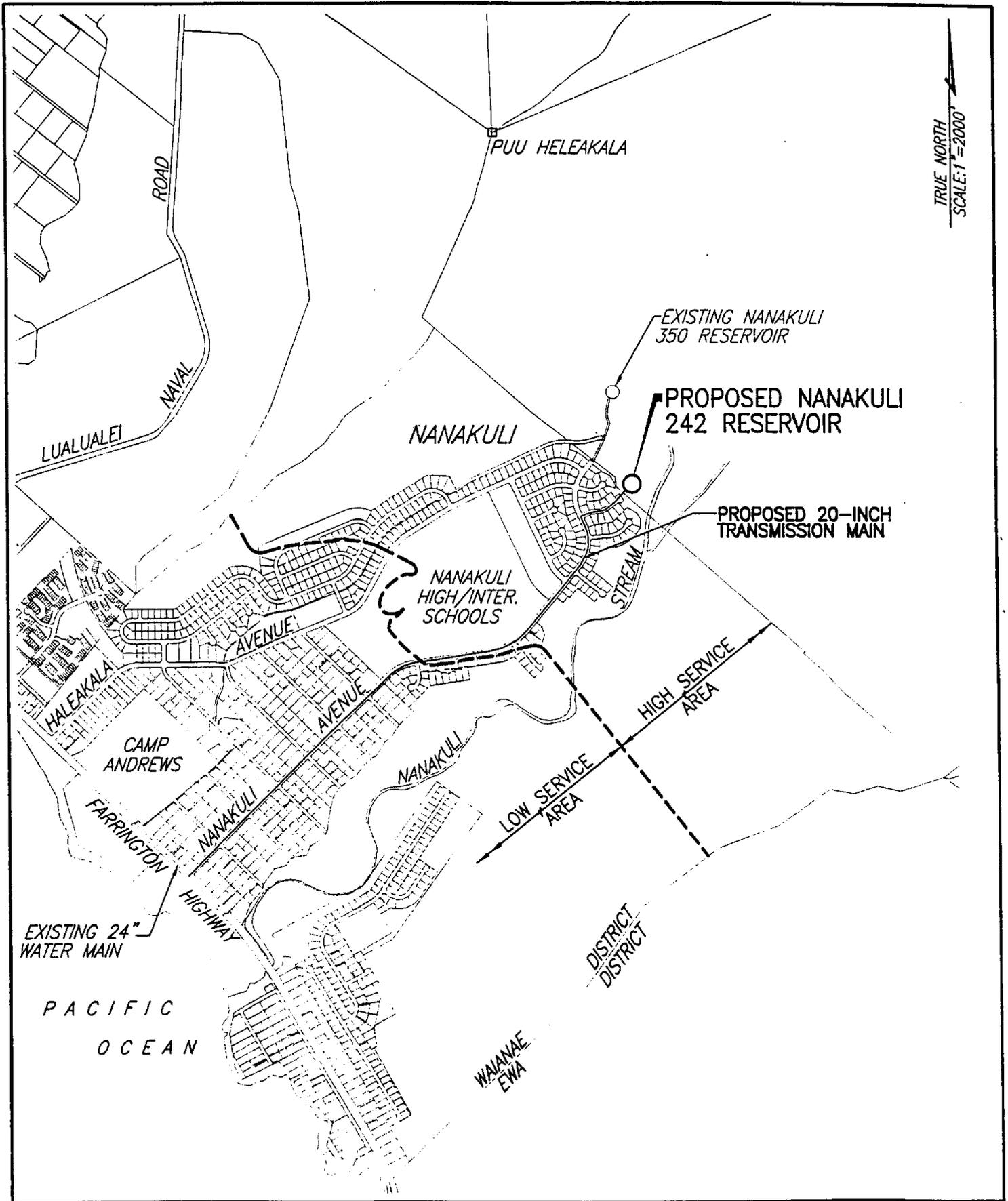


Figure 3 A Portion of the (1983) USGS Schofield Barracks Quad Showing the Nānākuli 242 Reservoir and 20" Transmission Line Project Areas.



TRUE NORTH
SCALE: 1" = 2000'

Figure 4 Map of Residential Area of Nānākuli Showing Project Areas

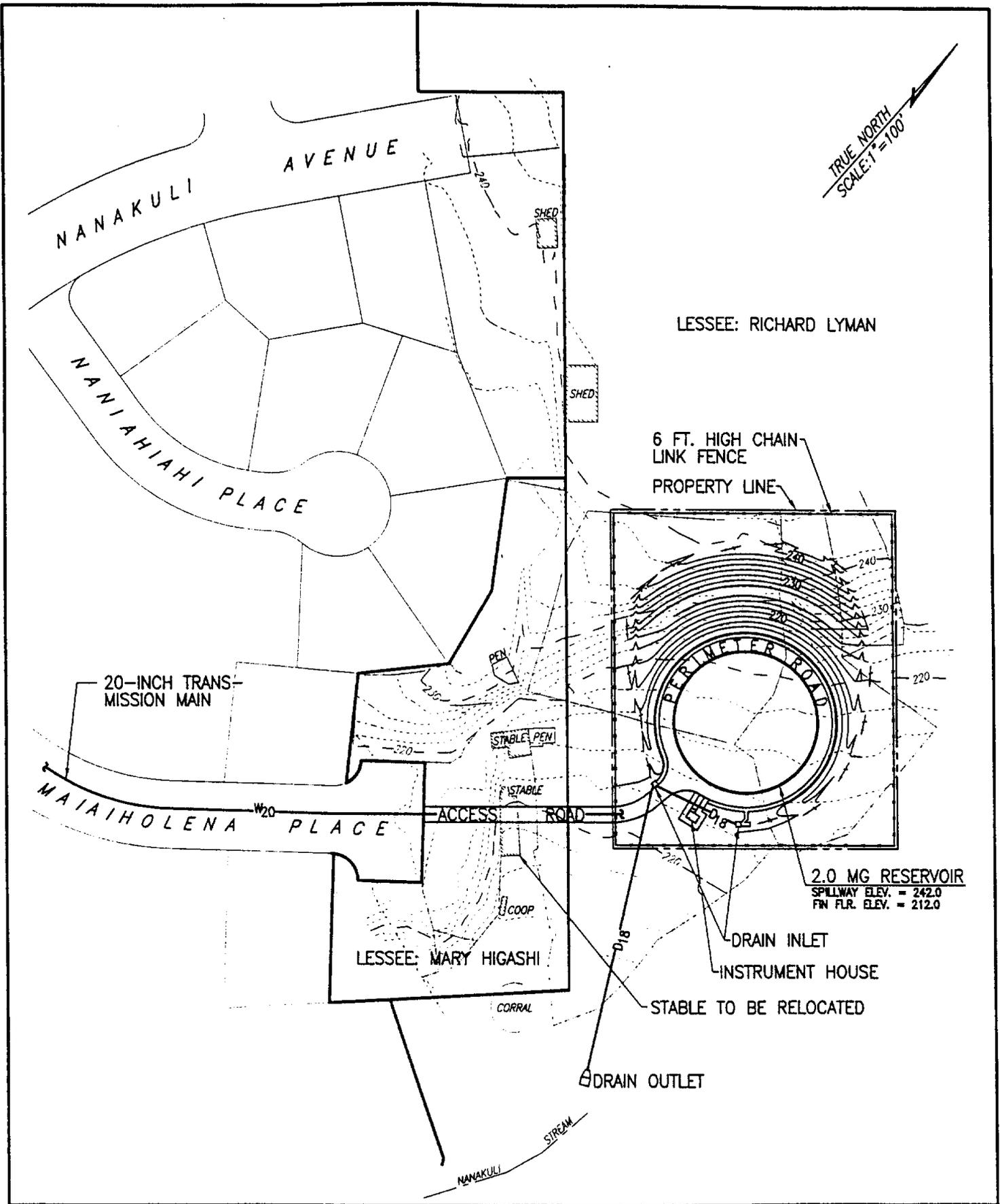


Figure 5 Map of the 242 Reservoir Location Showing the Proposed Access Road from Maiaholena Place

II. LEGAL BACKGROUND

Following is an overview of the laws involved in the issue of native rights in Hawai'i. While the issue still remains largely unresolved and continues to be a "grey area", it is an issue that must be addressed. In the *Pele Defense Fund v. Paty* [73 Haw.578,837 P.2d 1247 (1992)] the supreme court acknowledged that "the rights of native Hawaiians are a matter of great public concern in Hawai'i."

Laws Related to the PASH/Kohanaiki Ruling

1846 *Principles Adopted by the Board of Commissioners to Quiet Land Titles in Their Adjudication of Claims Presented To Them.*

Akā, inā loa`a i ke konohiki mua kona `āina ma ke `ano alodio, ma ke kūai, a ma ke hāawi wale ao ke Ali`i, ua mau no ke kuleana o nā hoā`āina a me nā lōpā, no ka mea, `a`ole nele kekahi mea `ē a`e no ka ho`olilo`ana o ka Mo`i i kona iho. No laila, `O ke konohiki i kūai me ke Ali`i a loa`a kona `āina ma ke `ano alodio, ua hiki `ole ia iā ke pa`i i ka po`e ma lalo ona, e like me ka hiki `ole i ke Ali`i i kēa manawa ke pa`i i ke konohiki.

But even when such lord shall have received an allodial (fee simple) title from the King by purchase or otherwise, the rights of the tenants and sub-tenants must still remain unaffected, for no purchase, even from the sovereign himself, can vitiate the rights of third parties. The lord, therefore, who purchases the allodium, can no more seize upon the rights of the tenants and dispossess them.

1848 *Māhele Awards:*

Often, Land Commission Awards (LCA's) and Royal Patent Grants (RPG's) from the *Māhele* have a clause written in which protects the rights of the *hoā`āina* or native tenant:

... koe wale nō nā kuleana o nā kānaka e noho ana ma ua mau `āina lā . . .

... reserving the rights of the native tenants residing on the aforementioned land . . .

1850 Section 7 of the *Kuleana Act*:

When the landlords have taken allodial [fee-simple] titles to their lands, the people on each of their lands shall not be deprived of the right to take firewood, house timber, *aho* cord, thatch, or *tī* leaf, from the land on which they live,

for their own private use, should they need them but they shall not have a right to take such articles to sell for profit. They shall also inform the landlord or his agent, and proceed with his consent. The people shall also have a right to drinking water, and running water, and the right of way.

The Privy Council Records:

The king was concerned that a “little bit of land even with alodial [*sic*] title, if they [the people] be cut off from all other privileges would be of very little value.”

[The] proposition of the King, which he inserted as the seventh clause of the law, as a rule for the claims of common people to go to the mountains, and the seas attached to their own particular lands exclusively, is agreed . . .

1851 Section 7 of the *Kuleana Act* (amended and is currently HRS 7-1):

The requirement for tenants to obtain the permission of the landlords is deleted. Since 1851, the law has read as it now does in HRS 7-1.

Where the landlords have obtained, or may hereafter obtain, allodial titles to their lands, the people on each of their lands shall not be deprived of the right to take firewood, house-timber, *aho* cord, thatch, *kī* leaf, from the land on which they live, for their own private use, but they shall not have a right to take such articles to sell for profit. The people shall also have a right to drinking water, and running water, and the right of way. The springs of water, running water, and roads shall be free to all, on all lands granted in fee simple; provided that this shall not be applicable to wells and watercourses, which individuals have made for their own use.

1892 Section 1-1 Common Law and Hawaiian Usage:

The common law of England, as ascertained by English and American decisions, is declared to be the common law of the State of Hawai`i in all cases, except as otherwise expressly provided by the Constitution or laws of the United States, or by the laws of the State, or fixed by Hawaiian judicial precedent, or established by Hawaiian usage; provided that no person shall be subject to criminal proceedings except as provided by the written laws of the United States or of the State.

1978 Article XII, Section 7 of the Hawai`i State Constitution:

The State reaffirms and shall protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes

and possessed by *ahupua`a* tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778, subject to the right of the State to regulate such rights.

1987 Section 174C-101 Native Hawaiian Water Rights:

(c) Traditional and customary rights of *ahupua`a* tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778 shall not be abridged or denied by this chapter. Such traditional and customary rights shall include, but not be limited to, the cultivation or propagation of taro on one's own *kuleana* and the gathering of *hihiwai*, *`opae*, *limu*, thatch, *tī* leaf, *aho* cord, and medicinal plants for subsistence, cultural, and religious purposes.

(d) The appurtenant water rights of *kuleana* and taro lands, along with those traditional and customary rights assured in this section, shall not be diminished or extinguished by a failure to apply for or to receive a permit under this chapter.

III. DESCRIPTION OF THE PROJECT AREA AND TRADITIONAL CUSTOMS AND PRACTICES REGION

Project Area

Nānākuli Valley is situated between the *ahupua`a* of Lualualei on the northwest and Honouliuli on the southeast. The valley is an amphitheater-headed erosional feature that is cut into the eroded remnants of the Wai`anae shield volcano, which was the first volcano to form what is now O`ahu (Abbott, Macdonald, Peterson 1983:426). Pu`u Heleakalā (1890 feet AMSL) lies northwest of the project area and divides Lualualei from Nānākuli. To the northeast lies Pu`u Manawahua (2401 feet AMSL). Nānākuli Beach Park (formerly Kalaniana`ole Beach Park) is located approximately 1.1 km (3/4 mile) southwest of the project area.

The proposed site for the Nānākuli 242 Reservoir and the associated 20-inch transmission main is located in Nānākuli Valley, in the *ahupua`a* of Nānākuli, within the Wai`anae District on O`ahu. Residential house lots comprise the southeast (*makai*) portion of the project area while the northwest (*mauka*) portion is undeveloped *kiawe* (*Prosopis pallida*) scrub-land. Nānākuli Valley encompasses a total area of 1,602 acres and the last census (1990) recorded a population of 9,597 (Juvik and Juvik 1998:306). (See Figures 1, 2, and 3.)

The 242 reservoir site (TMK 8-9-8:3) measures approximately 250 feet wide by 260 feet long. The elevation of the reservoir spill way, when constructed, will be 242 feet AMSL. A 12-ft. wide access road will be built from the *mauka* end of Mai`aiholena Place and will extend 214 ft. to the reservoir site. A transmission main will extend from the reservoir site down Mai`aiholena Place and Nānākuli Avenue to Farrington Highway, 7,500 feet. (See Figures 4 and 5.)

Natural Setting

The prevailing winds are the northeast trades that blow over the Ko`olau Mountains, continue over the Wai`anae Range and head out over the southwest portion of the island. There is a regular sea breeze that blows through the area between Wai`anae Town and Nānākuli. The Wai`anae Coast is dependent on winter rains which can supply as much as half the annual rainfall. The average annual rainfall ranges from less than 20 inches along the coast to as much as 40 inches in the upper valley during the rainy, winter season (Juvik and Juvik 1998:55-56; Sanderson 1993:33). The average temperature ranges from 43 to 88 degrees Fahrenheit in January and 58 to 95 degrees Fahrenheit in July (Armstrong 1973:58).

Before the introduction of exotic species at Western contact, the native ecosystem of the area consisted of lowland dry and mesic forests, lowland dry shrub lands and grasslands. Today, nearly the entire area has been altered by human activity (Juvik and Juvik 1998:122-23). Vegetation within the proposed 242 Reservoir project area consists of

kiawe (*Prosopis pallida*), *koa haole* (*Leucaena leucocephala*), lantana (*Lantana camara*) and finger grass (*Chloris* species). Along the route of the 20-inch transmission main, the vegetation consists of landscaped lawns, fruit trees and introduced ornamental species.

Nānākuli Stream lies outside of the project area to the east and runs parallel to Nānākuli Avenue, exiting into the ocean at Nānākuli Beach Park just north of Laumania Avenue.

The soils in the project area consist of Lualualei extremely stony clay (LPE), 3-35 percent slopes and possibly `Ewa silty clay loam (EaB). (Foote *et al.*, 1972:85,29) Only in the coastal sections of the 20-inch transmission line, near the point where Nānākuli Avenue meets Farrington Highway, are there calcareous beach sand deposits. These sandy sediments are derived from the adjacent beach and extend up Nānākuli Avenue for an undetermined distance.

IV. CULTURAL SETTING

The Greater Region of Wai`anae

Nānākuli is situated within the larger geographic land section known as Wai`anae. As it was in distant times, Wai`anae is one of six major *moku* (districts) on the island of O`ahu and borders the `Ewa district on the southeast and extends to Ka`ena on the northwest. Today, Wai`anae consists of nine *ahupua`a* (traditional land division which in many cases extends from the mountain to the sea). These nine *ahupua`a* are (in order from southeast to northwest) Nānākuli, Lualualei, Wai`anae, Mākaha, Kea`au, `Ōhikilolo, Mākua, Kahanahāiki and Keawa`ula.

In ancient times, the Wai`anae District was known for its multitude of fish and especially for deep sea fishing off Ka`ena where the ocean currents meet. The meaning of Wai`anae (mullet water) also implies an abundance of fish — `anae, which is the full-grown mullet (Puku`i *et al.*, 1976). Handy and Handy (1972) attribute the naming of Wai`anae to a large fresh water pond for mullet called Pueha [*sic*] [Puehu]. Today, Wai`anae is still considered one of the best fishing grounds on O`ahu.

Traditional Descriptions of the *Moku* (District) of Wai`anae

Wai`anae is reknowned for the intense heat of the sun that is offset by the cooling breezes of the kaiāulu wind made famous in both *oli* (chant) and *mele* (song) of the Hawaiian people. Thus, the `āelo no`eau (proverb), *Ola `O Wai`anae i ka malu kaiāulu*. Wai`anae survives in the shade of the kaiāulu wind. (Judd 1930:54.) Following is a poetic description of Wai`anae which extols its virtues:

... Wai`anae of the gentle Kaiāulu wind, the sweet waters of `Eku, the thick poi of Pāhoa, the stringy poi of Lehano and Kūāiwa, the rich poi of Kamaile, and the *aku* fish "tidbits" (*aku nahu pū*) of Wai`anae — in Wai`anae, land beloved of the sun. (Kamakau 1991:106)

It was at Ka`ena, in Wai`anae, that Kawelo became an expert at fishing. The chiefs Pōka`i and Mō`eke made Wai`anae their home and it was Pōka`i who planted the renowned coconut grove at Malaea which is spoken about in chants and songs (Kamakau 1991:106, 68). The grove no longer exists. Wai`anae is home to the Māui legends where the super-hero and demi-god began his humble origins at Ulehawa.

A chant (*Kūnihi Ka`ena, Holo i ka Mālie*), composed by Hi`iaka on her homeward journey to Hawai`i island with Lohiau and Wahine`ōma`o, speaks of the renowned place names throughout the Wai`anae District (Emerson 1993:157 & Theodore Kelsey Notes).

Wai`anae is home to the *leimoku* surf and the *kaiāulu* wind. Mt. Ka`ala in Wai`anae, the highest mountain peak on O`ahu (4003 ft.), is where the pig-god, Kamapua`a, made his home. Ka`ala is home to Kōina, the goddess who sends an `iwa bird to assist weary

travelers who have lost their way. Also at Ka`ala, the sweet *maile lau li`i* (*Alyxia olivaeformis*) and the fragrant *palapalai* (*Microlepidia strigosa*) are sought after by hula dancers for adornment. These plants, which are sacred to Laka, the patron of hula, can still be found at Ka`ala today.

Wai`anae was the home of ruling chiefs. Kamehameha the Great unsuccessfully launched his fleet of war canoes from Wai`anae in an attempt to conquer Kaua`i. The fleet was capsized by a strong wind called *kūlepe* in the Ka`ie`iewaho Channel off the leeward coast and the warriors were forced to return to shore (Kamakau 1992:173).

The Ahupua`a of Nānākuli

The *ahupua`a* of Nānākuli encompasses 1,062 acres and is bounded on the east by Honouliuli in `Ewa and on the west by Lualualei in the Wai`anae District. The leeward area between Mākua and Nānākuli is especially noted for its susceptibility to drought and famine. In valleys such as Nānākuli, where perennial streams are lacking, agricultural resources would have been sparse due to poor water and land resources. It is probable that there were small, scattered settlements here and there whose main subsistence was the `uala (*Ipomoea batatas*) or sweet potato.

The eastern slopes of the southern end of the Wai`anae Mountains below Pu`u Puna were famous for sweet potato growing. Although there was a little taro grown in the valleys of Wai`anae-uka, sweet potatoes grown on the *kula* lands were the main food of the people here. On the other side of the Wai`anae Mountains sweet potatoes were planted on the dry slopes of Nānākuli, Lualualei, Wai`anae-kai, and the other small valleys as far as Mākua. With the exception of Wai`anae-kai, the sweet potato was the staple for the inhabitants of this dry section . . . (Handy 1940:156)

To make up for this agricultural deficit, the coastal areas were rich in marine resources. There was always an abundant supply of fish to be had for the catching (Handy and Handy 1972:275,277).

Stories and Their Origins of How Nānākuli Was Named

There are several stories which attempt to explain the origin of the name "Nānākuli". An ancient story about the meaning of Nānākuli refers to Ka`ōpuluhulu, a renowned *kahuna* who lived during the rule of Kahahana, a *kapu* chief of O`ahu (Kamakau, 1992:128). The meaning is in reference to Kahahana's turning a deaf ear to advice, for which, Ka`ōpuluhulu tattooed his knees as an expression of his disapproval.

Kahahana dug up bones from their burial places "to make arrows for rat-shooting and hooks for fishing. The bones of chiefs were bartered for skirts for chiefesses and handles for *kāhili*. Ka`ōpuluhulu pleaded with him in vain

to stop this disrespectful deed, but Kahahana turned a deaf ear to Ka`ōpūlupulu's pleas. As a sign of protest, Ka`ōpūlupulu, his followers, relatives and members of his household all tattooed their knees to signify Kahahana's unwillingness to listen to his advice. [The word *kuli* means both "knee" and "deaf".] (Kamakau 1992:133)

Another story comes from Mary Kawena Puku`i while she was working at the Bishop Museum. It was told to her by Simeona Nawa`a in 1945 who heard it from Kanui, a woman and *kama`āina* from Wai`anae:

In the olden days, this place was sparsely inhabited because of the scarcity of water. The fishing was good but planting was poor. When it rained, some sweet potatoes would be put into the ground, but the crops were always poor and miserable.

There were brackish pools from which they obtained their drinking water and it is only when they went to the upland of Wai`anae that they were able to get fresh water. They carried the water home in large calabashes hung on *māmaka* or carrying sticks and used their water very carefully after they got it home. They spent most of their time fishing and most of the fish they caught were dried as gifts for friends and relatives in the upland. Sometimes they carried dried and fresh fish to these people in the upland and in exchange received poi and other vegetable foods. And as often as not, it was the people of the upland who came with their products and went home with fish.

Because of the great scarcity of water and vegetable food, they were ashamed to greet passing strangers. They remained out of sight as much as possible. Sometimes they met people before they were able to hide, so they just looked at strangers with expressionless faces and acted as though they were stone deaf and did not hear the greeting. This was so that the strangers would not ask for water which they did not have in that locality.

The strangers would go on to other places and mention the peculiar, deaf people who just stared and they would be told that the people were not deaf but ashamed of their inability to be hospitable. So the place they lived was called *Nānā* [sic], or to look, and *kuli*, deaf — that is, Deaf [sic] mutes who just look. (Sterling and Summers 1978:62)

Yet, another meaning relates to a variant translation of *kuli* ("knees"). In 1933, William `Olepau, a resident of Nānākuli, related the following story:

There were two women who went up the hill of "Pu`uhakila" or Pu`uhela [probably Pu`u Heleakalā] to dry their Kapas [sic]. While the kapas were being dried they left and went down the hill to the pool for some water. They

heard dogs barking, so they stood, looking around for the barking was deafening. (Sterling and Summers 1978:62)

The play on the word "*kuli*" is obvious. "*Kuli*" can also mean a "loud, deafening noise". From this story, Mr. `Olepau gave the following explanations for "Nānākuli" and its relationship to "knee".

- 1) Women used to go to the top of a hill to dry their kapa, and when they got there they looked at their knees — *nānā kuli*.
- 2) Royalists of the valley used to sit with their knees up and watch their knees — *nānā kuli*. (Sterling and Summers 1978:62)

A similar story in regard to "looking at the knees" is said to be connected to Kualii, a famous chief of O`ahu. After a particularly long and tiring journey, Kualii's attendants wanted to see and press his knees in an attempt to relieve the fatigue (*Ibid.*).

An interview for the present study with Fred Cachola, who worked and lived in the Wai`anae District for many years, brought forth another story and possible meaning for Nānākuli:

CSH: What have you heard about the meaning of "Nānākuli"?

FC: All the meanings are there in the books. But, when I was a principal at Nānāikapono, I was intrigued with the name, "Nānāikapono". And so I asked my secretary, who was living down there for many, many years, Mrs. Brown. I said, "Mrs. Brown, can you tell me about how this school got its name Nānāikapono?" which inadvertently gave me the meaning of Nānākuli. And she said, "Oh, I'll ask Mrs. Eli to come down and talk to you, because she's the old timer here and she knows all what happened here." So, a couple of days later Mrs. Eli walked into my office. I was just a young principal. I was about 30 years old. I was maybe 32, 33 [years old]. And she came in sort of sheepishly and, very respectful, and she sat down in my office and I asked her, "Can you tell me about Nānāikapono?" And she sort of looked around, as if nobody was listening, kind of a thing, you know. I said, "Uh-oh, here comes something that I know is going to be a little different from what I heard." So she said that the first principal of that school was a Reverend Awai and that he knew that the tradition of that area, Nānākuli, had a Hawaiian hidden meaning which she told me was "Nānā-i-ka-ule". I was kind of smiling. And she said, "Yeah, because that's how in the old days this place was known for its promiscuity. It got this name from ancient times. And it might have something to do with the mountain range." Look at your map. Look at your map. The one that you were showing me. Because you can see the *ule* over there. See? There it is. See the testicles over here, and the penis sticking out

there. So it could be [in] reference to that. If you down in here, you always looking at that. It reminds people of that, so it's Nānāikaule, which literally means *looking at a man's testicles, looking at his penis*. And so, Reverend Awai was not gonna let his school be named after something like that. No way! And so he said, "This is not gonna be called Nānākuli Elementary, no way!" So he named the school "Nānāikapono", which of course, means *look to the way of righteousness*, as opposed to Nānāikaule. So I was sort of pleasantly surprised. But to me, Hawaiian's have this thing about names. You have to look at names and all of its ramifications and all of its contexts. Of course, the one about looking at the knees, and standing there looking deaf, and all that kind of stuff, which is part of the nice tradition. But all of that might have been camouflage. You know, people don't want to say, "Our place means *looking at a man's penis*. They're not gonna say [that]. They're gonna create other things. And so, I thanked her for that and I shared this with several people too, but I have never seen this written anywhere. I think that's why, Mrs. Brown, my secretary, knew what it was going to be. She didn't want to tell me, so she asked Mrs. Eli to come down and tell me (laughs). And so she did. That's one of the interpretations for the name. And, it's very Hawaiian. To me, it's a very Hawaiian thing, very Hawaiian.

