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University of Hawaii
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Department of Land
and Natural Resources
Division of Water
and Land Development

FINAL ENVIRONMENTAL IMPACT STATEMENT

March 1982

Project: Agricultural Subdivision
Phase I Increment for the Waimanalo Agricultural Park

Location: Waimanalo, Koolaupoko District,
Island of Oahu, State of Hawaii

Proposing Agency: Department of Land and Natural Resources
Division of Water and Land Development
State of Hawaii

Accepting Authority: Governor
State of Hawaii

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1 Summary

SECTION 1: SUMMARY

I. Description of Proposed Project

The State of Hawaii, Department of Land and Natural Resources proposes the development of a ±475 acre Agriculture Subdivision at Waimanalo on the island of Oahu. This proposed action will represent the Phase I increment for the complete development of the 1,800 acre Waimanalo Agricultural Park. The project site is located on the north-western face of the proposed Agricultural Park and is approximately 14 miles from central Honolulu over the Pali Highway.

The primary objective of the Agricultural Subdivision is to facilitate the development of diversified agriculture in Hawaii, a goal set in the Hawaii State Plan. Similar to an industrial park, the immediate completion of the Agricultural Subdivision and eventual completion of the Waimanalo Agricultural Park would bring together agricultural enterprises with compatible interests. By centralizing agricultural activities, operating and capital improvement costs can be lowered.

The Agricultural Subdivision will be comprised of 15 lots, of which only 14 possess the potential for crop production. The 14 lots will be leased to farmers for 55 years. Under Ag-1 zoning, the farmers will be allowed to produce bananas, flowers, tomatoes, and/or nursery products. Farmers will select which crop to produce according to: (1) the physical capacities of the individual lot, including water, soil, climate, and tillability, (2) the cost and quality of other resources brought to the land, with particular emphasis on water, management, and labor, and (3) the potential market that can be developed without lowering prices significantly.

The 14-lot Agricultural Subdivision will include the construction of a 24-foot wide asphalt concrete pavement within a 44-foot wide right-of-way. Irrigation water will be provided by a new 16-inch pipe system. Other utilities included in the subdivision development will be electric,

telephone and street lighting systems. The State will finance the capital improvement costs for the roadway and water lines. On-site improvements will be funded by each individual farmer.

One single dwelling unit per lot will be allowed, consistent with the Ag-1 zoning.

Estimated costs for the subdivision is \$1,617,000. Funds will be provided from Act 300 SLH 1980, Item IV-A-14, Agricultural Park Subdivision, Statewide.

II. Existing Environment

A. Topographical Characteristics

Geology. The Phase I Agricultural Subdivision development of the Waimanalo Agricultural Park is located on land formed by the lava flows of the Koolau Volcanic Series.

Soil. The soils in the project area belong to the Lolekaa, Hanalei, and Alaeoloa series. For the Lolekaa soils, permeability is moderately rapid, runoff is slow, and the erosion hazard is slight. For the Hanalei soils, permeability is moderate, runoff is slow, and the erosion hazard is slight. For the Alaeoloa soils, permeability is moderately difficult, runoff is rapid, and the erosion hazard is severe.

B. Climatical Characteristics

Rainfall. The mean annual rainfall is approximately 44 inches a year. Occurrences of heavy rainfall are infrequent.

Wind. The prevalent winds blow from the northeast, 80 percent of the time.

Temperature. Daily temperatures are mild and uniform, ranging from 70°F. in January to 78°F. in August. The average annual temperature is 74°F.

Humidity. Relative humidity ranges from 70-80 percent, with the winter months being more humid than the summer months.

C. Hydrological Characteristics

Surface Water. The perennial Waimanalo Stream is the only surface water that runs through the project site. Other waterways in the immediate vicinity are the Inoaole and the Kahawai Streams.

Groundwater. Groundwater occurs as brackish basal water, dike-impounded water, and alluvial water.

D. Biological Characteristics

Flora. A field investigation of the project site revealed nine major plants units. The majority of the species were introduced and were not considered threatened or endangered by State or Federal agencies.

Fauna. Terrestrial fauna in the project site include introduced species associated with urbanized areas. The site does not contain any significant wildlife habitats or any endangered species of birds and mammals.

E. Archaeological Sites

A heiau was identified adjacent to the project site and the Kailua Ditch was located on the project site.

F. Flood Hazards

Flooding. Flooding at the site is infrequent. However, two of the lots are located within the United States Department of Housing and Urban Development (HUD) 100-year flood boundary.

Tsunami Inundation. Tsunami inundation along the coastline of Waimanalo Bay, as recorded from the 1946, 1952, and 1960 tsunamis, indicated that runup ranged from 6 to 9 feet over the mean lower-low water level.

G. Infrastructure and Utilities

Domestic System. Water is transported to the fringes of the project area by the Board of Water Supply (BWS) domestic system, which maintains a system of source, wells, storage, mains, and fire hydrants within the Waimanalo Valley.

Waimanalo Irrigation System. The Waimanalo Irrigation System currently provide irrigation resources to the Waimanalo area. Water, mostly from springs, is collected by a series of ditches and transferred from Maunawili Valley, down to farm lands in Waimanalo.

Electrical. Electricity to areas adjacent to the project site is supplied by Hawaii Electric Company from overhead 4.16 kilo volt, solidly grounded lines along Kalaniana'ole Highway, Flamingo Road, Kumuhau Street, and Waikupanaha Street.

Gas. The only gas lines located within the immediate vicinity of the project site are within the Waimanalo Village Subdivision, southeast of the site.

Sewage. The Waimanalo Sewage Treatment Plant (STP) is located northeast of the project site. The STP provides secondary treatment, as effluent is discharged into three deep injection wells.

Solid Waste Disposal. Solid waste from adjacent areas is picked up by the Refuse Collection and Disposal Division of the City and County of Honolulu, and disposed at the Kapaa Sanitary Landfill.

H. Public Facilities and Services

Police Protection. The project area is serviced by the Kailua Police Substation and is patrolled by Police Beats Nos. 420 and 421. Response time to the project area is within ± 5 minutes.

Fire Protection. The project area is serviced by the Waimanalo Fire Station and Kailua Fire Station. Response time for both stations is within ± 5 minutes.

Health Services. Castle Memorial Hospital is located approximately 3 miles from the project site.

Education Services. The Waimanalo area is served by three public schools. These include Blanche Pope Elementary, Waimanalo Elementary and Intermediate, and Kailua High School.

Access. The Kumuhau and Waikupanaha Streets provide access to the outer fringes of the project site. The mass transit system servicing the Waimanalo area is the No. 57 route, Waimanalo-Honolulu.

I. Economic Characteristics

Diversified agriculture in the State climbed to a high of \$152 million in 1979, up 13 percent from the previous year. During these times, Oahu produced only 34 percent of the State's total value of diversified agriculture commodities. The total value of diversified agriculture commodities for Oahu was \$51 million. Waimanalo has contributed significantly to the diversified agricultural industry of Oahu. It was estimated that the total 1976 farm value of crop and livestock

sales from Waimanalo was approximately \$6 million. Further confirmation of Waimanalo's importance to the diversified agricultural industry can be extrapolated from a document prepared by the Hawaii Agricultural Reporting Service. The report showed that the Koolau-poko District, of which Waimanalo is the major production center, ranked the second highest in value of diversified agricultural production on Oahu. The variety of commodities which are produced in Waimanalo is extensive and includes: dairy operations, poultry operations, nurseries, and truck crops.

III. Regulatory Considerations

A. County

Zoning. The project site is zoned Ag-1, Restricted Agricultural District.

General Plan. The proposed Agricultural Subdivision is in conformance with several objectives and policies of the General Plan. The City and County of Honolulu's Detailed Land Use Map (DLUM) designates the project site as providing for agriculture, residential, open space, and park uses.

Development Plan. The project site is designated "agriculture" by the proposed Development Plan.

B. State

State Land Use Designation. The State Land Use Designation for the project site is "agriculture."

Hawaii State Plan. The Agricultural Subdivision is in direct compliance with several policies and policy directions detailed in the Hawaii State Plan.

IV. Anticipated Environmental Impacts and Mitigative Measures

A. Primary Short-Term Impacts and Mitigative Measures

Activities related and limited to the duration of the construction period.

Economic. During the construction of the Agricultural Subdivision, there will be a short-term infusion of cash into the State and County economy.

Air Quality. Dust will be generated, but not at significant levels, since the majority of soil type found at the site is not subject to excessive wind and water erosion.

Exhaust emissions from construction equipment are not expected to significantly affect the air quality of the area. The prevailing winds in the area should disperse any exhaust gas concentrations.

Water Quality. Erosion and sedimentation problems are not expected to significantly impact the Waimanalo Stream located on the project site, since the soils are characterized by slight erosive activity. The impact of construction can be further mitigated by adhering to current County, State, and Federal controls.

Traffic. Impacts of increased traffic due to construction will be minor because of limited adjacent development and the confinement of clearing activities to the project site.

Noise. Noise generated by construction machinery will be mitigated by utilizing acceptable methods.

Biological. No vegetation or fauna found at the project site are considered threatened or endangered by State and Federal agencies. Fauna in the immediate vicinity may relocate into adjacent areas, but would be able to return, upon completion of construction.

Archaeological. A heiau was identified adjacent to the project site. It is anticipated though, that construction activity will not possess any adverse impact, due to the distance between the project area and the heiau. The Kailua Ditch located on the project site will be minimally impacted, since the Ditch has been recorded, possesses insignificant architectural features, and is currently abandoned.

B. Primary Long-Term Impacts and Mitigative Measures

Economic. The long-term economic impact from the proposed project is difficult to ascertain at this time. However, there will be an increase in agricultural jobs; purchases of agricultural supplies; revenue to the State from the long-term leasing of the land and taxes on the sale of supplies and produce; and revenue to the County from increased property taxes on agricultural lots.

Air Quality. Impacts on ambient air quality are not anticipated to be significant. Each of the farmers will use EPA approved herbicides and pesticides and will be required to take courses and receive instructions before being granted a permit to use herbicides and pesticides. Certain agricultural crops may require the burning of excess vegetation. As noted, a permit would be required.

Water Quality

Surface Water. Impact to the surface water quality of Waimanalo Stream should be insignificant due to the "flashy" characteristics of the stream and the infrequent occurrence of rainfall in the Waimanalo area.

Groundwater. No impact on the groundwater quality is anticipated, since there has been no adverse impact on groundwater from existing agricultural land uses.

Erosion. Erosion will occur normally on agricultural lands. Farmers will be advised to follow Federal erosion controls.

Noise. High levels of noise will not be generated.

Biological. The project area is not considered to be a sensitive wildlife habitat area, nor does the site contain any endangered species of plants or animals.

Archaeological. A heiau was identified adjacent to the project site. It is anticipated that the Agricultural Subdivision will not adversely impact the heiau.

Utilities

Irrigation. Estimating water demand for the Agricultural Subdivision requires consideration of a complex interaction of changes in wind, rainfall, isolation, and plant growth rates. However, it was estimated that a demand of 275,000 gallons per acre during August, the most arid month, and 55,000 gallons per acre during December, the most wet month could be found.

Irrigation resources to the project site will be provided by a new 16-inch pipe system from the tunnel portal. However, this will be a temporary arrangement.

The USDA Soil Conservation Service, in their Watershed Plan and Draft Environmental Impact Statement, will provide necessary irrigation resources to the Agricultural Subdivision by constructing a 60-million gallon capacity reservoir located at the end of Mahailua Street.

Fire Protection Water Flow. The project's proposed action will include provisions for fire protection and appurtenances. Resources will be provided by the Kailua Reservoir and the proposed reservoir located at the end of Mahailua Street.

Liquid Waste Disposal. The Agricultural Subdivision may be serviced by cesspools since the project site is located makai of the Board of Water Supply's "Pass/No Pass Line." However, final determination for allowing cesspools must be made jointly, by the Department of Land and Natural Resources and the Department of Health, in addition to the Board of Water Supply.

Solid Waste Disposal. The bridge located on Waikupanaha Street was determined by the County Refuse Division as being adequate in providing access for refuse collection vehicles. All solid waste will be disposed at the Kapaa Sanitary Landfill.

Potable Water. Potable water will be furnished subsequent to BWS approval.

Drainage. To minimize adverse impacts resulting from the 100-year flood and other natural flood hazards, lease documents will be worded to prevent encroachment into the flowage easements. The proposed action will provide for culverts and additional drainage appurtenances. Runoff water should also percolate naturally.

Gas, Electric and Telephone. There exists sufficient gas, electrical, and telephone services to satisfy demands.

Public Facilities and Services

Traffic/Access. The impact of additional traffic to the project site will be minimal. Access to the project site will be provided by a 24-foot wide asphalt concrete pavement within a 44-foot wide right-of-way.

Security and Emergency. Each individual farmer would be responsible for providing security for his farm equipment and his parcel of land. Emergency facilities are located within the immediate vicinity for medical services, police and fire protection.

Social. The Agricultural Subdivision will have no significant impact on the adjacent communities, since it will respect the agricultural and rural atmosphere of the completed Waimanalo Agricultural Park development and the entire Waimanalo area.

Agricultural Industry. Operation of the Agricultural Subdivision will aid in promoting diversified agriculture in the State, and will not negatively impact other farming operations.

C. Secondary Impacts

Use of this area as an Agricultural Subdivision will preclude other actions for the land. The proposed subdivision will also provide educational opportunity to those individuals interested in agricultural production.

V. Alternatives to the Proposed Action

No Action

A "no action" alternative would not accomplish the objectives of the Department of Land and Natural Resources. These objectives are to provide land for diversified agriculture, to provide land for practical experience in the areas of agriculture, and to provide an opportunity for the small farmers.

Alternative Sites

Presently, there are nine committed Agricultural Park projects in various stages of planning, design, construction, or completion.

However, the project site should be utilized as an Agricultural Park since the land is available for immediate use, minimal land acquisition costs are involved, and the parcel is located in close proximity to the Honolulu market and to shipping facilities in Honolulu Harbor.

Alternative Uses and Development Concepts

The project site is designated "agriculture" according to the State Land Use District boundary, the City and County of Honolulu General Plan and proposed Development Plan, and is zoned Ag-1. Alternative uses of the land other than those compatible with the agricultural land use designations would require changes in the State Land Use designation as well as the County General Plan, Development Plan and Zoning Designation.

VI. Irreversible and Irretrievable Commitment of Resources

Labor, construction building materials and fuel will be committed to the project. Additional manpower, fuel, fertilizer and pesticides will be utilized by the individual farmers for cultivation of the agricultural products.

VII. The Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

The proposed project will not involve trade-offs between short-term environmental gains at the expense of long-term losses, narrow the range of beneficial use of the environment, or propose long-term risks to health and safety.

VIII. An Indication of What Other Interests and Considerations of Governmental Policies are Thought to Offset the Adverse Environmental Effects of the Proposed Action

The development of an agricultural park in this area will be in accordance with the goals and objectives presented in the objective of the Agricultural Park set forth in Chapter C, 171, Part V of the Hawaii Revised Statutes, to strengthened diversified agriculture in Hawaii by a plan that "combines and concentrates in a common location agricultural activities for the purpose of production and distribution of the economy."

The proposed action is also in accordance to the County General Plan, the State Plan, and proposed Agricultural Functional Plan. All of these plans possess policies supporting the need for diversified agricultural activities to strengthen the State economic base.

2 Introduction

SECTION 2: INTRODUCTION TO WAIMANALO AGRICULTURAL PARK

I. Definition of an Agricultural Park

Chapter 171, of the Hawaii Revised Statutes, enables the creation of "agricultural parks" and defines them as any agricultural complex which combines and concentrates in a common location agricultural activities for the purpose of production and distribution economics. Agricultural structures (farm and employee dwellings) necessary to the production and distribution of agricultural commodities are considered part of the agricultural park.

The Department of Land and Natural Resources (DLNR) has been authorized to acquire by lease, exchange, direct purchase, or eminent domain, private property for disposition as agricultural parks. Such disposition shall be by lease only and may be by negotiation, drawing a lot, or by public auction.

The DLNR is also empowered to develop, on behalf of the State or County in partnership with others, agricultural parks which shall be exempt from governmental regulation regarding zoning, subdivision, construction and building standards, providing that:

- A. The development is situated within a State Land Use Agricultural District;
- B. The development does not contravene any safety standard or tariff approved by the Public Utilities Commission for public utilities;
- C. The DLNR shall have first presented the plans and specifications for the development to the legislative body of the County where the development is proposed. The County shall then have the right to approve or disapprove the development within forty-five days after presentment. If no action is taken within forty-five days after presentment, the development shall be deemed approved;

- D. The final plans and specifications for the development approved by the legislative body shall constitute the zoning, building, construction and subdivision standards for the development. No action shall be prosecuted or maintained against any County, its officials or employees, due to the actions taken by them in reviewing, approving, or disapproving such plans and specifications. The Chairman of the DLNR or the responsible County official may certify maps and plans of lands connected with the development as having complied with applicable laws and ordinances relating to consolidation and subdivision of lands. Such maps and plans shall be accepted for registration by the Land Court and Registrar;
- E. The State shall assume the responsibility of maintaining all roads within State-sponsored agricultural parks except for dedicable standard roads accepted by the County for their maintenance.

II. Historic Overview

It was concurrently resolved by the 1977 Regular Session of the State House of Representatives and Senate that the State Department of Agriculture perform a study to ascertain the need for an agricultural park in Waimanalo. The completed study, "Recommendations for a Waimanalo Agricultural Park", resulted from this Legislative mandate and provided a thorough assessment of implications of any agricultural action taken in Waimanalo. This report also provided a more detailed overview of the past and present condition of the Waimanalo area and is the source of information contained in the following:

Historically, Waimanalo has been an important agricultural area for Oahu. From about 1850 to 1880, Waimanalo was a cattle, sheep, and horse ranch. Between 1880 and 1947, sugarcane was grown by the Waimanalo Sugar Company. After 1947, agricultural lots ranging from one to 20 acres were created. They were leased to various individuals and farmers for the growing of diversified agricultural products. In

1953, the leases (which were purchased by the Waimanalo Agricultural Development Company) expired; the Territorial government (at that time), terminated the old leases issued under the Development Company and began developing the Waimanalo Farm Lot Subdivision.

The Territorial government developed a total of 63 lots of about 9 acres each. Presently 59 of the 63 lots are held in fee simple ownership. The lots were sold at a public auction with preference given to farmers already located in Waimanalo. The lots were sold for less than \$1,500 per acre. Conditions of the sale required that for a period of 25 years, no more than one dwelling could be located on each lot; the lots could not be subdivided into parcels of less than 5 acres, and the lots would be exclusively used for agriculture.

III. Phasing Overview

The Department of Land and Natural Resources (DLNR), in cooperation with the State Department of Agriculture, proposes to establish a large-scale Agricultural Park on approximately 1,800 acres of State land at Waimanalo.

The development of the Agricultural Park will be in five (5) phases. Phase I of the development shall include the subdivision of approximately 475 acres (portion of Tax Map Key: 4-1-08:13) into 15 lots of which only 14 lots, or 120 acres, possess the potential for crop production. Construction of an internal roadway, an 16-inch pipe system to provide water, improvements to the Maunawili Collection System, and improvements to electric and street lighting systems will also be included in this phase. Phase II includes construction of a 60-million gallon (MG) reservoir and replacement of ditches with pipes. Phases III and IV include further replacement of ditches. Development of the remaining agricultural lands shall be included in Phase V.

This Environmental Impact Statement will address only the Phase I development increment for the Waimanalo Agricultural Park. The scope of work and

proposed action will therefore, be limited to such analysis. Items consistent with the remaining phasing increments for the complete development of the Park are currently addressed in the Department of Agriculture's "Recommendations for a Waimanalo Agricultural Park"; DLNR's Waimanalo Agricultural Park Development Plan, Report R61", prepared by Park Engineering, Inc.; USDA Soil Conservation Service's "Waimanalo Watershed Plan and Environmental Impact Statement"; DLNR's "Environmental Assessment for Waimanalo Agricultural Park", prepared by Environmental Communications, Inc.; and DLNR's "The Economic Possibilities of an Agricultural Park for Banana Production in Waimanalo", prepared by Evaluation Research Consultants.

3 Proposed Project

SECTION 3. DESCRIPTION OF PROPOSED PROJECT

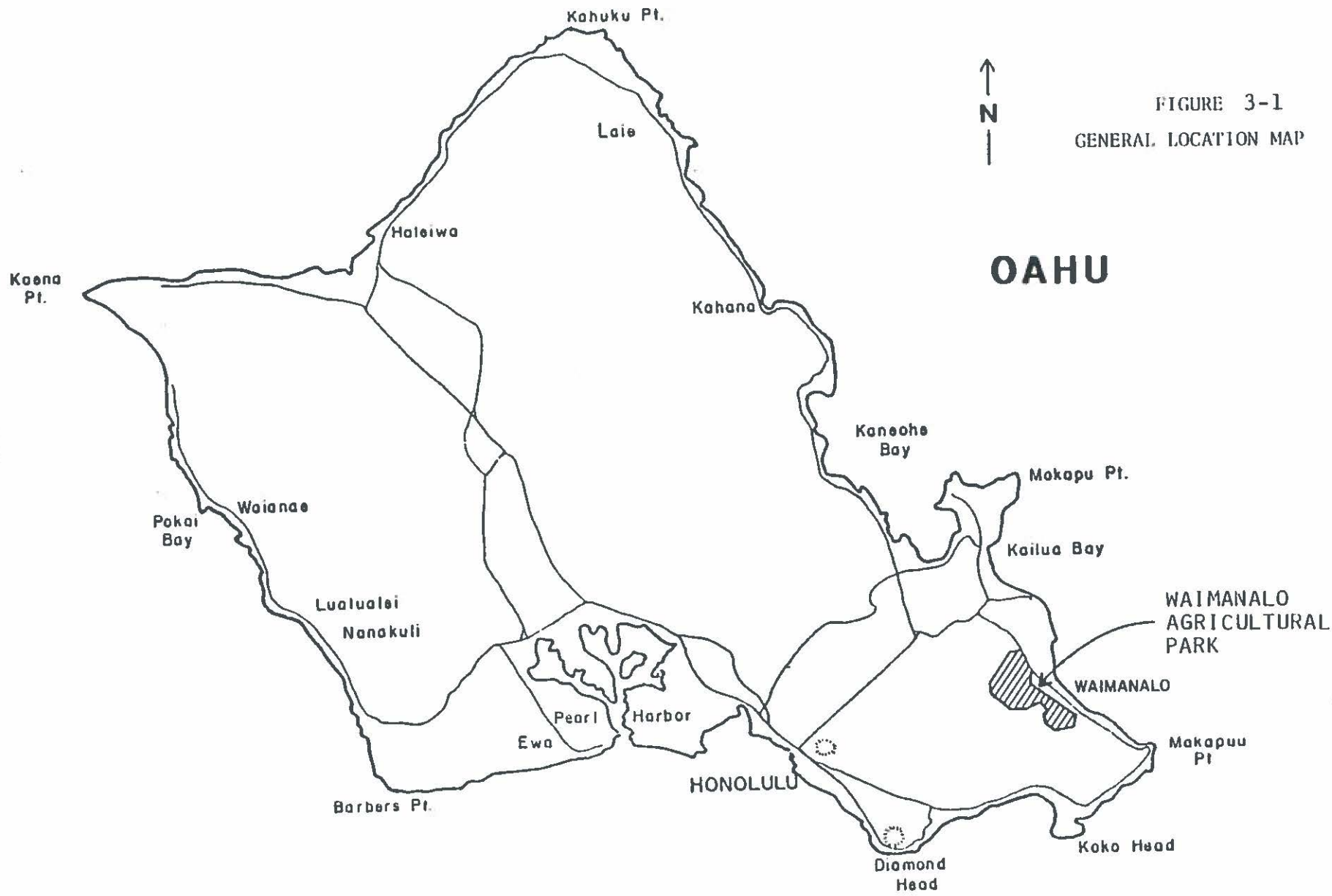
I. Project Location

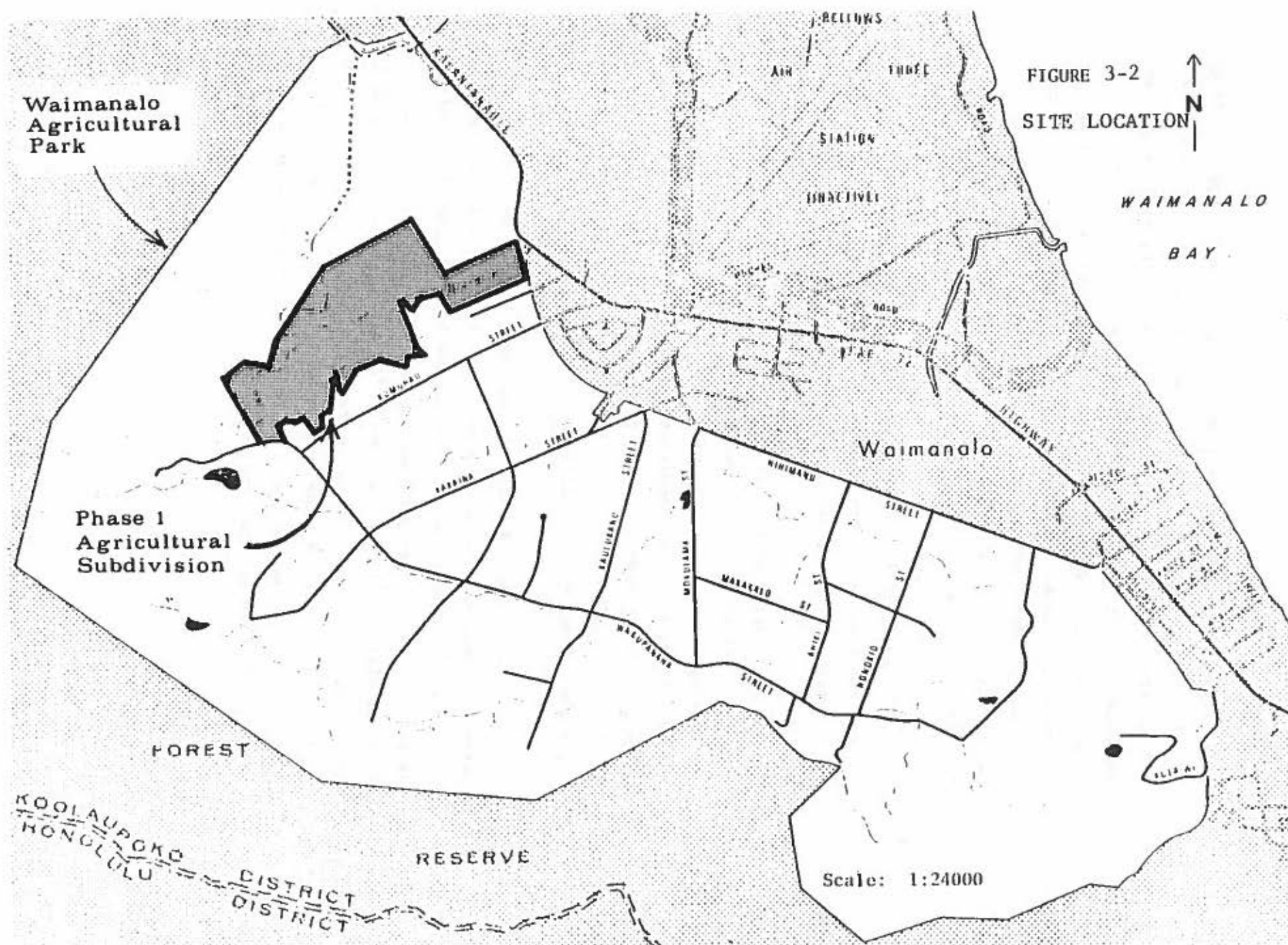
The Waimanalo Agricultural Park is located in Waimanalo, the southernmost valley on Oahu's windward coast (Figure 3-1). The valley is shaped roughly as an equilateral triangle approximately three and one-half (3.5) miles to a side. The entire ahupa'a of Waimanalo include an area of approximately 6,970 acres.

This Environmental Impact Statement is being prepared for the Phase I Agricultural Subdivision development of the Waimanalo Agricultural Park. The Phase I development is situated on the north-western face of the proposed Waimanalo Agricultural Park located on Tax Map Key: 4-1-08:13 and is approximately 14 miles from central Honolulu over the Pali Highway (Figure 3-2).

II. Description of Proposed Action

The first phase of development for the proposed Agricultural Park will include the subdivision of approximately 475 acres into 15 lots (Figure 3-3). The lots will be subdivided into approximately 5- and 10-acre areas. Only lot 15 will be subdivided in excess of these areas, at 355 acres. Lots 1 through 14 will be utilized for diversified agricultural use. However, lot 15 is not suited for agricultural cultivation, due to adverse slopes, and will probably be utilized for grazing. Diversified agricultural use will include the production of bananas, flowers, tomatoes, and nursery products. These crops were selected due to their respective economical and physical viability (Evaluation Research Consultants, 1981).





Viability was based on (1) the physical capacities of the individual lot, including water, soil, climate, and tillability, (2) the cost and quality of other resources brought to the land, with particular emphasis on water, management, and labor, and (3) the potential market that can be developed without lowering prices significantly. The results of these considerations cannot be precise, for variations in weather, labor quality, and the levels of production by other farmers cannot be accurately predicted. Nevertheless, the uncertainties of initiating agricultural enterprises can be lessened by avoiding certain crops and by designing the overall project in a manner that will result in efficient use of available resources, particularly in the long run. Table 3-1 presents the recommended agricultural uses to be cultivated on the subdivided lots.

The rationale utilized for determining lot size dimensions was a tedious one that required constant communication between the environmental engineering consultants. The final lot size determination was based on the Evaluation Research Consultants' report entitled "Potential Agricultural Uses of Phase I of the Proposed Waimanalo Agricultural Park", specifically analyzing tillable lands, adversity of slopes, and minimum lot sizes necessary to cultivate recommended agricultural uses.

Construction of single-family detached dwellings in conformance with current zoning, will be allowed per lot. The lots will be leased for 55 years. The State also proposes to set leasing conditions which will assist in retaining the agricultural nature of the Waimanalo area. These conditions will include the proliferation of diversified agricultural use (i.e. bananas, flowers, tomatoes, and/or nursery products) upon the leased lots and the encouragement of crop production which will be economically viable and will not adversely impact the market prices of other Hawaiian agricultural goods.

TABLE 3-1

RECOMMENDED AGRICULTURAL USES

<u>Lot Number</u>	<u>Lot Size (in acres)</u>	<u>Recommended Agricultural Use</u>
1	10.7	Diversified Agricultural
2	6.2	Nursery
3	9.2	Diversified Agricultural
4	10.1	Diversified Agricultural
5	9.9	Diversified Agricultural
6	10.7	Diversified Agricultural
7	10.1	Diversified Agricultural
8	10.1	Diversified Agricultural
9	9.3	Diversified Agricultural
10	9.9	Diversified Agricultural
11	8.0	Nursery
12	7.1	Nursery
13	5.9	Nursery
14	5.6	Nursery

The 14-lot agricultural subdivision will include the construction of a 24-foot wide asphalt concrete pavement within a 44-foot wide right-of-way. This road will begin at the intersection of Kumuhau and Waikupanaha Streets, extending mauka. From that extension, a road to serve the 14-lot subdivision will be built. The road will conform to the City and County of Honolulu's Typical Agricultural Road section and will be dedicated to the City for maintenance. The bridge located approximately 100 feet from the Kumuhau Street and Waikupanaha Street intersection has been determined by the Department of Public Works as being adequate in providing access for heavy vehicles to the project site.

Irrigation water to the 14-lot subdivision will be provided by a new 16-inch pipe system extending from the tunnel portal to the subdivision. The existing ditches from the tunnel to the Kailua and Maunawili Reservoirs will remain in use until construction of the new 60-million gallon reservoir, located at the end of Mahailua Street, is completed (Figure 3-4). Water for the Phase I lots will be issued only on Tuesday, Thursday, and Saturday, while the remainder of existing agricultural lots will continue its Monday, Wednesday, and Friday schedule. Planned improvements to the Maunawili source will increase the total irrigation flow available to Waimanalo. Other utilities to be provided include electric and street lighting systems.

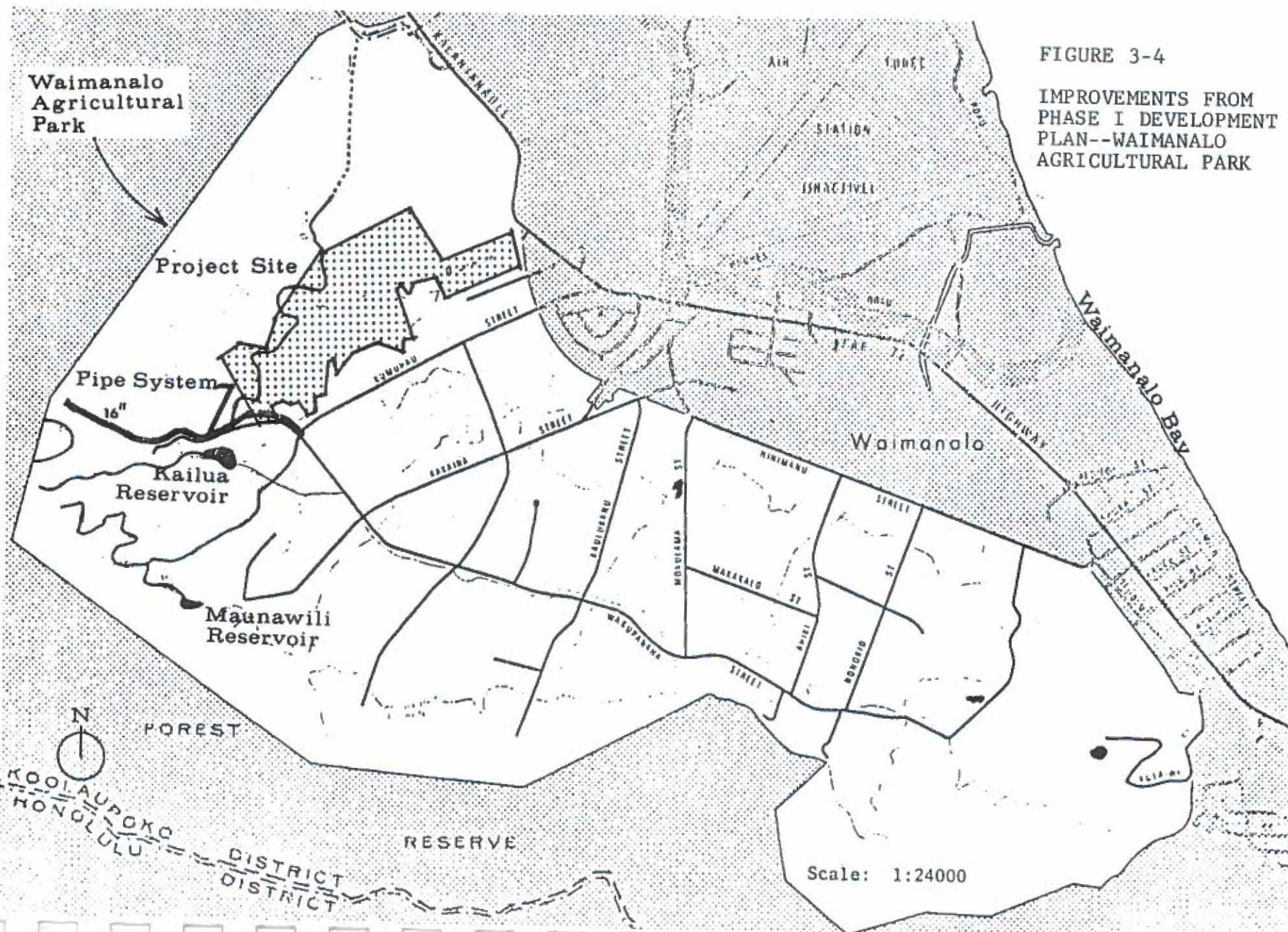
Construction of storage structures to house farm equipment and supplies will be permitted. Fire protection for these structures will be provided with the installation of fire hydrants connected to the irrigation pipeline. Water for fire flow will be pumped into this system from the Kailua Reservoir.