CSH: That's the first time I heard that story.

FC: This is actually Mrs. Eli's story, not mine, and I'm just telling you what she told me. She was a well (spoken with emphasis) respected homesteader. She was down there for many, many years. She was like a matriarch of that community.

An interview with Lehua Kapaku, a resident of Nānākuli since 1960, revealed an entirely different story about the place name Nānākuli. Commenting on the legendary hero, Māui, Mrs. Kapaku gives yet another possible interpretation of the name:

LK: The Māui legend names off the various places this side of O`ahu. Māui had so many brothers and he had two sisters. One was Lualualei and [the other was] his baby sister whom he treasured. The baby sister's name was Nānāiku`ulei [which means] *look to my pretty lei*. To have the name "Lualualei" which is *sacred wreath*, and, then having a baby sister [whose name means] *looking deaf*, I just didn't agree, I wasn't satisfied with that. So I accepted the Māui legend part where his baby sister was named Nānāiku`ulei. Now, history tells us that when you misspell a Hawaiian word, or forget to put the `okina or the *kahakō*, it totally changes the meaning of the word. So, if it was Nānāiku`ulei, which would be very positive, very good, I don't think the people or anybody would feel negative about it. This is the only place in this whole State to have a derogatory name, *look deaf*. You look at any

other place, they have nice names. Could be a special event or a special person. Only Nānākuli. So, it may have been a misprint and it may have been what the Sites of O'ahu says, but it depends on how the people react to that name. We've come to even give the name another meaning and that was *perseverance*, just to change the negative attitude. And, we find that this community has been so put down, I tell you — talking about patience and perseverance — and finally Nānākuli is a community that's noted that whatever they do, or whatever they accomplish, they real Hawaiian and give away. I've been here long enough to see that this place has really accomplished a lot of things.

CSH: So, you really think that, perhaps, the original name, or another name for Nānākuli was really Nānāiku`ulei?

LK: Yeah, I say that because there's three so-called meanings of the name Nānākuli. [One meaning is] *look deaf*. I said, "How can you look deaf?" My *kūpuna*, when they wanted to emphasize the point of looking deaf, they would pull your ears and say *pepeiao kuli*. They would not say, "You look deaf". Your ear is deaf, your eye is blind. But never "look deaf". There was no definition, or there is no word that tells us that you "look deaf". Another one is a chief *looking at his penis* and another one *looking at his knee*. *Kuli* in Hawaiian is knee. So, you're looking at your knee, you're looking at your penis, or you're looking deaf.

In Hawaiian culture, the name of a place is significant in that it documents history and relates details of a specific geographical area. In some cases, place names were given entirely new names to reflect changes in history and record more recent events. It can be seen from the above stories "Nānākuli" has taken on several different meanings over time. In a Hawaiian framework, all of these stories are valid because they held meaning for the people living during those particular times. What is important to remember is that all the stories and meanings are rooted in Hawaiian culture.

The Māui Legends

Numerous Hawaiian legends, in addition to archaeological evidence, reveal the Wai`anae coast and *mauka* interior to be an important center of Hawaiian history. It is here, in Wai`anae, that the famous exploits of Māui are said to have originated. Traditional accounts of neighboring Lualualei focus on the mischievous adventures of the demi-god Māuiakalana. It was here that Māui learned the secret of making fire for mankind and perfected his fishing skills. Other famous accounts of Māui tell of the place where Māui's adzes were made, and of the magic fishhook, Mānaiakalani and the snare for catching the sun, and his kite-flying expedition. Pu`u Heleakalā is the ridge that separates Nānākuli from Lualualei. It was at Pu`u Heleakalā where Hina, Maui's mother, lived in a cave and made her *kapa*.

Samuel Kamakau tells us that Māui's genealogy can be traced from the `Ulu line thru Nana`ie:

. . . Wawena lived with Hina-mahuia, and Akalana, a male, was born; Akalana lived with Hina-kawea, and Māui-mua, Māui-waena, Māui-ki`iki`i, and Māui-akalana, all males, were born.

`Ulehawa and Ka`ōlae, on the south side of Wai`anae, O`ahu, was their birthplace. There may be seen the things left by Māui-akalana and other famous things: the *tapa*-beating cave of Hina, the fishhook called Mānai-akalani, the snare for catching the sun, and the places where Māui's adzes were made and where he did his deeds. However, Māui-akalana went to Kahiki after the birth of his children in Hawai`i. (Kamakau 1991:135)

Māui Rock

The Māui rock, Site 148 in McAllister's *Archaeology of O`ahu*, is located within the Garden Grove complex at 87-1550 Farrington Highway in Lualualei, to the northeast of the project area.. In 1930 when McAllister conducted his fieldwork he noted:

. . . it was here that Māui reposed and sunned himself . . . The large rock is now split in half and adorned with many small, oddly shaped rocks. It is said to be bad fortune to build one's house across a line drawn directly from the rock to the shore. (1933:110)

The "small, oddly shaped rocks" McAllister speaks of are no longer present and cannot be seen today. The Māui rock is currently overgrown with young Chinese banyan saplings (*Ficus retusa*) and grasses and weeds. Following is an excerpt from an interview with Fred Cachola, conducted on June 3, 1999, in which he shares his knowledge and experiences of the Māui rock.

CSH: Tell me your interest in Māui and Māui's connection to Nānākuli?

FC: As part of my research down there, of course, I got to Sites of O`ahu and McAllister. And in there, I think it's Site #148 for the Wai`anae district. He cited this Māui Rock — an unusually big boulder of rock. I was really intrigued. I said, "Where is this stone?" There was a little "x" on the map, which nobody could [figure out] because McAllister's map is notorious. It's just a scratch in the map and you wouldn't know where it's at. So I went to my friend Black. It was early in the evening so, as I was coming back from my work at Kamehameha, I stopped by his house. I said, "Eh Black, you know this place — have you ever seen a huge rock that looked so unusual it looks like it doesn't belong there?" He thought for awhile and he says, "Oh, yeah, yeah, yeah. Down by the old haunted house." And I said, "Where?" And he said, "Well, come, come. Let's go take a look." And so we drove down there. I knew what house he was talking about because there was this old mansion and this big banyan

tree and it was choke with weeds. You couldn't even see the stone. Now I know why nobody could see the stone because it was sort of like on the side of the house and there was all this underbrush covering it. So, it was early in the evening when we got there. We parked our car and by then it was nightfall already. We started walking to the stone. And there was construction going on. They were building these condos down there. And all this construction equipment, materials, lumber, supplies [were] all over the place. And all of a sudden we heard this guy [say], "Hey, what are you guys doing here? What are you guys doing?" It was the night watchman. We said, "Oh, you know, we just wanna look for this stone. This big rock." And he said, "Oh, you mean Māui Rock." And I looked — eh, how did this guy — he read McAllister or what? And obviously, he was an elderly *kupuna* — Hawaiian man. And he said, "Come, come. I show you guys. I show you guys." So he took out his flashlight and we walked maybe about another twenty to thirty yards from where he was parked. And then he shone it and then we saw it. He put his light on [the rock] and I said, "Oh, my god!" Because it was huge. It was bigger than a car. It was really big. You've seen it. And there were, on the top of the boulder, were all this tiny, tiny rocks. Small little uprights. There were many there. They were kinda like scattered around the place, on the top — which is all gone now. I don't know what happened to `em. And so we started talking about it and he said, "Oh yeah. You know, over here, all the night watchmen quit from the company because nobody like work over here. I said, "What's the problem?" And he just said one word, "Pō Kāne." And I said, "Wow, you mean the night walkers?" He said, "Yeah, yeah. They come from right over here." And he pointed to this small little sapling, this little banyan tree. He said, "They come from over here. And then they walk straight down to the beach. And sometimes, I park my truck, whoa, they move [my truck] so much, I spill my coffee." So I just say, "Okay, okay." I no scared `dem. I swear at them. But I gotta move my truck. (Because he's in the way.) And so he said, "Yeah, they come from over here [and] they go down to the beach." But he said he was hired in the middle of the night because why? The watchman there was the sixth person to quit. And they were desperate. I don't know how they got hold of him, [but] somebody called him. He wasn't afraid of this, but all the other night watchmen, they said, in that area strange things happened. Like you know, things start flying around and things start moving and all this unusual events going on. And they see things too. So nobody wanted to work there. And then he said, "Eh, you folks wanna see Māui? You folks saw Māui? You like see Māui?" And we said, "Maui? You cannot see Maui from here." I thought he meant the island Maui. How can you see Maui from here? But by then, I didn't want to question him. And he said, "You know, come early tomorrow morning. Come just before sunrise when the sun is coming up. I'll show you guys Māui." And I looked at Black, Black looked at me, and [we] said, "Okay." So the next morning, sunrise, I was down at Black's house and we went right back to that site where we met him the night before. And he took us to the rock. There were no buildings there then. You could see the whole mountain range very clearly. And as the sun was coming up, he said, "There's Māui." And I looked up, and I was stunned! Whoa! It was one of those moments. I said, "Wow!" Here was this magnificent silhouette of a sleeping man. Huge. You know, I was telling your group, people brag about the sleeping giant on Kaua`i. Their

sleeping giant is like a *menehune* compared to this one. This is a giant. This is worthy of Māui. And it's Māui sleeping there. That's why if you look at McAllister, it says Māui is reposing, this is the rock he reposed on, he rested on this rock. And then I said, maybe not. Maybe from that rock you can see [emphasized] Māui reposing. From that rock, that rock marks the spot where in the morning, early in the morning, you can see that whole Māui sleeping. And so, who knows whether or not the Māui Rock is called Māui because of that or that rock was the place from which you could see most clearly. Because if you go too far to the left or too far to the right, the silhouette changes. You cannot see it. It's right from that rock you can see it most clearly. It's just outstanding. It's a silhouette of a huge sleeping person — Māui. There are all these mountain ranges there. It's a composition of different mountain ranges. But when the sun is coming up in the back of that, it looks like one silhouette. And it's just beautiful. But when the sun rises, then it disappears. You only see it early in the morning when you see that silhouette. You know, we never got that man's name by the way. And Black never met him [again]. I don't know. We just said, "Who was this guy?" We don't know . . . But, that silhouette is still there. It'll be there for eternity unless somebody levels that whole mountain range.

Māui's heroic exploits were well-known and loved by all. The Māui legends are an important part of Hawaiian mythology and add to the rich history of Nānākuli and the Wai`anae District.

An Analysis of Place Names

The concept of *wahi pana* (a place with a story or legend attached to it) in Hawaiian culture is important because it is a connection to the past and, therefore, the ancestors. From the name of a place one can know intimate details about the people who lived there, the environment, cultural practices and historical events which took place. In Hawaiian culture, if a particular spot is given a name, it is because an event occurred there which has meaning for the people of that time. Because Hawaiian culture was an oral tradition, place names and their stories were an important way of remembering these traditions and ensuring these stories would be passed on to future generations. In Hawaiian thinking, the fact that a place has a name deems it important. Often, spiritual power or *mana* is attached to a place which increases its importance. On the subject of *wahi pana*, Edward Kanahele writes:

As a native Hawaiian, a place tells me who I am and who my extended family is. A place gives me my history, the history of my clan, and the history of my people. I am able to look at a place and tie in human events that affect me and my loved ones. A place gives me a feeling of stability and of belonging to my family, those living and dead. A place gives me a sense of well-being and of acceptance of all who have experienced that place. (Kanahele in Van James 1995:6)

The following list of place names for Nānākuli and the district of Wai`anae was compiled and wherever possible, derivations and annotations are given. The list is by no means complete.

Place Names in Nānākuli and the Adjacent Vicinity

All place name translations were taken from *Place Names of Hawai`i* (Puku`i *et al.*, (1976) in addition to being supplemented by other sources.

- Hālona: Land section and hill (836 ft. high) in Lualualei. *Lit.*, peering place.
- Hāpai: An `ili in Nānākuli and mentioned in Native Register 5:342. Exact meaning unknown, but the word "*hāpai*" can mean any of the following: 1) to carry, lift; 2) pregnant, conceive; 3) a native variety of banana with trunk of medium height, the fruit maturing within it, about two-thirds of the way up. The fruits are small, finger length, and ten or less; their skin is yellow, and the flesh yellow, sweet, and edible raw; 4) to encourage, support (Pukui & Elbert 1986:59).
- Heakapili: A *mo`o`āina* in Pūhāwai, Lualualei. Taken from L.C. #7456. *Lit.*, the intimate shadow.
- Ihele: A *mo`o`āina* in Pūhāwai, Lualualei. Taken from L.C. #7454. Meaning not known.
- ʻIlihune: A *heiau* in Nānākuli which was identified by T.G. Thrum and described as "A small walled *heiau* of *po`okanaka* class; used about 1860 by Frank Manini as a cattle pen, for which natives prophesied his poverty and death" (McCallister 1933:110). *Lit.*, tiny skin. It can also mean "poor, destitute; poverty, poor person" (Puku`i & Elbert 1986:98).
- Kauhiuhi: Location unknown. Probably refers to the *uhiuhi* tree (*Mezoneuron kauaiense*). An endemic Hawaiian forest tree [that] has pink to red flowers and a pod or legume. Pods are thin, broad, and winged on one side, two- to four-seeded. The wood is hard and heavy and formerly was used for *hāua* (sleds), spears, digging sticks, and house construction (Puku`i & Elbert 1986:364; Neal 1965:435).
- Keoneloā: A *mo`o`āina* in Pūhāwai, Lualualei. Taken from L.C. #8005. *Lit.*, the long sand.
- Kolekole: Pass and road from Schofield Barracks through the Wai`anae Range. A large stone at the pass on O`ahu has been called a sacrificial stone, but it was probably never so used; others say the stone represents a woman named Kolekole who guarded the pass; students of *lua* fighting

lay in wait here to practice their skill on travelers. In a battle here Maui forces killed the last of the O`ahu people who had escaped the massacre at Niuhelewai. *Lit.*, raw, scarred. (In one explanation of the name, a woman on the pass saw an apparently blind man approaching; doubting his blindness, she exposed herself. He opened his eyes and exclaimed, *A`ula, kolekole!* Red, raw!)

- Kumu`ōhi`a: A *mo`o`āina* in Pūhāwai, Lualualei. Taken from L.C. #7452. Probably refers to the `ōhi`a tree(s) (*Metrosideros polymorpha*) which probably grew there. *Lit.*, `ōhi`a tree.
- Lualualei: `Ahupua`a adjacent and northwest of Nānākuli. Possible meanings: beloved one spared; flexible wreath (Sterling & Summers 1978:63).
- Mā`ili`ili`i: Hill and stream in Lualualei. *Lit.*, small pebbles. (Variant spelling, *Mā`ili`ili`i*.) Also called Pu`u Mā`ili`ili`i. *Lit.*, hill of small pebbles.
- Mauna Kapu: Mountain in the Wai`anae range separating Nānākuli and Honouliuli forest reserves. *Lit.*, sacred mountain.
- Mikilua: Land section in Lualualei. Perhaps *lit.*, two active persons.
- Nānākuli: An *ahupua`a* in the Wai`anae district. See earlier section of this report for discussion on possible meanings. *Lit.*, look deaf.
- Pālehua: Land division, hill (2,566 ft.), and road. *Lit.*, *lehua* flower enclosure. Also: The hill with grown lehuas that overlooks Nānākuli on the Waialua side. It is on the boundary of Nānākuli and Honouliuli. When the lehua is in bloom there it resembles a red wreath. King Kalākaua composed "Sweet Lei Lehua" with this hill in mind (David Malo Kupihea in Kelsey notes on *O`ahu Place Names*).
- Palikea: Peak (3,098 ft.) above Lualualei in the Wai`anae mountains. *Lit.*, white cliff.
- Pali o Ka Menehune: Runs down to Pālehua, from the mountain to the beach (Theodore Kelsey notes on *O`ahu Place Names*). *Lit.*, cliff of the *Menehune*.
- Pili o Kahe: Land section. *Lit.*, clinging to Kahe. Kāne and Kanaloa threw a stone to determine the district boundary for `Ewa. The stone was found at Pili o Kahe, where two small hills of the Wai`anae Range come down parallel on the boundary between Honouliuli and Nānākuli. It was believed the `Ewa side of the hill was male and the Wai`anae side female. The name refers to the Wai`anae side of the hill (*kahe* means "to flow") (Sterling and Summers 1978:1). Also: it is a "ridge that divides in two at the shore (one side represents a woman with menses

(*kahe koko*) (Simeon Nāwa`a). It is between Nānākuli and Lanikuaka`a where Mrs. Alice Kamokila Campbell lives. By Pili-o-kahe are a wharf and a bridge. You look down upon a little bay, then cross over to Nānākuli `Elua on the other side of the big hill (David Malo Kupihea in Theodore Kelsey Notes on *O`ahu Place Names*.)

- Pōhākea: Mountain and pass (2,200 ft.), Wai`anae mountains. From here, Hi`iaka saw by cloud omens that her *lehua* groves on Hawai`i had been burned by Pele, and that her friend Hōpoe had been turned to stone. Also, this is where Kauhi brutally murdered his wife, Kahalaopuna, because he thought she had been defiled. *Lit.*, white stone (*pōhā* is short for *pōhāku*). Also, *Pohākea* or “bursting forth of white light” (Theodore Kelsey in Henry Kekahuna notes on *Place Name Chants*).
- Pōhaku `Āweoweo: A fish (*Priacanthus*) attracting stone in Nānākuli Gulch. Nānākuli was known for the abundance of `āweoweo fish. (Lehua Kapaku, Pers. Comm.)
- Pōnaha ke one: A fishing ground off Ulehawa. (Fornander & Thrum, 1996:13; Pers. Comm. Walter Kamanā to Matthew McDermott 7/6/99) *Lit.*, the sand is circular. (Puku`i & Elbert 1986:340)
- Puehu: Fishpond near Lualualei, where the hero Kawelo struck an image that refused to sanction his sailing to Kaua`i to fight. *Lit.*, scattered. Possibly the same fishpond John `Īī referred to, where his family “spent a night at Lualualei near the fish pond on the plain” (1983:23).
- Pūhāwai: Spring and area, Lualualei. *Lit.*, water bursting out or water hollow.
- Pu`u Heleakalā: Hill at Nānākuli. *Lit.*, snared by the sun (the hill blocks the rays of the setting sun). This also explains why the west side of the hill looks so dry, because it is burnt by the afternoon sun (Cachola Interview).
- Pu`u Manawahua: Peak (2,401 ft.) in Nānākuli. *Lit.*, great grief hill, nausea hill.
- Pu`u o Hulu: A hill in Lualualei, named after a chief who was in love with Mā`ilī`ilī, one of twin sisters. The chief could not tell the sisters apart and could not decide which one to marry. A *mo`o* changed them both to mountains and the stately chief still looks wonderingly at Pu`u Mā`ilī`ilī today. *Lit.*, Hulu’s hill. (Puku`i *et al.*, 1976 Could also mean *hill of feathers*.)
- Pu`u o Hulu Kai: Hill (856 ft.), Lualualei. *Lit.*, seaward Pu`u o Hulu.
- Pu`u o Hulu Uka: Hill (715 ft.), Lualualei. *Lit.*, inland Pu`u o Hulu.

- Pu`u Ka`Īlio: Peak (1,965 ft.), Kolekole Pass, Wai`anae Range. *Lit.*, dog hill.
- Pu`u o Mā`ilī`ilī`i: Hill, Lualualei. *Lit.*, pebbly hill.
- Pu`u Pāhe`ehe`e: Ridge and hill (652 ft.). *Lit.*, slippery hill. Probably in reference to a *hādua* slide which used to be on the mountainside.
- Ulehawa: Stream in Lualualei. The birthplace of Māui and supposedly named after a chief. *Lit.*, filthy penis. Today, there is also a beach park there.

Only nine of the 32 place names listed above are within the *ahupua`a* of Nānākuli and half of the nine names are surrounding mountain ranges. This may reflect the lack of resources, both water and good land for agricultural endeavors.

The majority of the names refer to physical descriptions or characteristics of *pu`u* or hills, mountains and peaks. The name “Hālonā” (peering place) implies a hill with a view to see a great distance. One name, Mauna Kapu (sacred mountain), indicates that perhaps this mountain was, for whatever reason, very special and considered either sacred or off-limits. But the reason why this mountain was *kapu* has been lost. The name “Pālehua” refers to a special variety of dwarf red lehua that grows near the mountain top (Puakea Nogelmeier, Pers. Comm). The exact location of Hāpai`ili in Nānākuli is unknown and one can only speculate as to a possible meaning — whether it does refer to a specific variety of *mai`a* (banana) is unknown. The only other name indicative of a food resource and, also, a religious site is Pōhaku`Āweoweo, a stone said to attract the`āweoweo fish. However,`āweoweo is a coastal resource and the`Āweoweo stone is located southeast of the proposed reservoir site. Besides the Pōhaku`Āweoweo, there was one other name referring to a religious site —`Ilihune Heiau. This site, located outside of the project area, was destroyed probably sometime during the mid- to late-1800's.

It is interesting to note that there are no names in Nānākuli that contain the word “*wai*” or water. In fact, within the whole district of Wai`anae, there are only three names with “*wai*” — Pūhāwai which refers to a spring in Lualualei and Waikonekone (location unknown) which means “desiccated or dried-up water” and the name Wai`anae (mullet water) itself. This would seem to indicate a lack of water resources within Nānākuli and the Wai`anae District. In contrast, the neighboring district of`Ewa, where streams are abundant, has numerous names beginning with or containing the word “*wai*”.

Looking at other names outside of Nānākuli, and within the district of Wai`anae as a whole, there are few names that indicate food resources and gathering practices. The majority of the names describe physical characteristics such as “heat” (Ka`ena), “thin mountain” (Mauna Lahilahi) and “pebbly” (Mā`ili). Five names refer to plant resources: *maile* (2, at Ka`ena),`ōhi`a (1, at Pūhāwai), *uhiuhi* (1, unknown location) and *laukī* (1, at Mākaha). Five names refer to marine resources: *pa`akai* or salt (1, at`Ōhikilolo), *mūhe`e* or cuttlefish (1, at Keawa`ula), *ma`ipalaoa* or ivory, sperm whale genitals (1, location unknown),`ōhiki or sand crab (1 at`Ōhikilolo) and Puehu, a known fishpond site that no longer exists. Judging by the kinds of plant and marine resources named, it is a good

indication that these items were gathered for cultural purposes in times past. There was one name which referred to a cultural site, "Pu`u Pāhe`ehe`e" where there was a *hāua* slide. Though the exact location is unknown, it is possible that the *hāua* slide could have been associated with the name *Kauhiuhi*. *Uhiuhi* was a type of hard wood used for *hāua* sleds, weapons, digging sticks and house construction. Other Wai`anae place names refer to people, gods, religious structures (*heiau*) and events which took place. As a note of interest, other than marine species, there are no bird or land animal species names present within Nānākuli or the district of Wai`anae.

V. HISTORICAL SETTING

Early Historic Period

Native accounts and those of early foreign observers paint only brief sketches of indigenous life and culture in Nānākuli. In January of 1778, Captain James Cook sighted Wai`anae from a distance, but did not stop to anchor. Fifteen years later, Captain George Vancouver approached the coast of Wai`anae from Pu`uloa and wrote his impressions in the ship's log:

The few inhabitants who visited us [in canoes] from the village earnestly entreated our anchoring . . . And [they] told us that, if we would stay until morning, their chief would be on board with a number of hogs and a great quantity of vegetables; but that he would not visit us then because the day was taboo poory [a *kapu* day]. The face of the country did not however, promise an abundant supply [of water]; the situation was exposed. (Vancouver quoted in McAllister 1933:113)

The only village Vancouver observed was "at Wai`anae, located in a grove of coconut and other trees on the southern side of a small sandy bay" (McAllister 1933:112).

Along the rest of the coast he reported seeing only "a few straggling fishermen's huts" and "a small grove of shabby cocoanut trees" (Handy & Handy 1972:270-71).

Vancouver, influenced by the arid coastal environment, continued onward and did not anchor at Wai`anae. He described the Wai`anae coast as ". . . one barren rocky waste, nearly destitute of verdure, cultivation, or inhabitants, with little variation all the way to the west point [Ka`ena] of the island" (*Ibid.*:112). Vancouver would have been surprised had he chosen to anchor at the village of Wai`anae. Even though the dry, arid coast presented a dismal forecast, the ocean provided an abundant supply of fish, the lowlands provided `uala (*Ipomoea batatas*) and niu (*Cocos nucifera*), and the inland valley areas were planted in kalo (*Colocasia esculenta*) and wauke (*Broussonetia papyrifera*). The upland forest regions provided various woods for weapons and canoes, access to birds for their feathers and other forest resources. By this time, there was probably a small variety of introduced vegetables being planted in the upper valleys, as well. Handy and Handy write about Wai`anae:

Wai`anae Valley supported a number of areas where wet taro was planted, watered by streams from the Wai`anae range, streams whose flows were probably constant owing to the high bogs on top of the mountains . . . Undoubtedly there were also small settlements subsisting mainly on sweet potato, in the valleys where constant streams were lacking (Nānākuli and Mākua). In famine times, then, there was reef fishing, and the Wai`anae Mountains had wild banana, *tī*, fern, and other roots that were edible . . . (1972:275-276)

Warfare impacted the population during the struggle for unification and power. Marshall Sahlins writes about the rebellion of the O`ahu chiefs against Kahekili:

... the native O`ahu chiefs rebelled against the Maui chiefs in 1785 or 1786, but the rebellion was put down with bloody reprisals. (Sahlins 1992:36)

Kamakau (1992:140) specifically discusses fighting in the Wai`anae district during this time. The decisive battle of Kūki`iahu was fought in 1794 at Kalauao, `Ewa between Ka`eokūlani and Kalanikūpule. It is said that warriors from Waialua and Wai`anae joined the ranks of Ka`eokūlani to war against Kalanikūpule (Kamakau 1992:168). In 1796, Kamehameha I unsuccessfully tried to launch his war fleet of canoes from Wai`anae in an attempt to conquer the island of Kaua`i. The fleet got caught in a storm and was forced to return to Wai`anae, where they stayed for a sojourn of about one year (Kamakau 1992:173; `Īi 1983:15-16).

One of the first mentions of a coastal settlement in Nānākuli comes from a description by noted historian, John Papa `Īi who describes a visit to his aunt, Kāneiakama. Little is known about his aunt except that she and her husband, Pa`akonia, “were bracelet-makers and residents of that land of the foamy sea” and “were well known” (`Īi 1983:26-27). Pāhoa was their landlord and they resided at Pāhoa Uka (located in *mauka* Wai`anae *ahupua`a*). He goes on to say:

Ka`ahumanu was fond of Kāneiakama and admired her skill in composing chants. Because of this, perhaps, the land at Wai`anae was given to Kāneiakama and her husband. (*Ibid.*)

`Īi mentions visiting his aunt three times, twice at Pāhoa Uka and once at Nānākuli. At the age of eight or nine, he briefly writes about visiting his aunt a third time:

He had heard that his aunt was at Nānākuli, so he and his attendant departed by way of Pu`u o Kapolei to Waimānalo and on to Nānākuli. There he found his aunt and her husband who were in charge of the fishing.

During his visit `Īi observed how the children of Nānākuli produced a long quavering sound while chanting. This was performed while the children sat on the branches of breadfruit trees. They sat apart from each other on branches from the base to the top, chanting . . . `Īi learned the chant at once. This is the chant that they were using:

Kau koli`i ka lā i luna o Maunaloa
E ke ao e lele koa
Halulu i ka mauna
Kīkaha ke kuahiwi

The sun send a streak of light on Maunaloa
The clouds go scurrying by,
There is a rumble on the mountain top
That echoes from the mountain of Kona, the
calm.

Kū pāpū Hilo i ka ua
Paliloa Hāmākua,
`Ope`ope Kohala i ka makani
Huki Ka`uiki pā i ka lani

Hilo stands directly in the rain.
Hāmākua's cliffs are tall,
Kohala is buffeted by the wind,
Ka`uiki reaches and touches the sky.

This was memorized by all and was chanted in perfect unison, and the boy noticed how pleasing it was. Thus did `Īī enjoy himself with the children of Nānākuli, and he continued to spend his spare time with them. (`Īī 1983:29)

The `ōku`u epidemic of 1804 (thought to be cholera) undoubtedly had a major effect on the native Hawaiian population, not only in Wai`anae, but throughout the rest of the islands as well. John Papa `Īī tells us that the `ōku`u “broke out, decimating the armies of Kamehameha I [on O`ahu]” (1983:16).

By 1811, sandalwood merchants began actively exploiting the Hawai`i market and huge amounts of sandalwood were exported to China. (Traditionally, Hawaiians used sandalwood for medicinal purposes and as a scent to perfume their *kapa*.) Kamehameha I and a few other chiefs controlled the bulk of the sandalwood trade. Kamakau writes, “The chiefs also were ordered to send out their men to cut sandalwood . . . The chief immediately declared all sandalwood to be the property of the government” (1992:204).

The sandalwood trade greatly impacted Hawaiian culture and the traditional lifestyle Hawaiians had always pursued was altered drastically. In an effort to acquire western goods, ships, guns and ammunition, the chiefs had acquired massive debts to the American merchants (`Īī 1983:155). These debts were paid off in shiploads of sandalwood. When Kamehameha found out how valuable sandalwood trees were, he ordered the people not to let the felled trees fall on the young saplings, to ensure their protection for future trade (Kamakau 1992:209-210).

Kamakau comments about the plight of the common people and the general state of the land during this time:

This rush of labor to the mountains brought about a scarcity of cultivated food throughout the whole group. The people were forced to eat herbs and tree ferns, hence the famine called Hīlaulele, Hāhāpilau, Laulele, Pualele, `Ama`u, or Hāpu`u, from the wild plants resorted to. (*Ibid.*:204)

In 1816, Boki Kama`ule`ule was made governor of O`ahu and chief of the Wai`anae district. He served in that capacity until 1829 when he sailed to New Hebrides in search of sandalwood. By that time the majority of the sandalwood had been harvested and the bottom fell out of the trade business.

The Rev. William Ellis visited the Hawaiian Islands in 1823. At that time, he estimated the population on the island of O`ahu to be about 20,000 (Ellis 1974:19). The missionaries were the first to gather population statistics throughout the various districts on each island. The first census figures were gathered from 1831-1832 and 1835-1836. Separate figures were not given for Nānākuli, but it is probable that the count was

incorporated into the numbers for the *ahupua`a* of Wai`anae. The population numbers given for Wai`anae in the two census were 1,868 and 1,654 respectively (Schmitt 1973:9).

Nānākuli, no doubt, sustained a sparse population, but to what extent is not exactly known. Environmental factors such as the dry, arid climate, low rainfall and geologic limitations — “much of the seaward portion of the valley is uplifted coral limestone that in some areas is thinly disguised with a shallow layer of soil” (Kelly in Haun *et al.*, 1991:310) — were likely determinative constraints upon population density along the coast.

Mid-1800's: Land Commission Awards (LCAs)

At the time of the *Māhele*, the *ahupua`a* of Wai`anae, which at that time, included Nānākuli, was listed as *Crown* lands and was claimed by King Kamehameha III as his personal property (Indices of Awards p. 28). As such, the land was under the direct control of the King. Many of the chiefs had run up huge debts to American merchants throughout the early historic period and continuing into the mid-1800's. A common practice at the time was to lease (or mortgage) large portions of unused land to other high chiefs and foreigners to generate income and pay off these earlier debts acquired.

Until the passage of the Act of January 3, 1865, which made Crown Lands inalienable, Kamehameha III and his successors did as they pleased with the Crown Lands, selling, leasing, and mortgaging them at will. (Chinen 1958:27)

In 1850, the Privy Council passed resolutions which would affirm the rights of the commoners or native tenants. To apply for fee-simple title to their lands, native tenants were required to file their claim with the Land Commission within the specified time period of February 1846 and February 14, 1848. The *Kuleana* Act of 1850 confirmed and protected the rights of native tenants. Under this act, the claimant was required to have two witnesses who could testify they knew the claimant and the boundaries of the land, knew that the claimant had lived on the land for a minimum of two years, and knew that no one had challenged the claim. The land also had to be surveyed.

Not everyone who was eligible to apply for *kuleana* lands did so and, further, not all claims were awarded. Some claimants failed to follow through and come before the Land Commission, some did not produce two witnesses, some did not get their land surveyed. For whatever reason, out of the potential 1,500,000 acres of Government lands made available for native Hawaiians throughout Hawai`i, “less than 30,000 acres of land were awarded to the native tenants” (*Ibid*:31).

Nānākuli Māhele Claims

In Nānākuli, there was only one application for quiet title to lands during the time of the Great *Māhele*. Even though this award was not granted, it does give some insight into

land use in Nānākuli Valley. In testimony taken from the Native Register, Kuluahi speaks of his lands in the `ili of Hāpai:

To the Land Commissioners: `Ili of Hāpai, *Ahupua`a* of Nānākuli, Wai`anae District, O`ahu. I, the one whose name is below, have a *muliwai*, a pond, a cultivated *kula* and for firewood also, a valley planted in *wauke mauka*, and a *kula* house lot. It is finished. Kuluahi, X, his mark. January 17, 1848. (Native Register Vol. 5:342)

The exact location of Hāpai `ili is not known, however, it was probably located near the coast at the mouth of Nānākuli stream (*muliwai*) which is outside of the project area. The testimony indicates some kind of aquacultural resource was being utilized and agricultural activity, at least on a small scale, was taking place. *Wauke* (*Broussonetia papyrifera*) was the preferred plant for making *kapa* (cloth). *Wauke* requires a moist climate and it was usually cultivated close to habitation sites, along streams, *lo`i* and at the lower borders of wet forests (Krauss 1993:60).

This sole *Māhele* land claim is not indicative of the total population within Nānākuli Valley. As was the case with neighboring Lualualei, there were other people who lived in Nānākuli but who did not file land claims. Tax records for Nānākuli list eight people who paid a total of \$26 for taxes in 1855 (Hawai`i State Archives: J.W. Makalena Tax Records). This suggests Nānākuli was one of the least populated *ahupua`a* on O`ahu at that time. The tax payment in currency suggests that much of the traditional lifestyle was ending and that people were switching over to a monetary system.

Late 1800's

Ranching

Much of the Crown lands, of which Nānākuli was a part, were either sold, borrowed against as collateral or leased to generate income for the King (Kamehameha III) and his family. In the case of Lualualei and Nānākuli, large portions were leased for the purposes of ranching.

The first longhorn cattle were brought to O`ahu from Hawai`i island in 1809 by John Young and Kamehameha I (Kamakau 1992:268). By the mid-1800's, the back of Nānākuli Valley appears to have been used solely for ranching purposes and probably did not support permanent habitation. One of the first areas to be utilized for ranching on the Wai`anae coast was neighboring Lualualei. Bureau of Conveyance records show that William Jarrett leased approximately 17,000 acres of land from Kamehameha III in 1851. The lease was written for 30 years with a lease fee of \$700 per year. (B.C. Liber 4:616-618). It seems that Jarrett sold Paul F. Marin (son of Don Francisco de Paula Marin) one-half of his interest in the ranch. Marin lived on the ranch and managed it until 1864 when a dispute arose over the profits of the ranch. (Apparently, Marin had never turned over any ranch profits to Jarrett during the time he managed it.) After the dispute was settled,

Jarrett took on George Galbraith as a new partner (B.C. Liber 18:31).

In 1869, Jarrett sold the remaining years of his son's interest in Lualualei Ranch to James Dowsett (B.C. Liber 29:16-18). James Dowsett was a descendant of a British sea captain and is noted for being the first anglo-saxon child born in Honolulu (Nakamura *et al.*, 1994:21). Dowsett was an entrepreneur of sorts and dabbled in many different business ventures, such as:

. . . a whaling fleet, a dairy, a salt works, an extensive trade in *awa* (a Hawaiian narcotic drink) and numerous land holdings . . . He also ran cattle at different times in Nānākuli, Mikilua and Lualualei. (McGrath 1973:32)

In 1880, George Bowser traveled through Wai`anae and writes about Lualualei in his journal:

Leaving Wai`anae, a ride of about two miles brought me to the Lualualei Valley, another romantic place opening to the sea and surrounded in every other direction by high mountains. This valley is occupied as a grazing farm by Messrs. Dowsett & Galbraith, who lease some sixteen thousand acres from the Crown. Its dimensions do not differ materially from those of the Wai`anae Valley, except that it is broader — say, two miles in width by a length of six or seven miles. The hills which enclose it, however, are not so precipitous as those at Wai`anae, and have, therefore, more grazing land on their lower slopes, a circumstance which adds greatly to the value of the property as a stock farm. Although only occupied for grazing purposes at present, there is nothing in the nature of the soil to prevent the cultivation of the sugar cane, Indian corn, etc. Arrangements for irrigation, however, will be a necessary preliminary to cultivation. (Bowser 1880:493-94)

At the time of Bowser's visit, sugar cane production had not yet reached Lualualei from Wai`anae Valley. Continuing on his journey, Bowser writes about Nānākuli:

From the Lualualei Valley to the Nānākuli Valley I had a rather dreary ride of three miles. The intervening country towards the sea is barren, with a little pasturage at the base of the mountains. The track, however, is in very good order, much better than I expected to find it, looking to the mountainous and rocky character of the country through which it passes. At Nānākuli and at Hō`ae`ae, close adjoining, the Messrs. Robinson have cattle ranches. The pasture here cannot be compared with that in the valleys I had just left behind, but inland among the mountain ranges it is much better. (*Ibid.*: 494)

In 1894, Link McCandless entered the ranching scene:

. . . he and a man named Tom King chartered the brigantine Oakland in Seattle, filled her hold with cattle and the cabins with feed, and sailed for Hawai`i. By the turn of the century, McCandless' ranching

empire covered much of the Wai`anae Coast, including land at Nānākuli, 4,000 acres at Luualualei, Sam Andrews' property in Mākua and pastures toward Ka`ena Point. (McGrath 1973:31)

Wai`anae Sugar Plantation

In 1878, Herman A. Widemann, a retired Supreme Court Justice, began the Wai`anae Plantation, one of the first sugar plantations on O`ahu. Roger Green reports that "between 1878 and 1884 the economy and community of Wai`anae underwent a major change, in which the former Hawaiian landscape virtually disappeared" (Green 1980:12). With the hiring of 20 local Hawaiians, 15 *haole* technicians and almost 60 Chinese laborers, Widemann essentially created a town at Wai`anae to support the cultivation and processing of sugarcane. This included the building of 24 new houses and a manager's residence along with a sugar mill and various extensive irrigation systems.

In 1884, the Hawaiian Directory reported Wai`anae to be the largest settlement on the island outside of Honolulu. By 1890, the Wai`anae Sugar Plantation had over 600 acres in sugar cultivation, 12 miles of railroad and 350 laborers. The 1890 census reports 903 residents in the Wai`anae district. With ranching utilizing much of the land area in Nānākuli, it is probable that the few people still living in Nānākuli during the development of the sugar industry eventually relocated to Wai`anae which became a bustling "sugar town".

O`ahu Railway and Land Company

The O`ahu Railway and Land Company (OR&L) signed its charter on February 4, 1889. The Railway was the brainchild of Benjamin Franklin Dillingham. Along with James Castle and others, he had invested in large tracts of land for speculation and resale, but the idea was slow to catch on because "the land lay too far from Honolulu, at least 12 miles" (McGrath 1973:54). Dillingham foresaw an economic opportunity. The railway was a means to provide transportation to the country and promote development of unoccupied lands, as well as connect with the sugar plantations in `Ewa, Wai`anae, Waialua and Kahuku. Construction on the railway began in March of 1889. The first length of the railway was completed and opened to the public by January 1, 1890. Five years later, on July 4, 1895 the railway finally reached Wai`anae. The Railway served the Wai`anae coast until 1946 when the Wai`anae Sugar Plantation closed down.

In the latter half of the 19th century, ranching became the leading industry in the Wai`anae coast. During this time and prior to 1865, when the King's lands were declared inalienable, large tracts of Crown lands in the Wai`anae district were sold in fee simple or leased out to various entrepreneurial families like Samuel Adams in Mākua Valley, the Dowsetts in Luualualei, Nānākuli and Mikilua, the Robinson brothers in Nānākuli and the

Holt clan in Mākaha. Toward the end of the 19th century, The Wai`anae Sugar Plantation began to grow sugar cane on large tracts of leased land. This new economic venture would change the landscape and put an end to traditional Hawaiian ways of life forever.

Early 1900's to Present

Homesteading

There were two waves of homesteading on the Wai`anae Coast. The first was in Lualualei and had less of an impact on Nānākuli, while the second resulted in development of Nānākuli as a residential area.

After the overthrow of the Hawaiian monarchy in 1893, the Crown Lands and the Government Lands were combined to become Public Lands. The Crown Lands were no longer indistinguishable and inalienable. In 1895, the Republic of Hawai`i decided to open up lands for homesteading in the hopes of attracting a “desirable class of immigrants” — Americans and those of Caucasian descent (Kuykendall & Day 1961:204). In anticipation of the Dowsett-Galbraith lease expiring in 1901, the Government intended to auction off these lands to the highest bidder.

In 1902, the Government ran ads in the local newspapers stating their intent to open up land in Lualualei for homesteads. Due to the lack of water, the lots were classified as second class pastoral land, rather than agricultural land. A five-year installment payment plan of one-fifth down during the first year and the balance of payments over a period of four years was the incentive to attract prospective homesteaders. There were other stipulations as well, in which the homesteader was required to make specific improvements to the property over the five-year period (Dept. of the Interior, October 6, 1902, Hawai`i State Archives).

The homesteads were sold in three series. The first series consisted of nine lots which were sold between 1903 and 1909. These lots were much larger than the second and third series of lots sold. Seven of these lots averaged about 585 acres each. The two largest lots were 1,479.1 acres and 1,149.9 acres. The big-name families that obtained homestead lots at this time were Von Holt, McCandless and Dowsett. The majority of the Dowsett land was used to pasture cattle, with other portions being leased to the Sandwich Island Honey Company for apiaries (B.C. Liber 376:237; B.C. Liber 288:324,331).

The second series of eleven lots were much smaller and consisted of 50 to 60 acres each. These were situated *mauka* of the main road, near the coast and were sold in the years following 1907. The third series consisted of 116 lots, some on land that had been used by Wai`anae Sugar Company to grow cane. The lots varied in size from 4.86 acres to 18.18 acres. These lots were opened up in 1912 and by the early 1920s, about forty families had settled there. (Kelly *in* Haun 1991:331-332)

The Government did not fulfill its promise to supply water. What little water there was, was not enough to go around. Competition between the plantation and the homesteaders for water caused friction within the community. The lack of water placed a hardship on the homesteaders. Water had to be carried in and many lost their crops. The Wai`anae Sugar Company had a lease with the Government to take 2.5 million gallons of water daily from Government lands. But even after their lease had expired, the plantation continued to take the water. In 1924, the Government made an agreement with the plantation to release 112,000 gallons of water daily for the homesteaders.

The early wave of homesteading passed by dry, barren Nānākuli. Because of its water shortage, parched Nānākuli had never attracted many residents. It remained a *kiawe* wilderness. Yet, the very fact that nobody wanted it turned the area into a kind of informal public park. Its magnificent beaches attracted a growing colony of squatters from all over O`ahu who were running out of places to camp . . . The entire island had been hung with *Kapu* signs. But not Nānākuli. There the tawny, crescent beaches were open to anyone. Some came for the summer. Others camped all year round. Most of them were Hawaiians. (McGrath 1973:103)

In the mid-1920's, not counting squatters, there were only ten residents in all of Nānākuli (*Ibid.* 107).

Under the Hawaiian Homes Commission Act, a second wave of homesteading occurred in the late 1920's and 1930's. This law established almost 200,000 acres for homesteaders of Hawaiian blood. Previous leases of Nānākuli land had expired at this time and the land was subdivided for residential lots. By 1930 over 200 residential lots had been taken. Whether there would be sufficient water for the new homesteads, particularly because of the continued consumption of the Wai`anae Plantation, was in question. Water came in through a 2-inch pipe from the Lualualei water system which was often dry. (McGrath 1973:108-118)

In an interview with Black Ho`ohuli, he reminisces about those early days on the homestead as a young boy:

CSH: What was the homestead area like when you were growing up here?

BH: Not like now. Everybody had half an acre, I think. Some places was a little bigger. I guess it depends on the way the property was. Some was bigger.

CSH: And what was the vegetation like in the area? The trees, the plants?

BH: Oh, all *kiawe* (*Prosopis pallida*), all *kiawe*. I remember to get our yard clean, we had to chop down *kiawe* and the stumps. I remember us in tents.

CSH: Before your house was built?

BH: Yeah. I think my dad's first place was on Manu Street. And what I remember was, when we moved to the highway and that's when I know we were kind of cleaning our yards. And I only seen a picture of my dad's first place.

CSH: So this lot where you're living now is not your original lot?

BH: No. This was my uncle's place and for some reason he just didn't want to stay in the house, I guess, so I asked him if I could take care of the place for him. So while I was taking care of it, I guess he see that I was doing a good job and he gave it to me.

CSH: And back then, did you have water?

BH: We had to go to the park and get water. Water was kind of scarce down here.

CSH: Which park?

BH: Nānākuli Park. Actually the park name is "Kalaniana'ole Park". Everybody knows that park as "Nānākuli Park".

CSH: So you had no running water, or had a little bit? Just drinking water?

BH: We had. Yeah, it was very, very little. If down neighbors using the water, we had to kind of wait so we get the pressure. It wasn't easy.

The struggle over water found the homesteaders embroiled in a water rights issue with Wai`anae Plantation that took several years to settle.

The Military

World War II greatly affected the Wai`anae coast and Nānākuli Valley. Military troops were sent in to train and do maneuvers. Concrete bunkers and gun emplacements were built on the beaches and ridges and barbed wire was strung along the beaches. Jay Landis, a *kama`āina* of Lualualei, remembers the war years:

CSH: So, would you know anything about how the bunkers were used during the war?

JL: Well, some places they kept people out of the beach because they're training.

CSH: Do you remember which places?

JL: Oh, yeah. Mākaha and Wai`anae mostly. They had these — where the Kamaile School is, when you pass Nānākuli to Mākaha — there was a camp over there that had about 20,000 soldiers over there. They would go down and practice landing war.

CSH: Was there a curfew? I'm assuming there was curfew.

JL: Oh yeah. Eight o'clock, when you hear "Beep, beep, beep, beeeeeeeep." Get home, and then the air raid warden would come around checking up on you. No more lights. They had to shield everything. It was rough.

CSH: People stayed away from the beach?

JL: In some places they put a lot of barbed wire. You know the rolled barbed wire.

Black Ho`ohuli also remembers the black-outs and the beaches having barbed wire:

CSH: And what about the war years? Were you here during the war years?

BH: I remember the war, but we were limited, too. Can't be outside. I remember everything on the housing. We used to close up all the windows with these Army blankets. Black-outs. I guess that's what they call "Black-out".

CSH: Cannot have the lights showing.

BH: Yeah. I mean the whole valley, I remember all the Armies, they just park in your yard if they wanted to. All the big tanks going around.

CSH: And what about the bunkers down on the beach?

BH: I remember those. I even remember the whole beach barbed-wired.

CSH: From where to where?

BH: All the way down to Mākua. Where you cannot go is barbed-wires. I remember all those. I remember all the ships outside there.

CSH: So, Ulehawa beach had barbed-wire down it?

BH: All the way. Every beach had barbed-wire. 'Cause Mā`ili Point had two guns over there, too. Where they had 'em on the hill. If you look up where the civil defense sign is?

CSH: Yeah, there's a pill-box up there.

BH: Oh, that's two, two big guns.

CSH: And what about the pill-boxes on the beach? When did they use that?

BH: Those, I think, were machine guns. I think they got one in the front of Faststop. I think they still got one. One at Ulehawa, I think, get one more, canal. And right on Pōhakunui got one. Mā`ili, I think, right where the park's gonna end.

After WWII ended, the lower portions of Nānākuli Valley were further developed into residential lots. The land *mauka* of the current residential area continues to be leased and utilized for animal husbandry — cattle grazing, horse ranches, and pig and poultry operations.

Camp Andrews

In 1917, a 31.6 acre parcel was condemned by the U.S. Government for military use. The parcel was located directly *mauka* of where Nānāikapono Elementary School is today. This site was named Camp Andrews and was used as a rest and recreation area for military personnel, both prior to and during WWII. Since then, the Federal Government has conveyed the Camp Andrews parcel back to the State of Hawai`i, which is the current landowner (Nakamura, *et al.*, 1994:19). Current plans include expansion for Nānāikapono Elementary School, which will be relocating across Farrington Highway at the former Camp Andrews site (Lehua Kapaku, Pers. Comm.).

Nānākuli High School

The high school was built in the mid-1960's. Fred Cachola related an interesting story about how the Nānākuli community got their own highschool:

CSH: Can you tell me about Nānākuli High School and how that came to be.

FC: Nānākuli High School. This was the days when the people were in awe of the government and the power of politics, etc. And, Nānākuli Highschool was on the grounds of Nānāikapono Elementary. There's 13 acres in that whole campus, and there were over 2000 students squeezed into 13 acres on a tsunami-zoned beach front. And so it got kind of crowded. The principal of the High School was Ray Miyasato. He said, "We've gotta do something about this." But the government's answer was to put more portables in that small, little 13 acre lot. And so, as part of the Model Schools Program we had this community council that we talked to. They volunteered and said, "Maybe we ought to go see the Governor." And we were both young, new

principals. It was his first school and it was my first school too. So, we came here, rather nervously, to `Iolani Palace, where the Governor was, his office was right up there in what was the King's bedroom, and has now been restored as the King's bedroom. That was the Governor's office, Governor Burns. We were with some parents and the student body president for the high school. I think he was a sophomore at that time, Leonard Kwan. He is now teaching at Kamehameha. But I remember Leonard saying, "We all made comments about the need for the high school and the need for another campus, and how things are so bad down there, and how that whole community has always been neglected. It seems like nobody even wants to think about the problems down there, or to address the problems." And Ray Miyasato and I made the case that we're doing the very best we could. But Leonard said to the Governor, "You know, in school we've been taught to have faith and trust in government and every time we've been hearing about this high school, we've been hearing about it for years and years, and I don't know if I can believe or have faith in this government anymore." And I am telling you, Governor Burns was stunned. And he looked at Leonard, and said, "Young man, God willing and I am still alive, your high school will be built." And he picked up the phone and called for the DAGS [Department of Accounting and General Services] and right then and there he moved the priority for Nānākuli High from number six to number one. Much to the chagrin of the people of Pearl City, because Pearl City was number one, and they got shoved down. And Nānākuli High was not only moved up to priority number one, but it was one of the rare occasions where the highschool was built at one time. They didn't go in phases, they built everything one crack. They just built as much as they could. And so, Leonard deserves a lot of credit for speaking his piece and the parents, Marie Olsen, Raphael Christ, these are the old timers, Rose Jackman. These were tough ladies, man. I mean, they'd go up against anybody. I find Wai`anae, Nānākuli has that kind of a — if you look deeply into the people, they may not say much, but when they do, they do it with conviction. They do it with determination. And it was one of those meetings. So, that's how Nānākuli got the high school.

CSH: What year was the school actually built, or when did construction start?

FC: I think we broke ground in 1965. I can't remember now, its been so long. It was such a wonderful occasion, because Ray Miyasato and I wanted everybody to break ground. So we got these big shovels, we had a lot of shovels, and everybody there took turns turning the

ground, from students to parents. This was not gonna be just one or two people. We wanted the whole — this was gonna be a community ground breaking. And, everybody went and broke ground. It was a big day for Nānākuli, a great day!