Potable water will be furnished subsequent to Board of Water Supply (BWS) approval.

III. Goals and Objectives of the Proposed Action

In 1972, Act 110, Session Laws of Hawaii, documented that:

IMPROVEMENTS FROM PHASE I DEVELOPMENT PLAN--WAIMANALO AGRICULTURAL PARK



"There is a growing scarcity of agricultural lands throughout the State caused by urban encroachment which has made it difficult for agricultural enterprises to survive and has caused the erosion of the agricultural base of the economy; that urban encroachment has caused the unplanned relocation of livestock operations many times in the past twenty years; that urban plans have not placed the necessary emphasis in agriculture and location of agricultural enterprises to ensure the survival of agriculture; that there is a need for agricultural land-use planning....and that the acquisition of private property for agricultural purposes is a public purpose or use necessary to facilitate sound agricultural land use planning."

The demise of such actions could be considered as one of the primary objectives of the Phase I development for the Waimanalo Agricultural Park. Establishment of an Agricultural Subdivision in Waimanalo could be expected to:

- a) represent a firm commitment on the part of the State to the preservation of agriculture in Waimanalo.
- b) provide planning and policy direction for agencies at all levels of government responsible for physical infrastructure development.
- c) enhance agricultural production in Waimanalo by providing long-term tenure at reasonable lease terms.
- d) be expected to have a "dampening" affect on rising land values - values which are primarily the result of speculation that Waimanalo's future will be non-agricultural.
- e) in the long-run, be expected to influence the decisions of governmental bodies responsible for land use and zoning decisions.

Other goals and objectives, economic in nature, may be achieved with the Phase I development for the Waimanalo Agricultural Park. The State of Hawaii needs numerous productive industries to ensure a stable economy and agricultural activity can provide further assistance in

facilitating these productive industries. Currently, the two largest economic factors in Hawaii are tourism and Federal expenditures. As was pointed out in the State Agriculture Plan, agricultural activities can assist in enhancing these economic factors. The tourist industry can be intensified by agriculture, since agricultural enterprises can serve as visitor attractions and can provide to the Hawaiian environment, the benefits associated with rural characteristics and open space. Agriculture can also enhance Federal expenditure by providing to the Federal defense establishment, local grown agricultural produce for consumption. However, both tourism and Federal expenditures are vulnerable to political and social changes. In contrast, agriculture apparently disregards such changes, and continues to meet a steady rising demand. Subsequently, it is the goal of the State to make Hawaii as self-sufficient in as many foods as possible and to provide a stable economic base by exporting agricultural products, which will ensure economic stability in the future. The project will, therefore, assist in achieving these goals and will aid the continuance of diversified agriculture in Hawaii, an objective set forth in the Hawaii State Plan. The Agricultural Subdivision will bring together agricultural enterprises with compatible interests by combining a number of relatively small independent agricultural operations into one area. By localizing such agricultural activities, operating costs and capital improvements such as water lines, irrigation lines, storage facilities, and road systems can be lowered.

The proposed project will assist in satisfying local demand of diversified agricultural crops, specifically banana and ornamental potted plants. Banana production within the islands has progressively declined over the years. Harvested acreage in Hawaii decreased from 1,120 acres in 1968 to 630 acres in 1979. Oahu provides 460 acres, or 67% of the total state acreage (University of Hawaii, 1980). As a result, during various times of the year, there is not an adequate supply of local bananas to meet local retail market demands.

The ornamental potted plant industry has grown tremendously in the last four years. Figures indicate that the wholesale value of the industry

has increased from \$621,000 in 1972 to \$4,452,000 in 1978 (University of Hawaii, 1980). A number of factors have contributed to Hawaii's growth in ornamental potted plant production. Foremost has been the high demand for green plants on the U.S. mainland and in Hawaii. Another factor has been the influx of several large producers who has expressed interest on the export potential for Hawaiian ornamental potted plants. This is due, in part, to energy problems on the mainland. Hawaii's competitors on the mainland must heat their nurseries during the winter, thus increasing production costs. The proposed action then, will supply land area to further facilitate the ornamental potted plant industry and to increase banana production to meet local demands.

There also is significant need to situate an Agricultural Park specifically in Waimanalo, based on the Department of Agriculture "Expression of Interest Form." Table 3-2 presents the amount of Oahu residents expressing interest in cultivating Banana, Truck Crops, and Nursery Crops in Waimanalo and on the island of Oahu. According to the figures presented in this table, a high percentage of Oahu residents, which completed the form, have expressed interest in leasing agricultural lots for the purposes of cultivating the above crops.

IV. Phasing and Funding

A. Phasing

Development time for the proposed Agricultural Subdivision is estimated at 18 months after all approvals have been given.

B. Funding

The State will finance all off-site capital improvement costs, utilizing funds for construction from Act 300 SLH 1980, Item IV-A-14, Agricultural Park Subdivision, Statewide. Each tenant will be responsible for funding his own respective on-site improvements.

TABLE 3-2

EXPRESSION OF INTEREST
(1979-1981)

	<u>Banana</u>	<u>Truck Crops</u>	<u>Nursery</u>
Island of Oahu	15	40	43
Waimanalo	10 (67%)	13 (33%)	21 (49%)

SOURCE: Department of Agriculture, Expression of Interest Form

Total Estimated cost for the Phase I development of the Waimanalo Agricultural Park is approximated at \$1,617,000. The specific costs are as follows:

° Land Acquisition	\$ 12,000
° Roadway	409,000
° Drainage System	285,000
° Irrigation System with Fire Hydrants	468,000
° Electrical and Street Lighting Systems	47,000
° Water System	<u>249,000</u>
	\$1,470,000
° Contingency Fund	<u>147,000</u>
	\$1,617,000

In addition to the above on-site development cost, a portion of the cost for the Maunawili Watershed Collection System Improvement, which is estimated at \$1,760,000, will be attributable to the Agricultural Park Phase I project.

4 Existing Environment

SECTION 4: EXISTING ENVIRONMENT

I. Topographical Characteristics

A. Geology

The geology of the project site is essentially that as described by Takasaki, et al. for the Waimanalo area.

"The Waimanalo area is at the southeast end of Windward Oahu. Eroded southward-dipping thin-bedded lava flows of the Koolau Volcanic Series from steep mountain slopes along the southern margin, and ridges composed of dike complex of the Koolau and Kailua Volcanic Series separate the area from the Maunawili Valley on the northwest. Older and younger alluvium overlies the eroded basalt at the foot of the slopes and over much of the lowland. Consolidated and unconsolidated dune sand and calcareous beach deposits overlie the alluvium below sea level at areas a little more than a mile from the shore. Scattered dikes in the Koolau Range along the southern part of the area have mostly a north-south strike about normal to the trend of the crest of the range."

B. Soils

The Agricultural Subdivision is located northwest of Kumuhau Street. Approximately 30 percent of the land area are classified by the Hawaii Department of Agriculture as "prime" agricultural lands and another 30 percent are classified as "other important" agricultural lands with the remaining 40 percent "unclassified" because of slopes in excess of 35 percent. The fairly level land designated in the category of "prime" agricultural land and "other important"

agricultural land is suitable and easily workable for crop cultivation. The land with slopes of 0 to 8 percent provides for slow water runoff and slight erosion hazard.

The steeper portion of the land designated as "other important" agricultural land with slopes of 10 to 35 percent provides for medium runoff and medium erosion hazard. Land workability is difficult because of the slope.

The soils designated as "prime" agricultural lands are of the soil series Lolekaa silty clay, with 3 to 8 percent slope, in the Lolekaa-Waikane association of the family Clayey, Kaolinitic, isohyperthermic; subgroup Humoxic tropohumults; great group Tropohumults; suborder Humults; order Ultisols (Humic latosols in the 1938 classification). This soil has a surface layer of dark-brown silty clay about 16 inches thick. The subsoil is 46 to more than 70 inches thick. The upper part is dark-brown silty clay and the lower part is dark yellowish-brown loam. The soil is strongly acid to extremely acid in the subsoil. Permeability is moderately rapid. Runoff is slow and the erosion hazard is slight.

The soils designated as "other important" agricultural lands are basic types. Hanalei silty clay, with 0 to 6 percent slope is in the Kaena-Waialua association of the family Very fine, oxidic, nonacid, isohyperthermic; subgroup Typic Fluvaquents; great group Fluvaquents; suborder Aquents; order Entisols (Alluvial in the 1938 classification). These lands also are Alaeloa silty clay, with 15 to 35 percent slope, in the Lolekaa-Waikane association of the family Clayey, oxidic, isohyperthermic; subgroup Orthoxic Tropohumults; great group Tropohumults; suborder Humults; order Ultisols (Humic latosols in the 1928 classification).

The Hanalei silty clay soil has a surface layer about 10 inches thick, is dark gray and very dark gray silty clay that has dark brown and reddish mottles. The subsurface layer is very dark gray and dark-gray silty clay about 3 inches thick. The subsoil is mottled, dark-gray and dark grayish-brown silty clay loam about 13 inches thick. This soil is strongly, to very strongly acid in the surface layer and neutral in the subsoil. Permeability is moderate. Runoff is slow and the erosion hazard is slight. Flooding is a hazard in some portions.

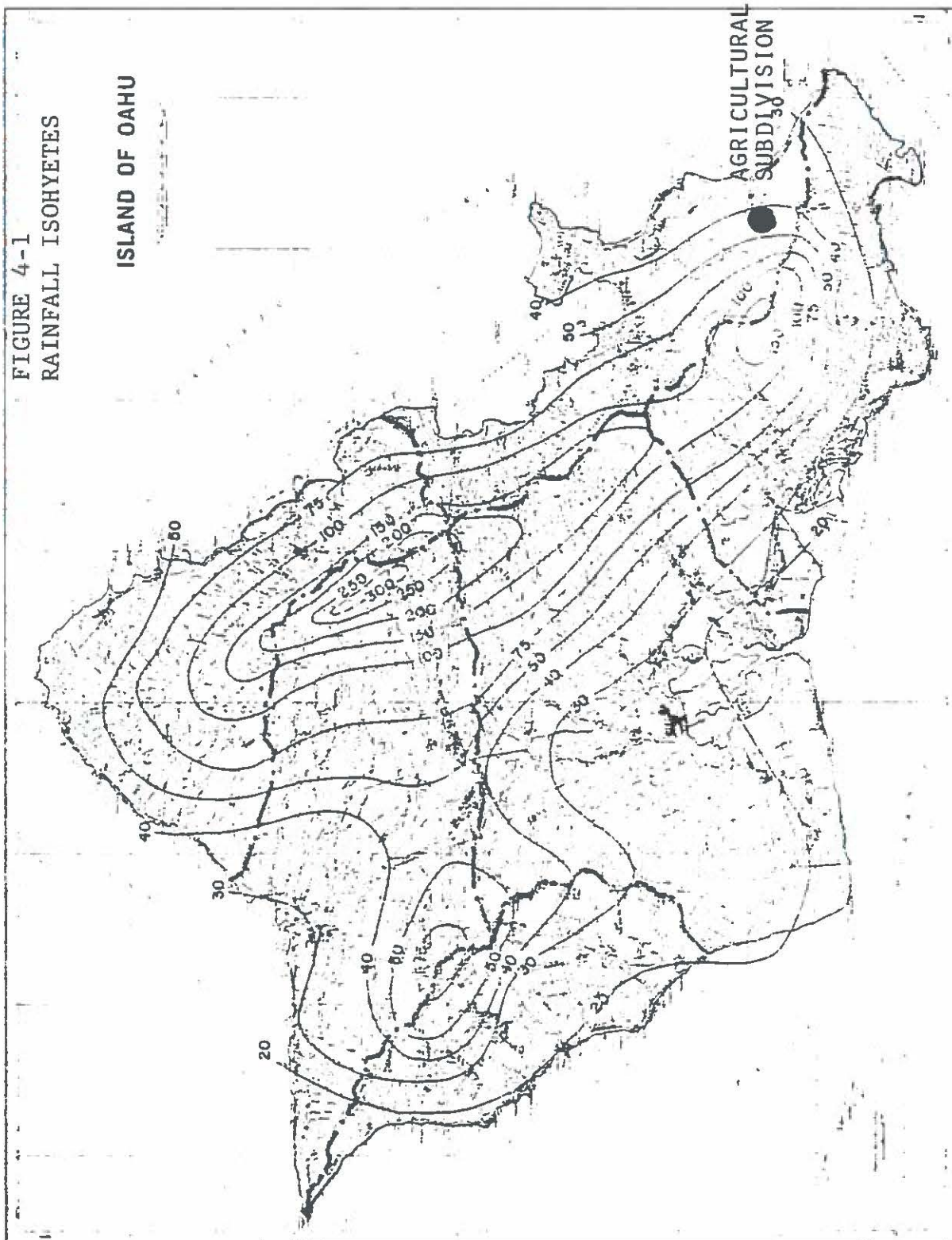
The Alaeloa silty clay, with less than 15 percent slope, has a surface layer about 10 inches thick of a dark reddish-brown silty clay. The subsoil is dark-red and red silty clay about 48 inches thick. The soil is of medium acidity in the surface layer and strongly acid in the subsoil. Permeability is moderately difficult because of the slope.

The "unclassified" land is also Alaeloa silty clay, but with 40 to 70 percent slope. This land has characteristics similar to the other Alaeloa soil. The most common slope range is 45 to 53 percent. Runoff is rapid to very rapid and the erosion hazard is severe. This soil typically is used for pasture, wildlife habitat and woodland. The natural vegetation is similar to other Alaeloa soils.

II. Climatical Characteristics

A. Rainfall

At the project site, the mean annual rainfall is approximately 44 inches a year (Figure 4-1). Wetter months occur during the months between November through April.



B. Wind

Climatic wind data from the Kaneohe Marine Corp Air Station indicates that prevalent winds, blowing 80 percent of the time, are from the northeast, with velocities of 0 to 22 knots. Wind velocity is as follows: 0-3 knots, 9 percent of the time; 4-10 knots, 43 percent of the time; 11-22 knots, 48 percent of the time, and over 22 knots, 1 percent of the time.

C. Temperature

The temperatures at the project site are mild and uniform, ranging from a monthly average of 70°F. in January to 78°F. in August. The average annual temperature is 74°F.

D. Humidity

Relative humidity ranges from 70-80 percent with the winter months being somewhat more humid than the summer months. However, the overall climate is generally comfortable as a result of the cooling effect of the northeastern trade winds.

III. Hydrological Characteristics

A. Surface Water

The project site is located in the immediate vicinity of the Waimanalo watershed and Waimanalo stream drainage basin (Figure 4-2). The Waimanalo watershed is drained by two major stream systems. Waimanalo stream, which is a gaged perennial stream with an average annual discharge of 1.17 billion gallons, and Inoaole stream, which is intermittent. The quality of both streams was evaluated as part of the "Flood Management Plans and Preliminary Engineering Studies for the Waimanalo Flood Control Project," Department of Land and Natural Resources, Division of Water and Land Development, October 1976. Water quality was generally satisfactory.

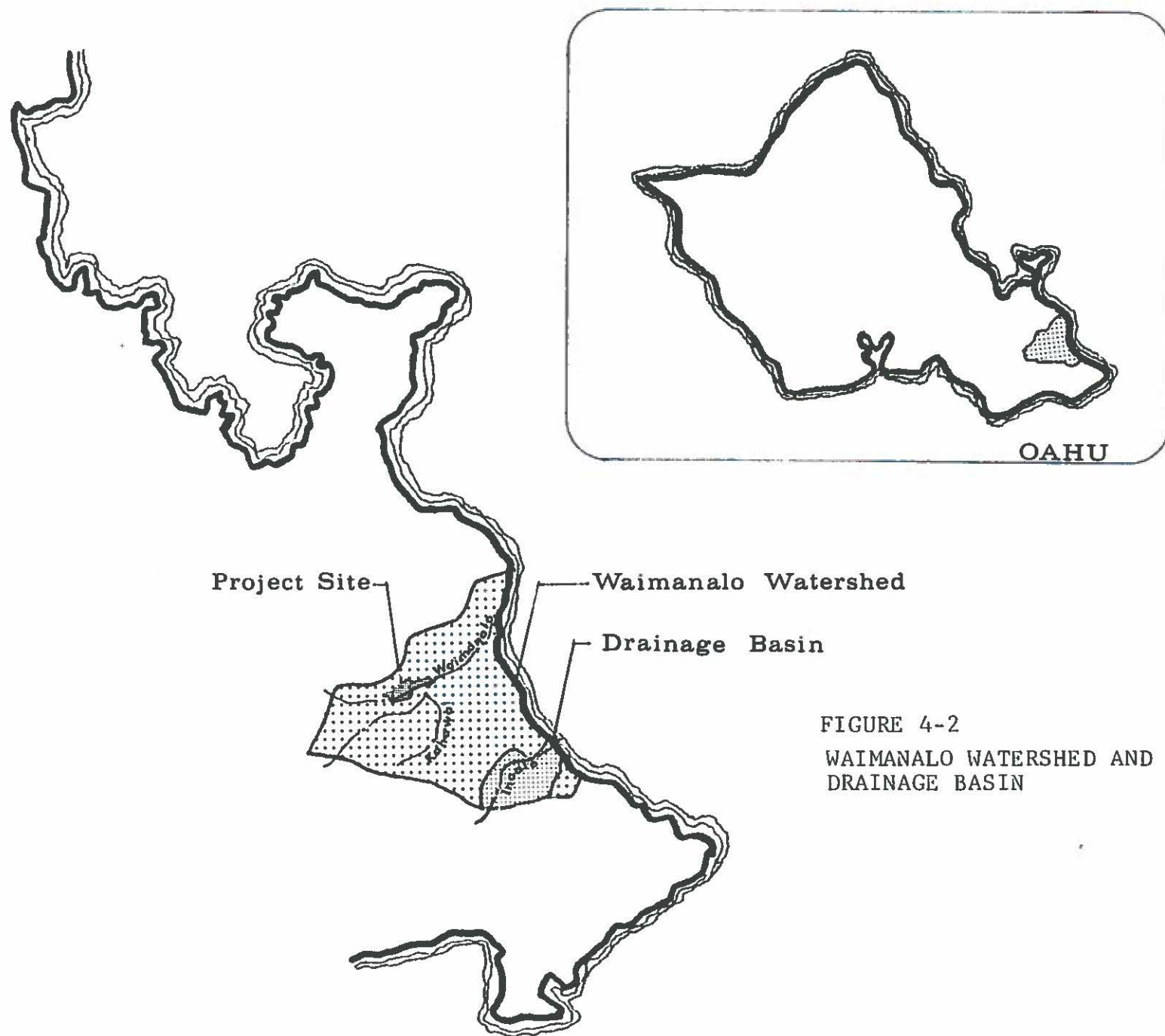


FIGURE 4-2
WAIMANALO WATERSHED AND
DRAINAGE BASIN

The Waimanalo Stream drainage basin possesses a total drainage area of 5 square miles or 3,200 acres, and is located on the northwest side of Waimanalo town, bounded by the Koolau Range, Aniani Nui Ridge and Waimanalo Bay. The drainage basin consists of a network of water courses, including the Kahawai and Waimanalo Streams and two reservoirs, the Kailua and Maunawili Reservoirs on the upper slope of the basin. The network of water courses, including Kahawai Stream, merge into Waimanalo Stream at different locations in the drainage basin and drain into the Waimanalo Bay.

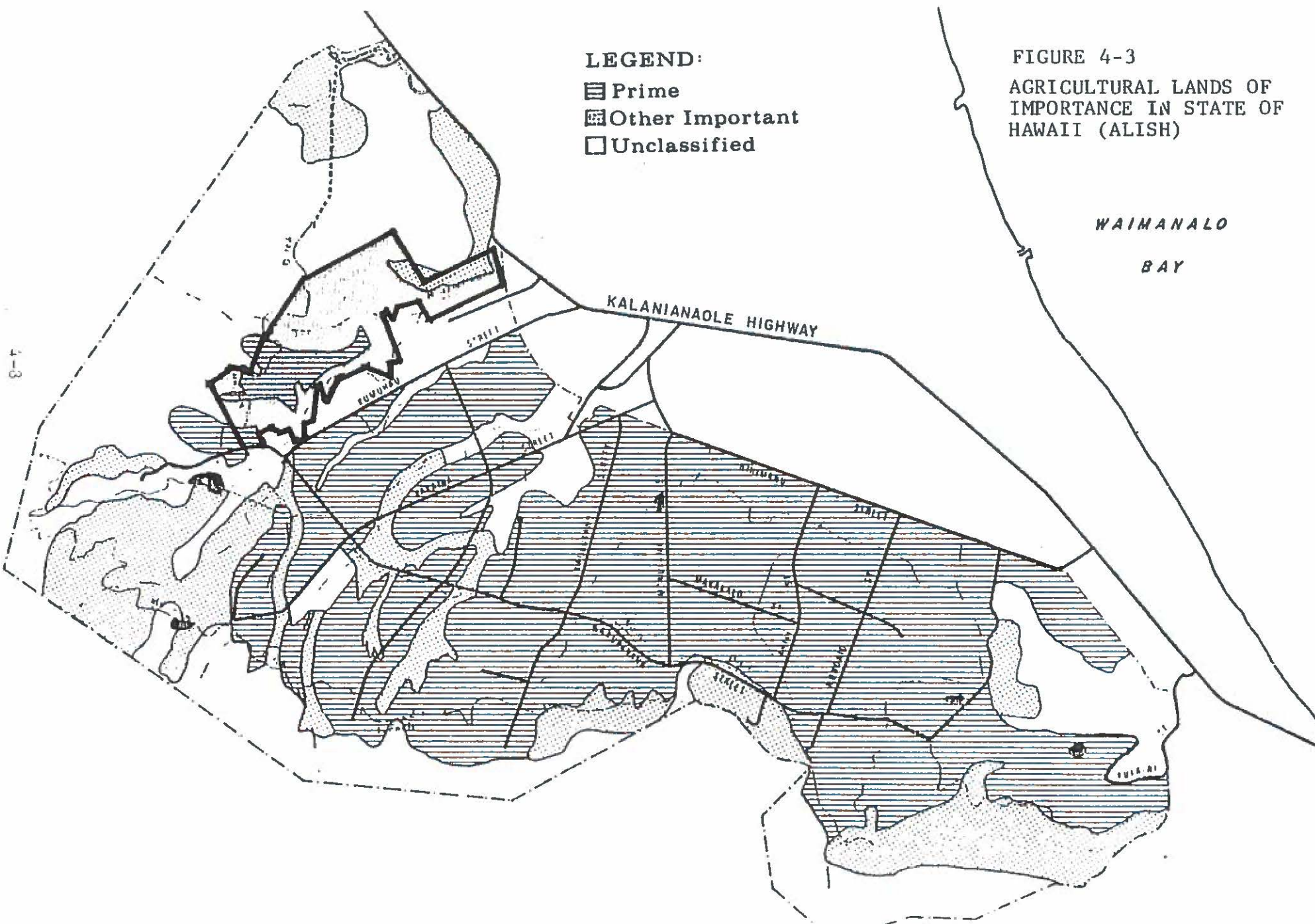
B. Groundwater

Groundwater in Waimanalo occurs as brackish basal water, dike-impounded water, and alluvial water (Department of Agriculture, 1977). The dike-impounded groundwater is in dike-intruded lava flows in the Koolau Mountains, and is high-quality water suitable for domestic use without treatment. The permeable rock containing the brackish basal water is overlain by caprock materials. Although not presently considered suitable for domestic use, brackish basal water may be important for future needs. The alluvial groundwater is generally lower quality than the dike-impounded water and also important primarily as a resource for future use.

IV. Biological Characteristics

A. Flora

Field investigation of the project site was conducted for the purposes of assessing potential agricultural uses for the Phase I Agricultural Subdivision development of the Waimanalo Agricultural Park. A walk-through survey technique was employed and the relative abundance of each flora species observed was recorded. To further substantiate the vegetation types, the project site was apportioned into three sub-areas, paralleling the land classifications detailed in the Department of Agriculture's Agricultural Lands of Important in the State of Hawaii (ALISH) Maps (Figure 4-3).



The natural vegetation observed in the "prime" agricultural lands, or sub-area 1 consisted of guava, Christmas berry, California grass, Hilo grass and rice grass; "other important" agricultural lands, or sub-area 2 included paragrass, sensitive plant, honohono, java plum, guava, Christmas berry, Japanese tea, and Hilo grass; "unclassified" agricultural lands, or sub-area 3 included guava, Java plum, Christmas berry, Japanese tea, and Hilo grass.

The following details a description of the respective vegetation units found at the project site:

Guava (*Psidium guajava*). A low evergreen tree or shrub 6 to 25 feet high, with wide-spreading branches and square, downy twigs. Layers of smooth, reddish-brown bark sometimes scale off from the lighter inner bark and produce a mottled pattern on the trunk. The oblong or oval, blunt leaves are prominently feather-veined, more or less hairy beneath, 3 to 6 inches long. The flowers are somewhat fragrant and an inch or more across, the calyx bell-shaped and splitting irregularly, the four to six petal white, the numerous stamens white with yellow anthers. The outside of the fruit resembles a lemon in size, shape, and color, though some fruits are brownish yellow, and all are tipped with remnants of the calyx lobes (Neal, 1965).

Christmas berry (*Schinus terebinthifolius*). A wide, ornamental tree. The leaves are coarse, with five to nine broad, paired leaflets, one to nearly three inches long (Pope, 1968).

California Grass (*Brachiaria mutica*). A spreading, long-lived perennial, rooting at the lower joints. Stems are 6 to 8 feet or sometimes as much as 15 feet long, trailing and intertwining, forming dense masses; the joints and sheaths hairy. Leaves are 1/4 to 1/2 inch wide, with stiff hairs at the base. Flowering heads are 5 to 12 inches long, open, usually purplish, with spike-like spreading one-sided branches (Pope, 1968).

The Kailua Reservoir contained Bullfrogs (Rana catesbeiana), Tilapia (Tilapia mossambica), and Mosquito Fish (Gambusia affinis).

Waimanalo Stream contained Hawaiian Prawn (Macrobrachium grandimanus), Tahitian Prawn (Macrobrachium lar), Goby (Awaous stamineus), Guppy (Poecilia reticulata), and Green Swordtail (Xiphophorus helleri).

V. Archaeological Sites

A field reconnaissance conducted by the Historic Sites Program, Department of Land and Natural Resources, has identified a site adjacent to the project area (Figure 4-4). Sites of Oahu, by the Department of Anthropology, Department of Education, and Bernice P. Bishop Museum; compiled by Elspeth P. Sterling and Catherine C. Summers, designated this as Site No. 381 and provided the following description:

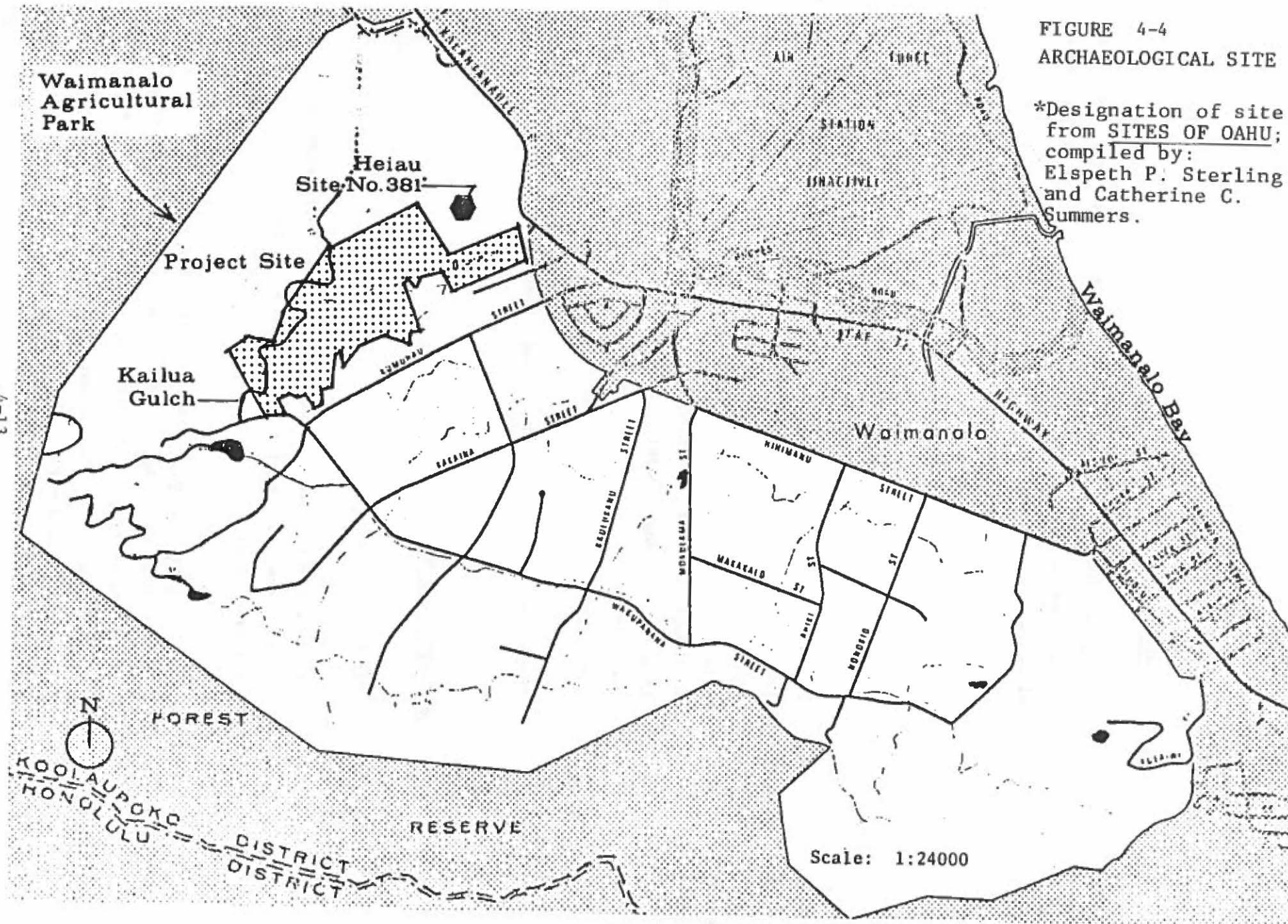
Heiau, Waimanalo side of Olomana, on the edge of the Waimanalo cane field facing Koolau Range.

Remains indicate that the heiau was probably 250 feet long and 130 feet wide, of two terraces. The upper terrace, 75 by 130 feet, is hidden in a heavy growth of lantana. It was 10 feet higher than the lower terrace and was faced with large 2-foot and 3-foot stones; the mountain side was filled with small 2-inch and 3-inch stones for a space of about 20 feet. The remainder of the terrace was paved with dirt. A low line of small stones marks the extent of this terrace on the mountain side. The plantation flume now skirts the lower edge. Some waterworm pebbles and an amazing amount of old coral are scattered throughout the rocks. North of the site the hill presents a huge barren face of black rock. The lower terrace, which is now in cane, was probably 170 feet long with a facing of large stones on the lower end, which is a rather steep slope. The heiau was indicated by E. P. Kaniaupio, but the name is not known.

The project area does contain the Kailua Ditch portion of the Waimanalo Ditch system which has been determined eligible for the National Register because of its historic significance (Figure 4-4).

FIGURE 4-4
ARCHAEOLOGICAL SITE

*Designation of site
from SITES OF OAHU;
compiled by:
Elspeth P. Sterling
and Catherine C.
Summers.



VI. Flood Hazard

A. Flooding

The United States Department of Housing and Urban Development (HUD), Flood Insurance Rate Maps indicate a portion of the project site is within the 100 year flood boundary (Figure 4-5). The land within these boundaries can be farmed but at some risk of flooding. The proposed project is subject to the provisions of Ordinance No. 80-62 relating to Flood Hazard Districts.

B. Tsunami Inundation

Tsunami inundation along the coastline of Waimanalo Bay, as recorded from the four major tsunamis that have occurred in Hawaii during historic times (1946, 1952, and 1960) showed that runup ranged from 6 to 9 feet over the mean lower-low water level. As Waimanalo has a southeastern coast, it is considered potentially vulnerable to tsunamis from any direction; however, Waimanalo has a wide, shallow reef structure extending approximately a quarter mile to sea, resulting in good tsunami protection in the project area.

Therefore, the project site is not located within the tsunami inundation zone.

VII. Infrastructure and Utilities

A. Water

Areas adjacent to the project site are currently serviced by both a public domestic water system and the State-operated Waimanalo Irrigation System.