VI. NATIVE HAWAIIAN CUSTOMS PERTAINING TO THE PROJECT AREA

Burials

The draft Archaeological Inventory Survey report (McDermott and Hammatt 1999) identifies no burials within the 242 Reservoir site or along the transmission main route. Due to the prior development of lower Nānākuli Valley (i.e., roads, sidewalks residential lots), it is expected that any surface traces of pre-historic and historic land use would have been removed. "Subsurface deposits, including buried cultural deposits and burials, are a possibility, but only likely to be encountered in the *makai*-most portions of the proposed 20" transmission main along Nānākuli Avenue" (*Ibid.*:27). Information gathered from interviews and talking with community members did not give any reason to believe burials were present within either the reservoir site or along the transmission main route. Informants felt that because of earlier development along Nānākuli Avenue, the inadvertent discovery of burials would be unlikely.

Hawaiian Trails

Trails served to connect the various settlements throughout O`ahu. John Papa `Īi mentions three ancient trails that led to Wai`anae. In the early 1800's, when `Īi was a little boy, these trails were still being used. These trails were:

. . . one by way of Pu`u o Kapolei, another by way of Pōhākea, and the third by way of Kolekole. (1983:97)

He goes on to describe the trails:

From Kunia the trail . . . met with the trails from Wahiawa and Waialua. The trail continued to the west of Mahu, to Mālananui, and up to Kolekole, from where one can look down to Pōka`ī and Wai`anae Uka. There was a long cliff trail called Elou from Kalena and Hale`au`au on the east side of Ka`ala coming down to Wai`anae. There was also a trail called Kūmaipō which went up and then down Mākaha Uka.

Below Kūmaipō trail in the olden days was a stronghold named Kawīwī ... [and it] was part of a mountain ridge lying between Wai`anae and Mākaha and overlooking Kamaile. The trail Kūmaipō, went down to the farms of Mākaha and the homes of that land. A branch trail which led up Mount Ka`ala and looked down on Waialua and Mokulē`ia could be used to go down to those level lands. It was customary to have dwelling places along the mountain trails that led downward from here into Kamaile, as well as along the beach trail of Mākaha.

. . . Pu`u o Kapolei [trail] . . . joined the beach trail from Pu`uloa and from Waimānalo. (*Ibid.*) (See Fig. 6 for a map of Leeward O`ahu trails.)

This last trail was the one John `Ī used as a child to visit his aunt, Kāneiakama, when she was at Nānākuli (1983:29). All three trails mentioned above were outside of both portions of the project area and, therefore, no impact to them is expected.

An Archaeological Inventory Survey report conducted by Ross Cordy *et al.* (1990:4) for the Department of Hawaiian Homes suggests a possible trail that led from upper Nānākuli Valley and crossed over into Lualualei. No specific historical documentation was given for this suggested trail. As with the above three trails, this posited *mauka* trail lies outside of the proposed project areas.

Native Hunting Practices

In regards to hunting within the proposed reservoir site, Black Ho`ohuli commented:

CSH: Do you know anyone who might go up there for any reason, whatsoever? Like hunting or —

BH: There's nothing to hunt here anyway. It's just some pass through to get out.

CSH: To get to the better areas?

BH: Yeah. That's all it is. But the hunters, they get their own trails already. They try not to work too hard before they get to the pig [laughs]. No, not much.

The historic record did not reveal any native hunting practices as having occurred within the proposed reservoir site and the lower portion of Nānākuli Valley has been highly disturbed by development of residential lots and human activity. Pig and goat hunting does occur on mountain ridges and in the upper reaches of Nānākuli Valley where vegetation and water is more abundant (L. Kapaku and J. Landis Interviews). The proposed project area is sparsely vegetated with a few introduced plant species and there is no water source that would attract wild animals.

Native Gathering Practices

Upland resources were utilized by Hawaiians for a multitude of purposes. Forest resources were gathered, not only for the basic needs of food and clothing, but for tools, weapons, canoe-building, house construction, dyes, adornment, hula, medicinal and religious purposes, just to name a few.

Rainfall for upper Nānākuli Valley is about 40 inches annually at the high end. Presently, much of the upper valley consists of *koa haole* and shrub community. Ross Cordy writes about the upper valley regions:

There are remnant *wiliwili* stands and `a`ali`i shrub lands on the lower portions of the valley ridges, with some *alahe`e*, *lama*, *hao*, *halapēpē* and `ohe trees as well as native shrubs (`ilima, `āheahea and `uhaloa) and grasses (*pili*, *kāwelu*) (1997:3).

Also found were *kukui*, *lonomea*, and *olopua* at the uppermost end of the valley ridge where rain is most abundant (*Ibid.*). All of the above mentioned plants, were utilized traditionally in Hawaiian culture.

An assessment of the plants within the 242 reservoir site located only three indigenous or native plants, the `ilima, *pōpolo*, and the `uhaloa. All three plants were used medicinally in Hawaiian culture and they continue to be used today by practitioners of *lā au lapa`au* (healing with medicinal plants and herbs). A discussion of the traditional uses of these three native plants follows.

Besides being used in *lei*, the `ilima (*Sida spp.*) was also used medicinally. The flower is used as a cathartic and is also eaten several months prior to giving birth in order to lubricate the birth canal, the young leaf shoots and root bark are used to make tonics and treat asthma and the juice from the squeezed flowers is also used as a mild laxative for babies. The flowers are also eaten to aid a nursing mother in producing a sufficient supply of milk (Makuakāne 1994; Gutmanis 1989:38, 40; Pukui & Elbert 1986:98). A Hawaiian proverb (`āelo no`eau) extols the value of the `ilima,

Ola nō i ka pua o ka `ilima. There is healing in the `ilima blossoms. (O.N. #2489)

The `ilima blossom is one of the first medicines given to babies. It is a mild laxative. Hi`iaka, goddess of medicine in Pele's family, used `ilima in some of her healings. (Pukui 1983:272)

Most commonly, the leaves of the *pōpolo* (*Solanum americanum*) are mashed and used as a poultice for wounds and to treat skin conditions. The leaves are also used to make tonics and to treat coughs. The leaves and berries are thought to aid in building the immune system and to promote body building properties in general, as well as an aid in healing the digestive tract. Expectant mothers were encouraged to eat the dark green leaves of the *pōpolo*. The dark purple-black berries are eaten to aid in healing sore throats and colds, and are used as a cathartic and to treat thrush. Another use of the *pōpolo* plant, when combined with other medicinal plants, is to make a steam bath to treat piles and perineal injury due to childbirth (Makuakāne 1994; Gutmanis 1989:26,35; Wagner, Herbst & Sohmer 1990:1268).

The root of the *uhaloa* (*Waltheria indica*) is an effective remedy for sore throats (chewed raw or brewed into a tea) and the tea is especially excellent for treating chronic asthma and pulmonary complications. When made into a tea, *uhaloa* is also used as a gargle or mouth wash. The leaves can be used as a poultice for infected wounds. *Uhaloa* was also combined with other herbs to make a douche which was used to clean the vaginal tract after a miscarriage (Makuakāne 1994; Gutmanis 1989:34).

Two other plants, with Hawaiian names, the *āheahea* (*Chenopodium murale*) and the *honohono* (*Commelina benghalensis*) were also located within the project area, but these two plants are introduced species to Hawai'i (Wagner, Herbst & Sohmer 1990). All other plants found were non-native. (For a complete listing of identified plants, refer to the independent "Botanical Resources Assessment" conducted by Winona Char and Associates.)

None of the plants identified are of cultural concern and none are listed as threatened or endangered according to the U.S. Fish and Wildlife Service (1999). All of the above plants are common and can be found in similar dry, lowland environments. Interviews with informants and "talk-story" with people in the community did not suggest nor indicate that any type of gathering activity took place or was likely to take place within the proposed project area.

Religious Shrines and Sites

J. Gilbert McAllister conducted the first archaeological survey of Nānākuli Valley from 1929-1930. His survey concentrated on locating religious, habitation and traditional/mythological sites. He reidentified one site which had been previously identified by T. G. Thrum and did not locate any other sites within Nānākuli. The site was *ʻIlihune Heiau* (Site 147) which no longer exists. Site 147 was described as "a small walled *heiau* of *poʻokanaka* class" (McAllister 1933:110). The *heiau* is understood as being located on the ridge between Lualualei and Nānākuli.

Recently, religious sites have been found in upper Nānākuli Valley above the proposed 242 Reservoir site, but the oral and early historical records make no mention of *heiau*, religious shrines and sites in the valley (Cordy 1997:10). The draft Archaeological Inventory Survey report for the reservoir site (McDermott and Hammatt 1999:28) did not identify any religious shrines or sites within or near the proposed project area.

Other Archaeological and Historical Concerns

There were no historic properties and stone alignments identified within the proposed project area. A stacked stone alignment was located outside of the proposed reservoir site to the east, but this feature was not considered significant (*Ibid.*).

VII. SUMMARY

This assessment has attempted to look at the effects the proposed 242 Reservoir and 20" transmission main may have on Hawaiian culture relating to specific practices and traditions. The specific areas studied included burials (there are not believed to be any), access to Hawaiian trails, native Hawaiian hunting and gathering practices, religious sites and other archaeological and historical concerns such as historic properties. There were no gathering practices or historic properties identified within the proposed project areas. No Hawaiian trails were identified. The conclusion of the study is the proposed project will have minimal or no impact on Hawaiian culture, its practices and traditions.

Within the proposed 242 Reservoir site, three native Hawaiian plants were identified, the *`ilima* (*Sida spp.*), the *pōpolo* (*Solanum americanum*) and the *`uhaloa* (*Waltheria indica*). As discussed in the "Native Gathering Practices" section of this report, these plants were used traditionally in Hawaiian culture and they continue to be used by cultural practitioners today. However, this study concludes that the proposed 242 Reservoir site will not have an impact on these plants or on Hawaiian practices and traditions for the following reasons. The proposed 242 Reservoir site is dominated by alien plants such as *kiawe* (*Prosopis pallida*), *koa haole* (*Leucaena leucocephala*) and assorted introduced grasses and weeds. The three native plants found do not constitute any cultural concerns nor are any of the plants threatened or endangered (U.S. Fish and Wildlife Service 1999). All three plants are abundant and are commonly found in similar environmental conditions. Furthermore, within the proposed 242 Reservoir site, no gathering practices specific to these native plants or the project area were identified. This finding was corroborated by interviews and "talk story" with community members. Based on the above, it is unlikely that Hawaiian practices and traditions will be impacted within the proposed project area.

During the *Māhele*, there were no *kuleana* (commoner) claims awarded within the project area and, for that matter, no claims were awarded within the *ahupua`a* of Nānākuli. The absence of *kuleana* claims is by no means an indication of the lack of Hawaiian activity. The one unawarded claim from the *Māhele* indicated a pond, a cultivated *kula* (open field or pasture) and a valley planted in *wauke*. Early mid-19th century tax records from 1855 indicate at least eight people were living in Nānākuli at the time. It is obvious from this record that Hawaiian cultural activity was taking place, even if only on a limited basis. Two things most likely impacted late 19th century population statistics for Nānākuli, the development of the sugar industry at Wai`anae Valley which drew people away from the dry, unproductive lands in Nānākuli, and the leasing of large tracts of land for cattle grazing and ranching. It is a great loss that pre-historic and early historic information regarding Nānākuli is almost non-existent.

The proposed 242 Reservoir site is in an area that has been utilized for cattle grazing and ranching activity for over 100 years. The reservoir site is located inland from the coast, sparsely vegetated with a few species of introduced plants, and does not have any surface water. No gathering practices, culturally sensitive sites or historic properties were identified at the proposed Board of Water Supply project areas.

The proposed 20" transmission main along Nānākuli Avenue is in a developed residential neighborhood. Burials are a possibility in the portions most *makai* of the avenue, but no evidence was found to suggest their presence. If present, burials are likely to be restricted to sand deposits near Farrington Highway. As with the 242 Reservoir site, no gathering practices were identified within this portion of the proposed project.

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APPENDIX A: Transcripts of Interview with Fred Cachola

Interview with: Fred Cachola (FC)

Date: June 3, 1999

Place of Interview: Hale Ali`i o`Iolani

Interviewer: Ka`ohulani Mc Guire for Cultural Surveys Hawai`i (CSH)

CSH: Fred, could you give me your full birth name?

FC: My birth name on the birth certificate is Frederico Cachola Jr. Then my grandmother gave me another Hawaiian name when I came back from college. It was Keakaokalani.

CSH: How do you translate the meaning of that?

FC: *In the shadows within the realm of heaven. It's within the realm of heaven or being part of them — being embraced by heaven, in the shadow of heaven.*

CSH: It's a beautiful name.

FC: It is.

CSH: Who were your parents and where were they from?

FC: My mother was Esther `U`u. She was from Maui. My father was Frederico Cachola Sr., and he was from the Philippines. My grandmother (mother's side) was Dora Pi`ohi`a `U`u and my great-grandmother was Mele Pi`ohi`a, and my great-great-grandfather was Pi`ohi`a. My great-grandfather was Lokana Kepani, and then my great-great-great grandfather was from Kohala. That's where I was born and raised. His name was Kupaianalua, and Halulukamanawaululanipili was the wahine (wife). And they would be like my great-great-great-great grandparents. And so my grandmother was saying that since I was born in Kohala, she always chuckled that the line went back to Kohala, because that's where I was born. But, I went to Wai`anae in 1960 when I came out of college. It was my first teaching assignment — at Wai`anae Intermediate. Although, we were housed at the Wai`anae Elementary School campus. And that's where I first became interested in the history of that area. Because being a *malihini* (newcomer) to that area, and having to teach Hawaiian History in the seventh grade, I thought the best thing to do was to learn as much as I can about the history and culture of that area and try to incorporate it into the curriculum as much as I could. But much to my dismay, I quickly found out that most of the children that were in my class, and even their parents, were strangers to that area, too. There were very few people that I would call "natives", really *kama`āina* (people who were born and raised there). But you know, I lived there for over 30 years, in the Wai`anae area and I was very involved in many different kinds of community activities — the Lion's Club, the PTA, the Wai`anae JC's, and the

Wai`anae Community Action Council Program and the Wai`anae Hawaiian Civic Club. So I got to meet some of these folks. It was intriguing because gradually what unfolds is a district that is quickly losing its cultural roots because many of those people who did establish those roots, or had the roots to establish it, are gone. And they are going very quickly. Ah Ching Poe is one of them. His brothers are still around. Genevieve Nahulu, Marie Olsen, Raphael Christ. You know, these are people who knew Nānākuli like nobody else could. I mentioned Jay Landis, Kekahuna. They're all there. Alvin and his brother Blackie Kekauoha — they're all down there. So that's where I learned some of those things that were not written in history books. I don't know if I'm getting ahead of myself here.

CSH: Oh no. That's fine.

FC: That was a long answer to a short [question], "What is your name?" [Laughs.]

CSH: One more thing. When were you born?

FC: I was born in November, 1935 at Kapa`au, Kohala.

CSH: So when you first moved to Wai`anae, what school did you teach at?

FC: Wai`anae Intermediate, which was located at the Elementary campus. That's where I taught, at Wai`anae Intermediate, seventh grade. And, stayed there for seven or eight years, then I became a Vice-Principal at Nānāikapono Elementary, then I became Principal. And then I was a model schools coordinator for the Model Schools Program. And then I left in 1971 to go to Kamehameha as a director of their Community Education Programs. And then I stayed there in that capacity for 25 years. Then I retired a couple of years ago. Now I enjoy taking people on historical tours to Wai`anae and Kohala, and [I'm a] docent at `Iolani Palace. But still very much involved with Hawai`i's history and culture and traditions. I do take a lot of people on tours to Kohala. And I've served on the State Historic Preservation Board, and OHA's Historic Preservation Council. History, for me, is kind of a lifelong interest. I don't consider that as a [separate thing]. It's just part of me. I enjoy learning more and there's always more to learn. Fascinating. Hawai`i's history is fascinating.

CSH: What have you heard about the meaning of "Nānākuli"?

FC: All the meanings are there in the books. But, when I was a principal at Nānāikapono, I was intrigued with the name, "Nānāikapono". And so I asked my secretary, who was living down there for many, many years, Mrs. Brown. I said, "Mrs. Brown, can you tell me about how this school got its name Nānāikapono?" which inadvertently gave me the meaning of Nānākuli. And she said, "Oh, I'll ask Mrs. Eli to come down and talk to you, because she's the old timer here and she knows all what happened here." So, a couple of days later Mrs. Eli walked into my office. I was just a young principal. I was about 30 years old. I was maybe 32, 33

[years old]. And she came in sort of sheepishly and, very respectful, and she sat down in my office and I asked her, "Can you tell me about Nānāikapono?" And she sort of looked around, as if nobody was listening, kind of a thing, you know. I said, "Uh-oh, here comes something that I know is going to be a little different from what I heard." So she said that the first principal of that school was a Reverend Awai and that he knew that the tradition of that area, Nānākuli, had a Hawaiian hidden meaning which she told me was "Nānā-i-ka-ule". I was kind of smiling. And she said, "Yeah, because that's how in the old days this place was known for its promiscuity. It got this name from ancient times. And it might have something to do with the mountain range. Look at your map. Look at your map. The one that you were showing me. Because you can see the *ule* over there. See?"

CSH: This one? I have other O`ahu maps.

FC: Yeah, there it is. See the testicles over here, and the penis sticking out there. So it could be [in] reference to that. If you down in here, you always looking at that. It reminds people of that, so its Nānāikaule, which literally means *looking at a man's testicles, looking at his penis*. And so, Reverend Awai was not gonna let his school be named after something like that. No way! And so he said this is not gonna be called Nānākuli Elementary, no way. So he named the school "Nānāikapono", which of course, means *look to the way of righteousness*, as opposed to Nānāikaule. So I was sort of pleasantly surprised. But to me, Hawaiians have this thing about names. You have to look at names and all of its ramifications and all of its contexts. Of course, the one about looking at the knees, and standing there looking deaf, and all that kind of stuff, which is part of the nice tradition. But all of that might have been camouflage. You know, people don't want to say, "Our place means *looking at a man's penis*." They're not gonna say [that]. They're gonna create other things. And so, I thanked her for that and I shared this with several people too, but I have never seen this written anywhere. I have never seen this written anywhere. I think that's why, Mrs. Brown, my secretary, knew what it was going to be. She didn't want to tell me, so she asked Mrs. Eli to come down and tell me. [Laughs.] And so she did. That's one of the interpretations for the name. And, it's very Hawaiian. To me, it's a very Hawaiian thing, very Hawaiian.

CSH: That's the first time I heard that story.

FC: This is actually Mrs. Eli's story, not mine, and I'm just telling you what she told me. She was a well [spoken with emphasis] respected homesteader. She was down there for many, many years. She was like a matriarch of that community. And there were many others down there too. See, this was like back 30 years ago, 40 years ago.

CSH: What can you tell me about the *menehune* stones?

FC: Up in Nānākuli Avenue, what they call First Road, turn to the right. You see these two stones. They're known as *menehune* stones, they're known as *kahuna* stones. But what is interesting about them is that during the construction of that street,

according to Black Ho`ohuli and others who told me the story about those rocks, they had to realign the street because strange things happened. Like, they couldn't move the big one, and they moved the small one and it came back. The bulldozer workers and the operator and the people who were building down there said, "Man, these are very special stones. We have to move around it." And so you'll see that they're in cement on the side and they haven't been moved. They don't have any labels, they don't have any inscriptions. Except for the few things that I am telling you, I really don't know much more about them. I think it would be really interesting if we could research the City and County construction records for that homestead area when they were putting in that street. And, there might be some other notes in the daily papers about it. Because I'm sure that it may have attracted attention. But on the other hand, it may not have. Because Hawaiians are not the kind to go out and publish these things. They don't go out and say, "Wow, we've got this new *kahuna* stone in Nānākuli. It's on First Road." They don't do that. So, Black Ho`ohuli and I went to visit the stone once, and I just wanted to test it. I said, "You know, Black, one of my *kahuna* friends who I worked with on the restoration of Kū`ioliola, said that if the stone is warm, is hot, it's still *alive*." You know, the *mana* is still there. And, so we went. We said, "Well, let's go check it out." It was evening, and the sun was down. It was not in the mid noon-day. And we put out hand on that small one, it was warm [spoken with emphasis]! He and I said, "Oo, wow!" Now, this stone is still alive, it's got *mana*. And so I haven't gone back to test it yet, but maybe I should one of these days to see if it still has that kind of warmth. It was definitely, between the big one and the small one, the big one didn't have anything, but the small one had definite heat coming out.

CSH: Do you know if the stones have any particular names?

FC: I'm sure they had, but I wouldn't know what they are. I've never heard. I'm sure they would have names.

CSH: And that lot, is that private land?

FC: No, that's all part of Hawaiian Homestead. As a matter of fact, I think another interesting thing to check is the Hawaiian Homes Commission records when they were developing the homesteads there. Whether or not that was mentioned in the lot, that particular lot. It might have been. I don't know.

CSH: Do you know anything about Lyman Ranch at the end of Nānākuli Avenue?

FC: No, that's something new. You know, I worked down there for about 5, 6 years before I went to Kamehameha. I got to know that place very well, but Lyman Ranch was never mentioned down there. Well, that whole area *mauka* of where the highschool is now, that was all *kiawe* (*Prosopis pallida*) and brush. It was all just raw land up there. There was a Nānākuli Ranch. The one that's below, across what is now known as Zablan Beach, right on the Honolulu side of St. Regis church. There was a little Nānākuli Ranch in there. But, Lyman Ranch, never heard of it. So, if it

is indeed a ranch, maybe it's a relatively new acquisition. Maybe a person got a homestead up there. I really don't know. But I think the Hawaiian Homes Commission records should have something on that — if it's a lease. But I know nothing about that. Black Ho`ohuli used to play as a kid. He used to tell me he used to go up there and pick up oranges and fruit. It was his playground up there. So I'm sure he would know. He would know anything about that. He certainly would.

CSH: Can you tell me about Nānākuli High School and how that came to be.

FC: Nānākuli High School. This was the days when the people were in awe of the government and the power of politics, etc. And, Nānākuli Highschool was on the grounds of Nānāikapono Elementary. There's 13 acres in that whole campus, and there were over 2000 students squeezed into 13 acres on a tsunami-zoned beach front. And so it got kind of crowded. The principal of the High School was Ray Miyasato. He said, "We've gotta do something about this." But the government's answer was to put more portables in that small, little 13 acre lot. And so, as part of the Model School's Program we had this community council that we talked to. They volunteered and said, "Maybe we ought to go see the Governor." And we were both young, new principals. It was his first school and it was my first school too. So, we came here, rather nervously, to `Iolani Palace, where the Governor was, his office was right up there in what was the King's bedroom, and has now been restored as the King's bedroom. That was the Governor's office, Governor Burns. We were with some parents and the student body president for the high school. I think he was a sophomore at that time, Leonard Kwan. He is now teaching at Kamehameha. But I remember Leonard saying, "We all made comments about the need for the high school and the need for another campus, and how things are so bad down there, and how that whole community has always been neglected. It seems like nobody even wants to think about the problems down there, or to address the problems." And Ray Miyasato and I made the case that we're doing the very best we could. But Leonard said to the Governor, "You know, in school we've been taught to have faith and trust in government and every time we've been hearing about this high school, we've been hearing about it for years and years, and I don't know if I can believe or have faith in this government anymore." And I am telling you, Governor Burns was stunned. And he looked at Leonard, and said, "Young man, God willing and I am still alive, your high school will be built." And he picked up the phone and called for the DAGS [Department of Accounting and General Services] and right then and there he moved the priority for Nānākuli High from number six to number one. Much to the chagrin of the people of Pearl City, because Pearl City was number one, and they got shoved down. And Nānākuli High was not only moved up to priority number one, but it was one of the rare occasions where the highschool was built at one time. They didn't go in phases, they built everything one crack. They just built as much as they could. And so, Leonard deserves a lot of credit for speaking his piece and the parents, Marie Olsen, Raphael Christ, these are the old timers, Rose Jackman. These were tough ladies, man. I mean, they'd go up against anybody. I find Wai`anae, Nānākuli has that kind of a — if you look deeply into the people, they

may not say much, but when they do, they do it with conviction. They do it with determination. And it was one of those meetings. So, that's how Nānākuli got the high school.

CSH: What year was the school actually built, or when did construction start?

FC: I think we broke ground in 1965. I can't remember now, its been so long. It was such a wonderful occasion, because Ray Miyasato and I wanted everybody to break ground. So we got these big shovels, we had a lot of shovels, and everybody there took turns turning the ground, from students to parents. This was not gonna be just one or two people. We wanted the whole — this was gonna be a community ground breaking. And, everybody went and broke ground. It was a big day for Nānākuli, a great day!

CSH: Tell me about how the local kids call the streets in Nānākuli. They don't use the names on the street signs.

FC: No, they don't. It's easier for them to say First Road, Second Road. "Where do you live?" Third Road, Fourth Road, Fifth Road. It means from Farrington Highway, the first street, the second street from the highway, and that's how the kids call it. I don't know if they still do it today, but that's the way they used to do it. Used to call 'em by numbers, not by names. First Street, Second Street. No, not "street", "road". It was First Road, Second Road. And who knows, maybe that goes back to the days when there were no streets. I've been curious about that too. Maybe when the homesteads were first laid out there were just roads. Maybe that's what they were officially called, First Road, Second Road, Third Road, before the streets were actually put in and given names. And that kind of labeling stuck, First Road, Second Road, Third Road. I'm not sure whether the kids still refer to it like that yet.

CSH: Tell me your interest in Māui and Māui's connection to Nānākuli.