1. Domestic System. The lands at Waimanalo are served by the Board of Water Supply (BWS) domestic system, which maintains a system of source, wells, storage, mains and fire hydrants (Figure 4-6). The following existing water lines are located on streets directly adjacent to the project site:

FIGURE 4-5
FLOOD HAZARD MAP

☐ 100-Year Flood

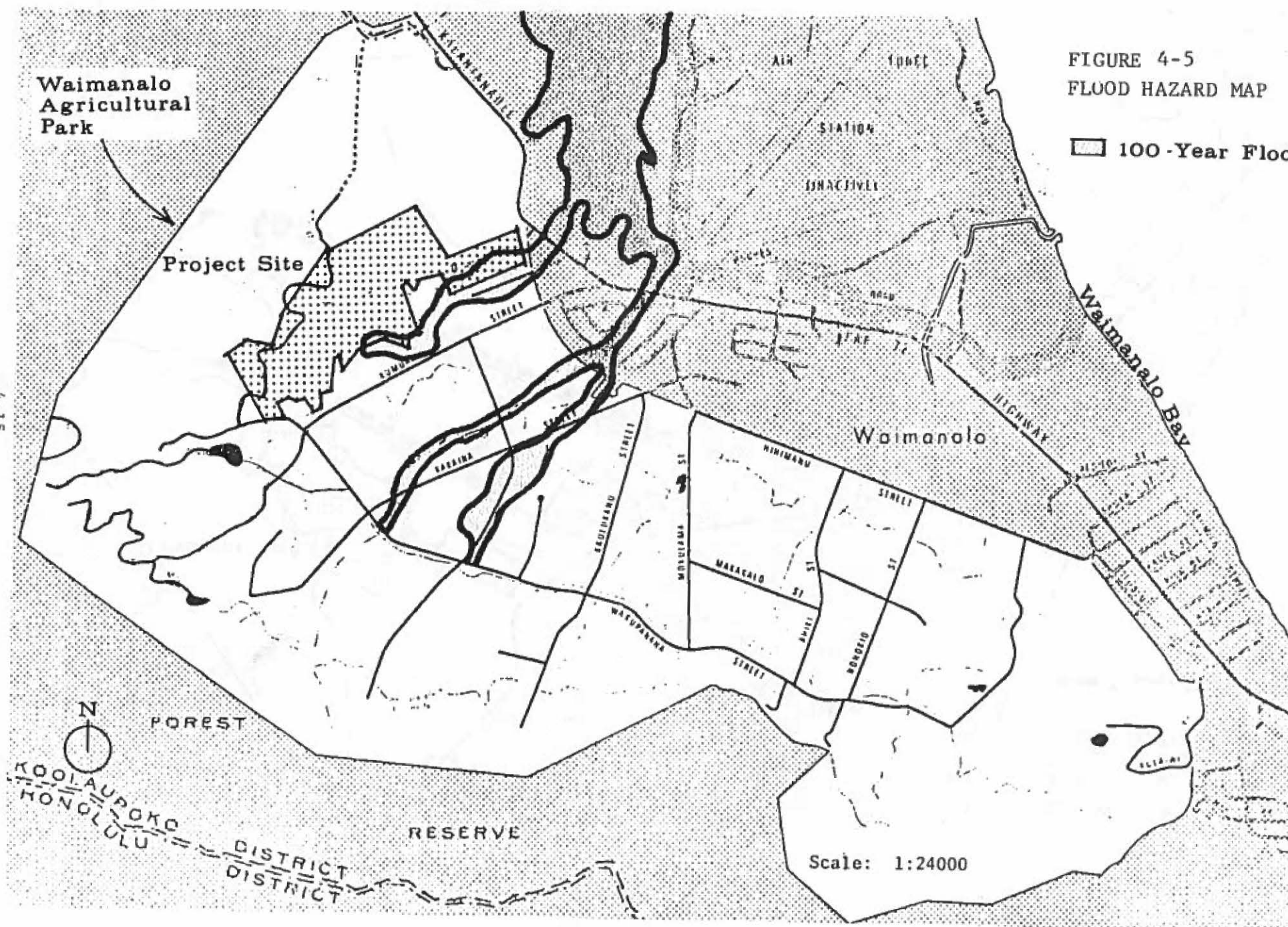
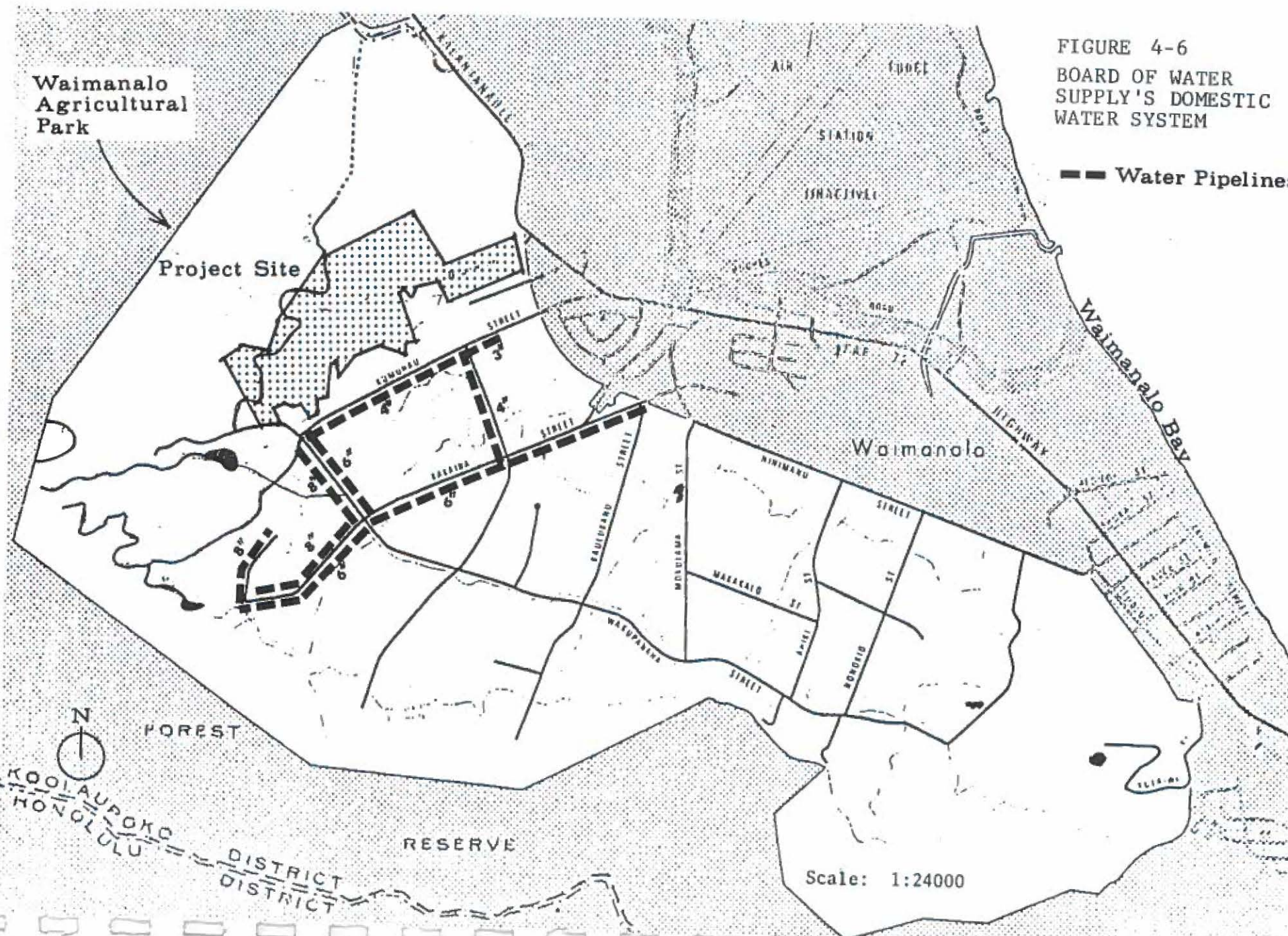


FIGURE 4-6
BOARD OF WATER
SUPPLY'S DOMESTIC
WATER SYSTEM

Water Pipelines



Scale: 1:24000

- ° Kumuhau Street: 4- and 3-inch lines
- ° Waikupanaha Street: 6- and 8-inch lines
- ° Kakaina Street: 6- and 8-inch lines
- ° Mahailua Street: 4-inch lines

The water is used by approximately 44 farm lots engaged in nursery, flowers, poultry, dairy, ranching, truck crops and banana operations. Although these farmers utilize this system for agricultural purposes, the system was designed to supply water for domestic use only and is subsequently being taxed to the maximum. Therefore, the BWS is reluctant to approve additional laterals and hookups, since the existing system is not sized to accommodate any additional urban growth. However, if such hookups are made, present BWS policy requires that the landowner bear the costs of upgrading the service facilities.

Within the Waimanalo ahupua'a, the BWS has one deep water well and four high level tunnels with a combined capacity of approximately .9 million gallons daily. In addition, the BWS is planning to drill a well at the existing Waimanalo 364 Reservoir site. No further water resource development is planned in Waimanalo by the BWS (Board of Water Supply, 1975). Field investigations indicate however, that several users of domestic water are in the process or contemplating installation of small private reservoirs with water from the irrigation ditch because of the high cost of domestic water (Department of Land and Natural Resources, Division of Water and Land Development, 1980).

2. Waimanalo Irrigation System. The irrigation system serving the Waimanalo Farm Lots was installed by the Waimanalo Sugar Company, which received its original charter in April 5, 1978.

Water, mostly from springs, is collected by a series of ditches and transferred from Maunawili Valley, down to farm lands in Waimanalo. This water is obtained from the Kaneohe Ranch Company, with a yearly license at approximately \$8,000.00 per

year for 1.8 million gallons per day. Realizing that this is a tenuous situation to ensure the viability of agriculture in Waimanalo, the State has embarked on a study to appraise alternatives to obtain full control over the water rights from Maunawili to Waimanalo. It was recommended that the State proceed to secure long-term rights to the use of the Maunawili water supply to alleviate this tenuous situation. The source, referred to as Maunawili Ditch, is comprised of earth and lined ditches, wooden flumes on wooden trestles, which intercept stream flows and springs, and transports water through a 1000 foot long tunnel through Aniani Nui Ridge to Waimanalo.

Between the years of 1954 to 1968, recorded flows from the Maunawili Ditch were measured at nearly 100,000,000 gallons per month to nearly zero flow (Department of Land and Natural Resources, Division of Water and Land Development, 1980). A field inspection conducted on December 5, 1978, a day after heavy rainfall in Maunawili Valley, revealed near full flow conditions along portions of the earth ditches. Flow measured at the flume section located upstream of the confluence with the Fault Tunnel ditch read 4.5 mgd.

During periods of low flows from the Maunawili Ditch, the Waimanalo Irrigation System is unable to meet the demands of the farm lots. This is largely due to the earth transmission ditches with their high seepage losses, and to the limited reservoir capacities which result in overflows during high flows. The Kailua and Maunawili Reservoirs possess capacities of 7.3 and 2.0 million gallons, respectively.

At the present time, the Waimanalo Irrigation System releases approximately 1.9 million gallons from the reservoirs every Monday, Wednesday and Friday to the farmers. The other days are needed to refill the reservoirs. This amounts to only

296,400,000 gallons per year that are released. Since 550,000,000 gallons per year are received from the Maunawili Ditch, approximately 253,600,000 gallons per year are lost through (1) overflowing of the reservoirs into adjoining streams, (2) seepage and evaporation at the reservoirs, and (3) seepage from the ditches between the tunnel portal and the reservoirs.


Of the 1.9 million gallons released, approximately 25 to 45 percent flow into the farms. The remainder is lost primarily through seepage through the ditch walls and the rest wasted because the initial flow is dirty water filled with leaves and branches which have fallen into the earth ditches. Also since gates to the individual farms were built up to raise the water level in the ditch in order to deliver water by gravity flow, when the gates are closed, the water remaining in the ditch is wasted to the streams.


B. Electrical

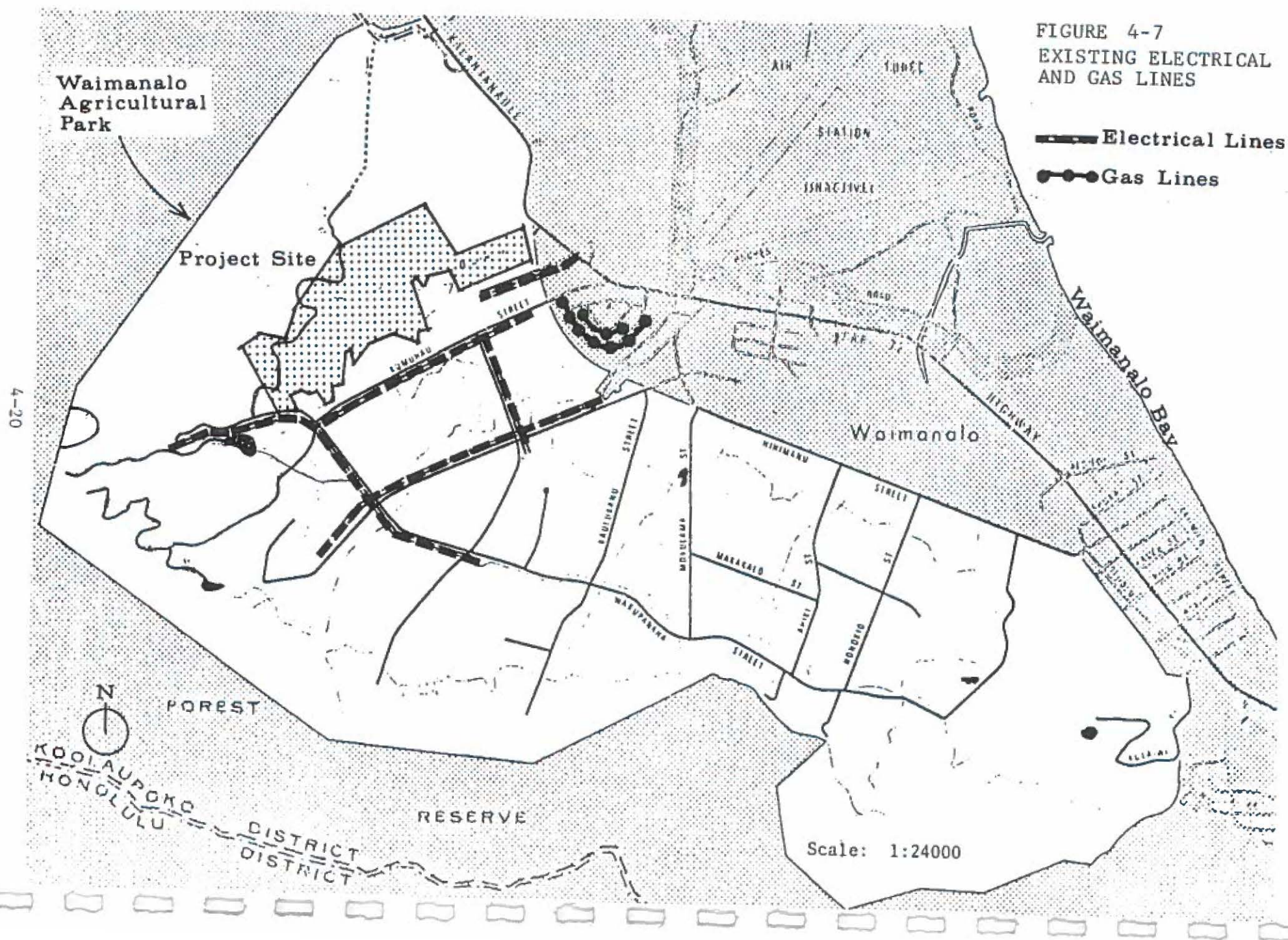
Electricity to areas adjacent to the project site is supplied by Hawaii Electric Company from overhead 4.16 kilo volt solidly grounded lines along Kalaniana'ole Highway, Flamingo Road, Kumuhau Street, and Waikupanaha Street (Figure 4-7).

C. Gas

Gas is not currently available to the project site. The only gas lines located within the immediate vicinity are within the Waimanalo Core Subdivision southeast of the project site (Figure 4-7). However, gas supplies are adequate to serve the Agricultural Subdivision. Installation of storage tanks will have to be coordinated and funded by the party requesting service. The consumer shall pay their own annual charge for the tanks.

 Electrical Lines

 Gas Lines



D. Liquid Waste

The Waimanalo Sewage Treatment Plant (STP), located at the north-east corner of the Waimanalo Farm Lots, services areas adjacent to the project site (Figure 4-8). The STP provides secondary treatment, as effluent is discharged into three deep injection wells. The STP is designed for 1.10 million gallons per day (mgd) average flow and 5.18 mgd peak flow. The system is presently operating at 350,000 gallons per day.

E. Solid Waste

Solid waste from adjacent areas is picked up by the Refuse Collection and Disposal Division of the City and County of Honolulu, and disposed at the Kapaa Sanitary Landfill.

VIII. Public Facilities and Services

A. Police Protection

No police substation is located within the immediate vicinity of Waimanalo. However, the project area will be serviced by the Kailua Police substation and patrolled by Police Beats No. 420 and 421. The Kailua substation is located on 219 Kuulei Road. Response time to the project area will be within ± 5 minutes.

The most prevalent types of crime in the area are larceny and vandalism. Table 4-1 details major type of offenses reported within the Waimanalo area and the island of Oahu.

B. Fire Protection

The project area is serviced by the Waimanalo Fire Station, located at 45-1301 Kalaniana'ole Highway. Response time to the project site is ± 5 minutes. Vehicles found at the station include a 1,250 gallon per minute pumper and a 1,250 gallon per minute relief pumper.

FIGURE 4-8
EXISTING SEWERED AREAS

Waimanalo Agricultural Park

Project Site

Waimanalo Village

Inaole Subdivision

Waimanalo Bay

LEGEND:

- Existing Sewered Area
- Waimanalo STP
- Waimanalo Pump Station
- Injection Wells
- Force Main
- Gravity Sewer

Scale: 1:24000

Map details include: Koolaula Piko, Honolulu, District, District, Reserve, Forest, Waimanalo, Inaole Subdivision, Waimanalo Village, Waimanalo Bay, Project Site, Waimanalo Agricultural Park, Waimanalo Pump Station, Injection Wells, Force Main, Gravity Sewer, Scale: 1:24000.

[---] Existing Sewered Area
 [||||] Waimanalo STP
 ■ Waimanalo Pump Station
 ● Injection Wells
 --- Force Main
 == Gravity Sewer

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TABLE 4-1

OFFENSES BY RATE PER 100,000 RESIDENT POPULATION

WAIMANALO: 1978 (Police Beats 420 & 421)¹
 OAHU: 1978

<u>OFFENSE</u>	<u>WAIMANALO</u>	<u>OAHU</u>
Murder/Manslaughter	13	5
Negligent Homicide	13	16
Forcible Rape	--	26
Robbery	188	207
Assault - 1st and 2nd	50	42
Burglary	1,213	1,906
Larceny - Over \$200	7,275	1,116
Larceny - Over \$50	3,513	1,201
Larceny - \$5 to \$50	2,725	1,352
Larceny - Under \$5	1,200	643
Auto Theft	463	658
 TOTAL - PART I	 16,650	 7,168
Other Assaults	563	947
Arson	25	45
Forgery	--	104
Fraud	25	201
Embezzlement	--	5
Stolen Property	38	10
Vandalisms	1,513	1,168
Weapons Offenses	50	62
Prostitution	--	60
Sex Offenses	--	70
Narcotic Drug Laws	288	324
Gambling	750	62
Family Offenses	25	26
Driving Under Influence	13	354
Liquor Laws	13	32
Disorderly	150	858
All Other Offenses ²	1,250	4,401
Delinquent Child/Minor	500	547
 TOTAL - PART II	 5,200	 9,275
 GRAND TOTAL - PARTS I AND II	 21,850	 16,443
RESIDENT POPULATION	7,779	729,084

¹ Includes entire Police Beats of No. 420 and 421.

² Includes harassment, indecent exposure, spouse abuse, barking dogs and others.

SOURCE: City and County of Honolulu, Honolulu Police Department, Research and Development Division, 1978 Annual Statistical Report, August 1979.

The Kailua Fire Station will be available to provide supportive service to the project area. The station is located at 211 Kuulei Road. Vehicles include a 1,250 gallon per minute pumper and an aerial ladder truck.

Future plans call for a new fire station in the Olomana area, which will also be providing supportive service to the project area, with a 1,250 gallon per minute pumper.

C. Health Services

Health Services within the Waimanalo area are limited. The nearest hospital is Castle Memorial Hospital located at 640 Ulukahiki Street, approximately 3 miles from the project site.

The hospital is in possession of 135 beds and 450 staff members (i.e. nurses, secretaries, cooks, etc.). Services provided include: surgery, X-ray, lab, radiology, emergency room, outpatient, pharmacy, and ambulatory.

D. Education Services

At present, the Waimanalo area is served by three public schools. These include Blanche Pope Elementary, Waimanalo Elementary and Intermediate, and Kailua High School. Table 4-2 presents the annual enrollment, design capacities, and number of classrooms at each of these schools. As noted, schools within this area are operating below capacity.

E. Access

There exists no interior access into the Agricultural Subdivision. However, the Kumuhau and Waikupanaha Streets does provide access to the outer boundaries of the project site.

TABLE 4-2

PUBLIC EDUCATION FACILITIES SERVICING WAIMANALO

<u>School</u>	<u>Number of Classrooms</u>	<u>Enrollment</u>	<u>Design Capacity</u>
Blanche Pope Elementary School	24	418	550
Waimanalo Elementary and Intermediate School	47	751	1,026
Kailua High School	85	1,675	1,815

The mass transit system servicing the Waimanalo area is the No. 57 route, Waimanalo-Honolulu. The buses provide daily service and possess an average headway of approximately 30 minutes during peak and off-peak hours.

IX. Economic Characteristics

Agriculture's most significant contribution to the State's economy lies in its ability to either bring new money into the State or keep money in the State. Translated into markets, this means that commodities which are sold in out-of-state markets bring new money into the State, while commodities which are sold in the local market keep money in the State.

The farm value of Hawaii's agriculture surged upward in 1980 with cash receipts totaling \$633.6 million. Returns from diversified agriculture rose to \$171.9 million, 11 percent above the previous year. Receipts from cattle marketings, at \$28.1 million, retained the number one position among diversified agriculture, edging out flowers and nursery products which tallied a record of \$27.4 million. Macademia nut growers received a record \$24.2 million for their crop. Farm earnings from milk totaled \$27.1 million and from poultry, \$18.2 million. Vegetables and melons had receipts of \$18.5 million.

The City and County of Honolulu leads the State in the production of pork, milk, eggs, broilers, and chickens (Department of Agriculture, 1981). However, in 1980, Oahu produced only 34 percent of the State's total value of diversified agriculture commodities. Total value of diversified agriculture commodities for Oahu was \$58.8 million. Table 4-3 details a breakdown of the value of agricultural commodities by County of production.

Waimanalo has contributed significantly to the diversified agricultural industry on Oahu. It was estimated that the total 1976 farm value of crop and livestock sales from Waimanalo was approximately six million dollars. Although recent figures are not available, in 1974 the Hawaii Crop and Livestock Reporting Service reported the 1973 value of Waimanalo agriculture as follows:

TABLE 4-3

VALUE OF AGRICULTURAL COMMODITIES
By County, 1980
(Thousand Dollars)

COMMODITY	STATE	HAWAII	MAUI	OAHU	KAUAI
SUGAR	385,100	137,500	100,800	63,200	83,600
PINEAPPLE	76,596	--	36,404	40,192	--
LIVESTOCK					
Beef	28,074	17,973	5,580	1,403	3,118
Dairy	27,071	a	a	21,719	a
Poultry & Eggs	18,186	a	a	15,850	a
Swine	7,457	892	1,865	4,026	674
Field Crops ^b	3,971	60	1,774	1,183	954
Misc. Livestock Products ^c	461	312	104	11	34
ORCHARD CROPS ^{d,e}					
Macadamia Nuts	24,174	24,071	a	a	a
Papaya	9,979	8,127	(Kauai) ^a	571	1,286
Banana	1,099	295	47	591	166
Other Fruits	1,905	1,197	337	282	84
VEGETABLES & MELONS ^{d,e}					
Lettuce	1,950	708	631	611	--
Tomato	2,387	1,642	589	92	64
Other Vegetables & Melons ^f	14,164	4,924	4,056	4,711	473
FLOWERS & NURSERY PRODUCTS					
Potted Plants	9,757	2,796	a	5,485	a
Anthuriums	6,878	6,596	a	269	11
Lei Flowers ^g	3,210	534	1,142	629	a
Other Flowers, Foliage and Nursery Products	7,596	a	a	a	a
UNIQUE COMMODITIES					
Coffee	2,175	2,175	--	--	--
Taro	1,280	162	253	(Mau) ^a	865
AQUACULTURE PRODUCTS ^h	1,710	--	--	1,390	320
FOREST PRODUCTS	150	135	6	5	4
TOTAL VALUE OF ALL COMMODITIES	635,330	210,099	153,588	162,220	19,653
TOTAL VALUE OF DIVERSIFIED COMMODITIES	173,634	72,599	16,384	58,828	8,053

^a Data combined under County indicated or under State total to avoid disclosure of individual operations.

^b Includes seed corn and feed and forage crops.

^c Includes sheep, wool, turkeys, horses, honey, and beeswax.

^d Total figures from Statistics of Hawaiian Agriculture 1980, pages 8 and 9, do not agree with sum of individual commodity figures due to minor crops not listed separately.

^e Sum of island estimates may not add to State total due to rounding.

^f Includes watercress and lotus root.

^g County/State figures differ due to listing of only certain flowers on County basis.

^h Source: Written communication from John Corbin, DLNR, September 8, 1981.

Source: State Agriculture Plan, Department of Agriculture, September 1981.

TABLE 4-4

DIVERSIFIED AGRICULTURE RANKED BY VALUE, STATE OF HAWAII, 1978-80

Crop	Rank			Value of Production			Percent of Diversified Agriculture		
	1978	1979	1980	1978	1979 1,000 Dollars	1980	1978	1979	1980
Cattle	1	1	1	24,370	28,356	28,074	18.1	18.4	16.3
* Flowers and nursery products	3	3	2	17,458	20,778	27,441	13.0	13.5	16.0
* Milk	2	2	3	23,715	24,894	27,071	17.6	16.2	15.7
Macademia nuts	6	5	4	11,287	16,769	24,174	8.4	10.9	14.1
* Vegetables and melons	4	4	5	16,535	18,337	18,501	12.3	11.9	10.8
* Eggs	5	6	6	12,699	14,007	14,005	9.4	9.1	8.1
* Fruits (excluding pineapple)	7	7	7	10,321	11,788	12,983	7.7	7.6	7.6
Hogs	8	8	8	7,961	7,027	7,457	5.9	4.6	4.3
* Broilers and chickens	10	10	9	3,335	3,655	4,181	2.5	2.4	2.4
* Forage, grain, and forest products	9	9	10	3,344	3,707	4,071	2.5	2.4	2.4
Coffee	11	11	11	2,117	3,132	2,175	1.6	2.0	1.3
Taro	12	12	12	1,029	1,089	1,280	.7	.7	.7
Other Livestock	13	13	13	477	525	461	.3	.3	.3
TOTAL				134,648	154,064	171,874	100.0	100.0	100.0

¹ Statistics of Hawaiian Agriculture, 1980, Hawaii Agricultural Reporting Service, USDA and State Department of Agriculture, June 1981.

* Those commodities in Waimanalo.

<u>Commodity Group</u>	<u>1973 Value of Sales</u> <u>(\$1,000's)</u>
Vegetables and fruits	380
Horticultural specialties	700
Livestock	<u>4,060</u>
TOTAL:	\$5,140

Further confirmation of Waimanalo's importance to the diversified agricultural industry can be extrapolated from a document prepared by the Hawaii Agricultural Reporting Service. The report showed that the Koolaupoko District, of which Waimanalo is the major production center, ranked the second highest in value of diversified agricultural production on Oahu (the Waianae District ranked first).

The variety of commodities which are produced in Waimanalo is extensive. Table 4-4 presents agricultural products produced in Waimanalo and ranks them according to the value of production within the State.

The following is a brief summary of the major agricultural activities in Waimanalo.

- a) Dairy Operations: Two dairies are located in Waimanalo. One of the largest State leases in Waimanalo is for a dairy operation. The lease encompasses 338 acres, and the parcel is used for pasture, milking operations and calving. This dairy operation is one of the largest in the State of Hawaii.
- b) Poultry Operations: Poultry operations include both layer and broiler-stewer operations. The Waianae, Ewa, and Waimanalo Districts are the primary producers in the Koolaupoko District. However, Waimanalo is the more economically viable producer since it is closest to the Honolulu market.

- c) Nurseries: An increase of general interest in indoor and outdoor plants, cut and loose flowers, and flowers grown especially for leis has resulted in an expansion of the flower and nursery industries by individual growers. Flowers, foliage, and other nursery products account for a major portion of the total dollars that are realized by the Koolaupoko District, of which Waimanalo is the major production area.
- d) Truck Crops: Existing marketable truck crops in Waimanalo include snap beans, cucumbers, eggplant, sweet potatoes, sweet corn, daikon, radishes, oriental squash (togan and hyotan), dasheen, green onions, peanuts, bell peppers, ginger root, and some tomatoes. In total, Waimanalo produces these crops on approximately 140 acres or on 70 percent of the total acreage in the Koolaupoko District.

Regulatory Considerations

SECTION 5: REGULATORY CONSIDERATIONS

I. County

A. Zoning

The project site is zoned Ag-1, Restricted Agricultural District. The purpose of this district is to protect and preserve agricultural lands for the performance of agricultural functions and to encourage concentration of such uses in areas where potential friction with urban uses will be minimized (City and County of Honolulu, 1978).

Principal uses allowable within these districts are agricultural, apiary and horticultural uses, including orchards, vineyards, and nurseries. Accessory structures include dwelling units for employees working on the premises, provided that only one such unit will be permitted per lot.

Ag-1 zoning also stipulates that minimum lot size must exceed two (2) acres. The five- to ten-acre lots proposed are therefore, in conformance.

B. General Plan

The proposed project is in conformance with several objectives and policies of the 1977 Revised General Plan. These include:

Objective: "To maintain the viability of agriculture on Oahu."

Policies: "Assist private businesses and individual farmers to ensure the continuation of agriculture as an important source of income and employment."

"Support agricultural diversification."

"Maintain agricultural land along the Windward and Waianae coasts for truck farming, flower growing, livestock production, and other types of diversified agriculture."

"Encourage the more intensive use of productive agricultural land."

"Support the development of local markets for local products."

The City and County of Honolulu's Detailed Land Use Map (DLUM) designates the project site as providing for agriculture, residential, open space, and park uses. Nevertheless, the proposed action should be implemented, due to conformance with the existing Ag-1 zoning.

C. Development Plan

The project site is designated "agriculture" by the proposed Development Plan. Therefore, the Agricultural Subdivision is in conformance.

II. State

A. State Land Use Designation

The State Land Use Designation for the project site is "agriculture" (State Land Use Commission, 1975). This specifies the project area as:

- a) Lands with a high capacity for agricultural production.
- b) Lands with significant potential for grazing or for other agricultural uses.
- c) Lands surrounded by or contiguous to agricultural lands.

B. Hawaii State Plan

The Agricultural Subdivision is in direct compliance with several policies and policy directions detailed in the Hawaii State Plan (Department of Planning and Economic Development, 1978). Among those relating directly or indirectly to diversified agriculture are the following:

Objective:

Section 7(a)(2): Continued growth and development of diversified agriculture throughout the State.

Policies:

Section 7(b)(4): Support research and development activities that provide greater efficiency and economic productivity in agriculture.

Section 7(b)(6): Assure the availability of agriculturally suitable lands with adequate water to accommodate present and future needs.

Section 7(b)(8): Expand Hawaii's agricultural base by promoting growth and development of flowers, tropical fruits and plants, feed grains, forestry, food crops, aquaculture and other potential enterprises.

Section 7(b)(10): Promote economically competitive activities that increase Hawaii's agricultural self-sufficiency.

Policy directions pertinent to the proposed project, from Part III, Section 103(d) of the Hawaii State Plan include:

- (3) Assist small independent farmers in securing land and loans.
- (4) Assist in the formation and operation of production and marketing associations and cooperatives to reduce production and marketing costs.
- (6) Encourage the use of public and private resources to develop agricultural and aquacultural activities which have economic growth potential.
- (7) Explore new agricultural industries and encourage the expansion of existing agricultural industries that can provide jobs and profitable long-term use of land.
- (9) Continue the development of agricultural parks.
- (10) Expand vocational training programs in agriculture and aquaculture.
- (11) Assist in providing adequate, reasonably priced water for existing agricultural activities.
- (12) Require agricultural uses in agricultural subdivisions and closely monitor the uses in these subdivisions.

6 Environmental Impacts

SECTION 6: ANTICIPATED ENVIRONMENTAL IMPACTS

I. Introduction

The proposed project will generate primary and secondary environmental impacts. Primary impacts are those resulting directly from construction activities and from the agricultural uses on the proposed project site. Secondary impacts are those which are anticipated over the duration of the agricultural subdivision use and which may include potential use conflicts and indirect benefits arising from the proposed action.

II. Primary Impacts

A. Short-Term Impacts

Short-term impacts, beneficial and adverse, generally result from construction-related activities. Consequently, these impacts are of short duration and should not last longer than the duration of the construction.

1. Economical: During the construction of the Agricultural Subdivision, which will require land clearing, installation of drainage, irrigation, domestic water, electric and street lighting systems, and roads for internal circulation, there will be increased revenue to the County due to the higher property tax assessed on agricultural lots. There will also be increased revenue to the State due to the taxes accrued from the sale of supplies. Finally, the project will increase the number of agricultural and construction jobs and purchases of agricultural supplies.
2. Air Quality: During construction of the Agricultural Subdivision some dust may be generated. This problem, however, is not anticipated to be significant since the soil type at the site is predominantly of the Lolekaa, Hanalei, and Alaeloa

series and erosive activity is slight. If dust is a significant problem, it will be mitigated in the field by the use of appropriate water sprinkling methods, limiting the area being worked at any one time, and immediate seeding of the graded area.

Exhaust emissions from construction equipment are not expected to significantly affect the air quality of the area. The prevailing winds in the area should help to quickly disperse any exhaust gas concentrations.

3. Water Quality: The soil type found at the project site is characterized by slight erosive activity. During construction then, significant erosion and sedimentation problems are not expected to impact the Waimanalo Stream located on the project site. However, increased constituent loads, including nitrogen, phosphorus and suspended solids can be expected to result from construction activities, especially if a significant storm occurs. The impact of construction activities can be mitigated by conforming to strict erosion control measures, particularly those specified in the City and County of Honolulu's Grading, Grubbing, and Stockpiling Ordinance No. 3968, 1972; the State Department of Health's Water Quality Standards, Chapter 37-A, Public Health Regulations, 1968; and the USDA Soil Conservation Service's Erosion and Sediment Control Guide for Hawaii, 1981.
4. Traffic: The project area is presently designated by the State and County as "agriculture." The area has, therefore, maintained this type of agricultural setting and has been characterized by limited adjacent urbanization. The impacts of increased traffic due to construction activities will be minor because of this limited adjacent development and the confinement of clearing activities to the project site.

Standard precautions will be written into the construction specifications to ensure for the safe movement of traffic during construction activities.

5. Noise: During site preparation, clearing, and construction activities, an increase of ambient noise is inevitable. Noise levels generated by construction machinery are presented in Figure 6-1.

The following are methods for minimizing noise produced during construction:

- Placing mufflers on construction machinery, equipment, etc.
- Instruct workers to avoid unnecessary "gunning" of construction equipment and to turn off equipment when not in use.
- Create earth berms which would absorb some of the noise.
- Conduct construction activity during daylight hours, between 8:00 a.m. to 5:00 p.m.

The contractor will ensure that all construction equipment is in proper condition and will attempt to enforce the methods mentioned above.

6. Biological: Vegetation in the project area is not considered threatened or endangered by State and Federal agencies. The majority of species are introduced and significant impacts on existing botanica communities are not expected.

Terrestrial fauna in the project area include introduced species associated with urbanized areas. The site does not contain any significant wildlife habitats for any endangered species of birds and mammals.

FIGURE 6-1
CONSTRUCTION EQUIPMENT NOISE RANGES

		NOISE LEVEL (dba) AT 50 FT					
		60	70	80	90	100	110
EQUIPMENT POWERED BY INTERNAL COMBUSTION ENGINES	EARTH MOVING	COMPACTERS (ROLLERS)		H			
		FRONT LOADERS		-----			
		BACKHOES		-----			
		TRACTORS		-----			
		SCRAPERS, GRADERS		-----			
		PAVERS			H		
		TRUCKS		-----			
	MATERIALS HANDLING	CONCRETE MIXERS		-----			
		CONCRETE PUMPS			H		
		CRANES (MOVABLE)		-----			
		CRANES (DERRICK)			H		
	STATIONARY	PUMPS	H				
		GENERATORS		-----			
		COMPRESSORS		-----			
IMPACT EQUIPMENT		PNEUMATIC WRENCHES			-----		
		JACK HAMMERS AND ROCK DRILLS			-----		
		PILE DRIVERS (PEAKS)				-----	
OTHER		VIBRATOR		-----			
		SAWS		-----			

Note: Based on Limited Available Data Samples

Source: Noise From Construction Equipment and Operations
Building Equipment, and Home Appliances, EPA, 1971

During construction, fauna in the immediate vicinity of the project site may relocate into adjacent areas. However, upon completion of construction, the fauna may adapt to the proposed action and return to the site for food and shelter.

7. Archaeological: It is anticipated that the proposed project will minimally impact site No. 381 during construction activities, due to the distance between the project area and the archaeological site.

Short-term impacts to Kailua Ditch are also anticipated to be minimal, since its recording, the Historic Sites Program has indicated that the Ditch possesses insignificant architectural features and is currently abandoned.

However, in the event that any unanticipated sites or remains such as artifacts, shells, bones, or charcoal deposits; human burials; rock or coral alignments, pavings, or walls are encountered, the contractor will halt work and the State Historic Preservation Officer will be notified.

B. Long-Term Impacts

Long-term impacts, beneficial and adverse, result from the implementation and operation of the Agricultural Subdivision.

1. Economical: Based on the recommended cultivation of diversified agriculture and nursery products, the following economic impacts may result:
 - a) There will be an increase in agricultural jobs, purchases of agricultural supplies, and revenue to the State from the long-term leasing of the land and taxes on the sale of the supplies and produce.
 - b) There will be an increase in revenue to the County, resulting from higher property taxes.

- c) There will be an increase in employment and incomes generated in other parts of the State's economy, resulting in an increase of the Gross Domestic Product.
- d) There will be an increase in the State's production and supply of these recommended crops, therefore, prices will decline and consumption will increase.
- e) There will be a decrease in need for importing these crops into the State.

2. Air Quality: The long-term environmental impacts on the ambient air quality are not anticipated to be significant. The use of pesticides and herbicides in the area should not present a significant problem if applied according to prescribed methods. Each of the farmers will use EPA approved herbicides and pesticides and will be required to take courses and receive instructions before being granted a permit to use the EPA approved herbicides and pesticides.

As a practical matter, these chemical agents are expensive and, therefore, most of the farmers will use the chemicals judiciously. It is also anticipated that the use of wind-breaks and a buffer strip around the project area will be a means of mitigating any fugitive chemicals and/or dust from leaving the project area.

Certain agricultural crops may require the burning of excess vegetation for disposal. Any burning would require a permit from the Fire Department of the Department of Health.

3. Water Quality

- a) Surface Water: Surface water runoff from the site will be channelled by the Waimanalo Stream. Use of soil conditioners, fertilizers, herbicides, and pesticides, which will be utilized to enhance the growth of agricultural crops may alter the chemical constituents of the stream's surface

runoff, depending on the chemical amount, frequency of use, dilution, solubility, amount of rainfall, and frequency. However, the Waimanalo Stream is characterized by "flashy" attributes, high turbidity and suspended sediment concentration occurring during heavy rainfall and the swift reversion of the stream back to clear base flow conditions which distinguished the stream prior to the storm (Department of Land and Natural Resources, 1980). Therefore, it is anticipated that the stream will disperse some of the soil conditioners, fertilizers, etc., subsequently, minimizing adverse impact to the surface water quality. In addition, due to the generally infrequent occurrence of rainfall in the Waimanalo area, the total volume of runoff in the stream is expected to be minimal, therefore, impact on surface water quality should be insignificant.

- b) Groundwater: The use of soil conditioners, fertilizers, herbicides, and pesticides on the project site may eventually have some impact on groundwater resources in the area. However, based on the minimal adverse impacts from existing agricultural land uses, impacts from the Agricultural Subdivision should be insignificant. To further protect groundwater quality, the Board of Water Supply has established a "pass/no pass line" that approximately parallels the Waimanalo Forest Reserve Boundary (Figure 6-2). The line is just downslope or towards the sea (makai) of the boundary. No cesspools will be allowed mauka of this line.
4. Erosion: In agricultural areas, erosion normally occurs at low rates over long periods of time (USDA Soil Conservation Service, 1981). Damage on farms may include: loss of topsoil and plant nutrients, and sedimentation in fields, ponds and

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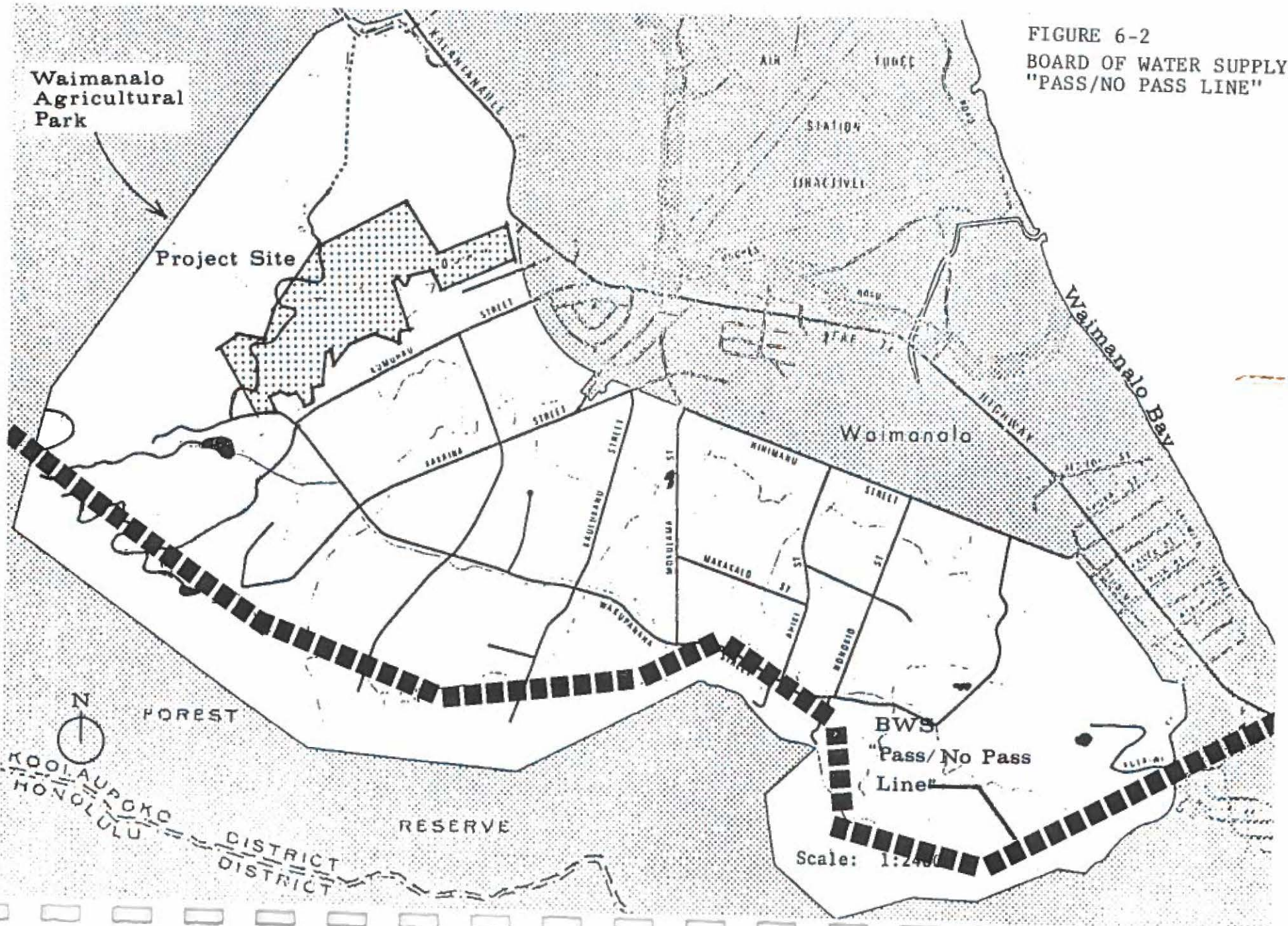


FIGURE 6-2
BOARD OF WATER SUPPLY
"PASS/NO PASS LINE"

streams. Reduced plant vigor and crop yield may result from severe soil erosion. Farmers will be advised to consult with the USDA Soil Conservation Service Erosion and Sediment Control Guide for Hawaii, 1981, for erosion control.

5. Noise: It is not anticipated that noise generated from the proposed project will have a significant impact on the adjacent areas. There are no schools, churches, or hospitals located directly adjacent to the project area.
6. Biological: The project area is not considered to be a sensitive wildlife habitat area, nor does the site contain any endangered species of plants or animals. Therefore, long-term adverse impacts are not anticipated from the proposed action.

The use of the project area for agricultural activities may present potential vector problems. These vectors would include mice, rats, flies and mongoose. Vector problems can usually be controlled through trapping, and more importantly, through the use of sanitary agricultural practices. It will be to the benefit of the individual farmer to practice sanitary agricultural techniques, not only to keep down the vectors, but to increase his yields by preventing crop damage by these vectors.

7. Archaeological: The Agricultural Subdivision will minimally impact site No. 381, due to the distance between the project area and the heiau.

8. Utilities

- a) Irrigation: Estimating water demand for the Agricultural Subdivision requires consideration of a complex interaction of changes in wind, rainfall, insolation, and plant growth rates, which will lead to a peak demand typically occurring in the arid month, May through September, and much lower

FIGURE 3-3
WAIMANALO FARM LOTS IRRIGATION WATER CONSUMPTION (1973 to 1977)

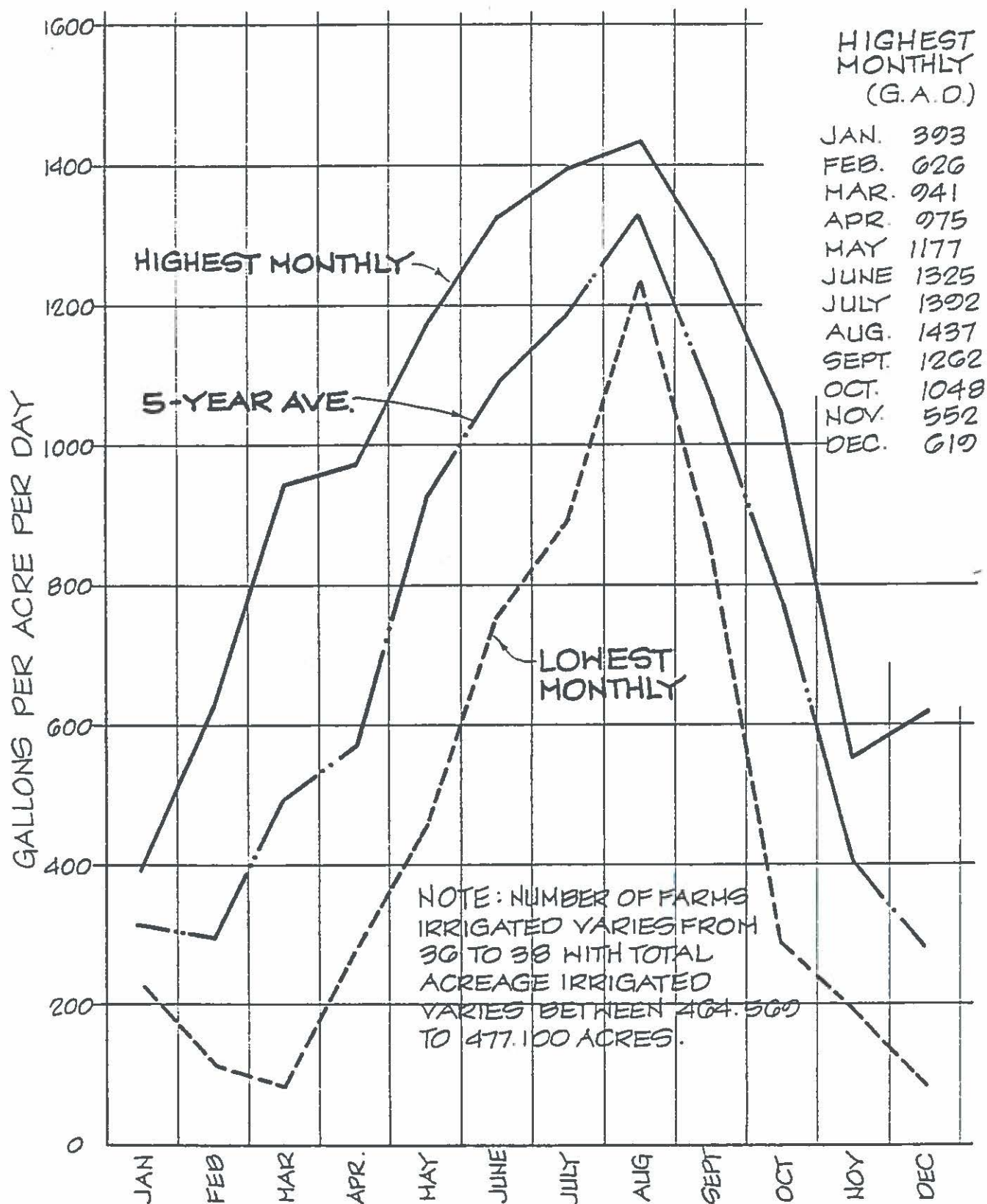


TABLE 6-1
WAIMANALO IRRIGATION SYSTEM
 Irrigation Water Distribution (In Gallons)

	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	AVE. (g.a.d.)
JANUARY	5,717,322	---	3,537,889	3,840,608	5,913,422	318
FEBRUARY	8,277,810	2,253,207	1,767,090	1,574,183	6,003,933	297
MARCH	13,786,457	1,549,898	9,856,009	1,233,287	10,682,478	495
APRIL	13,824,870	5,068,375	10,236,109	7,903,971	4,296,411	572
MAY	16,234,486	11,242,459	18,235,265	16,286,164	6,896,423	925
JUNE	16,642,556	10,551,933	19,865,066	17,904,875	13,811,752	1091
JULY	13,122,597	17,465,449	21,555,558	18,021,899	18,154,875	1185
AUGUST	21,056,528	17,794,637	20,569,967	20,013,543	18,824,230	1330
SEPTEMBER	16,254,960	14,535,337	18,909,200	12,429,381	15,561,930	1068
OCTOBER	12,214,411	11,729,784	16,231,114	4,259,110	13,345,406	774
NOVEMBER	6,428,720	2,718,302	8,276,522	4,354,033	7,386,881	402
DECEMBER	1,231,148	8,919,192	2,516,066	5,485,900	2,528,030	282
TOTAL	144,791,865	103,828,573	151,555,855	113,306,954	123,405,771	
ACREAGE						
IRRIGATED:	472.615	464.569	499.608	477.100	485.870	
No. of farms						
irrigated:	(38)	(37)	(38)	(36)	(37)	

Source: Waimanalo Agricultural Park, April, 1980

levels of demand in the wetter months, December through February. However, the actual total amount of water required by the Agricultural Subdivision cannot be projected at this time, since the exact mix of crop production is unknown. It is possible though, to estimate the seasonal range in irrigation demands for the proposed project by utilizing past seasonal patterns of irrigation in Waimanalo and by assuming bananas as the crop to be produced. Figure 6-3 presents a summary of the Waimanalo Farm Lots Irrigation Water Consumption between 1973 to 1977. Table 6-1 details the actual Irrigation Water Distribution during the same years. Based on the assumption that approximately 120 acres will be utilized for cultivation and that the average application of water in the peak month of August may be as high as 10 acre-inches, or 275,000 gallons per acre, a water demand for the month of August of about 33 million gallons for the proposed project may be estimated (Evaluation Research Consultants, 1981). At the other extreme of December when irrigation demands are minimal, only about 2 acre-inches (55,000 gallons per acre) could be used. (These figures can be reduced by approximately 50 percent if drip irrigation methods are employed).

Water requirements for each individual crop may be inventoried to provide further assistance in estimating irrigation water demand for the project and to provide basic reference to the farmers in selecting the most economical crop production mix. Table 6-2 present the crops most commonly adapted to the project area and their respective water requirements. Water requirements for vegetables, fruit crops, nursery, and flower products are fairly consistent. However, water requirements range from the 45 acre-inches per year for cucumbers to the 100 acre-inches per year for bananas. Respective farmers may utilize these figures on water requirements as reference for assessing their own individual needs for crop production.

6-13

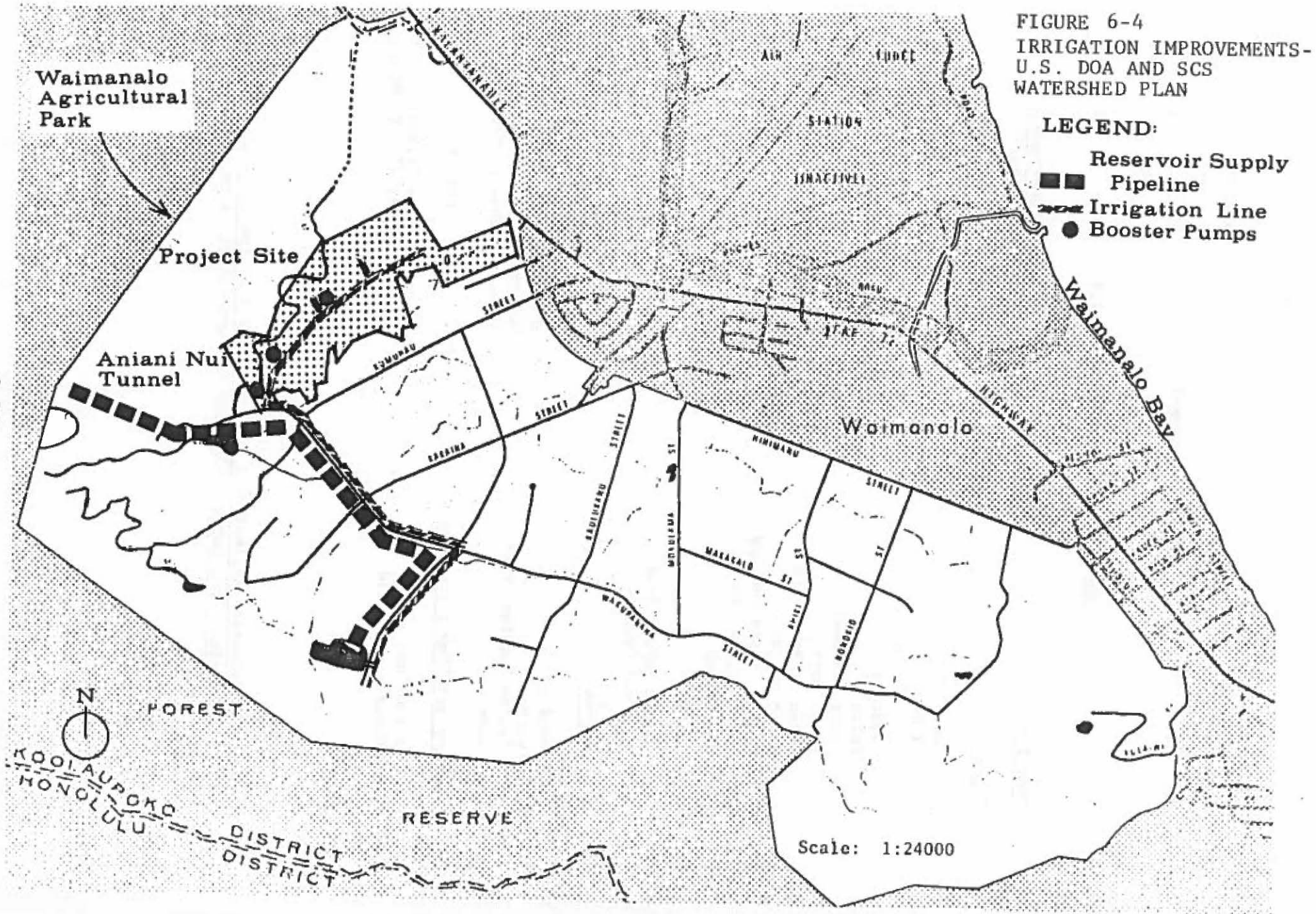


FIGURE 6-4
IRRIGATION IMPROVEMENTS-
U.S. DOA AND SCS
WATERSHED PLAN

TABLE 6-2

CROP TYPE AND WATER REQUIREMENTS

<u>Crop Type</u>	<u>Water Requirement</u> (per year)
<u>Vegetable</u>	
Cucumber	45 acre-inches (1,215,000 gal.)
Eggplant	60 acre-inches (1,620,000 gal.)
Green Peppers	60 acre-inches (1,620,000 gal.)
Tomatoes	60 acre-inches (1,620,000 gal.)
Lettuce	60 acre-inches (1,620,000 gal.)
Sweet Potatoes	60 acre-inches (1,620,000 gal.)
Sweet Corn	40 acre-inches (1,080,000 gal.)
Green or Snap Beans	40 acre-inches (1,080,000 gal.)
Green Onions	84 acre-inches (1,440,000 gal.)
Daikon (White Turnips)	72 acre-inches (1,944,000 gal.)
Edible Ginger Root	60 acre-inches (1,620,000 gal.)
Red Radish	96 acre-inches (2,592,000 gal.)
Dasheen	50 acre-inches (1,350,000 gal.)
Taro	60 acre-inches (1,620,000 gal.)
Edible Podded Peas	60 acre-inches (1,620,000 gal.)
Oriental Gourds	60 acre-inches (1,620,000 gal.)
<u>Fruit Crops</u>	(per year)
Bananas	100 acre-inches (2,750,000 gal.)
Guava	60 acre-inches (1,620,000 gal.)
Yellow Passion Fruit	60 acre-inches (1,620,000 gal.)
Limes	60 acre-inches (1,620,000 gal.)
<u>Nursery and Flower Products</u>	(per year)
Anthuriums	60 acre-inches (1,620,000 gal.)
Dendrobium Orchid	60 acre-inches (1,620,000 gal.)

SOURCE: Potential Agricultural Uses of Phase I of the Proposed Waimanalo Agricultural Park, Evaluation Research Consultants, January 26, 1981.

Irrigation water to the Agricultural Subdivision will be provided by the new 16-inch pipe system from the tunnel portal to the 14-lot subdivision (Figure 3-4). Appurtenances will follow the proposed internal roadway and connect to meters to be placed in each subdivided lot. However, water provided by this resource will only be a temporary arrangement.

The USDA Soil Conservation Service, in their Watershed Plan and Draft Environmental Impact Statement for the Waimanalo Watershed have proposed to provide all irrigation resources to the Agricultural Subdivision by upgrading the Waimanalo Irrigation System (Figure 6-4). The Watershed Plan and Draft Environmental Impact Statement describes plan formulation, discloses the expected environmental and economic impacts, and provides the basis for authorizing Federal assistance for implementation. The Watershed Plan covers the Waimanalo Watershed area and will irrigate a total of 1,252 acres (Figure 4-2). The Plan was prepared to integrate with the Waimanalo Agricultural Park Plan and will provide all the irrigation water necessary for the entire Agricultural Subdivision.

Improvements will start at the east portal of the Aniani Nui Ridge Tunnel where water from the Maunawili Watershed is picked up in a 16-inch pipe and carried 1.8 miles under gravity pressure to a fenced 60 million gallon, reinforced concrete lined reservoir at the mauka end of Mahailua Street. Visual treatment will be applied to the reservoir site to minimize adverse visual effects. Flow into the reservoir will be screened and discharged to minimize aeration. Releases will be from near the bottom of the reservoir. This arrangement will tend to control plant-parasitic nematodes by reducing the available oxygen. The delivery system below the reservoir will be a closed, pressurized

pipe system, 10.9 miles long, ranging from 24 inches to 6 inches in diameter. There will be a metered outlet at each irrigation turnout. At certain critical locations along the upper mainline, there will be booster pumps to provide sufficient sprinkler pressure to users with land above the gravity pressure contours.

Design plans to improve the Maunawili source has been initiated. Improvements will include source rehabilitation, installation of siphons to replace flumes presently carried by trestles, and installation of pipes to replace selected sections of ditches.

- b) Fire Protection Water Flow: The project's proposed action will include provisions for fire protection and appurtenances. Resources for fire protection will be provided by the Kailua Reservoir via outlet pipe appurtenances and fire hydrants. During fire emergencies, fire truck boosters will connect to these pipes and provide the necessary water pressure to fire hydrants, to be located within the Agricultural Subdivision. The consulting engineers are currently finalizing construction plans which will detail the various pipe appurtenances necessary for fire protection.

The USDA Soil Conservation Service's 60-million gallon capacity reservoir located at the end of Mahailua Street will also provide fire protection services after its completed construction. Fire hydrants will be connected to the irrigation line which will stem from the proposed reservoir.

Both sources of fire protection will possess sufficient water pressure, will be designed to satisfy a fire flow requirement of 30,000 gallons per minute (gpm), and will be subject to approval by the Fire Department.

- c) Liquid Waste Disposal: Municipal sewers are not available at the project site, nor are any planned for the future. However, the project is located makai of the BWS "Pass/No Pass Line", thereby allowing residents to be serviced by cesspools. Allowance of cesspools, though, must be determined jointly by the Department of Land and Natural Resources (DLNR) and the Department of Health (DOH), in addition to the BWS. Currently, the DLNR and DOH are in the process of rendering a determination on this matter of allowing cesspools for the Agricultural Subdivision.

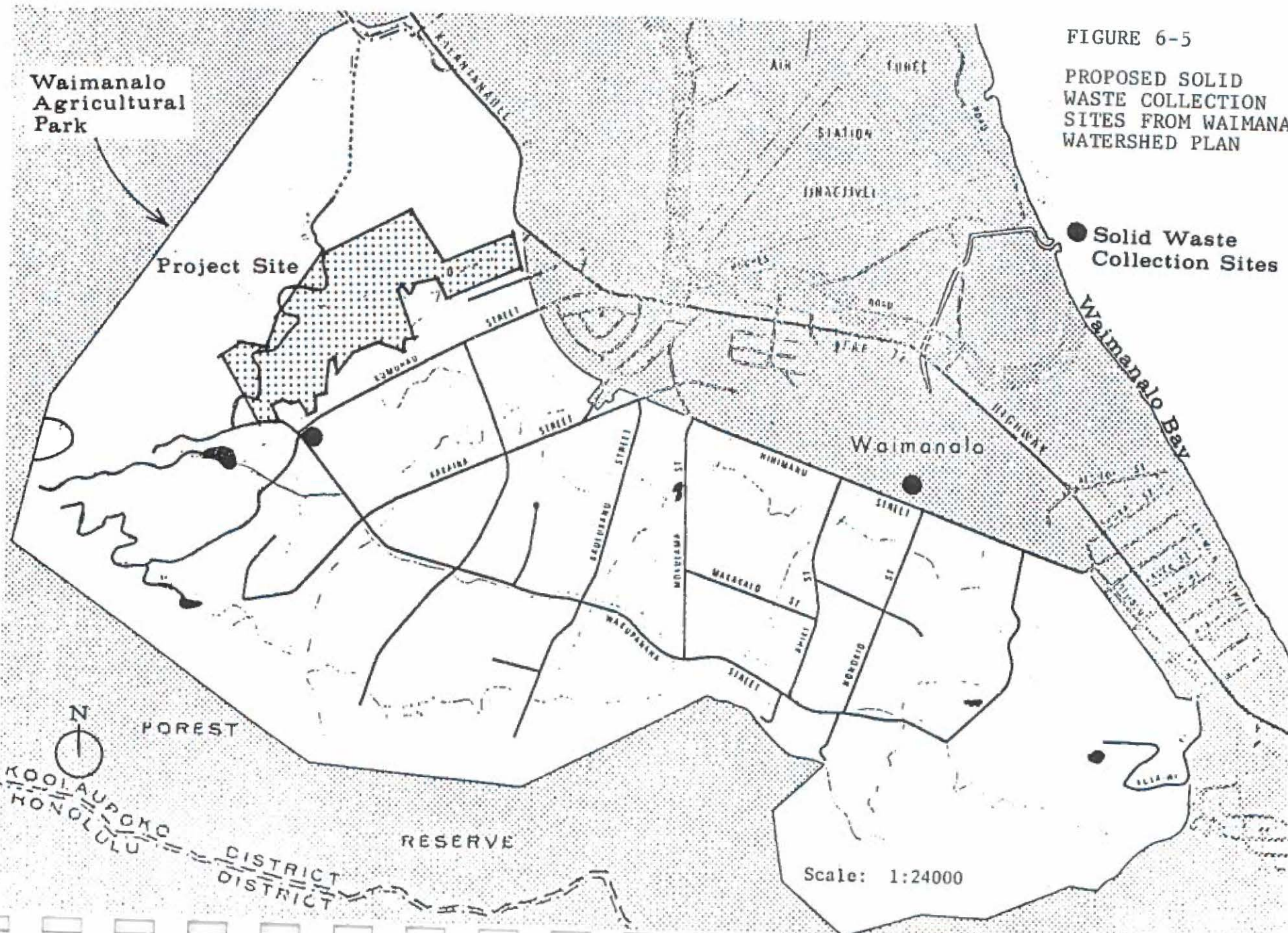
Each lessee would be responsible for providing his own cesspool and conforming to the DOH's regulations on cesspools.

- d) Solid Waste Disposal: The existing bridge located on Waikupanaha Street was originally designed to carry railroad loads. Therefore, the width and carrying capacity are currently adequate for one-way traffic and for servicing the needs of large construction and refuse collection vehicles. The lessees, then, will be serviced by the City and County Division of Refuse Collection and Disposal. All solid waste from the project area will be removed to the Kapaa Sanitary Landfill. The USDA Soil Conservation Service, in their Watershed Plan, also propose to locate two additional sites for solid waste disposal (Figure 6-5).

- e) Potable Water: Assuming a potable water demand of 750 gallons per day maximum per lot, 10,500 gallons per day is necessary to service the residents of the proposed project. 12000

Potable water will also be necessary to irrigate certified nursery crops, recommended to be grown on five specified lots. These include Lots 2, 11, 12, 13, and 14. The lots were selected according to land suitability and lot size.

PROPOSED SOLID
WASTE COLLECTION
SITES FROM WAIMANALO
WATERSHED PLAN



It is anticipated that a maximum per day demand of 72,000 gallons per day is necessary to irrigate the five nursery lots.

Potable water will only be furnished subsequent to BWS approval.

The lessees residing on the lots will be responsible for paying the subsequent water rates.

- f) Drainage: Only two of the subdivided lots will be impacted by runoff resulting from the 100-year flood. To minimize adverse impacts resulting from such an occurrence, residential dwellings will not be constructed within the floodways.

Runoff water should also percolate naturally.

The proposed action will provide: culvert crossings at roads to convey flood waters beneath the road, an additional drainage system to capture and convey water along the roadways, and drainage easements throughout the lots. To substantiate such improvements, the consulting engineers are currently finalizing calculations defining stream flow evaluations, flowage easements, determination of setbacks, and minimum floor elevations. The lease documents will disclose the results of these calculations, will notify the lessees of their responsibility for maintenance and clearance of the flowage easements, and will be worded to prevent encroachment into the drainage ways. All improvements will comply with City and County of Honolulu drainage standards.

- g) Gas, Electrical, and Telephone: Gas, electrical, and telephone demands are anticipated to be minimal, since use of the Agricultural Subdivision will primarily be limited to farm activities.

Gas, electrical, and telephone services should be adequate to satisfy all demands stemming from the proposed project.

9. Public Facilities and Services

- a) Traffic/Access: The impact of additional traffic to the project site should be very minimal and should not present any long-term traffic problems, since the proposed action will consist of subdividing 14 lots and leasing them to only farm residents.

Access to the project site will be provided by a 24-foot wide asphalt concrete pavement within a 44-foot wide right-of-way. This road will begin at the intersection of Kumuhau and Waikupanaha Streets, extending mauka. From that extension, a road to serve the Agricultural Subdivision development will be built.

The road will conform to the City and County of Honolulu's Typical Agricultural Road Section and will be dedicated to the City for maintenance.

A portion of the roadway will cross privately-owned lands of approximately 12,150 square feet. Acquisition cost for this land is estimated at \$12,000.

The existing Kumuhau and Waikupanaha Streets are paved thoroughfares with no curbs.

- b) Security and Emergency: Security should not present a major problem to the project area. Each individual farmer would be responsible for providing security for his farm equipment and his parcel of land. In the event that emergency services are required, excellent facilities are located within the vicinity of the project site at the Castle Memorial Hospital, for medical services; the Kailua substation, for police protection; and the Waimanalo and Kailua fire stations for fire protection.
- c) Social: The Agricultural Subdivision will cultivate 120 acres of land and will represent the initial increment of development for the total 1,800-acre Waimanalo Agricultural Park. Activities on the project site then, will be in conformance with the activities of the completed Agricultural Park. Therefore, the Phase I Subdivision will have no significant impact on the adjacent communities, since it will respect the agricultural and rural atmosphere of the completed Waimanalo Agricultural Park development and the entire Waimanalo area.
- d) Agricultural Industry: The project will make farm lots available to both experienced and new farmers. It will aid in promoting diversified agriculture in the State, and will not negatively impact other farming operations. There is also ready access to a large market, the Honolulu area.