FC: As part of my research down there, of course, I got to the Sites of O`ahu and McAllister and, in there, I think it's site number 148 for the Wai`anae District, he sited this Māui rock. An unusually big boulder or rock said to be where Māui landed. And I was really intrigued because I didn't realize that in other citations McAllister talked about that whole Māui tradition. That's where his brothers were born, and that's where they made fire, that's where his famous hook was made, and that's where they used it at Ulehawa. And I said, "Where is this stone?" There was the little "x" on the map which nobody could [locate] because McAllister's map is notorious. It's just a scratch on the map. You wouldn't know where it's at. So I went to my friend Black. It was early in the evening [and] I was coming back from work at Kamehameha. I stopped by his house and said, "Hey Black, you know this place? Have you ever seen a huge rock that looks so unusual that it looks like it doesn't belong there?" And he thought for a while and says, "Oh, yeah, down by the old haunted house." And I said, "Where?" He said, "Well, come, come, lets go take a look." And so we drove down there, I knew what house he was talking about because

there was this old mansion and this big banyan tree and it was choke with weeds and you couldn't even see the stone. Now I know why nobody could see the stone, because it was sort of like on the side of the house and there was all this underbrush covering it. So, it was early in the evening when we got there and we parked the car. By then it was nightfall already and we started walking to the stone. There was construction going on. They were building these condos down there. And all this construction equipment and materials, lumber, supplies all over the place, and all of a sudden we heard this guy, "Hey, what are you guys doing?" It was the night watchman. So we said, "Oh, we just want to look for this stone, this big rock." And he said, "Oh, you mean Māui Rock?" And [I thought,] eh, how did this guy [know]? He read McAllister or what? And, obviously, this was an elderly *kupuna*, Hawaiian man. And, he said, "Come, come. I show you guys." So he took out his flashlight and we walked maybe about another 20 or 30 yards from where he was parked. And he shone it, and we saw it. He put his light on it. I said, "Oh my God." 'Cause it was huge. It was bigger than a car, and it was really big. You seen it. And there were, on the top of the boulder, were all these tiny, tiny rocks. Small little uprights. There were many there. They were kind of like scattered around the place, on the top [and] which are now gone. I don't know what happened to them. And so, we started talking about it and he said, "Yeah, you know, over here all the night watchmen quit from the company because nobody like work over here." I said, "So, what's the problem?" And he just said one word, "*pō kāne*". I said, "Yeah, *pō kāne*! Wow, you mean the night walkers?" He said, "Yeah, they come from right over here." And he pointed to this small little sapling, this little banyan tree. He said, "They come from over here, then they walk straight down to the beach. And sometimes I park my truck and, whoa, they move 'em up, they move so much I spill my coffee. So I just said, 'Okay, okay, I not scared of them! I swear at them, but I gotta move my truck.' Because he's in the way. So, he said, "Yeah, they come from over here, they go down to the beach." But, he said he was hired in the middle of the night, because the watchman there was the sixth person to quit and they were desperate. I don't know how they got hold of him or if somebody called him, because he wasn't afraid. But all the other night watchmen said in that area strange things happen. Things start flying around, and things start moving. All these unusual events going on and they see things too, so nobody wanted to work there. And then he said, "Eh, you folks wanna see Māui? You like see Māui?" And I said, "You cannot see Maui from here." I thought he meant the island Maui. "How can you see Maui from here?" By then I didn't want to question him. And he said, "Come early tomorrow morning, come just before sunrise when the sun is coming up. I'll show you guys Māui." And I looked at Black, Black look at me and said "OK." So, the next morning, sunrise, I was down at Black's house and we went right back to that site where we met him the night before and he took us to the rock. There were no buildings there then. You could see the whole mountain range very clearly. As the sun was coming up he says, "There's Māui." And I looked up and I was stunned! It was one of those moments. I said, "Wow!" It was this magnificent silhouette of a sleeping man. Huge! I was telling your group, people brag about the sleeping giant on Kaua'i. That sleeping giant is like a *menehune* compared to this one. This is a giant. This is worthy of Māui. And it's Māui sleeping there. And that's why if you

look at McAllister, he said Māui is reposing, the rock that he reposed on, yeah? He rested on this rock. And then I said, "Maybe not, maybe from that rock you can see Māui reposing." From that rock, that rock marks the spot where early in the morning you can see that whole [silhouette of] Māui sleeping. So, who knows whether or not the Māui rock is called Māui because of that or that rock was the place from which you could see most clearly. Because if you go too far to the left or too far to the right, the silhouette changes. You cannot see it. It's right from that rock that you can see it most clearly. It's just outstanding. It's a silhouette of a huge sleeping person, Māui. And, all these mountain ranges are there, but it's a composition of different mountain ranges. But when the sun is coming up, in the back of them, it looks like one silhouette. And it's just beautiful! But when the sun rises, then it disappears. You only see it early in the morning when you see that silhouette. So, we never got that man's name, by the way. And Black never met him. We just said, "Who was this guy?" We don't know. It was one of those things where, darn it! Why didn't I get his name?

CSH: Did you go back and try to find him?

FC: No, we didn't. I guess we were — we're not professional historians and archaeologists — we just *nāle* [curious]. We just wanted to know. He wanted to know, too. He had lived there all his life and he didn't know about that. Black didn't know about that, which told me that the whole Māui thing as annotated and as documented in McAllister is relatively unknown, even to the people who were born and raised there. Now why is that? There might be many reasons. Maybe the person who owned that property there just didn't want anybody to know about this [and] just let the whole thing die. But, that silhouette is still there. It will be there for eternity, unless somebody levels that whole mountain range.

CSH: Can you still get a good view of it from the rock today or are there buildings in the way?

FC: No. There's buildings in the way, there's trees in the way. And so to get kind of a glimpse at it you have to either go in front of those buildings or go way across the road to the beach and then you can still see it. You can see over the buildings.

CSH: How many mountain ranges or ridges do you think it's comprised of?

FC: It's comprised of Pu`u Heleakalā, Hālonā Ridge — it's about four or five mountain ridges there. It's composed of Pu`u Heleakalā, which is the body. And then the foot is down here by Kahe. The chest, the abdomen is up in here at Pu`u Heleakalā, and over here is the Pāhoa Cliffs, Hālonā Ridge, all this is part of it. And maybe even some of this over here — Pali Kea. No, I doubt it. No, because that's on the back side. So it's mostly Pu`u Heleakalā, Hālonā Ridge and the Pāhoa Cliffs. These three, especially those. They're the ones that make up the silhouette. And from that Māui rock, boy, I'm telling you, I wish sometimes I had taken a picture before those buildings went up, because you cannot do it now, not from the rock. But, maybe you

can go from behind those buildings. I don't know what's behind those condos. Maybe you can still see it. But from the rock, you cannot see it. But, boy, it was really awesome! When I saw that I said, "Oh, wow!" And then I said, this is the whole Māui legend and then you dig into McAllister and you find out Ulehawa Stream is the stream where [Māui was born] and the cave, the famous cave up at Pu`u Heleakalā where she [Māui's mother] made *kapa* overlooking the stream down there. And that's where all his brother's were born and the hook, and that's where they tried — they rowed out in their canoes out at Ulehawa to join up the islands. All these legends come from down there and I said, "Jeez, you know, Māui, the Hawaiian Superman is from Ulehawa. He's from Nānākuli. He's from Wai`anae." And Pu`u Heleakalā, according to Kawena Pukui, Heleakalā means *the snaring of the sun*. But it could also mean *the scattering of the sun rays* — *hele* (to go, move, cause motion). Hele-a-ka-lā. *Hele* means "to snare", "snare the sun". And so, I think people on Maui made up their myths about [Māui] because the island is called Maui, and Haleakalā, "house of the sun" and about Māui capturing the sun over there. And I said, "Well, I don't know. Maybe he captured the sun down here at Ulehawa, not at Haleakalā. Maybe he captured the sun from the top of that *pu`u*, Heleakalā. That's where he did it." So, we might have to challenge some myth making up on the island of Maui. But, I would encourage you to write up as much as you can about that, because Ulehawa was where he was born. That's where he came [from]. That was his home. That was his place. So, it's really interesting that very few people know about that. So every time I drive by every once in a while, early in the morning, I say, "Yeah, there's Māui. He's still there." I've taken some Wai`anae students [there to see Māui], and I think they took some photographs of it, too. But, to me, the more people that know about it, the better it is. Those traditions will go on forever. But if we don't share them, it won't.

CSH: Have you heard any other stories about Nānākuli during the time that you lived there, or just from talking to people?

FC: There's a lot of historic places up in Lualualei. And because it was a naval ammunition depot, it was *kapu* for civilians. A lot of those sites are still there and I'd really like to go and see them. According to McAllister, there's different battles that occurred down there. And one of the *heiau* is associated with Kākuhihewa. Kākuhihewa is — who knows — that was back in the 12th century, maybe. Way back. So the whole district really needs to be looked at very carefully. Maybe yours can be one of the first chapters about the history of that district. It deserves to be written. It deserves to be said. No, I really don't know much more than what I shared with you.

CSH: Have you looked at any sites in your exploring?

FC: Down in Wai`anae, yeah. Eric Komori, who's the State archaeologist and my daughter, who is studying archaeology. I took them to what I thought was a *hādua* slide on Pu`u Pāhe`ehe`e out in Wai`anae and they confirmed that it was.

CSH: What year was that?

FC: They did a mapping of the slide. [I] forget when it was now. This was maybe about six years ago. But finding that *hāua* — Ted Kinney and I, when we were restoring Kūʻilihoa *heiau* — we noted that there were other *heiau* up in Puʻu Pāheʻeheʻe. There was a Pāheʻeheʻe *heiau*. And so we were going to look for it, and we kind of found where it was. And we started looking around on the hills up there and all of a sudden we saw this — it looked like a low stone wall from one side, but when you go on the other side it becomes very obvious that it's a *hāua* slide. So, we got pretty excited, took some pictures. I'm glad the archaeologist came and verified it. But, it's one of the few that I know of on Oʻahu. And it's out there, still there. It's on the ridge, and that's why "Pāheʻeheʻe" makes sense. You know, the slippery sliding. So, to me, place names can tell you a hell of a lot, if you know the context in which it was given. So, I hope you can dig out some more information in your interviews, and if you can talk to these other folks. It would be nice.

CSH: Can you think of any other people in Nānākuli that I could talk to who would be knowledgeable about the area?

FC: Charles Naone and Solomon Naone. Did I mention Alvin Kekauoha?

CSH: Yes, you did. Alvin and Blackie.

FC: I think Blackie passed away, you know. I don't know if Alvin is still around. I think Raphael Criste is still around. I saw him a couple of years ago and he really has aged. Ah Ching Poe.

CSH: Is he related to Sonny Poe?

FC: Yeah, that's his father. Sonny is Ah Ching Jr. He was in my class too. He was in one of my classes in Waiʻanae. They are old timers up from Waiʻanae Valley. You know Sonny, Ah Ching? Maybe I'm the only guy that calls him Ah Ching, I don't know. But when he was in my class he was "Ah Ching". I think he was one year before Henry.

CSH: Anyone else you can think of?

FC: Not right now.

CSH: Okay. What about Ulehawa side? Do you know any history or any stories about that area?

FC: No, except the Māui one. No, I really don't, I really don't.

CSH: Have you heard about any Hawaiian villages being on the beach there?

FC: Nope. No, I really don't know. I think that you have to go beyond — before the homestead. Those are the *kūpuna* that are gone. It's so sad because you just can't find 'em anymore. Even a lot of the names that I'm giving you, they weren't born and raised there before the homestead. I'm talking pre-homestead now.

CSH: Which was like pre-1930's?

FC: Yeah. Like Ah Ching, his family has been there, and the Pililā`aus. Oh, James Pililā`au, that's another name. He's from Wai`anae. And his wife Agnes Pililā`au. See, these Pililā`aus, and the Ah Ching folks were there before the homesteads were there. That's the kind of people I'm talking about. And, who knows of families that were living in Wai`anae, Nānākuli before the homestead? I don't know. Maybe Jay Landis would know. Jay Landis would know. Well, it's been nice chatting with you.

CSH: Thank you so much.

(Interview ends and we're just sitting around talking story.)

FC: There was a period when I was going all over the place looking for these historic sites. I mean, they were there in McAllister, but his map was so rough that you couldn't find them by looking at the map. But he gave you a clue to where they were. And so there was one in particular, there was one entry that intrigued me. It said Punanaula *heiau*, Kūmaipō, Wai`anae. Then in parentheses "still exists?". I said, "Yeah, well let's go find 'em. Does it still exist?" And so, my friends and I walked up there, hiked up in that area and we could not find it. Looking at a map is one thing. Going up in the actual terrain, you see gullies and gulches and big trees. You cannot see [if you're] looking for a *heiau*. So, I noticed that there was a Bishop Museum negative number on that entry in McAllister. It said "BM number something". I said, "Oh, this is a Bishop Museum negative." And so I went down there and Marion Kelly, bless her heart, I got to talk to her and meet her. I told her what I was trying to do. And she said, "Yeah, I can get this photograph for you." And so she did. And now we were armed with a photograph. But we took the first one up there, and fortunately the photographer who took the picture of the *heiau* was shooting from *mauka - makai*, towards the ocean. He had this old Hawaiian man standing on a corner, and he was on the other corner and he was shooting along the front line. So, you could see the horizon and you could see where the horizon intersected with the mountain ranges, like Pu`u Pāhe`ehe`e. And so I said, all we got to do is follow, go up where we can see the same intersecting of the horizon and those lands 'cause the horizon hasn't changed and some of those *pu`us* haven't changed. They're still there. But the outline was so faint. So I called Marion and said, "Marion, can you give me another one? I need the horizon darker. I need to see the horizon." So she did. She made another one. We used that. And after about four or five trips up in Kūmaipō we found 'em. It was exciting! I said, "Wow, there it is! There it is!" It was really exciting! We were there. Now, I had a picture. And I'm standing on there and I look up there and I said, "Yep, the same silhouette. The same horizon and the mountains all intersecting. This is it, man, this is real proof. This is it." And so, in

the original picture from the Bishop Museum there was this Hawaiian man standing and the photographer was there and there was a bit of cactus where he was in the foreground. So, I put one of my friend's kids to stand on the same spot. So I went back so I could take the picture just about where the same place where that photographer stood many, many years ago. And just before I took the picture I looked down and there was this cactus stump, it was still there, this dried-up cactus stump. And I said, "Wow!" So I took the picture. And it showed — he was standing on the same spot. And to me that was really exciting because now we proved that it was there. And, in *Sites of O`ahu*, do you have one? Is this the latest edition. Try take a look, does it still say "still exists?" They should have taken that out. It does exist. And I told Dr. Emory and I showed him my photographs. Did they take it out? [Looking through *Sites of O`ahu*] See? It does [spoken with emphasis] exist! They should take that out!

CSH: They didn't take it out.

FC: They didn't take it out, and I showed 'em my photographs and all that. Maybe I gotta go back again and show them all this stuff. I drew it, I mapped it. But you know, during the restoration of Kū`iliioa, the reason why I went to look for this *heiau* is that this *kahuna* told me that Kū`iliioa is like the central command for all the *heiau* in the area. Because of that, the restoration work gotta include reconnecting with those *heiau*. And even that is another story.

CSH: I'd like to hear that.

FC: Maybe some other time, 'cause I gotta go.

CSH: Okay. Thank-you very much for your time.

[End of interview.]

APPENDIX B: Transcripts of Interview with Black Ho`ohuli

Interview: Black Ho`ohuli (BH)

Date: June 28, 1999

Place of Interview: Nānākuli

Interviewer: Ka`ohulani Mc Guire for Cultural Surveys Hawai`i (CSH)

CSH: Can you tell me your full name and give me some background about yourself?

BH: How about "Black"?

CSH: Is that your nickname?

BH: My name is Josiah L. Ho`ohuli. [I was] born in Wai`anae, raised in Nānākuli, December 30, 1938. Went to school in Nānākuli. Attended Waipahu High, [but] did not graduate. [I] went into the United States Marine Corps. Got out, finished school at Nānākuli High — GED.

CSH: So how old were you when you came to Nānākuli? You came right after you were born?

BH: Raised here. Yeah.

CSH: So, the homestead was here already when you came?

BH: Uh huh.

CSH: But that was still the early years of the homestead?

BH: I think the homestead here opened up in 1930.

CSH: What was the homestead area like when you were growing up here?

BH: Not like now. Everybody had half an acre, I think. Some places was a little bigger. I guess it depends on the way the property was. Some was bigger.

CSH: And what was the vegetation like in the area? The trees, the plants?

BH: Oh, all *kiawe* (*Prosopis pallida*), all *kiawe*. I remember to get our yard clean, we had to chop down *kiawe* and the stumps. I remember us in tents.

CSH: Before your house was built?

BH: Yeah. I think my dad's first place was on Manu Street. And what I remember was, when we moved to the highway and that's when I know we were kind of cleaning our yards. And I only seen a picture of my dad's first place.

CSH: So this lot where you're living now is not your original lot?

BH: No. This was my uncle's place and for some reason he just didn't want to stay in the house, I guess, so I asked him if I could take care of the place for him. So while I was taking care of it, I guess he see that I was doing a good job and he gave it to me.

CSH: And back then, did you have water?

BH: We had to go to the park and get water. Water was kind of scarce down here.

CSH: Which park?

BH: Nānākuli Park. Actually the park name is "Kalaniana'ole Park".

CSH: Right down here, yeah.

BH: Everybody knows that park as "Nānākuli Park".

CSH: So you had no running water, or had a little bit? Just drinking water?

BH: We had. Yeah, it was very, very little. If down neighbors using the water, we had to kind of wait so we get the pressure. It wasn't easy. I don't know, for some reason, I miss that. Because, I guess, today it's so easy, it's wasteful. I notice the way everybody lives today, to me, its wasteful. I don't mind going back in the bushes and live.

CSH: I wanted to know what you know about the *makai* area of Nānākuli and anything else you are willing to share with me. Well, let's do that for starters.

BH: Like I say, Ulehawa is out of my district. Not much to talk about. Good fishing grounds. In our time, it was a real good fishing ground. Lot of squid, right outside Ulehawa. It was good squid ground. But other than that, Ulehawa wasn't my district.

CSH: You said that Ulehawa was good squid grounds?

BH: Yeah.

CSH: Which part of Ulehawa?

BH: Right outside the canal.

CSH: By the drainage?

BH: Yeah. All that side straight out going towards Wai`anae. That's where all the reef is. You go towards the left, it's mostly all sand. Good for trolling, I mean, not trolling, but casting. Lot of people cast out there.

CSH: So, if people are going to fish, that's the area they would go to along Ulehawa, more that side?

BH: Yeah.

CSH: What about *limu* [edible seaweed]?

BH: *Limu*, they had *limu* out there. We used to get our *limu kala* [*Sargassum echinocarpum*] from there. Lot of *limu kala*, some *līpoa* [*Dictyopteris plagiogramma*]. *Limu kohu* [*Asparagopsis taxiformis*], you gotta know the spots. If you don't, you're not gonna get it. And the best time to go get *limu* is right after the good rough, when the water is rough. Nobody's down the water. And maybe right after that, the rough, right after that, everybody is on the water, so you gotta be there, too to get some. But, like today, I don't know, for some reason, a lot of the *limus* are disappearing. I don't know if it's chemicals in the water, or — couldn't be too much people, because today I don't think there's enough Hawaiians to clean it out. 'Cause not too much of them even remember the type of *limus* out there. Only the regular families that lived in the area know.

CSH: Have you heard any stories about Ulehawa area?

BH: No, just that that's where Māui was born, and the Māui rock that is there, which is connected to Pu`u Haleakala [Heleakalā]. That's why one side of Pu`u Haleakala [Heleakalā] is barren. Because of the sun. Well, actually, the sunset, yeah. But they say that when Māui's mom felt that the sun was going too fast to dry her *kapa*, he held the sun. Held it enough to burn that whole side of Pu`u Haleakala [Heleakalā]. That's why it's barren. But when you look at it, that's how the sun sets. Like right now, that's the only way the sun is hitting, right there.

CSH: 'Cause Palikea is the other side, yeah?

BH: Yeah, Palikea is on this side. Palikea, Palikapu, then I think we get — I know we get one more in there. Pālehua.

CSH: Now, how did you know about the Māui rock? When did you first hear about it?

BH: I didn't know that was Māui's rock until they tried to develop.

CSH: Garden Grove?

BH: Uh huh. But I knew about the rock. The only thing that I knew about the rock was the rock had a lot of *mana* [energy], you know. In what way? We didn't know. I didn't know. And, the old people that was staying there — it was very — that whole area was always dry, grassy. You couldn't go in there without the old man's permission. My parents used to go in there so I used to ride on the car. I used to see the rock, you know. But I didn't know anything about it. But, after they tried to start developing it, the first owners, and then after that they started to tell the history about that rock. That's about all I know about it. But I always made it a point that whenever I get guests from any place on the Pacific, I always take them there because every Pacific Islander has Māui. I make sure that they understand where I coming from. Some of them claim Māui is theirs. Maybe this must be the brother or the cousin or something. With these guys [referring to a Maori group he is hosting], I've taken them. I've taken all the Maori there.

CSH: Can you tell me the story about the Māui Rock?

BH: No. That's about it that I know of, besides all the stories they got on the Rock. And, who wrote all those things? I wouldn't know who did that. 'Cause like I said, when I knew the rock, there wasn't anything on the rock.

CSH: Oh, the other *pōhaku* [stones], and stuff. Is that what you're talking about?

BH: No. The whole rock was one when I knew the rock. It was one piece. But for some reason, within the past ten, fifteen years, it just open up.

CSH: Do you think it's because of the roots? There's plants growing all over it.

BH: Could be, could be. Maybe it's not well taken cared of, that's why. Maybe it's not natural, I don't know. But, when I remember the rock, it was one piece.

CSH: So the split occurred in the last ten, fifteen years?

BH: I see it that way. And it looks like it's getting wider. It looks like it's really getting wider. The only thing next to that is the quarry. You know where Princess Kahanu is? That's the quarry. See, I used to work in there. And that is why I know the ocean must have been all the way in the valley. 'Cause if you go in there now, all on the side of the houses where the cliffs are, you can see all the fossils. There's a lot of fossils in there.

CSH: On the side of the cliff?

BH: Yeah. That's how I — when Fred was a teacher at Wai`anae, we were drinking, talking about things like that. And I told him, "Eh, come to my job." I used to work there as a truck driver. I was telling him about all the different types of fossils. You

know, right down the wall. They were all — and get some of the stuffs still today, but way down deep, eh. I know there were — I think they found a couple of bones in there, so we don't know how long, you know. I think that was about 1970.

CSH: When you say, "in there", what do you mean?

BH: In the quarry.

CSH: In the quarry area?

BH: I know they found a couple bones in there. I'm not sure if they said it was old or new, but I know they found some.

CSH: Have you heard of any burials on the beach side?

BH: No. Haven't heard anything like that on the beach side.

CSH: What about a possible old habitation site? Or old village, Hawaiian village on the coast, the Ulehawa coast?

BH: No. Not that I know of. Actually, I think, all the way from here, I don't think they had [burials]. Maybe way before our time. But, I didn't hear anything like that. Actually, the beach wasn't like that anyway. The sand dunes was higher. They were heavy with *kiawe* trees, all on the beach.

CSH: Could you see through the *kiawe* trees and see the ocean then?

BH: No, you got to get over them.

CSH: Over the top?

BH: All the way. All the way down to Mā`ili was always like that. And for us, before we used to go and camp. Was real good. But you're camping all in the *kiawes*.

CSH: And what about the [19]46 tidal wave? Did that change the coast or the beach line at all?

BH: No. I think the worst that was hit is Wai`anae, Pōka`i Bay. I don't think that [Ulehawa] side got damaged. No, no damages right up to Nānākuli Park, on this side. Not that bad, but it came on the road.

CSH: So, when did the dunes change? About when? They must have cut down the trees then. You said had all *kiawe* trees, the sand dunes.

BH: Actually, the worst one that really knocked down everything was Hurricane `Iwa. Hurricane `Iwa cleaned it out. It pushed everything almost level with the beach. It

just came right across the road. I think that was the worst. But anyway, that was something. That was the first time in my lifetime that sand ever come across the road. No matter how big the waves was, it wouldn't come across. But, other than that, I don't remember anything on the beach. All I know it was a good place to camp. Fish — there was plenty fish. People can go dive, enough to eat. Not today.

CSH: What kind fish you used to catch over there?

BH: Oh, just about any fish they wanna eat. Not today. I guess, when they came out with all this Cloroxing things, spoil the holes, they use tanks now. It's not like before. You dive to your limits. Today, you can dive and talk story with the fish for a while and kill 'em.

CSH: And what about the war years? Were you here during the war years?

BH: I remember the war, but we were limited, too. Can't be outside. I remember everything on the housing. We used to close up all the windows with these Army blankets. Black-outs. I guess that's what they call "Black-out".

CSH: Cannot have the lights showing.

BH: Yeah. I mean the whole valley, I remember all the Armies, they just park in your yard if they wanted to. All the big tanks going around.

CSH: And what about the bunkers down on the beach?

BH: I remember those. I even remember the whole beach barbed-wired.

CSH: Oh, from where to where?

BH: All the way down to Mākua. Where you can go is barbed-wires. I remember all those. I remember all the ships outside there.

CSH: So, Ulehawa beach had barbed-wire down it?

BH: All the way. Every beach had barbed-wire. 'Cause Mā`ili Point was two guns over there, too. Where they had 'em on the hill. If you look up where the civil defense sign is?

CSH: Yeah, there's a pill-box up there.

BH: Oh, that's two, two big guns.

CSH: And what about the pill-boxes on the beach? When did they use that?

BH: Those, I think, were machine guns. I think they got one in the front of Faststop. I think they still got one. One at Ulehawa, I think, get one more, canal. And right on Pōhakunui got one. Mā`ili, I think, right where the park's gonna end. Right where the *haole* housing. I think right there.

CSH: The *haole* housing?

BH: Yeah. Where *Presidente* Henry Peters lived. They got one there. I know there's one there.

CSH: And what about Nānākuli side? What have you heard about the two stones on First Road?

BH: You heard that one too, eh?

CSH: I've heard some different things about it, so I wanted to know what you heard about it.

BH: Tell me about it and I'm gonna tell you something.

CSH: No, I want to know what you heard, first.

BH: No, you gotta tell me yours [we laugh]. Because I gotta know who telling you stories. If was Fred? Fred gotta tell you what I told him. See, I told Fred.

CSH: Well, he told me a story but, then, also Lehua Kapaku told me a story that was a little different.

BH: Like what?

CSH: That it was a brother and the sister. That they're buried there and that they're related to the same family that owns the lot now.