III. Secondary Impacts

A. Land Use

Use of this area as an agricultural park will preclude other actions for the land. Therefore, actions incompatible with the intent of the Agricultural Subdivision will not be permitted.

B. Educational Opportunity

Currently, there is a limited amount of Agricultural Subdivisions located on the island of Oahu. The proposed project then, will provided needed educational opportunity to those individuals interested in agricultural production.

Adverse Environmental Effects

SECTION 7: ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

I. Introduction

This section will briefly discuss probable adverse environmental impacts and mitigative measures, when applicable, and the rationale for proceeding with a proposed action, notwithstanding unavoidable effects.

II. Primary Short-Term Impacts

A. Adverse Impacts and Mitigative Measures

During the construction phase of the Agricultural Subdivision, a temporary increase in the existing noise level can be expected. This impact will be of short duration, lasting only for the construction period. The noise level can be reduced by the contractor by ensuring proper functioning of mufflers on all equipment, instructing workers to avoid unnecessary "gunning" of equipment, creating earth berms to absorb noise, and conducting construction activity only during daylight hours, between 8:00 a.m. to 5:00 p.m.

The grubbing and clearing of the existing vegetation may result in dust problems. If dust becomes a serious problem, it can be mitigated to a large extent by water sprinkling, limiting the area being work at any one time, and immediate seeding of the graded area. However, it is anticipated that dust will not be a significant problem, due to the slight erosive characteristics of the soil types existing at the project site.

Exhaust emissions from construction equipment and smoke from burning activity will undoubtedly occur. However, prevailing winds in the area should help to quickly disperse any concentrations of exhaust emissions and smoke. Air quality of the area should therefore, not be significantly affected.

Increased constituent loads into the Waimanalo Stream can be expected to result from construction activities, especially if a significant storm occurs. The impact of construction activities can be mitigated by conforming to strict erosion control measures, particularly those specified in the City and County of Honolulu's Grading, Grubbing, and Stockpiling, Ordinance No. 3968, 1972; the State Department of Health's Water Quality Standards, Chapter 37-A, Public Health Regulations, 1968; and the USDA Soil Conservation Service Erosion and Sediment Control Guide for Hawaii, 1981.

B. Reasons for Proceeding

The probable short-term adverse impacts encountered during the construction phase of the proposed Agricultural Subdivision are minor and can be controlled by using acceptable mitigative measures.

III. Primary Long-Term Impacts

A. Adverse Impacts and Mitigative Measures

Clearing and grubbing of the existing vegetation will be required for the implementation of the proposed Agricultural Subdivision. The removal of the vegetation will have an impact on the existing wildlife. However, the proposed project site does not contain endangered species of plants and/or animals, nor does it contain sensitive wildlife habitats. The existing wildlife will undoubtedly relocate to the adjacent areas and, in some instances, adapt to the proposed action by returning to the project site for food and shelter after clearing activities have been completed.

The use of pesticides and herbicides on the project site is not anticipated to present any significant problems to the air quality. Each of the farmers will use EPA approved herbicides and pesticides and will be required to take courses and receive instructions before granted a permit to use these herbicides and pesticides.

Erosion will normally occur on agricultural areas. Therefore, farmers will be advised to consult with the USDA Soil Conservation Service Erosion and Sediment Control Guide for Hawaii, 1981, for erosion control.

Soil conditioners, fertilizers, herbicides, and pesticides will alter the chemical constituents of the Waimanalo Stream. However, impact on the surface water quality should be insignificant due to the "flashy" characteristics of the stream and the generally infrequent occurrence of rainfall in the Waimanalo area.

Irrigation sources to the project site will be provided by a new 16-inch pipe system from the tunnel portal. However, this will be a temporary arrangement. The USDA Soil Conservation Service, in their Watershed Plan and Draft Environmental Impact Statement, will provide necessary irrigation resources by constructing a 60-million gallon capacity reservoir located at the end of Mahailua Street.

Potable water will be furnished subsequent to BWS approval.

Only two of the subdivided lots will be impacted by runoff resulting from the 100-year flood. To minimize adverse impacts resulting from such an occurrence, lease documents will be worded to prevent encroachment into the flowage easement. The proposed action will provide for culverts and additional drainage appurtenances. Runoff should also percolate naturally.

The Agricultural Subdivision may be serviced by cesspools since the project is located makai the BWS "Pass/No Pass Line". However, determination for allowing cesspools must be made jointly by the Department of Land and Natural Resources and Department of Health, in addition to the BWS.

The bridge located on Waikupanaha Street was determined by the County Refuse Division as being adequate in providing access for refuse collection vehicles.

Adverse impacts to groundwater quality, fire protection water flow, gas, electrical, telephone, traffic, security, emergency, and surrounding communities are not anticipated.

B. Reason for Proceeding

The long-term adverse impacts encountered during the operation of the Agricultural Subdivision will be insignificant and can be mitigated by utilizing acceptable measures.

Establishing an Agricultural Subdivision will be in keeping with the overall State goal of providing for a diversified agricultural economic base.

IV. Secondary Impacts

A. Adverse Impacts and Mitigative Measures

Adverse secondary impacts are not anticipated.

B. Reasons for Proceeding

The long-term beneficial impacts of securing this parcel of land for agricultural purposes would be realized for many generations. The proposed action would set aside this land for the people of the State for agricultural purposes and will assist in providing for the diversified agricultural economic base on the Island of Oahu.

8 Alternatives

SECTION 8: ALTERNATIVES TO THE PROPOSED ACTION

I. Introduction

This section will discuss alternatives to the proposed action which have been considered.

II. No Action

A no action alternative would not accomplish the objectives of the Department of Land and Natural Resources. These objectives are to provide land for diversified agriculture, to provide land for practical experience in the areas of agriculture, and to provide an opportunity for the small farmers.

III. Alternative Sites

Agricultural Park projects are joint programs cooperatively developed by the Departments of Agriculture and Land and Natural Resources. Presently, there are nine committed projects in various stages of planning, design, construction, or completion. Table 8-1 presents the total acreage, number and size of lots, uses, and current status of each respective Agricultural Park, as of December 1981.

However, the project site should be utilized as an Agricultural Park since the land is available for immediate use, minimal land acquisition costs are involved and the parcel is located in close proximity to the Honolulu market and to shipping facilities in Honolulu Harbor.

IV. Alternative Uses and Development Concepts

The project site is designated "agriculture" according to the State Land Use District boundary, the City and County of Honolulu General Plan and Development Plan, and is zoned Ag-1. Alternative uses of the land other than those compatible with the agricultural land use designations would require changes in the State Land Use designation as well as the County General Plan, proposed Development Plan and Zoning Designation.

TABLE 8-1

STATEWIDE AGRICULTURAL PARK STATUS REPORT (FEBRUARY, 1982)

<u>Agricultural Parks</u>	<u>Total Acreage</u>	<u>No. and Size of Lots</u>	<u>Uses</u>	<u>Current Status</u>
PAHOA (Hawaii)				
Phase I	410	27, 10 to 30-acre lots	Flower, foliage and nursery production.	Completed, lots leased.
Phase II	175	33, 5-acre lots	Flower, foliage and nursery production.	Under construction; estimated completion date January 1982.
KE-AHOLE (Hawaii)				
Phase I	65	12, 5-acre lots	Flower and foliage production.	Completed, lots leased.
Phase II	114	22, 5-acre lots	Flower and foliage production.	Design stage completed. Estimated construction com- pletion date November 1982.
PANAEWA (Hawaii)	460	28, 10 to 20-acre lots	Orchard and nursery production.	Completed, lots leased.
LALAMILO (Hawaii)				
Phase I	340	22, 5 to 25-acre lots	Diversified agricul- ture with emphasis on truck crops.	Development plan and prelimi- nary engineering report completed. Next step EIS. Estimated construction com- pletion date 1983-1984.
WAIMANALO (Oahu)				
Phase I	126	16, 5 to 10-acre lots	Banana, diversified crops including nurseries.	Development plan and pre- liminary engineering report completed. EIS in process. Estimated construction completion date August 1983.

TABLE 8-1

STATEWIDE AGRICULTURAL PARK STATUS REPORT (FEBRUARY, 1982)
(continued)

<u>Agricultural Parks</u>		<u>Total Acreage</u>	<u>No. and Size of Lots</u>	<u>Uses</u>	<u>Current Status</u>
WAIANAE	(Oahu)	150	15, 5 to 10-acre lots	Mix of swine and poultry operations and shade house commodities.	Development plan and preli- minary engineering report completed. EIS in process. Estimated construction completion date 1983.
WAI AHOLE	(Oahu)	410	71 lots of various acreage	Banana, papaya, taro nursery and diver- sified crops.	51 lots already encumbered by existing tenants. Design to be completed by late 1982; construction completion by mid- and late-1984. (HHA Project)
KAHUKU	(Oahu)	3,380	550 acres of unencumbered land to be developed	Truck crops, nursery, livestock, plus exist- ing uses: feed corn, orchards, and aqua- culture.	Development Plan, preliminary engineering report and environ- mental assessment in process. Estimated construction comple- tion in 1984-1985.
KULA	(Maui)				
	Phase I	325	22, 15 to 25- acre lots	Vegetable and truck crops.	County of Maui project. State will assist in construction of agricultural water system and land acquisition. Estimated completion date 1982 (Phase I).
	Phase II	125	9, 15 to 25-acre lots		

Various crop types to be produced on the project site were also considered. Consideration was based on (1) the physical capacities of the site, including water, soil, climate, and tillability, (2) the cost and quality of other resources brought to the land, with particular emphasis on water, management, and labor, and (3) the potential market that can be developed without lowering prices significantly. The array of crop types possessing optimum economical and physical feasibility include the production of bananas, flowers, nursery products, and tomatoes. It has been agreed upon that each individual farmer will determine the actual crop type to be produced on his lot.

It is recommended that each farmer formulate plans for crop type for each respective lot, based on soil type and slope. Farmers may be advised to consult with the Windward Oahu Soil and Water Conservation District and the Erosion and Sediment Control Guide for Hawaii, 1981, prepared by Soil Conservation Service, for technical assistance.

9 Resource Commitment

SECTION 9: IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

I. Introduction

This section considers the commitment of resources that is made once a project is implemented.

II. Irreversible and Irretrievable Commitment of Resources

Labor, construction building materials, and fuel will be committed to the project. Additional manpower, fuel, fertilizer and pesticides will be utilized by the individual farmers for cultivation of the agricultural products. The exact amount of fertilizer, pesticides and fuel which will be required by the individual farmers cannot be quantified at the present time.

10

Short-Term Uses/
Long-Term Productivity

SECTION 10: RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

I. Introduction

This section will include a brief discussion of the extent to which the proposed action involves trade-offs between short-term environmental gains at the expense of long-term losses, or vice-versa, and a discussion of the extent to which the proposed action narrows the range of beneficial uses of the environment, or poses long-term risks to health or safety.

II. Short-Term Uses and Enhancement of Long-Term Productivity

The proposed project, the Phase I development of the Waimanalo Agricultural Park, has considered the environmental attributes of the area, evaluated existing infrastructural items, and the farmers' desire for agricultural lands. The proposed action, when implemented, will enhance the economic resources of this area. The proposed action will enable small farmers to obtain land for their agricultural endeavors, thereby, strengthening the diversified economic base of the project area. Providing land for the small farmers will enable them to have the opportunity to participate in the overall agricultural efforts of the State.

The proposed project will not involve trade-offs between short-term environmental gains at the expense of long-term losses, narrow the ranges of beneficial use of the environment, or propose long-term risks of health and safety.

11

Government Policy Offsetting Adverse Effects

SECTION 11: AN INDICATION OF WHAT OTHER INTERESTS AND CONSIDERATIONS OF
GOVERNMENTAL POLICIES ARE THOUGHT TO OFFSET THE ADVERSE
ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION

As indicated in Section 7, Adverse Environmental Effects Which Cannot Be Avoided, a few short- and long-term impacts resulting from the proposed action may occur. The short-term impacts, or those relating to construction activities, are considered insignificant and can be controlled by utilizing acceptable mitigative measures.

Long-term impacts, or those occurring during the operation of the proposed action will also be minor and alleviated by utilizing acceptable mitigative measures.

The development of an agricultural subdivision and park in this area will be in accordance with the goals and objectives presented in the objective of the Agricultural Park set forth in Chapter C, 171, Part V of the Hawaii Revised Statutes, to strengthen diversified agriculture in Hawaii by a plan that "combines and concentrates in a common location agricultural activities for the purpose of production and distribution of the economy."

The proposed action is also in accordance to the County General Plan, the State Plan, and proposed Agricultural Functional Plan. All of these plans possess policies supporting the need for diversified agricultural activities to strengthen the State economic base.

12 Approvals

SECTION 12: LIST OF NECESSARY APPROVALS

The following is a general list of approvals needed to complete the construction of the Agricultural Subdivision:

<u>Approval Needed</u>	<u>Approving Agency or Body</u>
Subdivision Approval	Department of Land Utilization
1) Tentative Approval of Preliminary Map	
2) Approval of Final Map	
3) Approval of Stamped Map	State Surveyor, Land Court
Grading Permit	Department of Public Works Division of Engineering
Refuse	Department of Public Works Division of Refuse Collection and Disposal
Street Construction, Signing, and Pavement Markings	Department of Transportation Services
Electrical	Hawaiian Electric Company
Telephone	Hawaiian Telephone Company
Street Signs	Department of Transportation Services
Water	Board of Water Supply
Building Permit	Building Department
Fire Hydrant Installation	Fire Department
Cesspools	Board of Water Supply Department of Land & Natural Resources Department of Health

SECTION 13.1: ORGANIZATIONS AND PERSONS CONSULTED DURING THE EIS PREPARATION PERIOD

The EIS Preparation Notice. The EIS Preparation Notice was prepared by the Department of Land and Natural Resources (DLNR), State of Hawaii, based on the information obtained from the Environmental Assessment submitted by the applicant. In accordance with the "Environmental Impact Statement Regulations," the Notice was filed with the State Environmental Quality Commission (EQC). The Notice was included in the EQC Bulletin of September 8, 1981. The Regulations call for the Notice to appear in the EQC Bulletin; interested parties may then request a copy of the EIS Preparation Notice. If a request is received to review the Notice, the reviewer is given 30 days (from the date of the request) to provide comments. In addition to reviewers requesting a copy of the Notice, the applicant or his representative is expected to circulate to various governmental and civic agencies, and other interested parties a copy of the Notice. In conforming with the latter process, the environmental consultants, Environmental Communications, Inc. (ECI) distributed copies of the EIS Preparation Notice to various agencies identified in Table 13-1. The Notice was mailed out on August 20, 1981 and requested comments before September 22, 1981.

Comments Received on the EIS Preparation Notice. A total of seventeen (17) letters were received in response to the EIS Preparation Notice. Of these written responses, four (4) agencies had no comments to provide at this time. In most cases the comments identified specific concerns that should be addressed in the EIS. These concerns included: the traffic congestion problem, water quality impact, detailed discussion on the sewage treatment plant, and socio-economic impact. Table 13-2 identifies the agencies to whom copies of the EIS Preparation Notice were sent, the date of the comment, and the date of the response to the comment (if necessary).

Reduced, half-size copies of the letters received and DLNR's responses to the comments are provided in the following section.

TABLE 13-1

ORGANIZATIONS AND AGENCIES CONSULTED DURING EIS PREPARATION

<u>ORGANIZATIONS/AGENCIES</u>	<u>Date Notice Mailed</u>	<u>Date of Comments</u>	<u>Date of Responses</u>
<u>City and County</u>			
Honolulu Police Department	8/20/81	8/26/81	10/19/81
Honolulu Fire Department	8/20/81	9/04/81	10/19/81
Department of Public Works	8/20/81	9/04/81	10/19/81
Department of General Planning	8/20/81	9/15/81	10/19/81
Department of Transportation Services	8/20/81	9/13/81	10/19/81
Board of Water Supply	8/20/81	10/02/81	10/19/81
Department of Parks and Recreation	8/20/81	--	
<u>State</u>			
Department of Agriculture	8/20/81	--	
Department of Transportation	8/20/81	8/28/81	10/19/81
Department of Education	8/20/81	8/31/81	10/19/81
Department of Health	8/20/81	9/14/81	10/19/81
Department of Planning and Economic Development	8/20/81	9/16/81	10/19/81
Office of Environmental Quality Control	8/20/81	--	
<u>Federal</u>			
U.S. Army Corps of Engineering	8/20/81	9/11/81	10/19/81
U.S. Fish and Wildlife Service	8/20/81	9/18/81	10/19/81
U.S. Soil Conservation Service	8/20/81	9/21/81	10/19/81
Department of the Air Force	8/20/81	--	
<u>Organizations</u>			
American Lung Association of Hawaii	8/20/81	8/24/81	10/19/81
Hawaii Federation of Farm Bureau	8/20/81	9/02/81	
The Sierra Club, Hawaii Chapter	8/20/81	10/03/81	10/19/81
Joint Planning Committee of the Waimanalo Council of Community Organizations and the Waimanalo Neighborhood Board	8/20/81	10/15/81	10/19/81
Hawaii Association of Nurseryment	8/20/81	--	
Hawaii Audubon Society	8/20/81	--	
Hawaii Banana Industry Association	8/20/81	--	
Life of the Land	8/20/81	--	
Oahu Banana Growers Association	8/20/81	--	
Pacific Banana Growers Cooperative	8/20/81	--	

TABLE 13-2

COMMENTS RECEIVED ON THE EIS PREPARATION NOTICE

<u>ORGANIZATIONS/AGENCIES</u>	<u>Date of Comment Received</u>	<u>Date of Response</u>	<u>Copy of Comment on Page</u>
<u>City and County</u>			
Honolulu Police Department	9/01/81	10/19/81	13-4
Honolulu Fire Department	9/09/81	10/19/81	13-5
Department of Public Works	9/08/81	10/21/81	13-6
Department of General Planning	9/16/81	10/21/81	13-8
Department of Transportation Services	9/24/81	10/19/81	13-9
Board of Water Supply	10/06/81	10/19/81	13-10
<u>State</u>			
Department of Transportation	8/31/81	10/19/81	13-12
Department of Education	9/03/81	10/19/81	13-13
Department of Health	9/16/81	10/19/81	13-14
Department of Planning and Economic Development	9/21/81	10/19/81	13-16
<u>Federal</u>			
U.S. Army Corps of Engineering	9/14/81	10/19/81	13-17
U.S. Fish and Wildlife Service	9/21/81	10/19/81	13-18
U.S. Soil Conservation Service	9/24/81	10/19/81	13-19
<u>Organizations</u>			
American Lung Association of Hawaii	8/25/81	10/19/81	13-20
Hawaii Federation of Farm Bureau	9/08/81	11/30/81	13-21
The Sierra Club, Hawaii Chapter	10/05/81	10/19/81	13-23
Joint Planning Committee of the Waimanalo Council of Community Organizations and the Waimanalo Neigh- borhood Board	10/15/81	10/19/81	13-24

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU

1455 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96814 - ART & CODE 1000 955-8111



August 26, 1981

EILEEN R. ANDERSON
MAYOR

FRANCIS KEALA
CHIEF

OUR REFERENCE EFS-HJP

Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Gentlemen:

Subject: Consultation Process Prior to Filing the EIS for
the Proposed Waimanalo Agricultural Park, Phase I

We have reviewed your environmental impact statement preparation notice and have no comments on or objections to the proposed project.

Sincerely,

FRANCIS KEALA
Chief of Police

By 
EARL THOMPSON
Assistant Chief
Administrative Bureau

cc: Department of Land
and Natural Resources

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 621
HONOLULU, HAWAII 96808

October 19, 1981

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AGRICULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FOREST AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

Mr. Francis Keala
Chief of Police
Police Department
City and County of Honolulu
1455 South Beretania Street
Honolulu, Hawaii 96814

Dear Chief Keala:


Subject: EIS Preparation Notice for the Proposed Waimanalo
Agricultural Park, Phase I

We are in receipt of your letter of August 26, 1981, regarding the aforementioned project.

We thank you for your concern regarding the appropriateness of the proposed agricultural use for this site.

A Draft EIS will be forwarded to you, when completed, for your comments.

Very truly yours,


SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

SEP 1 1981

13-4

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

1455 S. BERETANIA STREET, ROOM 305
HONOLULU, HAWAII 96814

EILEEN W. ANDERSON
MAYOR



M. M. NONAKA
CHIEF

September 4, 1981

Mr. F. J. Rodriguez
Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

The major concern of the Honolulu Fire Department is the availability of adequate water supply for fire protection in the proposed project.

The EIS Preparation Notice under "A" Technical Characteristics: Items 3, 4 and 5 on Pages 2 and 3, make reference to the installation of fire hydrants; the inclusion of a domestic water supply system and two irrigation water systems.

Fire protection for the proposed project will be provided by the Waimanalo Station, which is approximately two miles from the proposed site, with supportive service from the Kailua station. Our Capital Improvement Program for the fiscal year 1982-83 calls for a new fire station in the Olomana area, which is approximately 3 miles from the proposed site.

With the installation of the fire hydrants and the addition of the new fire station, the fire protection for the proposed project will be more than adequate.

Sincerely,

Melvin M. Nonaka,
Fire Chief

MMN:cl/LS

GEORGE R. ARITOSH
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 921
HONOLULU, HAWAII 96809

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. KAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

October 19, 1981

Mr. Melvin M. Nonaka, Fire Chief
Fire Department
City and County of Honolulu
1455 South Beretania Street, Room 305
Honolulu, Hawaii 96814

Dear Mr. Nonaka:

Subject: EIS Preparation Notice for the Proposed Waimanalo
Agricultural Park, Phase I

We are in receipt of your letter of September 4, 1981, regarding the aforementioned project.

The installation of fire hydrants and the proposed construction of the Olomana Fire Station will be noted in the Draft EIS.

We appreciate your concerns in this matter.

Very truly yours,

SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

SEP 9 1981

650 SOUTH KING STREET
HONOLULU, HAWAII 96813



September 4, 1981

Environmental Communications, Inc.
1152 Bishop Building
P. O. Box 536
Honolulu, Hawaii 96809

Re: EIS Preparation Notice, Proposed Waimanalo
Agricultural Park, Phase I

1. The proposed site is located on and adjacent to a location where we are planning to establish a landfill site. (See attached map.) The amount of landfill area on Oahu is limited, particularly in view of the State's new Underground Injection Control (UIC) program. For this reason, some consideration should be given in the design and the areal magnitude of the proposed agricultural park at this particular site (Tax Map Key 4-1-08: 13).
2. Municipal sewers are not available at the proposed site nor planned for in the future. The suitability of cesspools in the project area should be addressed in the EIS.
3. There are downstream flood problems and this matter should be discussed in the EIS. Flood determination studies are required and the Drainage Section of the Division of Engineering should be consulted.
4. If the roads are to be designed as agricultural road and dedicated to the City, the design of the pavement should be based on vehicular loads and soil conditions instead of a typical road section.

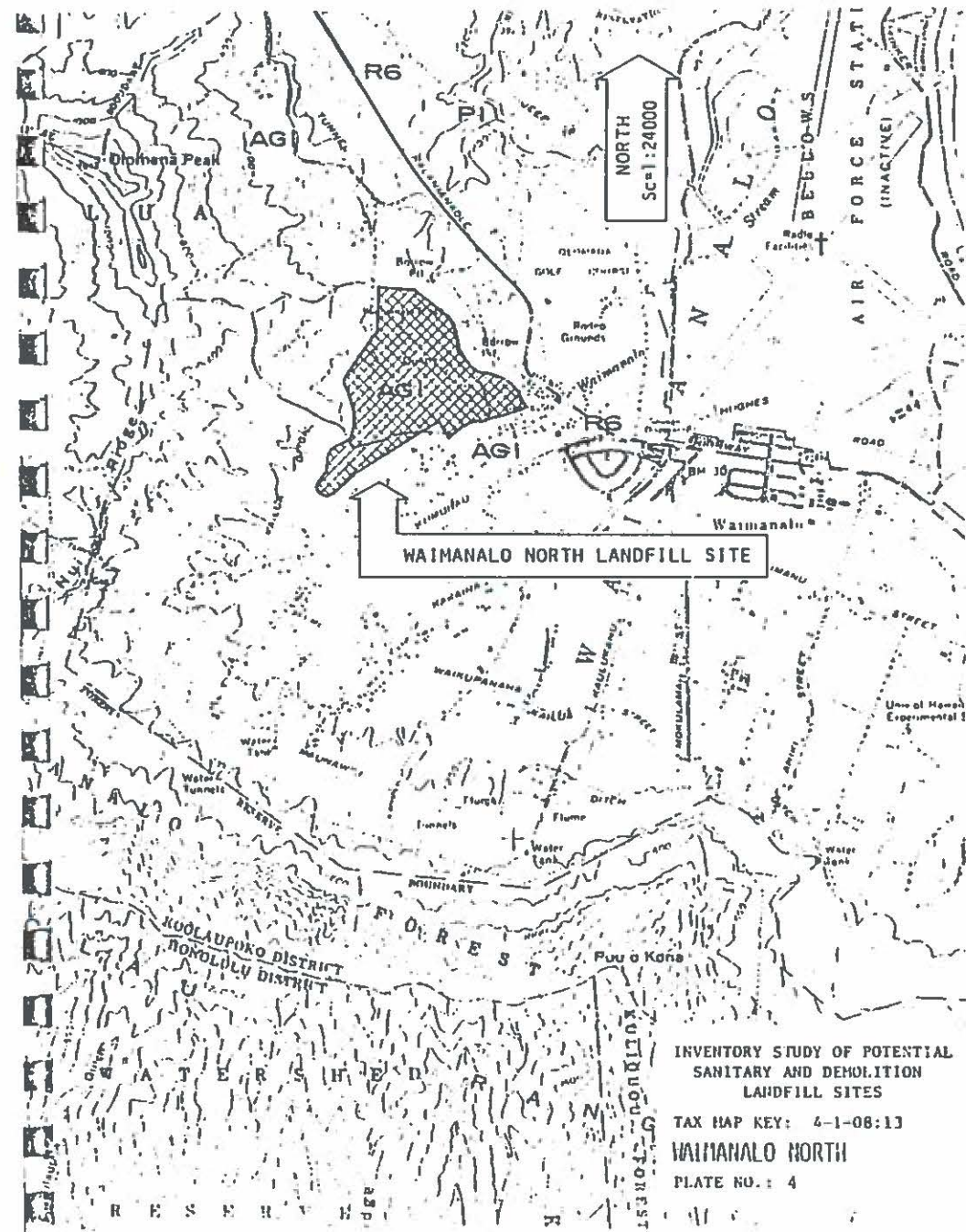
Me ke aloha pumehana,

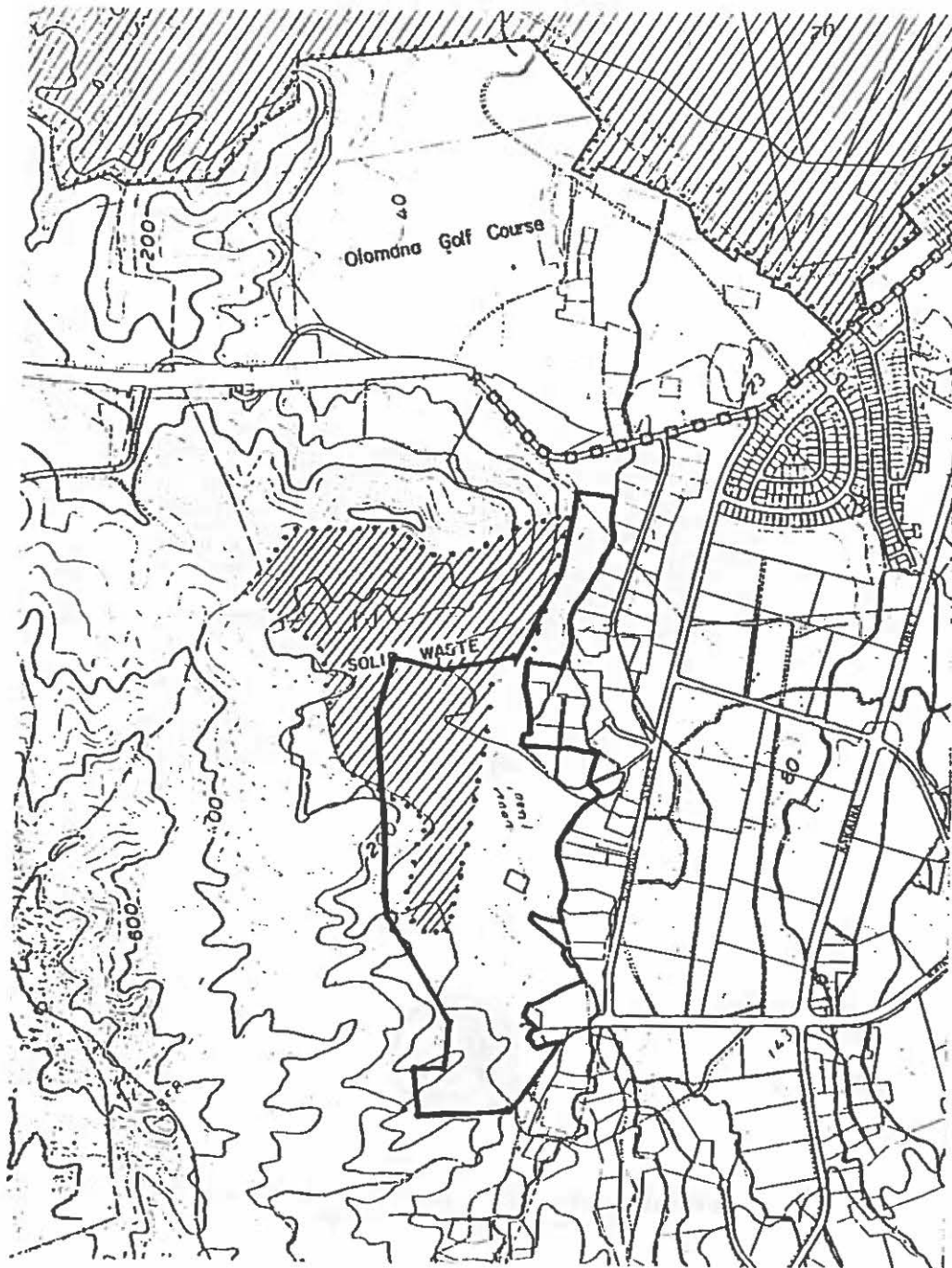
Will C. Boulet

MICHAEL J. CHUN
Director and Chief Engineer

cc: DLNR
Engineering
Refuse
Wastewater Management

SEP 8 1981





GEORGE R. ARIOYOSHI
GOVERNOR OF HAWAII



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

SUSUMU ONO, CHAIRMAN
BOARD OF LAND AND NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AGRICULTURE DEVELOPMENT
PROGRAM
AGRICULTURAL RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

October 21, 1981

Mr. Michael J. Chun
Director & Chief Engineer
Department of Public Works
City & County of Honolulu
650 South King St.
Honolulu, Hawaii 96813

Dear Dr. Chun:

EIS Preparation Notice for the Proposed
Waimanalo Agricultural Park, Phase I

We are in receipt of your letter of September 4, 1981, regarding the
aforementioned project. The following are responses to your concerns:

1. As was discussed and agreed upon at a meeting with my staff, I understand that the City will be reconsidering the siting of a solid waste disposal land fill at this location and that the development of the agricultural park can proceed as planned.
2. Residential use will be allowed on the project site. Suitability of cesspools will be addressed in the EIS.
3. Only a portion of a single lot is located within a floodway. According to the Federal Flood Plain Management, agricultural activity is allowed within these areas. Home and farm buildings will not be constructed in the floodways. This will be discussed in the EIS.
4. The roadways are planned to be dedicated to the City and will be designed to City standards.

We appreciate your concerns on this matters.

Very truly yours,

Susumu Ono
SUSUMU ONO
Chairman of the Board

cc: Environmental Communication, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813



WILLARD T. CHOW
CHIEF PLANNING OFFICER

DGP8/81-2837

September 15, 1981

Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Gentlemen:

EIS Preparation Notice for the
Proposed Waimanalo Agricultural Park, Phase I

We have reviewed the EIS preparation notice and feel that further discussion on the sewer disposal method should be included in the EIS. The type of information may require data on hydrogeologic conditions in order to determine the suitability of cesspool use on the proposed site for the protection of our existing and future water resources. Department of Public Works cesspool pumping survey data show a number of defective cesspools existing in that vicinity.

Sincerely,

Ralph Kawamoto

RALPH KAWAMOTO
Planner

APPROVED:

W.T. Chow

WILLARD T. CHOW

GEORGE R. ARITOSH
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 521
HONOLULU, HAWAII 96809

October 21, 1981

Dr. Willard T. Chow
Chief Planning Officer
Department of General Planning
City and County of Honolulu
650 South King St.
Honolulu, Hawaii 96813

Attention: Mr. Ralph Kawamoto, Planner

Dear Dr. Chow:

EIS Preparation Notice for the Proposed
Waimanalo Agricultural Park, Phase I

We are in receipt of your letter of September 15, 1981, regarding the aforementioned project.

Residential use will be allowed on the project site. Therefore, method of sewer disposal will be discussed in the EIS.

The project site is located outside the Board of Water Supply's "No Pass Line" and the Department of Health's "Underground Injection Control Line" which regulates the use of cesspools.

We appreciate your concerns on these matters.

Very truly yours,

Susumu Ono

SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

SEP 10 1981

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HIRASAKI
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONSERVANCIES
FOREST AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

13-8

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
HONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU, HAWAII 96813



ROY A. PARKER
DIRECTOR

TEB/81-2607

September 18, 1981

Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Attention: Mr. F. J. Rodriguez, President

Gentlemen:

Subject: Waimanalo Agricultural Park Phase I
EIS Consultation Phase

We have the following comments on the proposed project:

1. We do not anticipate any significant traffic impact from the 16 farm lots in Phase I. However, the ultimate development of the 1800 acres will generate additional traffic that will tax the existing highway facilities in the area. In this regard, we recommend that the need for improvements, such as a left-turning lane at Kalaniana'ole Highway and Kumuau Street, be studied in conjunction with development of the entire project area.
2. Bus service is available on Kalaniana'ole Highway on Route 57 to/from Honolulu via Kailua or Hawaii Kai with 30-60 minute headway in each direction.

If you have any questions, please contact Kenneth Hirata of my staff at 523-4190.

Very truly yours,

Roy A. Parker
ROY A. PARKER
Director

cc: State Dept. of Land and
Natural Resources

GEORGE R. ARITOSHI
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P O BOX 821
HONOLULU HAWAII 96809

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AGRICULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

October 19, 1981

Mr. Roy A. Parker, Director
Department of Transportation Services
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Parker:

Subject: EIS Preparation Notice for the Proposed Waimanalo
Agricultural Park, Phase I

We are in receipt of your letter of September 18, 1981, regarding the aforementioned project.

The EIS presently being prepared, addresses only the Phase I development increment of the Waimanalo Agricultural Park. The scope of work and proposed action will therefore be limited to such analyses. Items consistent with the remaining phasing increments for the complete development of the Park will be addressed in the Draft EIS referencing Soil Conservation Service's Watershed Plan and EIS, the Waimanalo Agricultural Park and the Environmental Assessment.

We appreciate your concerns on these matters.

Very truly yours,

Susumu Ono
SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

SEP 24 1981

JARD OF WATER SUPPLY

Y AND COUNTY OF HONOLULU

SOUTH BERETANIA

HONOLULU, HAWAII 96809

EILEEN R. ANDERSON, Mayor

YOSHIE H. FUJINAKA, Chairman
ROBERT A. SOUZA, Vice Chairman
MICHAEL J. CHIU
WALTER A. DODS, JR.
RYOKICHI HIGASHIMURA
DOMINA M. HOWARD
DAT QUON PANG

KAZU HAYASHIDA
Manager and Chief Engineer

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII



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

SUSUMU OHNO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AGRICULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
DOMESTIC AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

October 2, 1981

Mr. F. J. Rodriguez
Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

Subject: Your Letter of August 20, 1981,
on the Proposed Waimanalo
Agricultural Park, Phase I

The following comments on the proposed project include conditions discussed with Park Engineering, Inc., the design consultants for the project.

1. The boundary limits of Phase I is within an area where cesspools are acceptable.
2. Our approval of the agricultural subdivision will note that because a domestic water system will not be installed, no residential units will be allowed. This restriction shall be made known to the prospective lessees and documented in their lease agreement.
3. The use of the piped irrigation system for fire protection should be approved by the Fire Department.

If you have any questions, please contact Lawrence Whang at 548-5221.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

cc: Department of Land and
Natural Resources

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

Dear Mr. Hayashida:

Subject: EIS Preparation Notice for the Proposed Waimanalo
Agricultural Park, Phase I

We are in receipt of your letter dated October 2, 1981, regarding the Proposed Waimanalo Agricultural Park, Phase I. Your comments on the project have been reviewed by our retained consultants who will be involved in the design and approval process for the utility systems affected.

1. We understand the limitations of the cesspool acceptability designation.
2. The agricultural subdivision will require potable water for residential use, since the potential lessees will conform to the underlying zoning (Ag-1) which permits such residential use. Our staff will meet and discuss this matter with you to resolve the differences that exist at the present time.
3. The Fire Department will be provided details of the fire protection plan for their review and approval.

OC1 6 1981

13-10

Mr. Kazu Hayashida

-2-

October 19, 1981

We thank you for your comments on the Preparation Notice and your continuing interest in this project.

Very truly yours,


SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

13-11



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION

August 28, 1981

RECEIVED
STP 8.7557

STP 8.7557

Mr. F. J. Rodriguez
Environmental Communications, Inc.
1152 Bishop Building, Suite 407
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

Consultation Process Prior to
Filing the EIS for the Proposed
Waimanalo Agricultural Park,
Phase I

Thank you for the opportunity to comment on the subject
EIS preparation notice.

We have reviewed your initial proposal and found that
your report would be enhanced if you were to address the
traffic impact not only for the 125 acres in Phase I, but
for the entire 1,800 acres which will eventually be the
ultimate scale of your development. Any assessment on
traffic impact for less than the total development would be
totally inadequate.

Very truly yours,

Ryokichi Higashionna
Ryokichi Higashionna
Director of Transportation

GEORGE A. ARITOSHI
GOVERNOR OF HAWAII



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

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

October 19, 1981

Dr. Ryokichi Higashionna, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Dr. Higashionna:

Subject: EIS Preparation Notice for the Proposed Waimanalo
Agricultural Park, Phase I

We have received and reviewed your letter of August 28, 1981, regarding the
abovementioned project.

The EIS presently being prepared, addresses only the Phase I development
increment of the Waimanalo Agricultural Park. The scope of work and proposed
action will, therefore, be limited to such analyses. Items consistent with the
remaining phasing increments for the complete development of the Park are
addressed in the Soil Conservation Service's Watershed Plan and EIS, and the
Waimanalo Agricultural Park Environmental Assessment.

We appreciate your concern on these matters.

Very truly yours,

Susumu Ono
SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

AUG 31 1981

13-12

GEORGE R. ARITOSHI
GOVERNOR OF HAWAII



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

August 31, 1981

CHARLES G. CLARK
SUPERINTENDENT

GEORGE R. ARITOSHI
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P O BOX 821
HONOLULU, HAWAII 96808

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

October 19, 1981

Mr. F. J. Rodriguez
Environmental Communications, Inc.
1152 Bishop Building, Suite 407
Honolulu, Hawaii 96813

Dear Mr. Rodriguez:

SUBJECT: EIS, Waimanalo Agricultural Park, Phase I

The subject EIS for the proposed 16-lot Agricultural Park in Waimanalo, TMK: 4-1-08:13 will not have any significant impact on student enrollment on our Waimanalo Elementary-Intermediate and Kailua High schools.

Should there be any questions, please contact Mr. Howard Lau at 737-5231.

Sincerely,

CHARLES G. CLARK
Superintendent

CGC:HL:jl

cc: Windward District
Mr. James Edington

Mr. Charles G. Clark, Superintendent
Department of Education
State of Hawaii
P. O. Box 2360
Honolulu, Hawaii 96804

Dear Mr. Clark:

Subject: EIS Preparation Notice for the Proposed Waimanalo Agricultural Park, Phase I

We are in receipt of your letter of August 31, 1981, regarding the aforementioned project.

We thank you for your informing us that the subject project will not have any significant impact on student enrollment.

Very truly yours,

SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

AN EQUAL OPPORTUNITY EMPLOYER

SEP 3 1981

GEORGE R. ARITOSHI
GOVERNOR OF HAWAII



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

September 14, 1981

GEORGE A. I. YUEN
DIRECTOR OF HEALTH

JOHN F. CHALMERS, M.D.
DEPUTY DIRECTOR OF HEALTH

HENRY R. THOMPSON, M.A.
DEPUTY DIRECTOR OF HEALTH

MELVIN K. KOIZUMI
DEPUTY DIRECTOR OF HEALTH

ABELINA MADRID SHAW, M.A., J.D.
DEPUTY DIRECTOR OF HEALTH

In reply, please refer to:
File: EPHS-SS

Mr. F. J. Rodriguez
Environmental Communications, Inc.
1152 Bishop Building, Suite 407
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

Subject: Request for Comments on Proposed Environmental Impact Statement
(EIS) for Waimanalo Agricultural Park, Phase I

Thank you for allowing us to review and comment on the subject proposed EIS.

The following comments are submitted for your information and consideration:

1. The only existing dirt road and wooden bridge to this subdivision are not capable of supporting heavy loads and sizes comparable to the City and County refuse trucks. At the present time, due to this reason, the City and County refuse trucks do not provide refuse pickup service for the families living in the proposed subdivision. Consequently, there are many promiscuous dumpings along side the road.
2. The use of individual wastewater disposal systems is acceptable provided these systems are installed at least 50 feet away from any body of water.
3. A portion of proposed Lot 12 is subject to flooding.

We realize that the statements are general in nature due to preliminary plans being the sole source of discussion. We, therefore, reserve the right to impose future environmental restrictions on the project at the time final plans are submitted to this office for review.

Sincerely,

Melvin K. Koizumi

MELVIN K. KOIZUMI
Deputy Director for
Environmental Health

GEORGE R. ARITOSHI
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 621
HONOLULU, HAWAII 96808

SUSUMU OHNO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE FARMS
WATER AND LAND DEVELOPMENT

October 19, 1981

Mr. Melvin K. Koizumi
Deputy Director
Department of Health
State of Hawaii
P. O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Koizumi:

Subject: EIS Preparation Notice for the Proposed Waimanalo
Agricultural Park, Phase I

We have received and reviewed your letter of September 14, 1981, relating to the abovementioned EIS Preparation Notice. The following are responses to your concerns:

1. The engineering consultants involved with the project will be conducting economic feasibility studies on the redesigning of said bridge to allow adequate access to the project site for refuse collection. Decisions resulting from these studies will be discussed in the EIS.
2. This item will be addressed in the EIS.
3. According to the Federal Flood Plain Management, agricultural activity is allowed in floodways. Therefore, no home and farm buildings will be constructed in the floodways.

13-14

SEP 16 1981


Mr. Melvin K. Koizumi, Deputy Director

-2-

October 19, 1981

All of these items will be addressed in the EIS. We appreciate your concerns on these matters.

Very truly yours,


SUSUMU ONO
Chairman of the Board

cc: Environmental Communication, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

13-15



DEPARTMENT OF PLANNING
AND ECONOMIC DEVELOPMENT

Kamamalu Building 250 South King St. Honolulu, Hawaii - Mailing Address P.O. Box 2359 Honolulu, Hawaii 96804

GEORGE R. ARIYOSHI
Governor

HIDETO KONO
Director

FRANK SRIVANER
Deputy Director

September 16, 1981

Ref. No. 3621

Mr. F. J. Rodriguez
Environmental Communications, Inc.
P.O. Box 536
Honolulu, Hawaii 96809

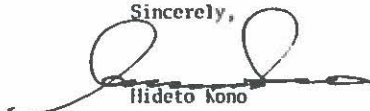
Dear Mr. Rodriguez:

SUBJECT: EIS Preparation Notice for the Proposed Waimanalo
Agricultural Park, Phase I

Our agency has reviewed the EIS Preparation Notice for the above
agricultural park and has no comments to make at this time.

We would appreciate the opportunity to review the draft EIS at
a later date.

Sincerely,


Hideto Kono

cc: Dept. of Land & Natural Resources

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P O BOX 821
HONOLULU, HAWAII 96808

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. NEMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FOREST AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

October 19, 1981

Mr. Hideto Kono, Director
Department of Planning and
Economic Development
State of Hawaii
P. O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Kono:


Subject: EIS Preparation Notice for the Proposed Waimanalo
Agricultural Park, Phase I

We are in receipt of your letter of September 16, 1981, regarding the afore-
mentioned project.

The Draft EIS will be sent to you upon its completion at a later date.

We appreciate your concern on this matter.

Very truly yours,


SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

SEP 21 1981

13-16





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

PODED-PV

11 September 1981

Mr. Fred Rodriguez
Environmental Communications, Inc.
1152 Bishop Bldg, Suite 407
PO Box 536
Honolulu, HI 96809

Dear Mr. Rodriguez:

Thank you for the opportunity to review the Environmental Impact Statement Preparation Notice for the Proposed Waimanalo Agricultural Park, Phase I, Oahu, sent to us on 20 August 1981. Based on our review, we provide the following comments.

a. Based on information provided to date, it appears that the subject agricultural subdivision does not require a Department of the Army permit; however, any future discharge of dredged or fill material into waters of the US, including wetlands, will require a Department of the Army permit. Operations Branch staff will gladly provide assistance regarding permit requirements and jurisdictional boundary determinations. You may call them at 438-9258.

b. Since part of the proposed agricultural park lies within a known flood hazard area, flood plain management concepts should be considered. Agricultural activity within floodways is an accepted and compatible use. Homes and farm buildings should, however, be located outside the floodway and preferably outside the floodplain. Inclosed is a brochure (Incl 1), Flood Plain Management, which may clarify flood plain concepts for you. Please consult the Federal Flood Insurance Maps for the floodplain limits.

Sincerely,

Richard M. Chun
RICHARD M. CHUN

Acting Assistant Chief, Engineering Division

1 Incl
As stated

CF:
Dept of Land and Natural Resources
PO Box 373
Honolulu, HI 96809

SEP 14 1981

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P O BOX 621
HONOLULU, HAWAII 96808

October 19, 1981

Mr. Richard M. Chun
Acting Assistant Chief
Engineering Division
Department of the Army
U.S. Army Engineer District
Fort Shafter, Hawaii 96858

Dear Mr. Chun:

Subject: EIS Preparation Notice for the Proposed Waimanalo Agricultural Park, Phase I

We are in receipt of your letter of September 11, 1981, regarding the aforementioned project.

The following are responses to your concerns:

- If any future discharge of dredged or fill material into the waters is necessary, we will apply for a Department of the Army permit and will consult with the Operations Branch staff for assistance.
- Only agricultural activity will be located within the floodway of Waimanalo Stream. Therefore, home and farm buildings will not be permitted inside the floodway. If these structures are placed within the floodway, a method of flood proofing would be required.

We appreciate your concerns on these matters.

Very truly yours,

Susumu Ono
SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
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AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FOREST AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

13-17



United States Department of the Interior

FISH AND WILDLIFE SERVICE

300 ALA MOANA BOULEVARD
P O BOX 50167
HONOLULU HAWAII 96850

IN REPLY REFER TO:
ES
Room 6307

SEP 18 1981

Mr. F. J. Rodriguez, President
Environmental Communications, Inc.
P.O. Box 536
Honolulu, Hawaii 96809

Re: EIS Preparation Notice -
Phase I, Waimanalo
Agricultural Park, Oahu,
Hawaii

Dear Mr. Rodriguez:

We have reviewed the referenced EIS Preparation Notice, forwarded by your letter dated August 20, 1981. The proposed project will have little if any significant adverse impacts on fish and wildlife resources; therefore, we have no further comments at this time.

Please provide us a copy of the DEIS when it becomes available.

We appreciate this opportunity to comment.

Sincerely yours,

Ernest Kosaka

for Ernest Kosaka
Project Leader
Office of Environmental Services

cc: NMFS
HDF&G
EPA, San Francisco

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII



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

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
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PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

October 19, 1981

Mr. Ernest Kosaka, Project Leader
Office of Environmental Services
Fish and Wildlife Service
U.S. Department of the Interior
300 Ala Moana Boulevard
P. O. Box 50167
Honolulu, Hawaii 96850

Dear Mr. Kosaka:

Subject: EIS Preparation Notice for the Proposed Waimanalo
Agricultural Park, Phase I

We are in receipt of your letter of September 18, 1981, regarding the aforementioned project informing us that the project will have little or no adverse impacts on fish and wildlife resources.

As requested, a Draft EIS will be forwarded to you when completed.

Very truly yours,

Susumu Ono
SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota



Save Energy and You Serve America!

SEP 21 1981

13-18



United States
Department of
Agriculture

Soil
Conservation
Service

P. O. Box 50004
Honolulu, Hawaii
96850

September 21, 1981

Mr. F. J. Rodriguez
Environmental Communications, Inc.
P.O. Box 536
Honolulu, HI 96809

Dear Mr. Rodriguez:

Subject: Environmental Impact Statement Preparation Notice,
Proposed Waimanalo Agricultural Park, Phase I

We have reviewed the above-mentioned notice as you requested.

Since the land in the proposal is classified as prime agricultural land and other important agricultural land, we feel that the proposal is appropriate.

We would appreciate the opportunity to review the draft EIS when it is available.

Sincerely,

J. P. Kanalz
JACK P. KANALZ
State Conservationist

GEORGE R. ARITOSHI
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P O BOX 621
HONOLULU, HAWAII 96808

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. MAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FOREST AND WILDLIFE
LAND MANAGEMENT
STATE FARMS
WATER AND LAND DEVELOPMENT

October 19, 1981

Mr. Jack P. Kanalz
State Conservationist
Soil Conservation Service
U.S. Department of Agriculture
P. O. Box 50004
Honolulu, Hawaii 96850

Dear Mr. Kanalz:

Subject: EIS Preparation Notice for the Proposed Waimanalo
Agricultural Park, Phase I

We are in receipt of your letter of September 21, 1981, regarding the aforementioned project.

We thank you for your comment regarding the appropriateness of the agricultural use for this site.

A Draft EIS will be forwarded to you, when completed, for your comments.

Very truly yours,

Susumu Ono
SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota



This report was prepared for the
Department of Agriculture

SCS AS-1
10-79

SEP 24 1981

13-19

GEORGE R. ARITOSHI
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P O BOX 921
HONOLULU HAWAII 96809

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

AMERICAN LUNG ASSOCIATION of Hawaii

August 24, 1981

F. J. Rodrigues
Environmental Communications Inc.
P.O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodrigues:

Subject: EIS Preparation Notice for the Proposed Waimanalo
Agricultural Park

We have reviewed the subject EIS Preparation Notice and have the following comments.

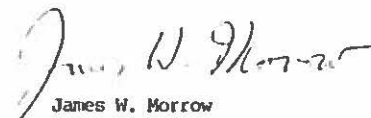
1. Since the project is Phase I of a large-scale agricultural park development on approximately 1,800 acres of State land, the EIS should address the entire project in accordance with Section 1:22b of the Environmental Quality Commission's EIS Regulations.

2. The EIS should address the following air quality-related impacts:

- Temporary construction/development related effects on air quality.
- Long-term effects on traffic and traffic induced air pollution.
- Effects of agricultural operations on air quality.

Thank you for providing a copy of the Notice for our review.

Sincerely yours,


James W. Morrow
Director
Environmental Health

JWM:jm
C1/125

October 19, 1981

Mr. James W. Morrow, Director
Environmental Health
American Lung Association of Hawaii
245 North Kukui Street
Honolulu, Hawaii 96817

Dear Mr. Morrow:


Subject: EIS Preparation Notice for the Proposed Waimanalo
Agricultural Park, Phase I

We have received and reviewed your comments of August 24, 1981 on the abovementioned EIS Preparation Notice. In reply to your comments, the following information is provided:

- 1) The EIS presently being prepared, address only the Phase I development increment of the Waimanalo Agricultural Park. The scope of work and proposed action will, therefore, be limited to such analyses. Items consistent with the remaining phasing increments for the complete development of the Park are addressed in the Soil Conservation Service's Watershed Plan and EIS, and the Waimanalo Agricultural Park Environmental Assessment.
- 2) The EIS will address the mentioned air quality-related impacts.

Thank you for your comments. We appreciate your concern on these matters.

Very truly yours,


SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

Christmas Seals Fight LTB, Asthma, Emphysema, Air Pollution

AUG 25 1981

13-20



HAWAII FARM BUREAU FEDERATION

215 MOKAUEA STREET • HONOLULU, HAWAII 96810 • TELEPHONE (808) 848 2074

PRESIDENT
Dickey Nitta
VICE PRESIDENT
Carl Kobashigawa
SECRETARY
Coleen Saini
TREASURER
George Fernandes Sr.
EAST OAHU COUNTY
Teri Choi Fung
SOUTH OAHU COUNTY
Katsun Miga
WEST OAHU COUNTY
Benjamin Oeate
MAUI COUNTY
Stacey Davis
KAUAI COUNTY
R. J. O'Leary
LANAI COUNTY
Richard Matsumoto
MAUI COUNTY
Helen Pua

September 2, 1981

Mr. F. J. Rodriguez, President
Environmental Communications, Inc.
P.O. Box 536
Honolulu, HI 96809

Dear Mr. Rodriguez:

This is in response to your communication of August 20, 1981 regarding "Consultation Process Prior to Filing the EIS for the Proposed Waimanalo Agricultural Park, Phase I."

We reviewed your EIS preparing notice for the proposed park and find it consistent with what we know about the proposed park, the feelings of our members who are in Waimanalo, and quite accurate with respect to the general environment of the area.

We, however, are not totally persuaded that the report entitled "Potential Agricultural Uses of Phase I of the Proposed Waimanalo Agricultural Park," prepared by Evaluation Research Consultants, findings is complete. Or, at least we have some questions about it.

According to your notice, the report's findings "indicated that the production of bananas, flowers and nursery products, and possibly tomatoes would be physically and economically viable for Phase I."

Such a finding is not unusual for that is what is being produced there now. It seems to us that there might well be room for a viable livestock operation. Poultry, for example. Was any examination of this possibility considered by Evaluation Research Consultants in preparing the report?

Also, we do not quite understand the observation in your notice that "small amounts of other items would be produced in conjunction with these commodities, but sizeable acreages of many truck crops would result in overall lower prices for farmers in the competitive Oahu marketplace."

This observation seems to challenge the State's policy position of striving for more self-sufficiency in diversified agriculture.

Mr. F. J. Rodriguez, President
Environmental Communications, Inc.
September 2, 1981 - Page 2

With respect to the leasing of the lots, we agree that the leases should be long term but wonder what length is to be recommended as this could be critical with respect to the long term viability of the proposed Agricultural Park.

We appreciate the opportunity to respond to the notice.

Yours truly,

Dickey Nitta
Dickey Nitta
President

SEP 8 1981

GEORGE A. ARITOSHII
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P O BOX 921
HONOLULU HAWAII 96809

November 30, 1981

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
GEORGE A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AGRICULTURE DEVELOPMENT
PROGRAM
ADULTIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONSERVATION
FOREST AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

GEORGE A. ARITOSHII
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
1425 SO. KING STREET
HONOLULU, HAWAII 96814

JACK K. SUWA
CHAIRMAN BOARD OF AGRICULTURE

November 2, 1981

Mr. Dickey Nitta, President
Hawaii Farm Bureau Federation
215 Mokuauia St.
Honolulu, Hawaii 96819

Dear Mr. Nitta:

EIS Preparation Notice for the Proposed
Waimanalo Agricultural Park, Phase I

Thank you for your comments of September 2, 1981 commenting on our EIS Preparation Notice for the Waimanalo Agricultural Park, Phase I, project.

Your letter was forwarded to the Department of Agriculture for response and comments. As you know all of the Agricultural Park projects throughout the State is jointly planned and coordinated between our departments. Their assistance was solicited in this instance since your questions dealt with agricultural policies and economics.

Attached for your information is a copy of the Department of Agriculture's response to our request for comments on your letter.

Your input during this planning process and your concern for the project is appreciated.

Very truly yours,

SUSUMU ONO
Chairman of the Board

Attach.
cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

MEMORANDUM

To: Mr. Susumu Ono, Chairman
Board of Land and Natural Resources

Subject: Waimanalo Agricultural Park - Comments of Hawaii
Farm Bureau Federation on EIS Preparation Notice

This is in response to your request of October 21, 1981, regarding the draft response to Farm Bureau comments.

I believe the draft response responds quite adequately to the first two of the Farm Bureau's concerns. With regard to poultry, I would suggest that you mention that both the Waianae and Kahuku Agricultural Parks are being planned for a mix of livestock uses.

With regard to overproduction of agricultural commodities, mention might also be made of the price-depressing effects in the sugar, papaya, and guava industries, to name a few more. Also, it should be noted that on various occasions established farmers (for example, vegetable and flower growers) have voiced concern that development of agricultural parks might lead to overproduction of their particular commodities by new entrants into the business. In order to evaluate which commodities can most effectively be increased to achieve greater self-sufficiency without overproduction, reference could be made to the State Agriculture Plan (September 1981), Table 9, Figures 7 through 12, and surrounding discussion (pages 11-55 through 11-73).

The Farm Bureau's third concern regarding length of lease terms in the agricultural park has not been addressed in the draft response. Presumably, the standard 55-year lease term would apply.

Thank you for the opportunity to review the Farm Bureau's comments and your response to them.

JACK K. SUWA
Chairman, Board of Agriculture

cc: Environmental Communications, Inc.

NOV 3 1981

13-22

The SIERRA CLUB, Hawaii Chapter

Post Office Box 22897, Honolulu, HI 96822
Telephone: (808) 946-8494

3 October 1981

Mr. F. J. Rodriguez
Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawai'i 96809

Dear Mr. Rodriguez:

I am writing to indicate the interest of the Honolulu Group of the
Sierra Club, Hawai'i Chapter, in being a consulted party for the Environmental
Impact Statement for "Waimanalo Agricultural Park, Phase I, Waimanalo, Oahu"
as reported in the 23 September 1981 issue of the EQC Bulletin.

Sincerely,

Susan E. Miller
Susan E. Miller
Conservation Chairman, Honolulu Group



Nuuanu Pali, by Fiske, 1837

GEORGE A. ARIYOSHI
GOVERNOR OF HAWAII



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

October 19, 1981

Ms. Susan E. Miller
Conservation Chairman
The Sierra Club, Hawaii Chapter
P. O. Box 22897
Honolulu, Hawaii 96822

Dear Ms. Miller:

Subject: EIS Preparation Notice for the Proposed Waimanalo
Agricultural Park, Phase I

We are in receipt of your letter of October 3, 1981, regarding the afore-
mentioned project.

A Draft EIS will be forwarded to you, when completed, for your comments.

Very truly yours,

Susumu Ono
SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMAHA
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
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CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

13-23

OCT 5 1981

Environmental Communications Inc
P.O. Box 536
Honolulu, Hawaii 96809

Gentlemen:

This is in regards to the "Consultation Process Prior to Filing the EIS for the Proposed Waimanalo Agricultural Park, Phase I", your memo of August 20 1981 and its enclosures.

We have reviewed the document and offer the following comments:

1. In view of the demography of the general area, we suggest that the sponsors consider the possibility of setting aside a reasonable percentage of the developed lots for use by the Department of Hawaiian Home Lands for placement of Hawaiian farmers that they select. This recommendation is based in consideration of the high probability that screening of applicants under the point systems used in recent Ag Park placements would almost automatically result in excluding this group.
2. We continue to actively support the need for more active agricultural use of lands in this area.

Thank you for the opportunity to comment.

Sincerely,

Joint Planning Committee of the Waimanalo Council of Community Organizations, and the Waimanalo Neighborhood Board

By:

Diane Esias

Diane Esias

Robert E. Gibson

Dr. Robert E. Gibson

GEORGE R. ARITOMHI
GOVERNOR OF HAWAII



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

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMAHAU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
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CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

October 19, 1981

Dr. Robert E. Gibson and Ms. Diane Esias
c/o Joint Planning Committee of the Waimanalo
Council of Community Organizations, and
The Waimanalo Neighborhood Board
49-019 Puuone Street
Waimanalo, Hawaii 96795

Dear Dr. Gibson and Ms. Esias:

Subject: EIS Preparation Notice for the Proposed Waimanalo
Agricultural Park, Phase I

We are in receipt of your letter regarding the aforementioned project.

We appreciate your concern for the possibility of setting aside a percentage of developed lots for Hawaiian farmers. However, the Legislature has already set qualification standards for lessee selection, which the State is obligated to follow. Please refer to Section 171-68 HRS, (a) and (c), or to the new farmer program, pursuant to Section 155-1 (3) HRS, for the complete listing of qualification standards.

Thank you for your interest on this matter.

Very truly yours,

Susumu Ono
SUSUMU ONO
Chairman of the Board

Attachment

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

OCT 15 1981

SECTION 13.2: REPRODUCTION OF COMMENTS AND RESPONSES MADE DURING THE
DRAFT EIS REVIEW

Pages 13-28 to 13-68 contain reduced sized copies of the comments and responses to the comments during the Draft EIS Review Period. Where a substantial comment was received, the written responses immediately follows the letter.

TABLE 13-3

ORGANIZATIONS/AGENCIES CONSULTED DURING THE DRAFT EIS

<u>ORGANIZATIONS/AGENCIES</u>	<u>Date Received</u>	<u>Date of Comments</u>	<u>Page No.</u>
<u>City and County</u>			
Department of Parks and Recreation	1/14/82	1/04/82	13-28
Honolulu Police Department	1/13/82	1/08/82	13-29
Department of Transportation Services	1/28/82	1/11/82	13-30
Honolulu Fire Department	1/22/82	1/13/82	13-31
Department of Housing and Community Development	1/21/82	1/15/82	13-32
Department of Public Works	1/21/82	1/15/82	13-33
Building Department	1/25/82	1/18/82	13-35
Department of Land Utilization	1/25/82	1/20/82	13-36
Board of Water Supply	1/28/82	1/21/82	13-38
Department of General Planning	1/27/82	1/22/82	13-40
<u>State</u>			
Department of Agriculture	1/05/82	12/31/82	13-41
Department of Social Services and Housing - HHA	1/15/82	1/11/82	13-44
Department of Accounting and General Services	1/15/82	1/12/82	13-45
Department of Defense	1/25/82	1/19/82	13-46
Department of Transportation	1/27/82	1/21/82	13-47
Department of Planning and Economic Development	1/28/82	1/22/82	13-48
Environmental Center, University of Hawaii at Manoa	1/28/82	1/22/82	13-50
Water Resources Research Center, University of Hawaii at Manoa	1/27/82	1/22/82	13-52
Office of Environmental Quality Control	2/04/82	1/25/82	13-54
Department of Education	--	--	
<u>Federal</u>			
Department of the Army	1/13/82	1/11/82	13-57
Department of the Navy-Pearl Harbor	1/15/82	1/12/82	13-58
U.S. Corps of Engineers	1/25/82	1/18/82	13-59
U.S. Fish and Wildlife Service	1/25/82	1/21/82	13-61
U.S. Department of the Interior, Geological Survey	1/25/82	1/19/82	13-60
Department of the Air Force	2/01/82	1/25/82	13-62

TABLE 13-3
(continued)

<u>Organizations</u>	<u>Date Received</u>	<u>Date of Comments</u>	<u>Page No.</u>
Oahu Banana Growers Association	1/25/82	1/20/82	13-63
The Sierra Club, Hawaii Chapter	1/27/82	1/21/82	13-65
Joint Planning Committee of the Waimanalo Council of Community Organizations and the Waimanalo Neighborhood Board	2/25/82	2/23/82	13-66
American Lung Association of Hawaii	--	--	
Hawaii Federation of Farm Bureau	--	--	

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813



ROBERT K. MASUDA
DIRECTOR

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII



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

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. NAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONFIDENCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

January 29, 1982

January 4, 1982

Mr. Donald Bremner, Chairman
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. Bremner:

SUBJECT: EIS FOR THE WAIMANALO AGRICULTURAL
PARK, PHASE I INCREMENT

The proposed agricultural park will not have any impact on our
existing or proposed parks in the Waimanalo area.

Thank you for the opportunity to review the EIS.

Sincerely yours,

ROBERT K. MASUDA, Director

RKM:vc

cc: DLNR

Mr. Robert K. Masuda, Director
Department of Parks and Recreation
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Masuda:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 4, 1982, regarding the
aforementioned project.

We thank you for your letter of no comment on the proposed Agricultural
Park.

Very truly yours,

SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

JAN 14 1982

13-28

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU

1455 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96814 - AREA CODE (808) 955-8111

EILECH R. ANDERSON
MAYOR



FRANCIS KEALA
CHIEF

OUR REFERENCE EFS-JS

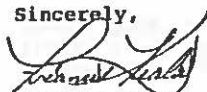
January 8, 1982

Mr. Mel Koizumi
Acting Director
Office of Environmental
Quality Control
550 Halekauwila Street, Rm. 301
Honolulu, Hawaii 96813

Dear Mr. Koizumi:

We have reviewed the environmental impact statement for the first phase of the Waimanalo Agricultural Park and have no objections to the proposed development.

Sincerely,


FRANCIS KEALA
Chief of Police

cc: Dept. of Land and Natural Resources

GEORGE R. ARITOMI
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 921
HONOLULU, HAWAII 96809

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

January 29, 1982

Mr. Francis Keala
Chief of Police
Police Department
City and County of Honolulu
1455 South Beretania Street
Honolulu, Hawaii 96814

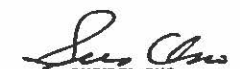
Dear Chief Keala:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 8, 1982, regarding the aforementioned project.

Thank you for informing us that your agency has no objections to our proposed development.

Very truly yours,


SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

JAN 13 1982

13-29

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
HONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

EILEEN R. ANDERSON
Mayor



January 11, 1982

ROY A. PARKER
Director
TE12/81-4588

Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Environmental Impact Statement for Phase I
Increment of Waimanalo Agricultural Park

It is our understanding that this EIS addresses only the Phase I increment of the Waimanalo Agricultural Park. We do not anticipate any significant traffic impact from the 16 farm lots in Phase I.

However, we are concerned about the ultimate development of the 1800-acre Agricultural Park. The ultimate development will generate traffic that will tax the existing highway facilities in the area.

We recommend that provisions be made at this time to study the need for highway improvements, such as a left-turning lane at Kalanianaʻole Highway and Kumuhaui Street, to service the development of the entire project area.

Very truly yours,

Roy A. Parker
ROY A. PARKER
Director

cc: Department of Land and
Natural Resources

JAN 28 1982

GEORGE R. ARITOMI
GOVERNOR OF HAWAII



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

February 26, 1982

Mr. Roy A. Parker, Director
Department of Transportation Services
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Parker:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 11, 1982, regarding the aforementioned project.

The EIS addresses only the Phase I development increment for the Waimanalo Agricultural Park. The scope of work and proposed action will therefore, be limited to such analysis. Items consistent with the remaining phasing increments for the complete development of the Park is addressed in the Soil Conservation Service's Watershed Plan and EIS, and the Waimanalo Agricultural Park Environmental Assessment.

As recommended by your agency, we will provide for technical studies relating to traffic generation and highway improvements when planning and design for the remaining increments of the Agricultural Park commences.

We appreciate your concerns on these matters.

Very truly yours,

Susumu Ono
SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

1455 S. BERETANIA STREET, ROOM 305
HONOLULU, HAWAII 96814



EILEEN N. ANDERSON
Mayor

M. M. NONAKA
Chief

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P O BOX 931
HONOLULU, HAWAII 96808

SUSUMU OMO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AGRICULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES IMPROVEMENT
CONSERVANCIES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

January 13, 1982

February 26, 1982

Roy Takemoto, Chairman
State of Hawaii
Environmental Quality
Commission
Office of the Governor
550 Halekauwila Street
Room 301
Honolulu, Hawaii 96813

RE: Waimanalo Agricultural Park, Phase I Increment

Dear Mr. Takemoto:

As stated in your EIS, the proposed project will be serviced by the Waimanalo Fire Station, which is located at 45-1301 Kalaniana'ole Highway. Fire apparatuses found at this station include a 1,250 gallon per minute pumper and a 1,250 gallon per minute relief pumper.

The second section of your EIS should be corrected to read as follows:

Supportive service from Kailua Fire Station will include a 1,250 gallon per minute pumper and an aerial ladder truck.

Our future plans call for a new fire station in the Olomana area, which will also be providing supportive service to this project with a 1,250 gallon per minute pumper. Our major concern now regarding this project, is availability of water supply and/or fire hydrants.

Very truly yours,

Melvin M. Nonaka,
Fire Chief

MWN:ct/LS
Enc.-1

Mr. Melvin M. Nonaka
Fire Chief
Fire Department
City and County of Honolulu
1455 South Beretania Street, Room 305
Honolulu, Hawaii 96814

Dear Mr. Nonaka:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 13, 1982, regarding the aforementioned project.