BH: George Kea, I think. He just died. I think it's Kea. Something like that.

CSH: I wanna know what you heard about it.

BH: And that's all they said?

CSH: She didn't know too much about it really. That's just kind of what she heard. And she just said — 'cause Fred called it the *menehune* stones — and so I asked her if she heard that. She goes, "Oh, yeah". But she didn't really know the story of why it was called that.

BH: Okay, I will give you my side of the story. The story of the rock is not because it's two sisters or brother and sister or, I don't know. The story of the rock is when they

moved it, it got back. That's the story of the rock. When they built this homestead, that's when they made each road. Now, the people that moved the rock was plantation people. What is his name now? Not Willie. Bolo. Henry, all I know Henry is by Bolo Kekauoha. Now he was the working foreman at that time.

CSH: For which sugar company?

BH: Wai`anae.

CSH: Wai`anae Sugar Company.

BH: And I don't know if it was — I forget the name — anyway, he was the foreman and, see, I'm getting the story from him. How he did when he had to cut the road. So, what they did, they felt the road wasn't that big, so they didn't want to use the big bulldozer to push that rock away. What they did was they harnessed a jackass, and they had two jackasses pull 'em across. And the way they pulled is down to the end of the road, on the side.

CSH: Oh, from the beginning of the road to the end?

BH: Right. Now, where the rock is to the end of the road down by the bush.

CSH: Oh, yeah.

BH: Now, before, if you look the road going up the Ranch from the highway. It wasn't there. It used to be from there. To drive in the Ranch, you come in that way, you go into the Ranch. Until they made the train. When the train came in.

CSH: Nānākuli Ranch?

BH: Yeah. So, when the train came in, then they opened that road over there. But the whole story was, when he moved that rock, he had two Filipino old men tie up the rock and moved it. The next morning they came back, the rock was back there. Now they saying, "Wait a minute, you cannot just move rocks like that." So, I think they moved it again. When they came back, the Filipinos said they ain't movin' 'em again. So they went and get the tractor, to push it with the tractor. Came back, they left it there. And they said they would not touch that stone no more. So they had to build that road a little farther, going around. Now, 1974, I think, you can check with Hawaiian Homes, when they went build the roads. I think it was [19]74, maybe [19]73, they was gonna build this road. See the road now? Make sidewalks, make driveways. And they started off from there. So, they had a Euclid bulldozer, that's equivalent to a D-9. They had that [spoken with emphasis] to move the rock. They couldn't [emphasized] move the rock. What happened was, that machine break down. Major break down! Major [emphasized]! And they just couldn't understand a big machine like that went go fool around with this rock and when they came back, it broke right there. Then the people on the road started to tell the contractor that you

cannot touch that rock. So, I guess that's when sisters, or lovers or whatever came out. But already we [emphasized] knew that you move the rock, the rock came back. So, don't touch it already. And I think for some reason the company and the bosses agreed that they'll do something and make a big *lū'au* for the whole road, for the people to come. And the job went on fine [emphasized], and that's when they left it there. And they cement 'em around 'em that thing now.

CSH: How did the name "*menehune*" become attached to it?

BH: Now, that I don't know.

CSH: What does everyone in the neighborhood call the rocks?

BH: I really don't know. That's what I am saying.

CSH: Everybody make their own story?

BH: Must be. See, my thing about the stone is, the *kaona* behind my story, the *kaona* behind that is they moved it and it came back. Now, I'm not going to worry about who is that. Is that the family's *'aumakua*. My concern is, the *kaona* is you moved it, it came back. Who brought it back? That's my story. I no need dig no more. It's telling me something. Leave me alone, I've been here for — maybe, maybe it is somebody's family. I don't know. Just like the rock Māui, you know. You get one scratch paper?

CSH: Yeah. You can draw it on here.

BH: This is Farrington Highway, you going inside like this. When you go in like this, okay, like this is all the parking lot, yeah. Come like that, something like that. Over here is the rock. Over here is the tree. Now, for some reason, when they were building this over here, developing over here, for some reason — now, you want good stories, you go back find out who was the developers, who were the contractors. And you find out who were the guards over there. All the guards who guard over there. Go up to the last guard, now. The thing I am getting from everybody, the guards especially, is the *mana* is in the tree, now. Because, while they were building — that's why I say you got to talk to all the general contractors — now, this is how the story is. They find their machines on the beach. Yeah, they call the cops, they try and find out [the] fingerprints, who's taking 'em.

BH: It ends up half of the buildings are all built, it ends up all in the building. All the machines. Now, the security guards are panicking because even them is getting the vibe to quit the job, to leave the place. And that's why I say, you gotta get the story from them. See, they only telling me what's happening. I don't wanna talk for them. But, what I am telling you is that's what is happening over there at that time. In other words, I would think the *mana* is all in the stone, but when they put the dogs, and tie 'em up by the tree, the dog cannot handle it. So you know darn well the

mana is in the tree. But you can talk to all the guards, that's the best. Gee, I don't know if they are still living, but check with Albert Silva. Did you hear of him, Albert Silva?

CSH: I've heard of other Silvas but maybe not that one. Albert Silva?

BH: Well, it was his brother, I think. His brother or his uncle was one of the guards. But they had to go get this kind of people because they used to with that. But, they had all kind of different guards over there and they just couldn't handle it. Now, if you can talk to them, you going know why, but that's what I'm telling you. So, down here, that's why I said this rock over here, the *kaona* to the rock is they went move 'em and it came back. That's the same story they said up in Kolekole Pass. Well, Kolekole Pass is like this, but the road was coming up here, to come down. But when they came up here, had one big rock too. They pushed the rock off. The next morning the rock was back. They get one other operator, asked him [to] push the rock over. The Hawaiian guy that pushed it first, he said "No, he had to quit his job." One other operator went push 'em. He went push him [and] he died. So, you know what I mean, everybody looks back "Hey, that rock is still there." So, today that rock is still there. But, the way the rock is, the rock is just like this. And that's just something like that, the rock is. It has a bowl on it. And everybody is saying this is where they bust the guy's head, you know. I don't know. For me, I don't know, but I'm not gonna go argue. You know, one time they tell me they went push the rock over, that's why they had to reroute the road. Eh, if the *haole* went reroute the road because of that, that tells you something, you know. I don't wanna argue with them guys because I respect anything I go through, you know.

CSH: Do you know anything else about the Māui legends and how they're related to this area, the Ulehawa area?

BH: I tell you true fact, like I said, I only knew the rock. I never know anything about that rock until 'til them guys went start developing 'em and they went put 'em on top there and they said this is Māui's Rock. I said, "I wish I knew that when I was small kid because we used to play around that rock." But I didn't know the *kaona* on 'em.

CSH: When you were small did it have — you know in Sites of O`ahu, it says that there used to be smaller rocks — like people would leave rocks there?

BH: I've seen that.

CSH: So that was when you were small?

BH: Yep, I've seen that.

CSH: But, then what happened to those rocks?

BH: I really don't know.

CSH: They're not there now.

BH: No, before the rock cracked. Before the rock cracked, I seen all those rocks just like *tikis*. Just like *tikis*, was all on top there.

CSH: Piled? Stones piled one on top of the other, or one single rock?

BH: No, one single rock, look like *tikis*. Look like small figures. Look like was all on top the rock. I don't know if somebody's putting 'em, but I've seen it. I ain't going tell everybody 'cause everybody going say, "Whoa, this guy he's punchy or what." That's why I say, when I talk something, I've been there, or I've seen it. I even can say when I feel 'em. But I don't need anybody telling me that — see, when somebody tell me about something else I just say, "No, no. You go right ahead and you tell what you know, 'cause I only gonna say what I know."

CSH: Let me show you the map of the project area in Nānākuli.

BH: This is Nānākuli Avenue?

CSH: Right here.

BH: This the Ranch.

CSH: Lyman Ranch is here. So, it looks like they're going get to it from here. And then make the access road from there. From here, the end of the street to there.

BH: You know if they got a EPS on this?

CSH: No, I don't.

BH: I wonder why they putting a reservoir in there? Let me see that again.

CSH: It's two streets before the end.

BH: Right.

CSH: I think it might be actually on Lyman Ranch property, but I'm not sure. I haven't researched that part yet.

BH: Lyman go like this. Regardless, like that is still Lyman's. This side is Nānākuli Ranch.

CSH: So, what do you think? Do you know anything about that area?

BH: No.

CSH: Did you used to play up there when you were little, maybe?

BH: Oh yeah. I play up all over this place. But the thing is, it was just bushes. But, right now, right here, must be on the flats.

CSH: Yeah, it looks pretty level there.

BH: 'Cause, you see, there's a big [emphasized] gully coming around like this. A big [emphasized] gully. I don't know if it hit this inside here or go around.

CSH: Yeah, I haven't been up there to look around. I'm gonna have to do that one day this week. But you're familiar with the area, you think? Or not sure until you go up there?

BH: All bushes, that's all it is. All bushes.

CSH: Do you recall seeing any stone walls or any stone structures up there?

BH: No, because if this is where I think, when the water went rain, the water just come down. 'Cause this is all in the ditch already. In the ditch.

CSH: Do you know anyone who might go up there for any reason, whatsoever? Like hunting or —

BH: There's nothing to hunt here anyway. It's just some pass through to get out.

CSH: To get to the better areas?

BH: Yeah. That's all it is. But the hunters, they get their own trails already. They try not to work too hard before they get to the pig [laughs]. No, not much. You don't have it — because right now I tell you there's a big [emphasized] river come down here. A big dry river come down. Did you talk to Lyman?

CSH: No, I haven't talked to them yet. I'm gonna give them a call tomorrow.

BH: Yeah, talk to him. If you see him, maybe he would even take you up there. Take you all inside [there]. He would have more to say because he's been in there quite some time already and he's been all over, all over in there. I have a worker that works for me. He hunts in there. He's come across a lot of things.

CSH: So, do you think he knows this area?

BH: No. I don't know, but like I say, it's just a passing through. If there's anything over there, it must be broken already. If the water running through there it's all broke. All the big boulders just going roll right in there.

CSH: When was the last time the water — that it has rained really hard like that?

BH: Oh, the last time, the last rain — three years, two years. But, regardless, as long it's a big rain, it runs. Because all the water going gather, going come all — once it starts hitting here, this is the main one. It comes around and it comes down.

CSH: So, you don't think that there's anything in the area that would pertain to cultural use of the area then?

BH: I don't think so.

CSH: Burials?

BH: No. Burials should all be down here, and all up here. [He indicated areas outside of the project area.]

CSH: Old Hawaiian trails? Or gathering of any kind?

BH: Hawaiian trails. I don't know about Hawaiian trails, like I say. Maybe the cows make their own trails already. So you doing the research on it for these guys too, then?

CSH: Yeah.

BH: What's that *haole's* name doing all the homesteads up here? I forget his name, now. He does all the archaeology for homestead

CSH: Ross Cordy? He works with Lehua [Kapaku]. They are on the same Association.

BH: Because he's on that other board with, he's on the Ukanipō *heiau* [Site 181] one, too. And he's been there with us all the time too.

CSH: So when you were a little boy and you used to play up *mauka*, where did you used play? What side you used to hang out down here? The other side of the gully? Or in the gully?

BH: Well, the only time we used to go this side is when we go get pear [alligator pear or avocado]. That's the only time. But this side was our area. All down here.

CSH: So, you don't know of any sites in the area, or anything like that?

BH: No, the only ones I've heard about is the ones they've picked up here, the housing, but, I don't think it was any *heiau*.

CSH: Have you heard of the *`āweoweo* stone?

BH: No. See, when I hear stories in our area, I gotta find out who started the story and who they got the story from. 'Cause if the story is coming from outside, I'm not going to listen to them. A lot of Nānākuli people, they know their thing down here. And when you hear all kine new things, me, I question them. Where you got it from? Who told you that? Something new to me.

CSH: What about the *menehune* tree?

BH: Even that, from where?

CSH: Well, do you even know about it, or it is something that only the kids talk story about?

BH: I don't know but, tell me where now.

CSH: I haven't actually looked for it, but I think it's supposed to be, like, when you come around this corner, a big *kiawe* tree on the beach side, I think.

BH: "Menehune" tree?

CSH: Yeah.

BH: In Nānākuli?

CSH: I think so.

BH: Let me give you one other drawing. I don't know where. I don't know what these guys talking, "*menehune* tree". Let's see. This is where the 4-X station is. You know where the 4-X station? This is the bridge, Nānākuli bridge comes down. Now you get driveway here. This is two driveways. Here, something like that. Now, I don't know where your tree is at. Is it up this side or this side?

CSH: I'm not sure. I've only heard one person talk about it and I gotta go back to talk with him again. I haven't interviewed him yet. He just mentioned it, that there's a *menehune* tree in Nānākuli. And then I was curious because people refer to the *menehune* rocks, you know, the stones down on First Road.

BH: No, never did hear about *menehune* rocks or *menehune* tree. The only thing I know is the night marchers, the night walkers, this is their area coming up this way. All down this way. This is the area of the night walkers, because these are the homes that always, today, I no call that the vibes. I tell them guys, you guys lucky that only you folks can communicate with these people. Before, everybody get scared. Was over here [near Hakimo Road, outside of the project area]. And another one is up here, when you coming inside Nānākuli —

CSH: When you're coming inside where?

BH: When you're coming in Nānākuli, there's couple more houses here. This is coming down Nānākuli. See, you come down the hill, you turn, you go inside Pōhākunui, eh. It's the park over here. Now these houses — there is one house over here. The house is Kekahuna. That house is said to be built right on the trail. Certain nights the family used to move the furnitures and then let them walk through, they just go, they walk right through. See, that person used to be one of my workers. While I knew about this during those days, you know, I knew about that during those days.

CSH: So about here, the house?

BH: Maybe this one.

CSH: This one?

BH: Yeah, Kekahuna. Ke-ka-hu-na.

CSH: Over here was — this middle part here?

BH: One, two, three. Actually, all these people feel 'em, but this house was the most. They always said they used to walk down. This is how they said this was their trail to go to the beach.

CSH: This one here?

BH: Yeah. Enos is the name.

CSH: Enos?

BH: Enos.

CSH: And this is where? This is the 4-X station?

BH: Right. Right there.

CSH: How do you spell that?

BH: 4-X

CSH: 4-X

BH: Yeah, 4-X. That's Navy talk. Something to do with, I don't know what the hell is a 4-X. 4-X is supposed to be something like "Federal Reserve" or something. Anyway, put down Zablan — that's the park right here, eh. Main thing, I don't know what stream is this, now. There's a name on that bridge. And this Nānākuli Ranch, yeah.

CSH: Not Nānākuli Stream?

BH: Yeah, could be.

CSH: 'Cause there's only Nānākuli Stream and Ulehawa Stream. The only two.

BH: I guess so.

CSH: So the Nānākuli Stream is — or whatever that stream is— you talking about the stream right down here?

BH: Yeah. Let's see if we can find 'em [looking at map].

CSH: Is it on here?

BH: Should be. It's right about here. Yeah, right here. But no name. This is it, coming down.

CSH: Oh, it's only on —

BH: No, it comes all the way from up.

CSH: Oh, they don't have it going all the way up.

BH: That's all right.

CSH: So, where is the stream on your little drawing?

BH: Here, this is the one right here. This is the bridge, eh. It goes like that.

CSH: Yeah, okay. That's Nānākuli Stream where the bridge is.

BH: All this is the park.

CSH: So, where does the trail start from? Have you heard anything about that?

BH: No. It must come from in here. Well, how old is this thing? We don't know where. Because in [19]37 they have a graveyard in there [indicates a location well outside of the project area]. Now that graveyard, I know about it. When I was small, they said they made some burials in there, but people are saying they cannot find anything.

CSH: But you haven't heard anything about night marchers up in this area? In the Board of Water Supply project area? Going through there?

BH: No, I never hear. But hard to say where the hell they're coming from. Because for me, I can tell you, maybe I've heard them walking a couple of times. But, nothing to

get excited anymore. But trying to educate my kids on that. They don't want to hear about those things. That's about the only thing I can tell you about Nānākuli, that I know.

CSH: Can you think of any other people that might be knowledgeable about the area I am interested in or anyone who would be good for me to just talk story with briefly? Just ask if they know anything even?

BH: Let me try see if I can get him over here now [speaking of Uncle Eddie Kamanā]. He has a lot of history.

CSH: Do you know anything about gathering that people do as a whole within the region of Nānākuli? What kind of things do people gather? Like for cultural purposes. It could be fishing, it could be plants, etc.

BH: Not too much things, I think, in Nānākuli. When we need plants, we gotta go out. There's nothing here, anymore. The bad part about it is when they have to go in and get permission from the owners. And if the owners don't come from here, they gotta go find out who the owner is. And most of the owners don't want nobody going in to go get things for culture or religious purpose. Besides religious, maybe culturally, trying to get *imu* rocks for the *imu*. Now, *imu* rock don't come from just any place. It comes from the rivers. Just to get in the rivers, you gotta get on the property. To get on the property, you need to go find the owners. Other than that, I don't see any plants in this valley, it's so dry. Maybe trying to get moss rock to build family walls for your house. I think that's culture, but not in the eyes of the owners. For them it's money.

CSH: How do people use Nānākuli valley? Mainly for what purpose?

BH: They never did.

CSH: People go up there hiking?

BH: They just trying to do it now. See, prior to that, they couldn't even go in.

CSH: Because it's private?

BH: Yeah. But, because we have a new — it's a Hawaiian guy — I guess all he's asking for is permission. Ask permission, so I know who's in the valley. But I know the other fella. No ways. You don't go on my land.

CSH: So you don't know how that area was used, even in the last century? What have you heard about that area?

BH: Cattle. As far as I know, it was all cattle up there.

CSH: Okay, I think that's about it. I can't think of anything else.

BH: No. That's why I say, for me to talk, you gotta figure out what you need. If I got it, you got it. If I don't — I never did prepare myself for things like this 'cause I believe you talk what you feel.

CSH: Well, that's the best kine, when you not prepared. Thank you very much for your time.

[End of interview.]

APPENDIX C: Transcripts of Interview with Lehua Kapaku

Interview with: Lehua Kapaku (LK)

Date: June 28, 1999

Place of Interview: Nānākuli

Interviewer: Ka`ohulani Mc Guire for Cultural Surveys Hawai`i (CSH)

[Before starting the official interview, Aunty Lehua wanted to give me some background information, which ultimately led to talking about the project area. Part-way through, I asked permission to turn on the tape recorder. This is where the tape begins.]

LK: So, if the sun set at the west, which is in the direction of Nānākuli, and we have a hill, or *pu`u*, named Heleakalā, which means *path of the sun*, then, we began to go in there and look at the Māui legends. Ulehawa, Pu`u Heleakalā, and as you know where Princess Kahanu is at now, seems to be the area where the Māui legends seem to concentrate on. For example, the Māui Rock at Garden Grove, coming straight out into where they have a park area, there seems to be sort of a lagoon. And in the lagoon there should be a stone formation where they anchored their canoe, or whatever, on. There's signs of the *līpoa* [*Dictyopteris plagiogramma* and *D. australis*] seaweed growing in that area. Seems like whoever told the story of the Māui legend seemed to have all these clues, or evidence within the area. To Māui's mother, Hina's, home in the cliffs of Palikea. So, that's the Māui legend's connected to Nānākuli. Basing on the fact that the migration came to Kaua`i, and from Kaua`i to Ka`ena, Ka`ena to Mākua, Mākaha, and right along this part of the island. We came to agree that the legend begins here. So, that's how far we got to the Māui legends. Okay, second Māui legend, the naming of the place. Scientifically, we learned that the Wai`anae Volcano was the first on O`ahu. Remnants of the Wai`anae Volcano shield is Mā`ili Point. So called Pu`u o Hulu is a remnant of the Wai`anae shield. So, anyway, Māui legends tell us, scientifically, Wai`anae Volcano is the beginnings of the island of O`ahu, right? And the Māui legend names off the various places this side of O`ahu. Māui had so many brothers and he had two sisters. One was Lualualei and [the other was] his baby sister whom he treasured. The baby sister's name was Nānāiku`ulei [which means] *look to my pretty lei*. Scientifically, when we did our research, from Wai`anae Volcano comes Lualualei and the last cauldron, or the last *puka*, of the Wai`anae Volcano was Nānākuli. Nānākuli overflows and there joins Ko`olau with Wai`anae through the Nānākuli flow. Now, when you do research on the Hawaiian part, I took the role as being part of my race, part of my people. To have the name "Lualualei" which is *sacred wreath*, and, then having a baby sister [whose name means] *looking deaf*, I just didn't agree, I wasn't satisfied with that. So I accepted the Māui legend part where his baby sister was named Nānāiku`ulei. Now, history tells us that when you misspell a Hawaiian word, or forget to put the `okina or the *kahakō*, it totally changes the meaning of the word. So, if it was Nānāiku`ulei, which would be very positive, very good, I don't think the people or anybody would feel negative about it. This is the only place in this whole State to have a derogatory name, *look deaf*. You look at any other place,

they have nice names. Could be a special event or a special person. Only Nānākuli. So, it may have been a misprint and it may have been what the *Sites of O`ahu* says, but it depends on how the people react to that name. We've come to even give the name another meaning and that was *perseverance*, just to change the negative attitude. And, we find that this community has been so put down, I tell you — talking about patience and perseverance — and finally Nānākuli is a community that's noted that whatever they do, or whatever they accomplish, they real Hawaiian and give away. I've been here long enough to see that this place has really accomplished a lot of things. Like, for example, this museum [Nānāikapono Community School Museum, Nānākuli]. We are the one and only one in the whole state of Hawai`i. Through this museum came the Hawaiian Studies statewide. Yet, Nānākuli will not take credit. It's something we don't publicize, we don't take the glory, we just let it pass. Whoever wants to take the credit, whoever wants to say anything, we just let them. That's the way it is. When I first came here I was real aggressive. I've come to love this community. I finally accept what the *kūpuna* [elders] told me way back 39 years ago when I first came here.

CSH: So, you really think that, perhaps, the original name, or another name for Nānākuli was really Nānāiku`ulei?

LK: Yeah, I say that because there's three so-called meanings of the name Nānākuli. [One meaning is] *look deaf*. I said, "How can you look deaf?" My *kūpuna*, when they wanted to emphasize the point of looking deaf, they would pull your ears and say *pepeiao kuli*. They would not say, "You look deaf". Your ear is deaf, your eye is blind. But never "look deaf". There was no definition, or there is no word that tells us that you "look deaf". Another one is a chief *looking at his penis* and another one *looking at his knee*. *Kuli* in Hawaiian is knee. So, you're looking at your knee, you're looking at your penis, or you're looking deaf. Why? Which lead us to now, the restoration of Nānākuli Valley.

CSH: Okay, we kind of started this interview backwards. [Laughing.] Can we start from the beginning?

LK: Okay. [Laughs.]

CSH: Tell me about yourself. What your full name is and when you were born and where you grew up.

LK: Okay. My name is Virginia Ka Lehua o ka Nani o Pana`ewa me ka Ua Kani Lehua Makekau Kapaku. I was born November 3rd 1934 in Waipi`o Valley on the island of Hawai`i. I am presently the curator of Nānāikapono Community School Museum.

CSH: You spent your childhood in Waipi`o?

LK: I was born in Waipi`o, I grew up in Waipi`o. We moved to Hilo. And I spent some of my childhood years in Miloli`i, Kona.

CSH: And how did you happen to come to O`ahu?

LK: I came to O`ahu to attend the University of Hawai`i.

CSH: And what did you take up there?

LK: What was my major? Business Administration. I did the Teacher's College. I went back to Hawai`i and, then in 1960 I moved to Nānākuli. I lived in Nānākuli for the past 39 years.

CSH: And, in 1960, is that when you started working here at the museum?

LK: No, at the school. The museum was started in 1971, officially. It became part of the Department, DOE, in 1979, when I come in and took over the museum. In that period, [19]71 to [19]79, it was under the Model Cities Project. In 1979, it became officially under the Department of Education.

CSH: Getting back to Waipi`o, did your parents grow taro [*Colocasia esculenta*]? Were they farmers?

LK: No, we were landowners. And we had land in Waipi`o Valley. We had tenants in Waipi`o Valley. When I was born, for three years, I had to be raised by another family in Waipi`o Valley. And at three years old, I was brought up from Waipi`o Valley back to my parents. So I didn't grow taro. We were landowners.

CSH: So when you came up, you went to Hilo?

LK: When I came up, I began to live with my parents up in Kapulena. Then, I think I was five years old, or six years old when we had to migrate to Hilo.

CSH: What do you know about the project area where the proposed reservoir is going to be? This is the map that we got from our client and it shows the reservoir area above the homes.

LK: Yeah, got 'em right here. And this is the ranch right here.

CSH: That's Lyman Ranch. What can you tell me about Lyman Ranch? Any history that you know about it? Past history and who currently owns it.

LK: Well, let's see. History tells us that one of the first ranchers that leased the valley was Manini. Thereafter, when I got here in 1960's, the valley was leased by Hawai`i Meat Company and Tong Ranch. Recently, about 1995, the present rancher, Robert Lyman, has the lease on the valley.

CSH: Do you know if he is related to any of the early Lymans that came to Hawai`i, the missionary Lymans?

LK: That I don't know. However, he once was a cowboy for Tong ranch. So, after Tong ranch give up on their lease, he applied for the lease to continue. So when you go up there and you talk to him you can get his history.

CSH: He's pretty much there all the time?

LK: He works for his wife. Robert and Veronica Lyman. And they have a little house up there.

CSH: And what does he have on his ranch?

LK: Oh, he has cows and horses.

CSH: And you mentioned earlier that it's not really a working ranch, it's a hobby?

LK: Yeah, it's a hobby.

CSH: Do you know anything about our project area? Are there any sites located in our project area?

[Tape was turned off at Auntie Lehua's request for a break.]

CSH: We're talking about cultural practices in the project area.

LK: Presently, none because these people that — how do I say this? They never knew. It took us this last few years to make these residents of this community aware of what was happening up the valley because they always thought that it was just ranching. They never thought there was historic sites up there. Not even realizing the fact that some of their houses was built right on ancient sites.

CSH: When you mentioned earlier that some people were upset when you folks were saying that possibly there could have been sites up there, why do you think they were upset?