We appreciate your informing us of future plans for the new fire station in the Olomana area. Mention of this proposal has been included in the EIS on page 4-24, as has the other revisions detailed in your letter.

In regard to the availability of water supply and/or fire hydrants, the project's proposed action will include provisions for fire protection and appurtenances. The irrigation pipeline will be used for this purpose. Resources for fire protection will be provided by the Kailua Reservoir via outlet pipe appurtenances and fire hydrants. During fire emergencies, fire truck boosters will connect to these pipes and provide the necessary water pressure to fire hydrants, to be located within the Agricultural Subdivision. The consulting engineers are currently working with your department in finalizing construction plans which will detail the various pipe appurtenances necessary for fire protection.

The USDA Soil Conservation Service's 60-million gallon capacity reservoir located at the end of Mahailua Street will also provide fire protection services after its completed construction. Fire hydrants will be connected to the irrigation line which will stem from the proposed reservoir.

JAN 22 1982

13-31

Mr. Melvin M. Nonaka

-2-

February 26, 1982

Both sources of fire protection will possess sufficient water pressure, will be designed to satisfy fire flow requirements and will be subject to approval by the Fire Department. Please refer to page 6-16 of the EIS for an amended discussion of fire protection.

We appreciate your concerns on these matters.

Very truly yours,


SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE 922-4181



JOSEPH K. CONANT
DIRECTOR

CHARLES K. TORIODE
DEPUTY DIRECTOR

January 15, 1982

Mr. Roy R. Takemoto
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. Takemoto:

Subject: Waimanalo Agricultural Park, Phase I Increment
Environmental Impact Statement (EIS)
Waimanalo, Koolau-poko District, Oahu

We have reviewed the EIS for the subject project and have no comment.

We are retaining this EIS for our files.

Sincerely,


JOSEPH K. CONANT

cc: Department of Land & Natural Resources
Division of Water and Land Development
P. O. Box 621
Honolulu, HI 96809

JAN 22 1982

13-32



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P O BOX 821
HONOLULU, HAWAII 96808

January 29, 1982

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

EILEEN R. ANDERSON
MAYOR

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU

850 SOUTH KING STREET
HONOLULU, HAWAII 96813



MICHAEL J. CHUN, Ph.D.
DIRECTOR AND CHIEF ENGINEER

ENV 82-15

January 15, 1982

Mr. Joseph K. Conant, Director
Department of Housing and
Community Development
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Conant:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 15, 1982, regarding the afore-
mentioned project.

We thank you for your letter of no comment on the proposed Agricultural
Park.

Very truly yours,

SUSUMU ONO

Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Re: EIS for Waimanalo Agricultural Park,
Phase I Increment, Waimanalo,
Koolaupoko, Oahu, Hawaii

We have reviewed the subject EIS and have the following comments.

1. According to the EIS (page 3-4), the reconstruction of the existing bridge will cost \$102,000 if built to City standards. Notwithstanding, are the width and carrying capacity of the bridge adequate to serve the needs of the proposed subdivision? Also, is it adequate to support construction vehicles and equipment?
2. Drainage systems built as part of the dedicated roadway should conform to the City drainage standards. Drainage system outside the right-of-way can become a source of problems if their dedication and maintenance responsibility are not clearly defined.
3. Due to potential flooding (page 6-18), stream flow evaluation and determination of setback and minimum floor elevations are required.
4. Plans and/or arrangement for refuse collection by the City (page 6-16) must be approved by the City Refuse Division. No plans and/or arrangements have yet been submitted for approval. The City collects household refuse but does not collect agricultural refuse.

Me ke aloha pumehana,

MICHAEL J. CHUN
Director and Chief Engineer

cc: DLNR

JAN 21 1982



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P O BOX 921
HONOLULU, HAWAII 96809

February 26, 1982

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN
DIVISIONS:
AGRICULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FOREST AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

Dr. Michael J. Chun

-2-

February 26, 1982

Dr. Michael J. Chun
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Dr. Chun:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 15, 1982, regarding the
aforementioned project.

We offer the following responses to your comments:

1. The existing bridge was originally designed to carry rail-
road loads. Field inspection by our consultant and
discussion with your staff indicate that the width is
currently adequate for one-way traffic and that the carrying
capacity of the said bridge is adequate to serve the needs
of large construction and refuse collection vehicles.
2. All drainage system improvements will comply with City and
County of Honolulu drainage standards.


The consulting engineers are currently finalizing their
calculations defining the paths of stormwater and its
respective "flowage easement." The final subdivision maps
will show these easements and the drainage ways. Conse-
quently, the lease documents will notify the lessees of
their responsibility for maintenance and clearance of the
flowage easements and will be worded to prevent encroachment
into the drainage ways. Please refer to page 6-1, paragraph
1, for an amended discussion of drainage improvements.

3. Stream flow evaluation and determination of setback and
minimum floor elevations are currently being calculated by
the consulting engineers and will be submitted to your
office for approval. The results of these calculations
will be disclosed to the lessees in the lease documents.
4. The plans and/or arrangements for refuse collection will
be submitted to your office, for approval. Informal
discussions were held with your Refuse Division in order
to identify and correct current road deficiencies.

Regarding agricultural refuse, the individual farmer lessee
will be responsible for disposal.

We appreciate your concerns on these matters.

Very truly yours,


SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

GEORGE R. ARITOSH
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 821
HONOLULU, HAWAII 96809

SUSUMU OHNO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AGRICULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONSERVATION
FOREST AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

PB 82-37

January 18, 1982

February 26, 1982

Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Waimanalo Agriculture Park
Phase I Increment
Environmental Impact Statement

We have reviewed the Environmental Impact Statement for the subject project and we are concerned about the water pressure for fire protection.

The subdivision should be designed so that the fire flow requirement will be met.

Very truly yours,

ROY H. TANJI
Director and Building Superintendent

TH:jo
cc: J. Harada
Dept. of Land & Natural Resources

Mr. Roy H. Tanji, Director and
Building Superintendent
Building Department
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Tanji:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 18, 1982, regarding the aforementioned project.

In regard to your concerns, the project's proposed action will include provisions for fire protection and appurtenances. The design for these facilities is being coordinated with the Fire Department.

Fire protection will be provided from the irrigation system. Resources for fire protection will be supplied by the Kailua Reservoir via outlet pipe emergencies, fire truck boosters will connect to these pipes and provide the necessary water pressure to fire hydrants to be located within the Agricultural Subdivision. The consulting engineers are currently finalizing construction plans which will detail the various pipe appurtenances necessary for fire protection.

The USDA Soil Conservation Service's 60-million gallon capacity reservoir, located at the end of Mahailua Street, will also provide fire protection services after its completed construction. Fire hydrants will be connected to the irrigation line which will stem from the proposed reservoir.

JAN 25 1982

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813 & (808) 523-4632

Mr. Roy H. Tanji


-2-

February 26, 1982

Both sources of fire protection will possess sufficient water pressure, will be designed to satisfy fire flow requirements, and will be subject to approval by the Fire Department. Please refer to page 6-16 of the EIS for an amended discussion of fire protection.

We appreciate your concerns on these matters.

Very truly yours,


SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

EILEEN R. ANDERSON
MAYOR



MICHAEL M. McELROY
DIRECTOR

ROBERT S. JONES
LUI/82-117 (P&T)

January 20, 1982

Office of Environmental
Quality Control
State of Hawaii
550 Halekaunila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Draft Environmental Impact Statement (EIS)
Waimanalo Agricultural Park, Phase I

Following are our comments on the above mentioned Draft EIS:

Drainage

The Revised EIS should include diagrams and an expanded discussion of the existing drainage pattern, proposed drainage facilities, including dimensions, and an estimate of surface runoff when all lots are developed.

Grading

The Draft EIS states that construction of the Agricultural Subdivision will require land clearing, installation of drainage, irrigation, domestic water, electric and street lighting systems, and roads for internal circulation. It also mentions that each tenant will be making his own on-site improvements. Does this mean that land is being cleared for the installation of infrastructure only, or will any grading and grubbing take place to prepare the lots for future farming activities? What are the amounts of cut and fill for all proposed grading activities?

Flooding

Section VI, Flood Hazard (P. 4-15) should mention that the proposed project is subject to the provisions of ordinance No. 80-42 relating to Flood Hazard Districts.

JAN 25 1982

13-36

Water Quality

The discussion on surface water (Page 6-4) should be clarified.
What does the first sentence mean....

"Surface water runoff from the site will be channelled by the Waimanalo Stream, where soil conditioners, fertilizers, herbicides, and pesticides will be utilized to enhance the growth of agricultural crops."

What, exactly, are "flashy" attributes of a stream, and how do they affect surface runoff?

Maps

The Draft EIS includes many good maps. However, there are no maps which show the 17 lots, the internal roadways, the irrigation system, and Waimanalo Stream in relation to each other. A map including all these features should be included in the Revised EIS.

Should you have any questions, please contact Marge Kimmerer of our staff at 523-4077.

Very truly yours,



MICHAEL M. McELROY
Director of Land Utilization

MHM:s1

cc: DLHR, Div. of Water
& Land Development

GEORGE R. ARITOSH
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. BOX 821
HONOLULU, HAWAII 96808

February 26, 1982

Mr. Michael M. McElroy, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. McElroy:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 20, 1982, regarding the
aforementioned project, and we offer the following replies to your concerns:

Drainage

Please refer to page 6-19 and to figures 3-3 and 4-2, for an amended
discussion of drainage.

The consulting engineers are currently finalizing calculations defining
stream flow evaluations, flowage easements, determination of setbacks, and
minimum floor elevations. The lease documents will utilize the results of
these calculations and will notify the lessees of their responsibility for
maintenance and clearance of the flowage easements and prevention of
encroachment into the drainage ways. All improvements will comply with
City and County of Honolulu drainage standards. The engineers are also
preparing a drainage plan which will detail the existing drainage pattern,
proposed drainage facilities, including dimensions and an estimate of
surface runoff. You will be welcomed to view these plans, upon completion.

Grading

The land is being cleared only for the installation of infrastructure
and not for future farming activities.

The engineers are currently finalizing construction plans, which
include the amounts of cut and fill for all proposed grading activities.
Should there be any questions, you will be welcomed to view them after
they have been approved.

Flooding

We appreciate your informing us of Ordinance No. 80-62 and have
included it in the EIS.

SUSUMU OHG, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HANAU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
COASTAL RESOURCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

13-37



COPY

Mr. Michael M. McElroy, Director

-2-

February 26, 1982

January 21, 1982

Water Quality

The first sentence has been revised and included in the EIS on page 6-6.


"Flashy" attributes of the Waimanalo Stream, as stated in the EIS, are high turbidity and suspended sediment concentration occurring during heavy rainfall and the swift reversion of the stream back to the clear base flow conditions which distinguished the stream prior to the storm. Therefore, it is anticipated that the stream will disperse some of the soil conditioners, fertilizers, etc., subsequently minimizing adverse impact to the surface water quality. Please refer to page 6-6 for an amended discussion on surface water quality.

Maps

Figure 3-3, on page 3-4, presents the 15 lots and the internal roadway. Figure 4-2, on page 4-6, presents the Waimanalo Stream in relationship to the project site, Waimanalo Watershed and Drainage Basin. Regarding the irrigation system, the consulting engineers are currently finalizing drafts of the appurtenance. You will be welcomed to view them upon completion.

We appreciate your concerns on these matters.

Very truly yours,


SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Environmental Impact Statement for
Waimanalo Agricultural Park, Phase I
Increment Waimanalo, Koolaula District,
Oahu

We have the following comments on the environmental impact statement:

1. A water master plan for the ultimate development of the agricultural park must be submitted to us for approval.
2. Advance water commitments are not being issued for proposed development projects. The availability of water will be determined when the construction drawings are submitted for our review and approval.
3. Water system improvements that must be borne by the developer include a new 200,000 - gallon reservoir at the 364-foot elevation and appurtenant eight-inch mains.
4. Our water development charge for source and transmission facilities are applicable to the project.
5. On page 4-7, 2nd paragraph, the term "perched water" should be changed to "alluvial water."
6. On page 4-17, 2nd paragraph, the BWS is planning to drill a well at the existing Waimanalo 364 Reservoir site (TMK: 4-1-27: 15).
7. On page 6-7, 1st paragraph, the document should explicitly indicate that ground disposal of sewage wastes will be permitted on the seaward side (makai) of the "pass-no pass line." The statement that "No cesspools will be allowed below this line" is incorrect.

JAN 28 1982

13-38



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P O BOX 621
HONOLULU, HAWAII 96808

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. KAMASU
DEPUTY TO THE CHAIRMAN
DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

Office of Environmental
Quality Control
Page 2

January 21, 1982

February 26, 1982

8. On page 6-16, 2nd paragraph, the area where ground disposal of sewage is not permitted is referred to as the "no pass zone." Likewise, the area where ground disposal is permitted is referred to as the "pass zone."
9. On page 6-16, 5th paragraph, the water demand should clearly indicate whether the water requirements mentioned are on a per lot basis or a per capita basis and if it is based on an average day or maximum day demand. Anticipated BWS water used for irrigation must be included in the total demand.
10. On page 6-18, 1st paragraph, the document should indicate that lots 11, 13, 14, 15 and 16 will be able to use potable water for only certified nursery crops based on the assumption that the BWS will furnish water.
11. On page 7-3, 5th paragraph, the same comment as Item nine applies.
12. On page 8-1, a discussion should be included on the status of the project if improvements to the irrigation system are deferred or deleted.
13. We have existing waters and mains that may need to be relocated to the public right-of-way at the development's cost.

If you have any questions, please contact Lawrence Whang at 548-5221.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

cc: Dept. of Land and Natural Resources

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

Dear Mr. Hayashida:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 21, 1982, regarding the aforementioned project.

We offer the following responses to your comments:

1. Attached is a copy of the Waimanalo Watershed Plan and EIS prepared by the U.S.D.A. Soil Conservation Service which discusses and presents an irrigation water master plan for the ultimate agricultural park.

We understand that water can be made available but that advance water commitments are not being issued.
2. The construction drawings will be submitted to your office for review and approval, upon completion.
3. Water system improvements required to service the development will be built according to BWS standards at State cost.
4. DLNR is aware of the water development charge and its applicability to the project.
5. The term "perched water" has been amended to "alluvial water" on applicable pages. Please refer to page 1-3, paragraph 4 and page 4-7, paragraph 2.
6. Mention of the proposed BWS well has been included on page 4-17, paragraph 2.

13-39

Mr. Kazu Hayashida

-2-

February 26, 1982

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU

630 SOUTH KING STREET
HONOLULU, HAWAII 96813



EILEEN R. ANDERSON
Mayor

WILLARD T. CHOW
CHIEF PLANNING OFFICER

DGP12/81-4495

- 7 & 8. The EIS has been amended to explicitly indicate that ground disposal of sewage wastes is permitted on the makai side of the "pass-no pass line" and that cesspools will be disallowed mauka of this line. Please refer to page 6-7, paragraph 2; page 6-17, paragraph 1; and page 7-3, paragraph 6.
9. The potable water requirements detailed on page 6-17, paragraph 4, are mentioned on a per lot basis and based on a maximum demand day. In addition, 72,000 gallons per day will be required to meet maximum day irrigation demand for five nursery lots. The EIS has been amended to reflect such additional detail.
10. The fact that potable water will only be furnished for nursery use, subsequent to BWS approval, has been included on page 6-19, paragraph 2.
11. The EIS has been amended to explicitly indicate that ground disposal of sewage wastes is permitted on the makai side of the "pass-no pass line."
12. The proposed action of the Agricultural Subdivision includes the provision of irrigation water via a 16-inch pipe system from the tunnel portal. Therefore, the project can be serviced with irrigation water even if the USDA Soil Conservation Service irrigation improvements are deferred or deleted from the Watershed Plan.
13. Existing meters that require relocation due to project action will be relocated at developer's cost.

We appreciate your concerns on these matters.

Very truly yours,


SUSUMU ONO

Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota


January 22, 1982

Office of Environmental
Quality Control
550 Halekauwila Street
Room 301
Honolulu, Hawaii 96813

Attention Mr. Mel Koizumi, Interim Director

Dear Sir:

We have reviewed the subject EIS and direct your attention to page 5-1, where an "agriculture" General Plan use is identified for the project site. The proposed Development Plan also indicates the site for agriculture. However, the Detailed Land Use Map for Waimanalo (Ordinance No. 2473), which presently covers the particular Waimanalo area, also provides for residential, open space, and park uses on the site. Since these nonagricultural uses are not specified in the report, it may be necessary to discuss in the EIS their relevance to the proposed subdivision action.


RALPH KAWAMOTO
Planner

APPROVED:


WILLARD T. CHOW

cc: Dept. of Land & Natural Resources

JAN 27 1982

13-40



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 221
HONOLULU, HAWAII 96809

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AGRICULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FOREST AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

GEORGE R. ARIYOSHI
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
1476 SO. KING STREET
HONOLULU, HAWAII 96814
December 31, 1981

JACK K. SUWA
CHAIRMAN BOARD OF AGRICULTURE

February 26, 1982

Mr. Ralph Kawamoto, Planner
Department of General Planning
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Kawamoto:


Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 22, 1982, regarding the
aforementioned project.

The DLUM designations, (i.e. residential, open space, and park) that
you referred to, have been discussed in the EIS on page 5-2.

We appreciate your concerns on these matters.

Very truly yours,


SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

Mr. Fred Rodriguez
Environmental Communications, Inc.
P. O. Box 536
Honolulu, Hawaii 96809

Dear Mr. Rodriguez:

The Department of Agriculture has reviewed the Draft Environmental
Impact Statement for the Waimanalo Agricultural Park, Phase I, and offers
the following comments.

Page 3-8 should be corrected to reflect the fact that agriculture does
not "disregard" tourism and Federal activity. Quite to the contrary, agricul-
ture is heavily interdependent with these economic sectors. As pointed out
in the State Agriculture Plan, in a few areas of the State agricultural
enterprises serve as visitor attractions; and export of perishable, high-
value agricultural commodities is dependent on the availability of air
cargo space on flights which basically cater to visitor industry travel
demand. The visitor industry, in turn, benefits from the open space and
rural character which agriculture provides in the Hawaiian environment.
The Federal defense establishment is also a major consumer of locally grown
agricultural produce.

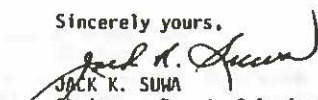
In view of the concern of the Oahu Banana Growers Association over
the size of the lots designated for banana production (see my letter of
December 23, 1981, copy of which has previously gone to you), Section 3
should indicate the intended use of each of the lots shown in Figure 3-3,
as well as the rationale for the lot size chosen for each use category.

Page 3-11 (as well as the Summary) should indicate the cost of the
Collection System Improvement, Waimanalo Irrigation System (\$1,760,000)
which is attributable to the agricultural park project. The source of
funds for the irrigation system improvement is Act 1, SLH 1981, Item A-10,
Water Resources Development for Agriculture, Statewide, and supplemental
appropriations.

Table 8-1 should be updated to reflect the most recent Statewide
Agricultural Park Status Report, copy attached.

Thank you for this opportunity to comment.

Sincerely yours,


JACK K. SUWA
Chairman, Board of Agriculture

cc: Honorable Susumu Ono
Attachment

JAN 5 1982

13-41



WILLIAM DODD, Chairman
Board of Land & Natural Resources
EDGAR A. KAMAU
Secretary to the Board

DEPARTMENT OF LAND AND NATURAL RESOURCES
AGRICULTURE
NATURAL RESOURCES
RECREATION AND
CULTURAL RESOURCES
PLANNING AND
LAND MANAGEMENT
STAFF ROOM
MAIL ROOM AND LAND DEVELOPMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 651
HONOLULU, HAWAII 96809

February 26, 1982

Honorable Jack E. Suwa
Chairman, Board of Agriculture
Department of Agriculture
State of Hawaii
1478 South King Street
Honolulu, Hawaii 96814

Dear Mr. Suwa:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of December 31, 1981, regarding the aforementioned project.

In reply to your comments, the following information is provided:

The EIS has been amended to correct the statement that agriculture disregards tourism and Federal activities. In addition, the items that your office have provided, concerning the merits of agricultural activity, relative to tourism and Federal expenditure, have been included on page 3-10.

The specific crop grown on each lot will be selected by the appropriate lessee within the recommended types specified by the State. The recommendations concerning the specific agricultural use for each lot will be based on the Evaluation Research Consultants report, entitled "Potential Agricultural Uses of Phase I of the Proposed Waimanalo Agricultural Park." Please refer to page 3-5, Table 3-1, which indicates the recommended agricultural use for each respective lot.

The rationale utilized for determining lot size dimensions was a tedious one that required constant communication between the environmental consultants and the engineering consultants. The engineering consultants based its design on the Evaluation Research Consultants' report, specifically analyzing the recommended agriculture uses, slopes, and tillable lands.

STATEWIDE AGRICULTURAL PARK STATUS REPORT

Agricultural park projects are a joint program cooperatively developed by the Departments of Agriculture and Land and Natural Resources. Presently there are nine committed projects in various stages of planning, design, construction, or completion.

Agricultural Parks	Total Acreage	No. and Size of Lots	USES	CURRENT STATUS
PAHOA (Hawaii)	410	27, 10 to 30-acre lots	Flower, foliage and nursery production.	Completed, lots leased.
Phase II	175	33, 5-acre lots	Flower, foliage and nursery production.	Under construction; estimated completion date January, 1982.
KE-AHOLE (Hawaii)	65	12, 5-acre lots	Flower and foliage production.	Completed, lots leased.
Phase II	114	22, 5-acre lots	Flower and foliage production.	Design stage completed. Estimated construction completion date November, 1982.
PANAHEA (Hawaii)	460	28, 10 to 20-acre lots	Orchard and nursery production.	Completed, lots leased.
LALAMILU (Hawaii)	340	22, 5 to 25-acre lots	Diversified agriculture with emphasis on truck crops.	Development plan and preliminary engineering report completed. Next step EIS. Estimated construction completion in 1983-1984.
WAIMANALO (Oahu)	126	16, 5 to 10-acre lots	Banana, diversified crops including nurseries.	Development plan and preliminary engineering report completed. EIS in preparation. Estimated construction completion date August, 1983.
WAIANA (Oahu)	150	15, 5 to 10-acre lots	Mix of swine and poultry operations and shade house commodities.	Development plan and preliminary engineering report completed. EIS in preparation. Estimated construction completion date 1983.
WAIKOLE (Oahu)	410	71 lots of various acreage	Banana, papaya, taro, nursery and diversified crops.	65 lots already encumbered by existing tenants. Design to be completed by late 1981; construction completion by mid-1983. (HHA Project)
KAHUKU (Oahu)	3,380	550 acres of unencumbered land to be developed	Truck crops, nursery, livestock, plus existing uses: feed corn, orchards, and aquaculture.	Development plan, preliminary engineering report and environmental assessment in preparation. Estimated construction completion in 1984-1985.
KULA (Maui)	325	22, 15 to 25-acre lots	Vegetable and truck crops.	County of Maui project. State will assist in construction of agricultural water system and land acquisition. Estimated completion date 1982 (Phase I).
Phase II	125	9, 15 to 25-acre lots		

December, 1981

STATEWIDE AGRICULTURAL PARK STATUS REPORT

Agricultural park projects are a joint program cooperatively developed by the Departments of Agriculture and Land and Natural Resources. Presently there are nine committed projects in various stages of planning, design, construction, or completion.

Agricultural Parks	Total Acreage	No. and Size of Lots	USES	CURRENT STATUS
PAHOA (Hawaii)	410	27, 10 to 30-acre lots	Flower, foliage and nursery production.	Completed, lots leased.
Phase I				
Phase II	175	33, 5-acre lots	Flower, foliage and nursery production.	Under construction; estimated completion date January, 1982.
KE-AHOLE (Hawaii)	65	12, 5-acre lots	Flower and foliage production.	Completed, lots leased.
Phase I				
Phase II	114	22, 5-acre lots	Flower and foliage production.	Design stage completed. Estimated construction completion date November, 1982.
PANAENA (Hawaii)	460	28, 10 to 20-acre lots	Orchard and nursery production.	Completed, lots leased.
LALAMILO (Hawaii)	340	22, 5 to 25-acre lots	Diversified agriculture with emphasis on truck crops.	Development plan and preliminary engineering report completed. Next step: EIS. Estimated construction completion in 1983-1984.
WAIMANALO (Oahu)	126	16, 5 to 10-acre lots	Banana, diversified crops including nurseries.	Development plan and preliminary engineering report completed. EIS in preparation. Estimated construction completion date August, 1983.
Phase I				
WAIANA (Oahu)	150	15, 5 to 10-acre lots	Mix of swine and poultry operations and shade house commodities.	Development plan and preliminary engineering report completed. EIS in preparation. Estimated construction completion date 1983.
WAIKOLE (Oahu)	410	71 lots of various acreage	Banana, papaya, taro, nursery and diversified crops.	65 lots already encumbered by existing tenants. Design to be completed by late 1981; construction completion by mid-1983. (HHA Project)
KAHUKU (Oahu)	3,380	550 acres of unencumbered land to be developed	Truck crops, nursery, livestock, plus existing uses: feed corn, orchards, and aquaculture.	Development plan, preliminary engineering report and environmental assessment in preparation. Estimated construction completion in 1984-1985.
KULA (Maui)	325	22, 15 to 25-acre lots	Vegetable and truck crops.	County of Maui project. State will assist in construction of agricultural water system and land acquisition. Estimated completion date 1982 (Phase I).
Phase I				
Phase II	125	9, 15 to 25-acre lots		

December, 1981

Honorable Jack E. Suva, Chairman

-2-

The cost of the Collection System Improvement, estimated at \$1,760,000, is discussed on page 3-13. The Collection System Improvement is to serve all of Waimanalo Valley and only a portion of this cost is attributable to Waimanalo Agricultural Park, Phase I.

The attached copy of the Statewide Agricultural Park Status Report has been included into the EIS, on pages 8-2 and 8-3.

We appreciate your concerns on these matters.

Very truly yours,

Susumu Ono
SUSUMU ONO
Chairman of the Board

Attachment

cc: Environmental Communications, Inc.
Attention: P. J. Rodriguez
Department of Agriculture
Attention: Paul Schvind
Park Engineering, Inc.
Attention: George Yokota



STATE OF HAWAII
DEPARTMENT OF SOCIAL SERVICES AND HOUSING
HAWAII HOUSING AUTHORITY
P. O. BOX 17907
HONOLULU, HAWAII 96817

January 11, 1982

GEORGE R. ARITOSH
GOVERNOR OF HAWAII

PAUL A. TOM
EXECUTIVE DIRECTOR

IN REPLY REFER

TO: 82:DEV/117

Office of Environmental
Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Waimanalo Agricultural Park, Phase I
Increment - Environmental Impact Statement

We have reviewed the EIS for subject matter and have
no specific comments to offer relative to the proposed
action.

Thank you for the opportunity to comment on this matter.

Sincerely,

Paul A. Tom
PAUL A. TOM
Executive Director

cc: DSSH
DLNR, Division of
Water & Land Development



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 521
HONOLULU, HAWAII 96808

January 29, 1982

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

Mr. Paul A. Tom
Executive Director
Department of Social Services and Housing
Hawaii Housing Authority, State of Hawaii
P. O. Box 17907
Honolulu, Hawaii 96817

Dear Mr. Tom:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 11, 1982, regarding the
aforementioned project.

We thank you for your letter of no comment on the proposed Agricultural
Park.

Very truly yours,

Susumu Ono
SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

JAN 15 1982

13-44



STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P. O. BOX 119, HONOLULU, HAWAII 96818

LETTER NO. (P)1000.2

HIDEO MURAKAMI
COMPTROLLER

MIKE H. TORUNAGA
DEPUTY COMPTROLLER

GEORGE R. ARITOSH
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 821
HONOLULU, HAWAII 96809

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. NAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

JAN 12 1982

January 29, 1982

Office of Environmental
Quality Control
550 Halekauwila Street
Room 301
Honolulu, Hawaii 96813

Gentlemen:

Subject: Environmental Impact Statement
Waimanalo Agricultural Park
Phase I Increment

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

The project will not have any adverse environmental
effect on any existing or planned facilities serviced by
our department.

Very truly yours,

Hideo Murakami
HIDEO MURAKAMI
State Comptroller

Mr. Hideo Murakami
State Comptroller
Department of Accounting and
General Services
State of Hawaii
1151 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Murakami:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 12, 1982, regarding the
aforementioned project.

We appreciate your informing us that the project will not have any
adverse impacts on any existing or planned facilities serviced by your
department.

Very truly yours,

Susumu Ono
SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

JAN 15 1982

13-45

State of Hawaii
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 Diamond Head Road
Honolulu, Hawaii 96816

19 JAN 1982

HIENG

Office of Environmental Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

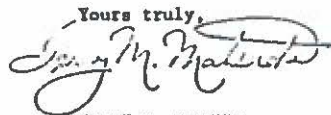
Gentlemen:

Waimanalo Agricultural Park
Phase I Increment

Thank you for providing us the opportunity to review your proposed project,
Waimanalo Agricultural Park, Phase I Increment Environmental Impact Statement.

We have completed our review and have no comments to offer at this time.

Yours truly,



JERRY M. MATSUDA
Captain, HANG
Contr & Engr Officer

cc: DLNR Div of Water & Land Dev.
EQC w/EIS

GEORGE A. ARIYOSHI
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P O BOX 621
HONOLULU, HAWAII 96808

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

January 29, 1982

Captain Jerry M. Matsuda
HANG, Contract & Engineering Officer
Department of Defense, State of Hawaii
Office of the Adjutant General
3949 Diamond Head Road
Honolulu, Hawaii 96816

Dear Captain Matsuda:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 19, 1982, regarding the afore-mentioned project.

We thank you for your letter of no comment on the proposed Agricultural Park.

Very truly yours,



SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

JAN 25 1982

13-46

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 821
HONOLULU, HAWAII 96808

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. NAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

STP 0.8011

January 21, 1982

January 29, 1982

MEMORANDUM

TO: Office of Environmental Quality Control
FROM: Director of Transportation
SUBJECT: ENVIRONMENTAL IMPACT STATEMENT
WAIMANALO AGRICULTURAL PARK, PHASE I INCREMENT

Dr. Ryokichi Higashionna, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Dr. Higashionna:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

Thank you for the opportunity to review the subject EIS.

We have no substantive comments to offer to improve
the document.

Ryokichi Higashionna
Ryokichi Higashionna

We are in receipt of your letter of January 21, 1982, regarding the afore-
mentioned project.

We thank you for your letter of no comment on the proposed Agricultural
Park.

Very truly yours,

Susumu Ono
SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

JST:jk

cc: HWY-P
HWY-C
DLNR

JAN 27 1982

13-47

Office of Environmental Quality
Control
Page 2
January 22, 1982

January 22, 1982

Ref. No. 4147

Office of Environmental Quality
Control
550 Halekauwila Street, Rm. 301
Honolulu, Hawaii 96813

Attention: Mr. Melvin Koizumi

Dear Mr. Koizumi:

Subject: Environmental Impact Statement (EIS) for Waimanalo
Agriculture Park, Phase I Increment

We have reviewed the subject EIS and have the following comments to
offer with respect to the relevant objectives and policies of the Hawaii
Coastal Zone Management Program.

Coastal Ecosystems:

Preserve valuable coastal ecosystems of significant biological or
economic importance; minimize disruption or degradation of coastal
water ecosystems by effective regulation of stream diversions,
channelization, and similar land and water uses, recognizing
competing water needs.

Waimanalo Stream is a perennial stream of moderate to high quality
as rated by the Fish and Wildlife Service Stream Channel Modification
Study. Although this stream traverses the project site, the EIS fails to
identify the relative location of the stream on any map. We note further
that the discussion of water quality on page 6-6 appears to indicate that
potential adverse impacts may occur only during the infrequent periods of
heavy rainfall. This fails to recognize the long term adverse effects of
irrigation on instream water quality, which supports at least one endemic
species of fish. The relative location of the downstream wetlands and any
adverse water quality impacts on the waterbird habitat should also be
disclosed, as appropriate. Finally, the EIS should indicate whether any
stream channelization or any significant reductions in instream flow is
expected to result from the proposed activity.

We appreciate this opportunity to comment. Should any questions
arise concerning our response, please feel free to contact the Hawaii
Coastal Zone Management Office at 548-3026.

Sincerely,

Frank Kiriwanch
for Hideto Kono

cc: Department of Land & Natural Resources

JAN 28 1982



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 521
HONOLULU, HAWAII 96809

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AGRICULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FOREST AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

Honorable Hideto Kono

-2-

February 26, 1982

February 26, 1982

The Honorable Hideto Kono, Director
Department of Planning and
Economic Development
State of Hawaii
250 South King Street
Honolulu, Hawaii 96813

Dear Mr. Kono:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 22, 1982, regarding the
aforementioned project.

In reply to your comments, the following information is provided:

Please refer to Figure 4-2, page 4-6 for an exhibit identifying the
relative location of Waimanalo Stream and downstream wetlands.

The long-term impact on the Waimanalo Stream water quality and down
stream wetland should be minimal since the proposed action excludes animal
husbandry activities and proposes use of the land for nursery and diversifi-
fied agricultural use. Consequently, adverse impact to surface waters
resulting from animal waste, feed, etc., should be absent. Drip and sprin-
kler irrigation techniques should also minimize adverse impact to the
Waimanalo Stream and the downstream wetlands since irrigation runoff should
be substantially limited.

No stream channelization nor stream flow diversions are planned.
Therefore, significant reductions in stream flow will not be expected.
The U.S. Fish and Wildlife Service in their comments to the EIS has
informed us that the four endangered Hawaiian waterbirds which inhabit
Bellows Air Force Station should not be impacted if the flow of Waimanalo
Stream is left unaffected.

We appreciate your concerns on these matters.

Very truly yours,


SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

13-49



University of Hawaii at Manoa

Environmental Center
Crawford 317 • 2550 Campus Road
Honolulu, Hawaii 96822
Telephone (808) 948-7301

Office of the Director

January 22, 1982

Mr. Melvin Koizumi
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. Koizumi:

Draft Environmental Impact Statement
Waimanalo Agricultural Park, Phase I Increment
Waimanalo, Koolau-poko District, Oahu

The Environmental Center has reviewed the above cited document with the assistance of Harold Baker, Agricultural Economics; Don Bell, Real Estate; and Robert Rowland, Environmental Center. The proposed project seems to be a well planned and potentially beneficial asset to the people of Waimanalo and Oahu. The agricultural park would provide an essential service by creating opportunities for small scale diversified agriculture. The EIS for the proposed project is fairly comprehensive and contains sufficient information on the impacts of the development of Phase I. There are, however, a few questions that we have formulated concerning this document and they are presented below.