LK: Because they never knew. They always had the assumption that it was just ranching. And I guess because they didn't understand the archaeology or anything about the area, when we brought it to their attention, the first thing they did was to tell me that it's us — that we're trying to say that there's something there — when they've been here for years and years until we found that thing. I didn't find it, Ross didn't find it. It was these people that we took up to hike and to learn about the valley. And Ross just told them to have the experience of archaeology, that they're not to assume. That they're to painstakingly record things, just don't go over there and move. These two boys happened to come to this opening. It was very low. One of the boys assumed that it was a stick. And the other kid said, "Don't assume. If you see something peculiar, go in." And so the boy crawled under and cleaned the dirt around and it wasn't a stick. It was something, a shape. And so he pulled it out

and came up with that [a tapa beater]. Since then, we've publicized. We've gone to different organizations and any kine meetings and what not and showed them. And, they don't understand. What they call the cattle corrals and all like that, actually wasn't corrals. It was maybe a habitation. So, now they've come so acceptable of Nānākuli that, like I said, their attitude changed to positive. Now they're real anxious to learn more about their valley, to go up and clean the valley.

CSH: Can you tell me the name of the organization that you're associated with?

LK: Mālama Nānākuli Ahupua`a, Inc.

CSH: And you're a non-profit organization?

LK: I am. And I am the President of that.

CSH: And what is your purpose?

LK: To restore, preserve and establish an educational place for the people of Nānākuli.

CSH: And Ross Cordy?

LK: Ross Cordy is my archaeologist, and we are in partnership with the three schools, Ka`ala Palms, Hawai`i Conservancy, Department of Hawaiian Homes and community organizations like Nānākuli Hawaiian Homestead Association, Hawaiian Civic Club, Queen Liliu`okalani Children's Center. We're all together.

CSH: And when did you form your association?

LK: We started in 1996. I got officially registered October 1998.

CSH: Getting back to the project area then, what can you tell me specifically about it, as far as cultural use? Do you think there was cultural use in the past or is there any cultural use taking place presently?

LK: The Valley or you talking about the spot?

CSH: I'm talking about the actual reservoir spot. Where the proposed reservoir is going to be, on the map.

LK: When we learned about the valley that borders Manawahua and all of Pu`u Heleakalā, better known as Nānākuli Homestead, on the side of the gulch, which is now Nānākuli Ranch, we found to have historical sites, like settlements, and burial sites on the Phase 7 side and on the Wai`anae side of Nānākuli Ranch so called "the Gulch". In that area, all the way up to the present Lyman Ranch area, there was settlements. In fact, there's a swimming hole and a *wiliwili* tree to designate the swimming hole that the children of Nānākuli Homestead used to go swim. However,

when the Department of Hawaiian Homes started building their housing projects, they may have destroyed some of the historical sites. But, leaving some sites up to the valley. That's how much I know about that part.

CSH: Do you know if anyone uses that area for any cultural reasons at all? For example, gathering plants?

LK: No, not presently because the people who live in that area had no prior knowledge that there was historical sites in that area. When they came the land area was already developed into a housing development, so they didn't know.

CSH: So to your knowledge, you don't know of any cultural practices currently being done in the area, or in the past?

LK: No, not at this time, but I'm pretty sure it's going to happen now that we're involved in the [work in the valley].

CSH: Do you know anything about the two *pōhaku* on Pua Avenue? Can you tell me about that?

LK: Yeah. Legend tell us that this little brother dies and is buried over there. He had a sister.

[Aunty Lehua asked to turn off tape recorder for a bit.]

CSH: You were telling me about the *pōhaku* on First Road.

LK: That *pōhaku*, it's about a brother and a sister. And if I'm not mistaken, it's on the Ka`ea land. George Ka`ea.

CSH: So the brother died —

LK: And was buried over there.

CSH: And what about the sister?

LK: [can't make out what she says]

CSH: Oh, she died after?

LK: And that family, that the two stones are at, is still there. The man just recently died.

CSH: So, they're related to Ka`eas. That's their *ʻohana*?

LK: Yeah. That house lot. In fact, when they went to build and widen the road, Pua Avenue, it's not a straight road because they had problems with the two *pōhaku* and, now, it's kind of like way down. But, at the end of the road, there's this lady, Sarah Kawailima, she's a good one to interview. She used to be the Kāne girl. Her father used to work for the [?]. I know they used to go on horseback go up in the mountains. But, at the end of the road, by the gulch side, there's another stone. So, I'm sorry, depending, on what stone you was asking me about.

CSH: I didn't know about the other stone at the end of the road.

LK: There's another stone, but no connection to these two stones.

CSH: Is there a story about that stone?

LK: It's the *`āweoweo*.

CSH: *`Āweoweo*?

LK: The fish. You need to go into the valley, the gulch, to see that stone.

CSH: So park the car and —

LK: Go in the gulch to the Ranch, look to the left. Maybe now it's all covered with grass or whatever.

CSH: When you say "go to the end of the road", up First Road, or up to the end past Nānākuli Avenue?

LK: No, no. The end of First Road, Pua Avenue. You will see the stone through the gulch. You go in the Ranch area and you look toward that — I hope nobody went destroy 'em.

CSH: And what is the story about that stone?

LK: It's the home of the *`āweoweo*. And Nānākuli is noted for the *`āweoweo* fish.

CSH: And can you tell me anything else about that stone? Any other stories about the *`āweoweo* stone?

LK: No, all I know is that. [Our understanding is the stone was used to attract *āweoweo* fish.]

CSH: Back to the other stones, about the brother and sister, Fred Cachola called it the *Menehune* Stones.

LK: There's a legend that says that the stone came from the Valley. It was brought down and so it cries like it's lost. The story I get was from that Ka`ea family. That stone was there before. There was the story about the brother and the sister. But, you know, it's real difficult for me because I gotta lean on legends and I gotta lean on modern Westernized thinking. Let me tell you about stones. When you look at a stone and there's an image on the stone, I might look at a stone and I don't see nothing. You look at one stone and you see something. Whenever you see, you either gonna have to take care of this stone and be respectful to that *pōhaku*. It's believed that *pōhaku* does travel, so you have to kind of accept the fact that if you were told the *pōhaku* travels and, therefore, it does travel. If the stone, or the *Menehune* stone or what was taken from the Valley it would find its way back to the Valley, one way or the other. I can quote incidences that happened where people find these kind of stones, take them home and they wasn't happy until they took back the stone to where it belonged. So, if the *menehune* stone was taken from the valley and, I now know about the valley, 'cause like I said, on the serious side of me, I really think [?] to see if whatever legend or whatever is told to me is authentic. So, therefore, when we had the question about Nānākuli Valley, I don't know if we are at that part, when we interviewed the people of the community, they told us off. They even retaliated against Ross. Their attitude — you understand? There's nothing in this valley! Nothing [emphasized]! Only ranching and all this and that and this and that. And those people who's telling us grew up in Nānākuli, so who am I to debate with them? But in our research, we find things that's written in the books and if we find that there was living settlements, there was people living up there before [emphasized] that name Nānākuli came up, cannot help but say — if this place is arid and hot and nothing, and the people look deaf and were so ashamed to offer any [food or water] and Hawaiians are people that would give you the shirt off their back, nowhere in the history of Hawai`i that I have ever traveled to or went to that the people are poor, I mean they are so hospitable. I couldn't just accept. So, anyway, to hear this kine and then we have prove it, right? Like I knew [emphasized] that there was people up there, I knew [emphasized] it. The point was what kine people. And I really dug into it to look and I found it. That's why my focus right now is opening up that valley. All I can tell you is about stone. So, I would take the stone theory from that lot. It's more authentic than taking the rock, because when the construction went over there to get that rocks, I mean, these rocks were imbedded in the ground [emphasized]. It wasn't something small that could be carried. These are huge boulders [emphasized]! Huge, huge [emphasized]! Only the top of that stone was protruding. The story I got from the construction, in fact, they came around the neighborhood and because I was active in the community, we get to know about it, so the old timers says, "Hey, gotta make *pā`ina*, make ceremony over there." And so the construction had a ceremony, had *pā`ina*, and after that — see, the equipment was breaking down and there was turmoil among the workers, so they went to find a so-called *kahuna*, or anybody that knew that place. But, the people of the lot and the neighbors said they better accept the legends and what was told so, to clear the thing and the recommendation was make *pā`ina*, have ceremony and all like that and move away from that rock. That's why construction moved away and so [the road] is kind of *keke`e* [crooked].

CSH: What do you know about the area above Nānākuli High school where the water tank is?

LK: . . . the Ranch foreman for Nānākuli Ranch — he was one of our guides to take us up to the valley. He shared stories about areas where horses wouldn't go. So he, being a Hawaiian, he'd sense things like that.

LK: In his late 70's.

CSH: Okayt, just for the record, in case I didn't get it on this tape, I need to ask you again, to your knowledge are there any cultural practices being performed in the proposed reservoir site area?

LK: Now?

CSH: Now. Do you know of anyone who goes there to use the area for any reason what so ever?

LK: No, I say no. I say "no" because the people had no knowledge of those historic sites in the valley or adjacent to the valley. The Department of Hawaiian Homes had already developed infrastructure and the people just moved in. So, they don't even know about the plants and all that kine.

CSH: Well, you've been up in the valley.

LH: Yeah.

CSH: What kind of vegetation is up there?

LK: Oh, there's *a`ali`i* [*Dodonaea viscosa*], *maile* [*Alyxia oliviformis*], *alahe`e* [*Canthium odoratum*], *`iliahi* [*Santalum paniculatum*], I think get *naio* [*Myoporum sandwicense*]. At this point I just can't [name them all].

CSH: That's what you remember?

LK: Yeah. But there is [native Hawaiian plants in the valley]. And so that's why when we go up we bring to reforest the area.

CSH: And you mentioned that a tapa beater was found up in the valley. Do you know which site on your site map?

LK: Lets see, we went up here.

CSH: Do you know specifically which site number?

LK: No, not right now.

CSH: But, around Site number 4440, 4401, 4412? Okay, around that area.

LK: Yeah. That's where we went up.

CSH: Up by the forest reserve?

LK: Yeah, I think one of these over here is one burial. See, the area itself, has gigantic stone structures. And that's why it may have been a cave, eroded, where they found the beater imbedded in the ground.

CSH: But the tapa beater has not been analyzed?

LK: No, not analyzed yet.

CSH: And you don't know what kind of wood it is?

LK: No. Our archaeologist just mentioned that it may be *alaha'e* [*Canthium odoratum*] and it may be about 400 years old. Until it get tested it's being kept in the museum.

CSH: And what about past cultural use?

LK: Of the valley?

CSH: No, specifically of our site area on our map. You know, of the reservoir site area. You mentioned before that possibly there could be sites in the area, but you're not sure.

LK: Yeah.

CSH: And you're basing that on all the other sites found in the upper portions of the valley?

LK: Yeah. And some of the sites was destroyed by development, you know that. And so whether it's in that present project site or what, but it's known that some of the sites was destroyed through development — housing development.

CSH: Does anyone go hunting?

LK: Yeah. In fact one of the interviews that we had, they would go up hunting. They would go up and pick up *maile* [*Alyxia oliviformis*]. But, they're looking at Palikea and not Manawahua. They're looking toward Palikea Reserve.

CSH: The hunting also?

LK: Yeah. Pig hunting

CSH: Are there goats up there?

LK: There's goats. They were hunting for goats and pigs and this gentleman keeps talking that they would go up and pick up *maile*, but not for cultural purposes. I wouldn't even know if there's a *hula hālau* area.

CSH: That was my next question.

LK: But, we know there is a specific *heiau* up there that was either used for religious or other purposes, but we have to do research on that area. It was way up there.

CSH: Do you know any of the *hālau*, the *kumu hula* in the area, Nānākuli, Wai`anae, that I could talk to? What about Kaulana Kasparavich? He teaches in Wai`anae?

LK: No, he come from outside and he moved to Wai`anae so, all of a sudden his *hālau* is from Wai`anae. But the one in Nānākuli would be John Ka`imikaua, O`Brian Eselu and Thaddeus Wilson.

CSH: And, Mililani Allen, I know she passed away, but —

LK: She's from Wai`anae. But, right in Nānākuli, I think his name is Darrel Kaulia. We also have one other *hālau*, but I don't know if they're cultural. Her name is Charmaine Mokiau and her *hālau* is Keikilani. But, other than that, since I've been over here, there was no specific *hālau* in Nānākuli.

CSH: What about Ulehawa side. Do you know anything about how the beach area was used during the War? I know there's bunkers down on the beach. Can you talk about that?

LK: During the war. Let's start with the train. There was a train route. There was a Nānākuli depot station next to Nānāikapono Elementary School. There was a drop-off stop at Hakimo intersection. Presumably, the train traveled past Nānākuli all the way to Wai`anae. I guess, this is in the early 1900's. During the war, the train was also used and it was the Army's base. So, the Army was here at Nānāikapono across at Camp Andrews, and they had outposts fronting the shoreline. As a matter of fact, even past Pu`u o Hulu there is these bunkers.

CSH: You mean bunkers or pill-boxes?

LK: Or pill-boxes, yeah. So I guess the military was here from Nānākuli all the way to Wai`anae. One of the interviews we had, this person relates that as a little boy he lived in Kalihi and his grandfather was the engineer for this O`ahu Railway, the train. They would leave their home in Kalihi, go to O`ahu Railroad, get on the train, and come all the way to Nānākuli. And the grandfather would drop them off at the

Hakimo Junction. And they would walk up Hakimo, at that time was coral and dirt road, to their family home, which was the Grady family. And this occurred during the war. I asked the interviewee what did he visualize around the area, and except for being filled with *kiawe* trees and for this — just like this short train stop. We had to distinguish between the depot and the train stop. A depot was a station where people got on and got off, and the stop was just — it would slow down and you get off. So, that was one of the interviews. He talked about the train and the Army base was here. That was during the war.

CSH: You weren't actually here yet, in Nānākuli?

LK: No, but, however, when we talked to the residents that was here during those times — very coincidentally, is that we're planning for a closure of this school. In 2002 this school is going to be relocated at Camp Andrews. So, we are now initiating publicity on the closing, asking everybody statewide, we're going to put it in the newspapers that if they had any part of Nānākuli in their life, if they would like to come share it with us, so a book can be printed and, if they have old family photographs or anything about Nānākuli, that they can come and have it displayed. Because many of the people from Nānākuli moved away or either passed away, so we have to depend now on their children. Hopefully they remember and can share with us. So the few items of documents that we have kind of give us a small indication of Nānākuli but, not too much to really do something for Nānākuli.

CSH: Now, Ulehawa side, when we talked on the phone, you mentioned that there was a Hawaiian habitation village, a site down there.

LK: We suspected that there is, there should be, prior to the Railroad, because that's how all over here, like you mentioned Mrs. Zablan, most all habitation was down on the beach, the coastal side. We suspect that they would have a village or habitation in that area. But like everything it's destroyed and washed away. So, we're very interested in Ulehawa too. Not only to connect our Māui legends, but if there was actual habitation there, it's something like should be printed or should be known. So, we don't know. I don't know how far up Ulehawa, except an example. We did this interview of this person who just recently died. He tells us that the so-called Nānākuli railroad station or depot, that area was known as "Naupaka". I mean, everybody calls 'em Haleakalā and, yet its not. It's Naupaka, and the common name by all the kids was "Depot". So, Ulehawa, is that its true name? Is it from one end to the next end or was there another name in between there. People talk about it but, we don't know where it's at.

CSH: Can you talk a little bit about the names changing? You mentioned earlier how some of the old names are disappearing and people are starting to use new names, like on the beach, the coastal area.

LK: A good example, like I mentioned the railroad station, commonly known as the "Depot", yet, its actual Hawaiian name for that area is Naupaka. Zablan, it was

settled by this family, the Zablan family, commonly known as "Zablan". Now, it's known as Nānākuli Two. However, the name for that area was Keaulana. And, as you go further out there is a cove, Piliokahe, but it's now known as Nānākuli Three, and better known as "Black Rocks". The names just change unless we know where we're talking about.

CSH: Well, I think that's about it. Thank you very much for this interview for the time you spent with me.

[End of Interview.]

APPENDIX D: Transcripts of Interview with Jay Landis

Interview: Jay Landis (JL)

Date: June 28, 1999

Place of Interview: Luualualei

Interviewer: Ka`ohulani Mc Guire for Cultural Surveys Hawai`i (CSH)

CSH: Jay, can you give me your full name and tell me when you were born?

JL: Jay Landis. Born in — can I say it in Hawaiian?

CSH: *Hiki nō*

JL: [Ua] *hānau [wau] ma Kapalakiko, Kaleponi*. I was born in San Francisco. I have cousins there who are Hawaiians. The cousins I have there are half Hawaiian. They look Hawaiian, and I'll show you their picture later on. Their children all *po`e haole*, all look like me, all pale-faced. I came out here in about 1933 or '34. My aunt brought me up as one of her own children. I was supposed to go back to the mainland because my aunt over there Kuliko had custody of me. I didn't want to go, so mamma picked me up. I said, "Mama, I don't wanna go." Took me to see old man McCandless. He said, "So, you wanna stay with your auntie? Yes, okay." They called this attorney, they got him to put a court injunction that Mrs. Annie Silva would be my guardian.

CSH: Here?

JL: Yeah, she became my legal guardian. She had six sons of her own. She brought me up as one of her own children. Then I came to Wai`anae.

CSH: How old were you when you came to Wai`anae?

JL: Gee, I was about 13, about 12 years old.

CSH: And when were you born?

JL: I was born March 13, 1919 in San Francisco. I have many cousins over there. I will show you their pictures. They live there, that's their life. I visit them now and then. I don't know, I don't feel at home when I'm on the mainland. Hawai`i is my home. And, I've been ever since in Wai`anae, however, in 1937 or '38, I stayed in town with the Kahoanos. Mrs. Kahoano and my mother were first cousins. They were close [emphasized] to one another. So, I stayed with them. The old man, Sam Kahoano, was the captain of the *Mikimiki*. In those days he was a big *ta-ta*. And I stayed over their house, downstairs. War broke out. I worked for the Navy and, after the war, I came home. And I've been home in Wai`anae ever since. In 1948, we moved up here and I have been living here 50 years. The *haole* side of the family, the McCandless',

own this property, but they're good to Albert and I. He has `Ōhikilolo on a good lease and I'm the caretaker here. So I stay in this big house. Once upon a time, there's four bedrooms. House is falling apart but, I'm right here in the parlor. This is where I do everything over here. Bad arthritis. I love music. I can't play the piano anymore because of arthritis. That's all right. I can still *mele ana ē, mele ana ē* and I keep myself busy. I don't cry about it at night anymore. But, I have memoirs I'm writing and putting things together. About seven or eight years ago we got together to say we're gonna have a family reunion, and we all agreed — there were about 10 of us there. Ah Ching Poe, my mother was a Poe, by the way. Ah Ching Poe was the chairman, cousin Albert Silva — and they told me you're gonna be the historian. I walked into a trap. But, oh, the data I got out of it. I got so much data it's not funny. And so, in here, going back to Kalaniopu'u and everything, and thank God I got a good cousin Sharon that help me. And I'm making copies of it to pass out to the family. They have a right to know who they are. I enjoy getting away from myself. I do a lot of traveling, as I said. I woke up after doing community work for a Hawaiian Civic Club. I was President, four years. President of the Wai`anae District Council, I was responsible for getting the book out, *Historic Wai`anae*. In fact, he's coming. He's a rich *haole*. He's a rich *haole*. But he said, "Jay, you gave me, you opened up my way of life. If it wasn't for you I wouldn't be what I am today. He's a millionaire! He said, "Jay, I'm gonna be coming in." And as I understand, he approached the Hawaiian Civic Club. He wants to open up a scholarship in my name. He called me up one night to say, "Hey, Jay, who's the president of the Hawaiian Civic Club?" Next thing I know, he called her up to say that he wanted to open up a scholarship with the Hawaiian Civic Club in my name. He'll foot the bill. You know, when you do good, it always bounces back. Sometimes you get kicked in the `ōkole, so what. Anything more you want to know about my life?

CSH: So you came here when you were 12? To Wai`anae?

JL: Yes.

CSH: What was it like when you first came here?

JL: Mākua was a beautiful village, beautiful. I know the old song of Wai`anae. I think I should sing it to you. The name of the song is *Lei Līhu`e*. It's not Līhu`e, Kaua`i. It's Wai`anae. You know where the tennis courts is, in back of the Wai`anae Park, the baseball field?

CSH: Yeah.

JL: That whole area is Līhu`e. And the bay is not Pōka`ī. Pōka`ī is a coconut grove. The bay is Malaea. And it has the same tune to that of *E Hawai`i*. Same tune. And people say that they stole *E Hawai`i* from us, but the people don't even know that's ours. And it goes this way: [Singing]

*Lei Līhu`e kupukupukupu
Me ka nēnē
Lei nēnē o i ke ala o ka līpoa.*

(The bay)
*Lei o Malaea i ka nalu
A o e ke ala
(now the coconut grove)
Lei ho`i `oe i ka ula niu Pōka`ī
Lei Mākua i ke one `ōpiopio
Lei kōhi a`e i ka maile . . .*

And I could go on six and seven [verses]. But these are old songs that were carried down. And we had Auntie Rachel. The family's also intact. All our families intermarried. But I learned a lot from these people and this is why I got this over here [points to his book of family history] I've been very active. Only now I am getting old and the *po`o*'s not there [memory fails] [and] you kinda forget. So my doctor friend at the clinic tells me, "Jay, you're gonna forget a lot." Keep your mind preoccupied. Read, read, read. I got a big library. I do a lot of reading. And I cherish my Hawaiian. I got a lot citations up there on the wall — from George Ariyoshi, three from John Burns, five years with Dr. Shintani up on the hill there, the Hawaiian cancer research come in. Yeah, we did research for five years. In fact, I got a video of it. And other things like that. All my life is getting away from myself and think of others. There will come the day when this is all coming to an end. A new generation is coming into the field now. You pull out, let them take over for the next 30 years. Then I said, "What the hell I'm gonna do? I know what I'm gonna do. I'm gonna travel." I'm a member of the Lions Club. And I went with the Catholic Church with Father Eli Carter, we went to Israel. Ended up in Rome. Twice I've been in Rome.

CSH: Oh, wow.

JL: But most of my three trips I've made were to the Orient. Lions convention in Tokyo, Hong Kong, and Seoul, Korea. And two years from now, the convention is going to be in Osaka. I will be there, I will be in Hong Kong, Shanzhen, and go on to Shanghai and Beijing.

CSH: Wow, you are a world traveler.

JL: I like to travel.

CSH: Now when you first moved to Wai`anae, what part of Wai`anae did you live in?

JL: Right in back of the police station was the court house. Right down there, in that area. My uncle worked for the plantation. He was a machinist. But I never forget the day, the first of April, April Fools' Day, six o'clock in the morning, the mill

whistle blew, blew, blew, ring, ring, ring. It was blowing the whistle. Mike Moss come over there, "Evacuate! Evacuate! There's a tidal wave coming in!" It did. And instead of us going, we stayed home. Gee, when we saw the river, the water coming over the tracks. Scared the hell out of you because it was the ocean just coming in! And it went into our yard and we were saved by six inches. The water came all the way up to, close to over three feet, and our house was —

CSH: Your house was up on stilts?

JL: Yeah, on stilts. Eh, we scared. When the water went out, oh, the fish we had in the yard. It killed our mango tree. In 1948, we moved up here and I've been here ever since. Everybody got married, they left. And the last one to leave was my Aunt. Everybody wanted to take care of my aunt. "No, I'm gonna stay with Jay." You know why? You see that beautiful plumeria trees and mango trees? She did that. And everybody, Lawrence was a school teacher in Honolulu. Him and his wife was school teachers. That's Glen's [Kalena Silva] parents. "Mamma, come and stay with us. Mamma come and stay with us." "No, I'm gonna stay with Jay." There's a reason for that. All her school mates were still living. They were all members who founded the Hawaiian Civic Club. So, I took care of her until I had to put her in a home. She died when was 97 years old. I loved her so much [emphasized]. She was good [emphasized] to me. She was good to all of us. And she could be very outspoken too. Push us around. Quickly, she'd try and get things done. If you gonna be *moloā*, sit down and do nothing, you gonna get nothing. And two of my cousins went off to college. Lawrence at the University of Hawai'i. Harold for the University. Lawrence's kids all went to the mainland. Get's me angry. You know why? They get a good education up there. They stayed there. They're no good to us.

CSH: Now, you talked about the tidal wave.

JL: Yes.

CSH: I'm interested in Ulehawa beach side.

JL: Ulehewa.

CSH: Ule-he-wa?

JL: Yes, let's get the right name, okay?

CSH: Ok.

JL: Ulehawa beach, it's in Nānākuli by Joe Dwight's place.

CSH: By whose place?

- JL: That's the Wai`anae District, Nānākuli. Oh, I got everything in here. These are all *heiau* and everything. Lot of *heiau*. You see, I keep all these things. I accumulate it, because you never can tell when you gonna use it. I told Glen, "If anything happens to me, Glen this is all yours." [Searching through documents]
- CSH: It might be in the Lualualei section.
- JL: No, Nānākuli. Even tells you what the word "Nānākuli" means, yeah. You know what it means, eh? What does it mean?
- CSH: Well, according to that it means "look deaf" or "look at the knee".
- JL: "Ku" means "stand", "*nānā*" means "to look", and "*kuli*" means "deaf" and "your knees". I got no water, I put my head down. That's what it is. Nānākuli, "Look at your knees". No more water. Ulehawa. That's by the bridge where Joe Dwight is. That's by the big stream, by the big concrete bridge. That's Ulehawa. Joe Dwight lived right next to it. Now why did you get the name? That was the biggest main water coming out of all the mountains drained into there. That's one of the reasons. The deep valley, all that water had to come somewhere. So, it came down from here and going right into Ulehawa.
- CSH: The drainage?
- JL: The drain. That was the biggest river out of here. The other biggest one is in Wai`anae at Pōka`i. Then you have another big one at Wai`anae. I gave you the word. Lot of *heiau* on there. [Searching through documents] No, I don't have it. The only thing I have is places, name places. But we know one thing. Ulehawa is where all the water drained. All the water from the Lualualei Naval Ammunition Depot had to go somewhere.
- CSH: Well, it's also the beach, right? The beach line?
- JL: Well, the beach side, no. The beach side is Nānākuli Valley. Nānākuli Valley and Ulehawa Stream are two different streams.
- CSH: Oh, no. I'm not talking about the streams, I'm talking about Ulehawa Beach.
- JL: Oh, Ulehawa Beach is down that end, that's right. But you got to remember when you go back to Nānākuli, there was no water, there was no life. Only when they ran the waterline in and they opened up the Hawaiian Homes, then Nānākuli grew. Nānākuli grew. Prior to that, no. Nānākuli was a small little arid place. But look at how it has grown. I don't know if I can help you, but there's very little about Nānākuli.
- CSH: Getting back to the tidal wave, did the beach front at Ulehawa change in any way after the tidal wave?

JL: No, it didn't. No, it did not! Not any place did it change [emphasized]. It went back because, even if it did change, you know at the beginning, year after year after year, the sands come back. Only one crazy place named `Ōhikilolo. That's "crazy crabs". And the reason why they say that, during the Wintery months, because of the make up of the sandy beach, you go in the evening and you come back the next morning and you see all the crabs crossing the road going back to the ocean. That's how the name, when you pass Mākua coming back this way, `Ōhikilolo, "the crazy crabs". The crabs really came out of the ocean to cross the road!

CSH: I've never heard that before.

JL: That's how the name `Ōhikilolo came, "crazy crabs". And I seen it for myself when we were kids.

CSH: Okay, so the beachfront at Ulehawa didn't change?

JL: No, nothing changed. Because you know why it didn't change? Because the sands came back, the water would rush down and the sands came back. And it's the same beach.

CSH: What about during the war? There's Army bunkers down there on the beach.

JL: All the way around.

CSH: Were you here during the war?

JL: No, I was in town. I was staying with the Kahoanos.

CSH: But you would come home to visit on weekends?

JL: Oh, I had to come home. I would come back on the bus every day. Ho`ohuli of Nānākuli — they still have that old gas pump at Nānākuli in the homestead. And Ho`ohuli had a big bus. He had busses over there taking people back and forth from Kaka`ako Police Station to Wai`anae. Go in the morning and come back in the evening. He had two busses. That's how we came, not the train.

CSH: So you would go to work everyday and then come home every night?

JL: Well, I sleep with the Kahoanos during the War. I stayed with them.

CSH: Oh, and on the weekend you'd come home?

JL: Yeah, I'd just come home and see how they are.

CSH: Yeah. So, would you know anything about how the bunkers were used during the war?

JL: The what?

CSH: The Army bunkers on the beach.

JL: Well, some places they kept people out of the beach because they're training.

CSH: Do you remember which places?

JL: Oh, yeah. Mākaha and Wai`anae mostly. They had these — where the Kamaile School is, when you pass Nānākuli to Mākaha — there was a camp over there that had about 20,000 soldiers over there. They would go down and practice landing war. During World War II, if they had the bigger LST's [?], they were in Wai`anae and Mākaha Beach. They would practice war landing.

CSH: What about Ulehawa side? There's a couple of bunkers over there.

JL: No, they never did touch Nānākuli.

CSH: They never practiced there?

JL: No, just Wai`anae.

CSH: But there's some bunkers there on the beach.

JL: Oh yeah. Definitely. They had to patrol the whole area, that's why. That's all.

CSH: Was there a curfew? I'm assuming there was curfew.

JL: Oh yeah. Eight o'clock, when you hear "Beep, beep, beep, beeeeeeeep." Get home, and then the air raid warden would come around checking up on you. No more lights. They had to shield everything. It was rough.

CSH: So, to your knowledge, the Ulehawa part of the beach was never used for military maneuvers?

JL: No.

CSH: So, did people still go swimming there during the war?

JL: Not that I know of.

CSH: People stayed away from the beach?

JL: People stayed away, because they were gunning. And in some places they put a lot of barbed wire. You know the rolled barbed wire. Oh, yes. That's right.

CSH: Did Ulehawa have that?

JL: That I can't say. Not that I know of. The reason why I say that, because most of the time, during the war years, I lived in Kalihi. I worked for the Navy contractors. Wai`anae and Nānākuli were small. In 1946 the census of Wai`anae was, totally, a little over 4,000. Today its up to 40,000.

CSH: Do you know anything else about Ulehawa? The stream, the drainage or the beachfront?

JL: A very good friend of mine, Mr. Joseph Dwight Sr. who was the President of the Territorial Agriculture and Forestry Board, he was a big *ta-ta*. Well, he — and I like to tell you stories — in 1922, Prince Kūhiō, a delegate to Congress, came to Hawai`i and he called the Hawaiian leaders together. And he told them that President Grover Cleveland is going to sign the Homestead Act, and that means that the President will have to appoint a Governor, and the Governor will appoint a commission and “be careful”. So what they did, they organized the Honolulu Hawaiian Civic Club. William Hee was the first President. Lang Akana was the first Vice President. And old man Dwight, Joe Dwight, was the second Vice President. He stayed on — I don't know what kind of a ruckus he got into — but he was a *po`o pa`akikī* [hard-headed, stubborn] guy. But this man was a brilliant man. I'd like to tell you stories about him 'cause it's true. He talked about that his grandfather came around the Cape and the Panama Canal was still being built. So, they came around the Cape to bring the missionaries here. They came down with their wives. He's the only one that didn't have a wife. So, they all scattered around. They gave him Moloka`i to spread the word of God. Two years later, he got kicked out of the church. And why? Because he married a Hawaiian [laughs]. Kicked him out of church! What a bunch of hypocrites! But, Joe tells me, in fact, Joe Dwight himself, through his effort, created the Association of Hawaiian Civic Clubs. We had a council of Hawaiian Civic Clubs. And we went into this meeting. Supposed to meet at 9:30. We had a quorum by 9:00. He says, “Lets go into this convention, give me the right to say that we approve it right now, we can call the meeting to order, that we're going to create the Association of Hawaiian Civic Clubs, and give me one year to put everything in motion and we'll get committees set up for it. We went along with him. So when they called the meeting at Princess Ka`iulani, that was our first meeting of the convention of the Association of Hawaiian Civic Clubs. I have learned a lot from this old man. Practical experience. That was my second home.

CSH: Did he tell you anything about Ulehawa?

JL: He lived right next to it. No. Because it was just a big stream that came up all the way from [miss a few words] all the water from over here from the ranger station, on that end of it, by the mountain side, they had their own stream going down there to Mā`ili`ili. But this end, all the water went down from here, up in the valley here, down to Ulehawa. That's what it is. But hardly any people lived around there, outside of Dwight. Today, what? Can you imagine, as I said and I'd like to repeat,

that in about the 1940's the total population of the whole Wai`anae District was a little over 4,000 people. That's telling you how small [the population was], small population.

CSH: Do you know anything about Nānākuli Valley?

JL: Well, let's look. No.

CSH: You were down this side more?

JL: Sure, I was down this side. But the trouble is, Nānākuli was a small homestead. Everything was down. People used to go up there pig hunting, yeah. There's no question of that. All the way along the Wai`anae coast, the *mauka* side, there was pigs all over, wild pigs.

CSH: Are you aware of any old Hawaiian trails up there?

JL: Gee, not that I know of. As I said, where there's water, there's life. There's no water, no life. Just like going up the Big Island. You got the pāhoehoe, nobody's gonna go up there and build a trail. There's nothing there. But if Nānākuli had water — the only time they had water is during the big rainy seasons. When they had the *kona* weather coming, then you had water. Wai`anae had a lot of water, *mauka* [had] plenty — Kūmaipō.

CSH: When you were growing up, did you hear any stories about Māui? Māui the demi-god of the Māui legends?

JL: Gee, I kind of forget. We were very limited in Wai`anae. We had a very small population. And very few of the people were leaders. But Mākua had some brilliant people. Lets see, old man John Nāiwi. His father, he was really Andrews. Old man Sam Andrews was a *haole*.

CSH: Is that related to Camp Andrews? Was that named after him?

JL: Camp Andrews, could be. Sam Andrews came out here and he, Sam Andrews, at Mākua, his wife was Hawaiian, and he used to beat the hell out of her. And John Nāiwi was Andrews. But he saw that *haole* beating up his wife. When he died, John Nāiwi changed his name to his Hawaiian name, Nāiwi, but he was an Andrews. And they're all buried at the cemetery at Mākua. I learned a lot from this old man. Brilliant. He went to Kamehameha. He was one of the few people from here that went to Kamehameha. As I said, his last name was Andrews. He changed it because he hated his father. He took the name Nāiwi. And all his kids went by Nāiwi, the mother's name. Originally, as I understand it, she came from Maui. That was my second home. He had pretty daughters [laughs].

CSH: Did he tell you any legends or stories about the area?

JL: No. But there were, I know. The only thing that I can tell you is what is in here. I know what the meaning of Lualualei means because it's in here [Referring to *Sites of O`ahu*]. Now, lets think about Mākua. [Starts singing: *lei Mākua i ke one pi`o piopio, lei Ko`iahi.*] Ko`iahi. Here's Ka`ena point. Here's Mākua. And up on the hillside, you see everything green up there. And that's because the way the mountain is, this and this, the clouds would come right into Ko`iahi and bring the dew and water there. That's why the song is *Lei Ko`iahi i ka Maile Lau Li`i*. This is where all the *maile* was. That was the only part of Mākua that was green. During the wintery months, it was green like hell. Everything was green, but, basically, as a whole, Ko`iahi had the mist coming in over the gap in the mountains coming in to Ko`iahi. Mākaha *mauka* had [water], but most of the water was really in Wai`anae. And there's a pocket up here where the Navy is — that used to be all taro patch land.

There was maybe about two or three hundred people living in all Nānākuli. All in the lower area.

CSH: Down by the beach?

JL: Yeah, down by the beach. And as you come in there's the Elis. And old man Simeona Eli and them. They were one of the few first.

CSH: But he passed away?

JL: Oh, yes. His son is Danny, and Danny's not in good shape. One thing I like about Danny, he was the first Hawaiian that went off to University. He turned out to be a surveyor. And he's a member of our Lualualei Lions Club, but he's not in good health. All of us, we're all getting old now. We're *elemākule, paha* [old men].

CSH: So, you don't really know anything about the area *mauka* of Nānākuli High School.

JL: No. As I said, the only thing over there, there was no people 'cause there was no water. It was dry. Now, people used to go up there hunting, bring their dogs and go *mauka* side, way *mauka* here. It's wet up there. They go for wild pigs.

CSH: I noticed that Palikea is really green right now.

JL: That's right. So, you see, where you see water even 'til today, that means its always been there. But outside of that area, no. As I said, the development of Nānākuli, like any other thing, began here and then it worked its way up. Until today, Nānākuli looks so big. I was up there the other day driving around. Oh, my God, I got practically lost.

CSH: All those houses are new to you?

JL: Well, let me put it to you this way. We have about over 40,000 people living in the Wai`anae District. In 1946 there was only about 4,000 people that lived in this

whole area. It has grown tremendously. And the Hawaiian Homes is gonna continue to grow big, because why? They got the land. It's happening right in front of our house. Look at Wai`anae *mauka*, all Hawaiian Homes. And right below the Hawaiian Homes is an area, right down by the side of the Mountain, is an area known as Anā. This was all taro patch lands.

CSH: What area is that?

JL: Upper Wai`anae valley, when you go up Hawaiian Homes on this side, right near the mountain. You can see all the Hawaiian Homes coming down. At the bottom of it was Anā. And they had a big trestle going into the tunnel. I get angry sometimes. The reason why I say that, they dammed *mauka* to divert the water and all the Hawaiians, including my grandmother, Nā`uhane and them, everything dried up. That's what the white man did. And you know where they diverted the water to? The biggest coconut grove on this island was here at Pōka`ī — *ulu niu o Pōka`i*, the coconut grove of Pōka`ī. From the mountain all the way up was a huge coconut grove and it was because all that water coming out of Kūmaipō came down alongside of the mountain and came this way. When they dammed up the thing, half of the coconut grove was wiped out. The plantation planted cane.

CSH: What year was that, about?

JL: About 1946. They took everything away. No, that was before, lets say about 1920's. They did away with all the coconut trees and they planted sugarcane. In 1946 the Capital Investment Company came in and they demolished all the rest of the coconut grove. That's why they talk about Pōka`ī, *ulu niu o Pōka`i*, the coconut grove of Pōka`ī, all the way down to the ocean. But we did some crazy things. Look at that breakwater. If I knew that, I was one of the biggest supporters of it. I was President of the District Council. We went for it. Just because our good friends were all Japanese sampans. We went along with it. We made a big mistake. We should have put it way down on the other end. There were two sites. But, because of the canoes and the sampans — take care of them. You know what we did, we wiped out a beautiful area by Kāne`ilio Point. During wintery months, all the sand would shift and go all the way down on the Army rest camp side [Wai`anae Army Recreation Center]. Then, when just about spring comes, the current changes and all of a sudden the sand was coming back. I take that back. The sand was there, but during the summer months, all the sand would shift and go back to the Army beach side. And when it did, they had waves down by Kāne`ilio Point, waves about two or three feet. We used to go surfing with the canoes. We go borrow the canoes, and one day my cousin, Albert Silva was coming down. Catch a good wave, about three feet. Gee, we saw this big stone, big coral stone — cracked the canoe! We got up and ran away. *Kolohe!* I had a good life. Never to hurt people.

CSH: Can you think of any other songs or chants that mention Ulehawa or Nānākuli.

JL: Very few. Nānākuli, as I said, came after, I would say in the [19]30's when the

Hawaiian Homes opened up that property. That was the beginning. Before that was all ranch land. They put *pipi* [cattle] in there. Lou Warner. He had *pipi* up there.

CSH: He had a lease?

JL: He had the lease from the Territory of Hawai`i. And McCandless did the same thing — a lot of lease lands. All Mākua, Keawa`ula, `Ōhikilolo was his. But, all the rest and Kokolā [?] on top was all Territory of Hawai`i. Wai`anae was a big ranching area. I used to like to tell crazy things. Just during the war, before the war, they used to come up and radio station, and certain times of the day they would — because it was dry up there — they had to shift cattle. So in Wai`anae, we lived right in back of the police station. And, maybe twice in three months, about nine o'clock in the night, you'd hear the cattle with the bells over there on their neck. They'd ring 'em. And they go through the town of Wai`anae. All the cows and all the cowboys in back going right through the town of Wai`anae. "Boom, boom, boom!" You could hear their hoofs and the cowboys whack with the whips, going all the way down to Mākua. Wai`anae was really a cowboy town, really.

CSH: So, it was mostly ranching and sugar.

JL: Yes. Later on sugar, yes. That's right.

CSH: Sugar came in . . . ?

JL: Oh, way back in the 1890's they started out. Oh, I tell you, it was so beautiful, but I saw so much suffering. Under the plantation caste system, the white man was God. I remember that. I hated that system. You had to be an Anglo-Saxon. And, I'd like to tell you, I'm glad you have that on [referring to tape recorder]. This particular day, right down Mākaha, at the end, by the surfing beach, that was Field 28. They had a lot of sugar over there. And the field boss was a part-Hawaiian by the name of Jack Meyer. Kauki was German-Hawaiian. He was the boss of everything over there. I was just a young kid. By the road, the railroad track, and then the cane field. If it got on this side, falling down from the cane cars, we would have to throw 'em on the other side. And once a week they'd go over to cut through (they put that gate in) and take 'em down to the mill.

CSH: Now, you mentioned that you were cousins with Sonny Poe?

JL: All the Poes in Wai`anae, we're all related to one another. And who [do] we come from?

JL: Kīwala`ō. We can trace our line. I tell people about it. We did it! And I don't take credit for it. We [emphasized] did it. We get the data. The wives of Kalani`ōpu`u. Oh, my god! *Kūka paila!* Then it gives you the break down of all the *ali`i* in this one here. And then Kahaopoe, she died in 1899. I know where her grave is. In fact, the other day, I was visiting it when one of us died. And, this one was the friends and

the enemies of the Queen. Most of them are all good. But we had some *hapa-haoles* who loved the "whites". This is Kananipai. This is my family. Gee, this goes way back. Gabriella Kahau, born 1878. August, 1883. All this data. So my cousin Dan say that I hide *kaona*. I don't! I have all this things. Akiu, see, that's my aunt, Aniu, Kahau, Kaliko [spelling for names?] The last two are all mainland Hawaiians. This is our family, and this is me. Mary Landis, San Francisco, Jay, born. And then it talks about me. We're all glad it belongs to the family. I'm the one that brings everybody together. I am the crazy one. I can get drunk, laugh, sing. I wanna see people happy. And the reason for that is simple. Life is short, life is sweet, you make it sweet. Isn't that good philosophy?

CSH: It is. How are you related to the McCandless'?

JL: My mother was Emma Kalipo Poe McCandless.

CSH: So she married a McCandless?

JL: No, she didn't. *Manuahi*. [*wahine manuahi*: common-law wife] But, they're good to us. And the reason for that is me, *ihu`ūpepe* [flat-nose]. I look like 'em. The last time, it was Kalena [Silva] and I, we were up at the Volcano House. This was about a year ago. And they looked at me, "Jay, look at you, look at you up there." It was [a picture of] McCandless when he was young. I look like him! But the McCandless' are good to us. They know we're cousins. They got the money, they got the loot and they take care of us. I've been living here 50 years. The only thing it costs me living here is twenty-two dollars a month for electricity and fifteen dollars a month for water, with a big mango field. They been good to me. I get a salary for me, they give me interest, and I got two pensions. Hey, I am well off. I get taken for a ride sometimes. Very kind, I try to be. Recently I even had this Samoan couple, they claimed they were tight up. I gave them sixty dollars, they promised to pay me on Saturday. Nobody showed up. So what. Two girls came, I have a baritone *ukulele*, loaned it to them. Never come back. Maybe they needed it. I have no hate towards them. Sometimes, you stick your neck out, you get.

CSH: Well, I am mainly here to find out about Ulehawa and, I think we've covered that, Nānākuli Valley.

JL: As I said, Lou Warren was up there. He had a ranch.

CSH: What was the name of his ranch?

JL: I don't know. Nānākuli. But, I know, Lou Warren, he was a railroad man. He's the one had the ranch up there. The whole place. But *mauka* side had wild pigs. Guys used to go over there and sneak in all the time.

CSH: On the ranch land?

JL: Yeah.

CSH: Now, did you work for the plantation a little bit when you were young?

JL: Yes, I did. Seventy-five cents a day. Wai`anae Sugar Company.

CSH: What kind of work?

JL: Oh, cut grass, clean after a big storm — all the rivers are blocked up. I had to go in there and cut grass. Seventy-five cents, a dollar a day contract. It was a lousy lot. I hated the system!

CSH: How long did you work there?

JL: Oh, about three or four years. Then I moved to town. I went to school in town. I stayed with the Kahoanos.

CSH: How old were you when you worked for the sugar company?

JL: Oh, we were kids. We were students. They called it the Smith-Hughes Act. So once a week we'd go out into the cane fields and work for them. But afterward, I never did work for them. But, I really felt sorry for the Filipinos. The white man was God. He lived on Lihu`e Street in Wai`anae. All the beautiful homes and everything. They had the *Pākē* [Chinese] Camp going out the Army street. There was a *Pākē* Camp. Where the Wai`anae Elementary School is, facing that way was the *mauka* camp. But, mostly Japanese. I'd like to tell you a story and I'm gonna tell it. It goes this way. I'm going to tell you because it's in the book *Historic Wai`anae* anyway. This particular day, the Japanese had their *furo* [Japanese bath] up there. Men one side, women one side. This particular day, Blackie and I drilled a hole for the plug. We stayed out until like six o'clock in the afternoon. All the *wāhine* [women] start walking through, all common bath, all the *wāhine* together. We pull the plug, look, laughing away. The *wāhine* start screaming like hell. We ran away. The next day, the Camp Police, Mike Moss, he weighed about 300 pounds, came looking for us. "Mrs. Silva, where's that nephew?" "Oh, he's here. Why?" "Mamma, I nevah do nothing!" "Come on Mrs. Silva, we just wanna talk to him. Oh, its all right. We just wanna talk to him." "Okay, you're sure?" "Yeah, sure." As soon as he got me in the car, he said, "You damn dirty *keiki makua`ole* [orphan], you!" We go down there in front of the plantation manager's house and Fricke comes out — that jerk with his glasses and his elephant hat. "Come inside here! Where were you at six o'clock in the afternoon?" "I was down da beach." "No, no, no. You was not down da beach. You were up at the *mauka* camp. You were a peeping tom!" "Not me!" "Yes, you got blue eyes, you the only one who got caught!" [Laughs.] I told them to put that in the book [*Historic Wai`anae*].

CSH: And they didn't?

JL: They didn't! Eh, angels are in heaven! You're on earth, you're a sinner! I'm nuts, huh! [Laughs.]

CSH: That's a cute story.

JL: I made sure it was in the book *Historic Wai`anae*. By the way, that book, *Historic Wai`anae*, the author of it is coming down to see me. He's a very rich man today. And he tells me, "You know Jay, you gave my start in life. You don't realize, when you got that money of \$30,000 for that book and you guided me, what people, to write the book *Historic Wai`anae*, you don't know that you changed my life completely." He got married to a Japanese school teacher at Baldwin High and they moved to the mainland. Today, he is very wealthy. He came up with, they call it *South Pacific Prints* in Los Angeles. It's a big company. He's very wealthy. And you know what he says, "Jay, you gave me a start in life when you got the money for the book of \$30,000." And, who helped me? It was Danny Akaka. Yeah. All these guys were a part of my life. Danny was involved because of the Progressive Neighborhood Program. State Act 299. And I was appointed by the Governor to sit on this Board for nine years. Every month, I made up a meeting. Not too long ago, I was at the Community Center and I met this Akaka. Two of 'em are doctors — two cousins. So, when I went one day, recently, and it came out this way. "You're Akaka. Is Kahu your uncle or Dan?" "Oh, Dan is my father." "Good. Gee, I hope to see him. When is he coming back?" "Oh, he's coming back next week, this week coming." "Do me a favor. You know what you do? When you see Dad, tell him, 'Hey, I saw Jay'". He was a part of my life, for nine years we served on the Progressive Neighborhood Programs, State Act 299. Every month I went in for a meeting. And George Ariyoshi was Governor. I got citations on the wall I'd like you to see from two governors. I received the Lions International award, Say No to Drugs. I did everything under the sun to get away from myself to think about this. I'm Catholic, but I'm very open on religion. On day we had Monsignor Vierra and Father Caravalle who later on became a Monsignor. He said, "You know, Jay, you would make a good priest." Father Caravalle said, "Oh no. God wanted him to take care of his Auntie." He's right. Everybody got married, they all went out. They all wanted to take her. "No, Mamma, stay with us." "No, I'm gonna stay with Jay." There's a reason for it — the yard and her friends. They all grew up with her. Auntie Rachel Kaliwahea, all the old bunch, they all were members. They were the founders of the Hawaiian Civic Club. They were all close together. And at the end, I took my aunt all over the place. I went 28 days in the Orient, she went with me. She was about 85 years old, we took her! And I took movies of it. That's my hobby, to take movies. But I've lived a full life. Not to hurt anybody, but have fun, make people laugh. I like to sing Hawaiian songs.

CSH: Do you have any old photographs of Ulehawa to Nānākuli side?

JL: No, all the pictures I had were taken away. I don't know from who. I don't wanna accuse anybody.

CSH: Too bad.

JL: Just one of those things. But as I said, I had a good life. So, I gotta remember your name, 'cause I'm gonna see Glen shortly.

CSH: I'll give you my card.

JL: Please. Yeah, I gotta see Glen.

CSH: Are you going to Hilo?

JL: Oh, yeah. Everytime I go I stay up his place. He got a beautiful home about seven miles from Hilo. Two-story home with four bedrooms. Oh, we all pile in over there, when his sister and brother — I love Kalena Silva. He was very close to his Grandma. Very, very close. In fact, she gave him his start. Every Saturday, every Friday, take him back, Monday come home. Back and forth that way during the school times. And, by the time he was over six years old, he was already speaking Hawaiian. Took him to a convention, Maui Convention and they had the big Hawaiian play and everything. Half-time at the Baldwin Auditorium, [it was] hot, they had a fifteen-minute break, we went outside. All the old people got together. Then, when Glen started to open up, they couldn't believe it. Look at this young kid, going for broke.

CSH: That's pretty loud. You hear that all the time [referring to helicopters flying overhead]?

JL: Oh yeah. But I don't think for long. I firmly believe that sooner or later this whole area's gonna be declared surplus by the Navy. I can see it coming, just like at Mākua. And, I think I know who's gonna get the property back. The McCandless heirs. That was their property. They were forced out through condemnation. Well, anyway that's them. But, they been good to me. They really [emphasized] been good to me.

CSH: Do you know anything about Mākua Valley or any sites there?

JL: Mākua Valley, *mauka side*, as I said, where there's water, there's life. Lower Mākua, the only good thing or good about it was it was a good ranch land. Limitation was water. Where there's water, there's life. No water, no life. So cattle was in there. Cattle. Just like Nānākuli. No water. Ranching in there. Out there was McCandless. Lualualei was McCandless. Mākua was McCandless.

CSH: Do you know anything about Lyman Ranch? I asked Lehua Kapaku if she knew if they were related to the missionary Lymans, and she didn't know.

JL: Oh, they would know. As I said, I went into this very deep. We can go all the way back to our *Tūū* Palea. Palea is a royal name. I tell you, I have it here. I'll give you

a copy of it. I keep my things all over the place. You can keep that. That's the history of us. Kalani`ōpu`u, Kaleiōpu`u. Kalani`ōpu`u, Kaleiōpu`u, when his wife, Kalola, was six month *hāpai*, she called the baby Kalei`ōpu`u. But, they changed it to Kalani`ōpu`u and that was done by the King himself. But, we have a good concept of what the family is about. And *Tūtū* Kanani, as I said, was able to trace our family through the Hawaiian chant. It took Glen to transpose it from Hawaiian into English.

CSH: That's really awesome.

JL: I've been blessed so much. I had children come over here, that's why I bought the mat, the mats over here, television. The kids get kicked out of the house and come over here, 'cause I'm the landlord, more or less. I don't do no collecting rents, but the kids come. I encourage them they come.

CSH: Well, I want to thank you for participating in our study.

JL: Good.

[End of Interview.]