Our first question was prompted by the discussion of the phasing overview outlined on page 2-3. Why is the entire project of five phases not included in one Environmental Impact Statement? It would seem appropriate given the magnitude of this project and its effect on the water distribution system of the Waimanalo watershed that the entire project should have its cumulative impacts disclosed in a single document. If the funding and time intervals for implementation of the remaining phases is uncertain this should be stated in the document.

Secondly, what is the situation with regard to residential units and portable water to service them in the proposed project? On page 6-16 it is stated that 12,000 gpd of potable water will service residents but on page 13-10 the Board of Water Supply states in their letter that no domestic water will be furnished.

The short and long term economic impacts of the proposed project deserve to be more fully discussed in the revised document. The creation of the proposed subdivision and the commercial impact of the resultant agricultural activities on the economy of Oahu appears to be more significant than would be apparent from the discussion contained in Section 6. This is particularly true when the entire 1,300 acre project is considered. Will the economic implications of development of the agricultural park for the Waimanalo region be more comprehensively discussed in the revised EIS?

Mr. Melvin Koizumi

-2-

January 22, 1982

Phase I is a small part of the total agricultural park development. Why were these particular lots chosen to comprise this phase of the project? What was the rationale employed in selecting the size and shape of the various parcels, particularly lot 17?

Other than the concerns raised above, we find the EIS to be satisfactory in describing the potential impacts of Phase I and we thank you for the opportunity to comment.

Yours truly,

Doak C. Cox
Director

cc: Dept. of Land & Natural Resources
Donald Bell
Harold Baker
Robert Rowland
Jacquelin Miller

JAN 28 1982





STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P O BOX 821
HONOLULU, HAWAII 96808

February 26, 1982

Dr. Doak C. Cox, Director
Environmental Center
University of Hawaii at Manoa
Crawford 317
2550 Campus Road
Honolulu, Hawaii 96822

Dear Dr. Cox:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 22, 1982, regarding the
aforementioned project.

In reply to your comments, the following information is provided:

The EIS addresses only the Phase I development increment for the
Waimanalo Agricultural Park. The scope of work and proposed action will,
therefore, be limited to such analyses. Items consistent with the remain-
ing phasing increments for the complete development of the Park is addressed
in the Soil Conservation Service's Watershed Plan and EIS, and the Waimanalo
Agricultural Park Environmental Assessment. The EIS was revised to include
discussions of these two documents and their relationship to this action
(see page 6-15 of the EIS).

Regarding the subject of potable water availability, the proposed
project will demand 12,000 gallons per day to adequately service the
domestic demand of the residents of the proposed project. In addition,
five of the fourteen lots proposed for nursery use will be provided with
a larger sized meter and the option to use Board of Water Supply water for
irrigation.

Further discussion on long term economic impacts, based on recom-
mended crops, has been included in the EIS on page 6-5.

The rationale utilized for determining lot size dimensions was a
tedious one that required constant communication between the environmental
consultants and the engineering consultants. The engineering consultants
based its design on the Evaluation Research Consultants' report, specifi-
cally analyzing the recommended agriculture uses, slopes, and tillable
lands.

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. MAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

Mr. Doak C. Cox, Director

-2-

February 26, 1982

Finally, the land that comprised Lot 15, which was formerly Lot 17
of the previous layout and characterized by adverse slope conditions, was
the balance of land remaining after the entire parcel was subdivided into
14 agricultural lots. Lot 15 is not part of the project and is not
planned to be leased for cultivation.

We appreciate your concerns on these matters.

Very truly yours,

SUSUMU ONO

Chairman of the Board

cc: Environmental Communications, Inc.
Attention: P. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

13-51



University of Hawaii at Manoa

Water Resources Research Center
Holmes Hall 283 • 2540 Dole Street
Honolulu, Hawaii 96822

22 January 1982

Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

SUBJECT: Draft EIS Waimanalo Agricultural Park Phase I Increment,
Waimanalo, Koolau-poko, Oahu, DLNR, DOWALD, December 1981

We have reviewed the subject DEIS and have no comment to offer at this time. Thank you for the opportunity to comment. This material was reviewed by WRRC personnel.

Sincerely,

Edwin T. Murabayashi
Edwin T. Murabayashi
EIS Coordinator

ETH:jm

cc: Y.S. Fok
H. Gee
DOWALD

GEORGE A. ARIYOSHI
GOVERNOR OF HAWAII



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

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. KAMAU
DEPUTY TO THE CHAIRMAN
DIVISIONS:
AGRICULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FOREST AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

January 29, 1982

Mr. Edwin T. Murabayashi
EIS Coordinator
Water Resources Research Center
University of Hawaii at Manoa
Holmes Hall 283
2540 Dole Street
Honolulu, Hawaii 96822

Dear Mr. Murabayashi:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 22, 1982, regarding the aforementioned project.

We thank you for your letter of no comment on the proposed Agricultural Park.

Very truly yours,

Susumu Ono
SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

JAN 27 1982

AN EQUAL OPPORTUNITY EMPLOYER

13-52



STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HAWAII 96801
January 25, 1982

GEORGE A. L. TURN
DIRECTOR OF HEALTH

JOHN P. CHALMERS, M.D.
DEPUTY DIRECTOR OF HEALTH

HENRY H. THOMPSON, M.A.
DEPUTY DIRECTOR OF HEALTH

MELVIN K. KOIZUMI
DEPUTY DIRECTOR OF HEALTH

ARLENE MADRID SHAW, M.A., J.D.
DEPUTY DIRECTOR OF HEALTH

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 521
HONOLULU, HAWAII 96808

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. NAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

February 26, 1982

MEMORANDUM

To: Office of Environmental Quality Control
From: Deputy Director for Environmental Health
Subject: Environmental Impact Statement (EIS) for Waimanalo Agricultural Park, Phase I Increment, Koolauapoko District, Oahu

In reply, please refer to:
File: EPHS-55

Thank you for allowing us to review and comment on the subject EIS.

We reiterate our earlier comment of September 14, 1981: The only existing dirt road and wooden bridge to this subdivision are not capable of supporting heavy loads and sizes comparable to the City and County refuse trucks. At the present time, due to this reason, the City and County refuse trucks do not provide refuse pickup service for the families living in the proposed subdivision.

Consequently, a litter problem may be created by the lack of a more accessible route for the City's refuse pickup service.

We realize that the statements are general in nature due to preliminary plans being the sole source of discussion. We, therefore, reserve the right to impose future environmental restrictions on the project at the time final plans are submitted to this office for review.

For Brian P. Choy
MELVIN K. KOIZUMI

cc: Div. of Water & Land Dev., DLNR ✓

Mr. Melvin K. Koizumi, Deputy Director
for Environmental Health
Department of Health
State of Hawaii
P. O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Koizumi:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 25, 1982, regarding the aforementioned project.

The State Department of Land and Natural Resources (DLNR) has committed itself into implementing a plan which will provide to the farmer lessees, all the conveniences necessary for a healthy environment.

The project plan proposes an improved roadway from the existing intersection of Kumuahau and Waikupanaha Streets to service the planned development. The subdivision will have streets dedicated to the City. The City and County Refuse Division has informed us that refuse pickup service will be provided.

We appreciate your concerns on these matters.

Very truly yours,

Susumu Ono
SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

JAN 28 1982

13153



STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
800 HALEKAUWILA ST.
ROOM 301
HONOLULU, HAWAII 96813

January 25, 1982

George Yuen
Director
TELEPHONE NO.
546-6915

Susumu Ono
January 25, 1982
Page 2

The EIS Regulations allow the accepting authority or his authorized representative to consider responses received after the fourteen day response period. This office will exercise the option and will consider responses after the fourteen day period.

We are enclosing copies of comments not previously forwarded to you.

Thank you for allowing us to review this statement.


George Yuen

Attachments

MEMORANDUM

TO: Susumu Ono, Chairman
Department of Land and Natural Resources

FROM: Director for Office of Environmental Quality Control

SUBJECT: Environmental Impact Statement for Waimanalo
Agricultural Park Phase I

We have reviewed the subject statement and offer the following comments:

The title page should be amended to read that the Governor is the accepting authority for this statement, not the Governor's office. This office will process the revised statement for acceptance by the Governor.

Page 3-1. In the second paragraph, the words "... northwestern face," appear twice. A correction is recommended.

Page 3-4. It is not clear whether the present bridge can support heavy trucks, such as fire trucks or trucks used in agricultural operations.

Page 6-16. A specific site should be proposed for solid waste collection and pick-up that would be generated by the leases of this agricultural park.

Page 8-2. In the column of uses there is something missing for Lalamilo Agricultural Park. We believe it is "... vegetable and truck crops."

Page 13-2. The title of this page should read, "Organizations and agencies consulted during EIS preparation." We note that our comments on the EIS Preparation Notice are not included in this section and should be. A copy of those comments is enclosed.

FEB 4 1982

13-54

GEORGE R. ARIVOSAN
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3376
HONOLULU, HAWAII 96801
January 25, 1982

GEORGE A. L. YUEN
DIRECTOR OF HEALTH

JOHN F. CHALMERS, M.D.
DEPUTY DIRECTOR OF HEALTH

HENRY N. THOMPSON, M.A.
DEPUTY DIRECTOR OF HEALTH

MELVIN K. KOIZUMI
DEPUTY DIRECTOR OF HEALTH

ABELIRA MADRID SHAW, M.A., J.D.
DEPUTY DIRECTOR OF HEALTH

September 21, 1981

Susumu Ono, Chairman
Department of Land and Natural Resources
Kalanimoku Building
1151 Punchbowl Street
Honolulu, Hawaii

SUBJECT: Environmental Impact Statement Preparation Notice
for Waimanalo Agricultural Park, Phase I

Dear Mr. Ono:

We have reviewed the subject preparation notice and offer
the following comments:

We note that the intention of the subject EIS preparation
notice is focused on Phase I of large-scale agricultural
park for Waimanalo. We believe that the statement should
also cover in a general way the overall agricultural park
development as required by section 1:12 of the EIS
Regulations. This would aid in long-term planning of the
total area not only by your agency but by other agencies
having responsibilities in the area.

The use of information from other agricultural park
environmental impact statements is recommended.

Yours truly,

Melvin K. Koizumi
Deputy Director for Environmental Health

RJS:ac
IAU

MEMORANDUM

To: Office of Environmental Quality Control
From: Deputy Director for Environmental Health
Subject: Environmental Impact Statement (EIS) for Waimanalo Agricultural
Park, Phase I Increment, Koolau-poko District, Oahu

Thank you for allowing us to review and comment on the subject EIS.

We reiterate our earlier comment of September 14, 1981: The only
existing dirt road and wooden bridge to this subdivision are not capable of
supporting heavy loads and sizes comparable to the City and County refuse
trucks. At the present time, due to this reason, the City and County refuse
trucks do not provide refuse pickup service for the families living in the
proposed subdivision.

Consequently, a litter problem may be created by the lack of a more
accessible route for the City's refuse pickup service.

We realize that the statements are general in nature due to preliminary
plans being the sole source of discussion. We, therefore, reserve the right
to impose future environmental restrictions on the project at the time final
plans are submitted to this office for review.

For Brian J. Choy
MELVIN K. KOIZUMI

cc: Div. of Water & Land Dev., DLNR ✓

FEB 4 1982

FEB 4 1982

13-55



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

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMASHI
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

Honorable George Yuen

-2-

February 26, 1982

February 26, 1982

Honorable George Yuen, Director
Department of Health
State of Hawaii
1250 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Yuen:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 25, 1982, regarding the
aforementioned project, and offer the following responses to your concerns
in the order presented in your letter.

The EIS has been amended to indicate that the Governor and not the
Governor's Office will act as accepting authority.

The words "...northwestern face of the...." has been deleted.

Field inspection by our consultant and discussions with City and
County of Honolulu Department of Public Works' staff indicate that the
width is currently adequate for one-way traffic and that the carrying
capacity of said bridge is adequate to serve the needs of large
construction and refuse collection vehicles.

Upon completion of improvements to the existing road, access to the
site by refuse collection trucks will be made possible. Therefore, each
lot will be serviced and a specified site for refuse pickup will be
unnecessary. Please refer to pages 1-10, 6-17, and 7-4 of the EIS for
amended discussions on solid waste disposal.


Uses found at Lalamilo Agricultural Park will include diversified
agricultural products with an emphasis on truck crops. The EIS has been
amended to reflect such uses.

The title on page 13-2 has been amended to read "ORGANIZATIONS AND
AGENCIES CONSULTED DURING EIS PREPARATION."

In regards to the enclosed comments on the EIS Preparation Notice
that was submitted by your office, we regret that they were deleted from
the Draft EIS. In view of this oversight, we will answer your concerns
at this time. The EIS addresses only the Phase I development increment
for the Waimanalo Agricultural Park. The scope of work and proposed
action will, therefore, be limited to such analysis. Items consistent
with the remaining phasing increments for the complete development of
the Park are addressed in the Soil Conservation Service's Watershed Plan
and EIS and the Waimanalo Agricultural Park Environmental Assessment.

We appreciate your concerns on these matters.

Very truly yours,


SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota



DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY SUPPORT COMMAND, HAWAII
FORT SHAFTER, HAWAII 96858

REPLY TO
ATTENTION OF:

APZV-EIE-E

11 JAN 1982

Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

The Environmental Impact Statement for the Waimanalo Agricultural Park,
Phase I Increment, Waimanalo, Koolau-poko District, Oahu, Hawaii has been
reviewed and we have no comments to offer. There are no Army installations or
activities in the vicinity of the proposed project.

Sincerely,

Ray A. Hight
for ADOLPH A. HIGHT
COL, EN
Director of Engineering and Housing

Copy Furnished:
Department of Land and Natural
Resources
Division of Water and Land Development
P.O. Box 621
Honolulu, Hawaii 96809

GEORGE R. ARITOSH
GOVERNOR OF HAWAII



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

January 29, 1982

Colonel Adolph A. Hight
Director of Engineering and Housing
Department of the Army
Headquarters U.S. Army Support Command,
Hawaii
Fort Shafter, Hawaii 96858

Dear Colonel Hight:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 11, 1982, regarding the
aforementioned project.

We thank you for your letter of no comment on the proposed Agricultural
Park.

Very truly yours,

Susumu Ono
SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN
DIVISIONS:
AGRICULTURE DEVELOPMENT
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CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

JAN 13 1982



HEADQUARTERS
NAVAL BASE PEARL HARBOR
BOX 110
PEARL HARBOR, HAWAII 96860

IN REPLY REFER TO:
002A:RLE:ci
Ser 115
12 JAN 1982

GEORGE R. ARYOSHI
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P O BOX 821
HONOLULU, HAWAII 96809

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN
DIVISIONS:
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CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

January 29, 1982

Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Environmental Impact Statement
Waimanalo Agricultural Park, Phase 1 Increment

The EIS for the Waimanalo Agricultural Park has been reviewed
and the Navy has no comments to offer. As this command has no further
use for the EIS, the EIS is being returned.

Thank you for the opportunity to review the EIS.

Sincerely,

R. L. ELSBERND
LCDR, CEC, USN
Deputy Facilities Engineer

Enclosure

Copy to:
State DLNR

Lt. Commander R. L. Elsbernd, CEC, USN
Deputy Facilities Engineer
Headquarters, Naval Base, Pearl Harbor
P. O. Box 110
Pearl Harbor, Hawaii 96860

Dear Commander Elsbernd:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 12, 1982, regarding the
aforementioned project.

We thank you for your letter of no comment on the proposed Agricultural
Park.

Very truly yours,

SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

JAN 15 1982

13-58

GEORGE R. ARYOSH
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P O BOX 821
HONOLULU, HAWAII 96809

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. NAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
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AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONSERVATION
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

PODED-PV

18 January 1982

Mr. George Yuen, Director
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, HI 96813

January 29, 1982

Mr. Kisuk Cheung
Chief, Engineering Division
U.S. Army Engineer, Honolulu District
Building 230
Fort Shafter, Hawaii 96858

Dear Mr. Cheung:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 18, 1982, regarding the
aforementioned project.

The following are responses to your concerns:

- a) Thank you for informing us that the project does not require
a Department of the Army Permit.
- b) Only agricultural activity will be located within the floodway
of Waimanalo Stream. Structures and facilities will not be
permitted inside the floodway.

We appreciate your concerns on these matters.

Very truly yours,


SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

Sincerely,

KISUK CHEUNG

KISUK CHEUNG
Chief, Engineering Division

1 Incl
As stated

CF
Department of Land and Natural Resources
Division of Water and Land Development
PO Box 621
Honolulu, HI 96809

JAN 25 1982

13-59



United States Department of the Interior

GEOLOGICAL SURVEY
Water Resources Division
P.O. Box 50166
Honolulu, Hawaii 96850

January 19, 1982

Office of Environmental Quality
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813


Subject: Draft Environment Impact Statement, dated December 1981
Waimanalo Agricultural Park, Phase I Increment

The following are comments from our U.S. Geological Survey staff regarding the above subject matter.

Comments:

Page	Paragraph	Line	
6-7	1	12	For clarity, change "below" to read "upgradient" or "mauka"
6-16	2	3	For clarity, change "outside" to read "downgradient" or "makai"
7-3	5	2	For clarity, change "outside" to read "downgradient" or "makai"

Yours truly,


Benjamin L. Jones
District Chief

cc: Dept. of Land & Natural Resources, Division of Water and Land Development,
Honolulu, HI

GEORGE A. ARITOSH
GOVERNOR OF HAWAII



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

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. KAMASU
DEPUTY TO THE CHAIRMAN
DIVISIONS:
AGRICULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

January 29, 1982

Mr. Benjamin L. Jones
District Chief
U. S. Department of the Interior
Geological Survey
Water Resources Division
P. O. Box 50166
Honolulu, Hawaii 96850

Dear Mr. Jones:


Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 19, 1982, regarding the aforementioned project.

Your comments have been noted and revisions to the EIS have been completed accordingly.

We appreciate your concerns in these matters.

Very truly yours,


SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

JAN 25 1982

13-60



United States Department of the Interior

FISH AND WILDLIFE SERVICE

300 ALA MOANA BOULEVARD
P. O. BOX 50167
HONOLULU, HAWAII 96850

JAN 21 1982

IN REPLY REFER TO:
E5
Room 6307

Office of Environmental Quality Control
Office of the Governor
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Re: Waimanalo Agricultural
Park, Phase I Increment,
Oahu, Hawaii

Dear Sir:

We have reviewed the subject Environmental Impact Statement (EIS) and offer the following comments.

The proposed action is not expected to have adverse impacts on significant fish and wildlife resources in the project area. The four endangered Hawaiian waterbirds mentioned in Section 4, IV, B, of the EIS which inhabit Bellows Air Force Station should not be impacted unless the flow of Waimanalo Stream is affected.

We appreciate this opportunity to comment.

Sincerely yours,

Ernest Kosaka

Ernest Kosaka
Project Leader
Office of Environmental Services

cc: NMFS
HDF&G
EPA, San Francisco
DLNR - DONALD

GEORGE A. ARUYOSHI
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 821
HONOLULU, HAWAII 96809

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. KAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AGRICULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONSERVANCIES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

January 29, 1982

Mr. Ernest Kosaka
Project Leader
U. S. Department of the Interior
Fish and Wildlife Service
300 Ala Moana Boulevard
P. O. Box 50167
Honolulu, Hawaii 96850

Dear Mr. Kosaka:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 21, 1982, regarding the aforementioned project.

We thank you for your informing us of the subject project's insignificant impact on the fish and wildlife resources.

Very truly yours,

Susumu Ono
SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

JAN 25 1982

Save Energy and You Serve America!



13-61



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 15TH AIR BASE WING (PACAF)
HICKAM AIR FORCE BASE, HAWAII 96853

GEORGE R. ARITOSH
GOVERNOR OF HAWAII



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

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONSERVATION
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

TO: DEEV (Mr Saito, 449-1831)

25 JAN 1982

SUBJECT: Review of Environmental Impact Statement (EIS), Waimanalo Agricultural Park, Phase I Increment

TO: Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, HI 96813

1. The following comments on subject matter are forwarded:

a. The development of a new agricultural park area will increase the chances of flash floods into the low lying, flood prone areas such as Bellows Air Force Station.

b. The term "flashy" characteristics of the Waimanalo Stream connote "flushing" of vegetative and other debris (including refuse contained in the stream) during severe rainy weather as experienced in the spring of 1981 at Bellows and adjacent areas.

c. Flooding in part, was caused by debris washing down from higher areas because of lack of maintenance and control of refuse dumping into the natural streams.

2. The State of Hawaii was requested several times last year to clean and to maintain the Inoaole and Waimanalo Streams to prevent flooding. We were unsuccessful and the streams still remain potential hazard/problem areas. The State should also consider flood control projects in conjunction with subject agricultural park development to alleviate the problems and anxieties encountered by the landowners, farmers, and tenants in the low lying areas.

3. We appreciate the chance of commenting on the project, as it has tremendous future impact on our Air Force Station.

Kenneth W. Cowan

KENNETH W. COWAN, Colonel, USAF
Director of Civil Engineering

Cy to: Dept of Land & Natural Resources
Div of Water & Land Dev
P. O. Box 621
Honolulu, HI 96809

Det 1, 15 ABW/CC (Maj Schultz)

Colonel Kenneth W. Cowan, USAF
Director of Civil Engineering
Department of the Air Force
Headquarters, 15th Air Base Wing (PACAF)
Hickam Air Force Base, Hawaii 96853

Dear Colonel Cowan:

Subject: Environmental Impact Statement for the Proposed Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 25, 1982, regarding the aforementioned project and offer the following responses to your concerns:

- 1a. We question how the change in use of 120 acres of idle scrub land into productive agricultural use from a watershed containing 6,132 acres can significantly increase the chances of flash floods.
- 1b. The Department of Land and Natural Resources, in the State Water Resources Development Plan, has defined "flashy" as being characterized by high turbidity and suspended sediment concentration occurring during heavy rainfall and the swift reversion of the stream back to the clear base flow conditions which distinguished the stream prior to the storm. This term then, does not connote "flushing" of vegetative and other debris in the Waimanalo Stream. On the contrary, the flashy attributes of the stream will minimize impacts the project may have on water quality.
- 1c. The lease documents will notify the farmer lessees of their responsibility for maintenance and clearance of flowage easements and will be worded to prevent encroachment into the drainage ways.

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Colonel Kenneth W. Cowan, USAF

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February 26, 1982

Oahu Banana Growers Association

4525 Waiakama Road
Kaneohe, Hawaii 96744
(908) 447-0421

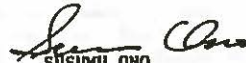


January 20, 1982

2. As stated in item 1a. above, this project will not significantly affect the flooding problem of Waimanalo Stream. We, therefore, cannot justify constructing a flood control project to resolve existing flood problems with agricultural park development funds. Further, the cleaning and maintenance of streams which are generally the responsibility of the abutting land owners is beyond the scope of this project.

Thank you for your concerns on these matters.

Very truly yours,


SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: P. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota


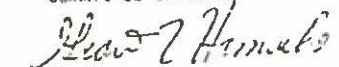
Office of Environmental Quality Control
10 Halekauwila St., Room 301
Honolulu, Hawaii 96913

Dear Sir:

The OBGA Ag Park Committee and Harry Okumura, President, Hawaii Banana Industry Association, have reviewed the Environmental Impact Statement for the Waimanalo Agricultural Park, Phase I Increment dated December 21, 1981, and have no objections to the statement.

We appreciate the opportunity to respond.

Respectfully yours,


Harry Okumura
Committee Chairman

Grant Hamachi
President

cc: Dept. of Land & Natural Resources
Div. of Natural Land Development

JAN 25 1982

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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P O BOX 421
HONOLULU, HAWAII 96808

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
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LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

Messrs. Harry Okumura and
Grant Hamachi

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February 1, 1982

3. Elimination of having drainage run-off flowing from the upper lot onto the lower lot.

Thank you for reviewing the EIS and for your comment of no objections on the statement.

Very truly yours,

Susumu Ono
SUSUMU ONO
Chairman of the Board

Mr. Harry Okumura, Committee Chairman
and Mr. Grant Hamachi, President
Oahu Banana Growers Association
45-260 Waikalua Road
Kaneohe, Hawaii 96744

Dear Messrs. Okumura and Hamachi:

Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 20, 1982 to the Office of Environmental Quality Control commenting on the EIS for the subject project. Reference is also made to your letter of December 7, 1981 expressing concern that the lot sizes were too small for banana production.

Lot sizes for the proposed subdivision were based, as you know, on our consultant's recommendation as reported in "Potential Agricultural Uses of Phase I of the Proposed Waimanalo Agricultural Park" and on the information contained on the College of Tropical Agriculture and Human Resources' Industry Analyses for Banana and Ornamental Potted Plants. The banana industry analysis states as follows: "A banana farm of 10 acres is a viable farm."

In view of the concern expressed by you, we reexamined the lot layout of the proposed agricultural park and replotted a portion of the layout. Figure 3-4 shows the revised lot layout which eliminates two cul-de-sacs and rearranges eight lots (lots 4 through 11) into six lots, each approximately ten acres in size. The original eight lots consisted of 3- to 5-acre lots, four lots ranging in size from 7.9 to 9.3 acres and one 10.7 acre lot. The advantages of the new revised layout are:

1. Eliminate small lots and create more 10-acre lots.
2. Reduction in construction costs of approximately \$220,000 due to elimination of two cul-de-sacs. One of the cul-de-sacs required a costly culvert crossing which will not be required under the new scheme.

cc: Environmental Communications, Inc.
Attention: Mr. Fred Rodriguez

Department of Agriculture
Attention: Mr. Paul Schwind

Park Engineering, Inc.
Attention: Mr. George Yokota

13-64

The Sierra Club, Hawaii Chapter

Post Office Box 22897, Honolulu, HI 96822

Telephone: (808) 946-8494

January 21, 1982

Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

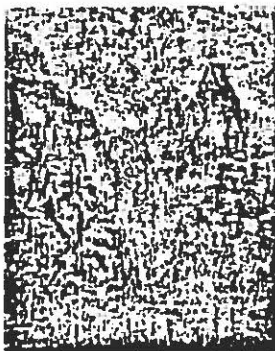
Department of Land and Natural Resources
Division of Water and Land Development
P.O. Box 621
Honolulu, Hawaii 96809

Subject: Waimanalo Agricultural Park, Phase I Increment

The Honolulu Group of the Hawaii Chapter of the Sierra Club appreciates the opportunity to comment on this EIS. Most of our concerns seem to have been adequately addressed, with the exception of insecticides in the stream. We feel that this should be taken more seriously, with possible solutions being proposed. Also we would hope that every preventative measure is taken to protect against soil erosion during the clearing and pre-planting phase.

Perhaps our remaining questions are better addressed to the Board of Agriculture. These are questions concerning the careful selection of agricultural products to the site and to the available water supply, since some of the sites seem to present a problem because of slope. The concept of Agricultural Parks seems excellent, yet a good deal of planning and care must go into them if they are to be successful, resulting in productive land. The farmers accepted for use of these lands are also critical to the success of the Agricultural Parks.

In the development of later increments, the cumulative impacts should be discussed, as has been suggested by some of the commenting parties.



Niuuanu Pali, by Fisoquet, 1937

LEONARD R. ARTHUR
GOVERNOR OF HAWAII



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

February 26, 1982

Ms. Lola Mench
Acting Conservation Chairman
The Sierra Club, Hawaii Chapter
P. O. Box 22897
Honolulu, Hawaii 96822

Dear Ms. Mench:

Subject: Environmental Impact Statement for the Proposed
Waimanalo Agricultural Park, Phase I Increment

We are in receipt of your letter of January 21, 1982, regarding the aforementioned project.

In reply to your comments, the following information is provided:

Specific covenants are included in the lease documents which require the farmer to comply with the requirements of all laws and regulations pertaining to the use of insecticides and the practice of good husbandry. The farmer is required to submit to our department a conservation program, with respect to the overall use of the premises, developed by the farmer in cooperation with the Soil and Water Conservation District. The conservation program is to include such practices as clearing of land, cropping option, irrigation system, storm runoff control system, noxious weed control, and others as are required to conserve and prevent deterioration of the natural resources inherent to the land and to prevent the pollution of the environment. Drainage ways will be identified on the parcel maps and the farmer will be restricted from cultivating these areas to protect against soil erosion.

Further, insecticides utilized at the project site will be EPA approved and properly used by farmers, to prevent excess "fall-out" into the Waimanalo Stream.

Each individual farmer will be allowed to select the agricultural crop he feels best suits his lot, within certain constraints. Lots 2 and 11 through 14, ranging in size from 5.6 acres to 8.0 acres, will be restricted to nursery use, while lots 1 and 3 through 10 will be for diversified agriculture. The recommended use are truck crops for the flatter lots and orchard, or more specifically, banana use for the steeper lots.

SUSUMU ONG, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. NAKABU
DEPUTY TO THE CHAIRMAN
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CONSERVATION
FORESTRY AND WILDLIFE
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STATE PARKS
WATER AND LAND DEVELOPMENT

JAN 27 1982

Ms. Lola Mench

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February 26, 1982

Finally, the EIS addresses only the Phase I development increment for the Waimanalo Agricultural Park. The scope of work and proposed action will therefore be limited to such analyses. Items consistent with the remaining phasing increments for the complete development of the Park is addressed in the Soil Conservation Service's Watershed Plan and EIS, and the Waimanalo Agricultural Park Environmental Assessment.

We appreciate your concerns on all of these matters.

Very truly yours,


SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: P. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

41-019 Puuone St.
Waimanalo, Hawaii 96795

February 23, 1982

Department of Land and Natural Resources
Division of Water and Land Development
P.O. Box 621
Honolulu, Hawaii 96809

Gentlemen:

The Waimanalo Joint Planning Committee has studied the Environmental Impact Statement that was prepared by the Environmental Quality Commission for the Waimanalo Agricultural Park Phase I Increment. We welcome the proposed action, for we believe that it will enhance the economic resources of this area. Its action will enable small farmers to obtain land for their agricultural endeavors, thereby, strengthening the diversified economic base of Waimanalo.

We particularly desire that Waimanalo young people be given every opportunity to be involved in acquiring farming lots in this Park. We hope our youth will have every opportunity to participate in the overall agricultural efforts of the State.

Since an adequate water supply is most necessary to the success of this project, we urge that Phase II, which includes the construction of a 60 million gallon reservoir and the replacement of ditches with pipes, follow Phase I at the earliest.

You state: "the lots will be subdivided into approximately 5 - and 10- acre areas". It is possible that a viable nursery could be operated on a 2 - acre lot.

You select certain crops which you state are economically and physically viable in this area. We trust that these are merely suggestive and are not meant to be prescriptive. We think there should be large opportunities for farmers to be experimental and not discouraged from branching out into unknown fields. We note with pleasure the availability of expert advice and help through such agencies as the Soil Conservation Service. We suggest that all agencies of national and State governments relevant to this project be encouraged to help make it a success.

In your zeal to encourage "crop production which will be economically viable and will not adversely impact the market prices of other Hawaiian agricultural goods," let's not be too patronizing. We need to remember the States policy position of striving for more self-sufficiency in diversified agriculture. We will increase Hawaii's agricultural self-sufficiency by promoting economically competitive activities as well as cooperative activities where possible. For example, we praise such pertinent policy directions to the proposed project as "Assist in the

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formation and operation of production and marketing associations and cooperatives to reduce production and marketing costs."

Please be assured of the utmost cooperation by our Joint Planning Committee in implementing this project.

Sincerely,
Joint Planning Committee of the Waimanalo Council
of Community Organizations and the Waimanalo
Neighborhood Board

By

Diane Ksias
Diane Ksias,
Chairman, Joint Planning Committee

Robert E. Gibson
Dr. Robert E. Gibson, Member

Donald R. Morrison
Donald Morrison
Chairman, Waimanalo Neighborhood Board

GEORGE R. ANIYOSHI
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P O BOX 821
HONOLULU, HAWAII 96808

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
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RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

February 26, 1982

Waimanalo Joint Planning Committee
and the Waimanalo Neighborhood Board
41-019 Puuone Street
Waimanalo, Hawaii 96795

Gentlemen:

Waimanalo Agricultural Park, Phase I

Thank you for your supportive statements for the Waimanalo Agricultural Park, Phase I project, and your comments on the Environmental Impact Statement. Our response to your comments follows:

1. We share your concern regarding giving young farmers the opportunity to acquire agricultural park lots and to farm the land. In order to provide this opportunity, the State is entering into a new farmers program wherein qualified new farmers are given preferential treatment in the selection process of awarding leases to the agricultural park lots. We encourage the youths of Waimanalo to participate in this program.
2. Adequate water supply will be provided to the development. To assure this, our department is currently preparing plans to rehabilitate the Maunawili Ditch collection system. The cost to make these improvements is estimated at \$1,760,000. Further, our department has applied with the U. S. Department of Agriculture, Soil Conservation Service for federal cost-sharing to improve and expand the Waimanalo Irrigation System. The report, "Watershed Plan and Environmental Impact Statement, Waimanalo Watershed", prepared by the Soil Conservation Service, describes the proposed improvements.
3. Five of the lots, ranging in sizes from 5.6 to 8.0 acres, are intended for nursery use and the balance of the lots will be leased for diversified agricultural use. The lots identified for nursery are odd-shaped with steep terrains and require a larger area to accommodate the two-acre shade house operation. The larger lot also allows the farmer to expand his operation in the future should he so desire.

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February 26, 1982

4. As stated above, five of the lots will be leased for nursery use and the remaining nine farm lots will be leased for diversified agricultural use. Diversified agriculture includes uses such as truck crops, field crops and orchards. The crops selected for discussion in the EIS are those that are identified as having the potential for this particular site and were used as the basis for the planning of the project. The farmer is free to choose the crop to plant within the constraints of the lease covenants.

We appreciate your concerns on these matters.

Very truly yours,



SUSUMU ONO
Chairman of the Board

cc: Environmental Communications, Inc.
Attention: F. J. Rodriguez

Department of Agriculture
Attention: Paul Schwind

Park Engineering, Inc.
Attention: George Yokota

References

REFERENCES

1. Board of Water Supply, City and County of Honolulu; Oahu Water Plan; July 1975.
2. City and County of Honolulu; Comprehensive Zoning Code; 1978.
3. City and County of Honolulu; General Plan Objectives and Policies; January 1977.
4. Department of Agriculture, State of Hawaii; Recommendations for a Waimanalo Agricultural Park; September 1977.
5. Department of Agriculture, State of Hawaii; State Agriculture, Plan and Technical Reference Document; September 1981.
6. Department of Land and Natural Resources, Division of Water and Land Development, State of Hawaii; Report R61, Waimanalo Agricultural Park; April 1980; prepared by Park Engineering, Inc.
7. Department of Land and Natural Resources, State of Hawaii; State Water Resources Development Plan; September 1980.
8. Department of Planning and Economic Development, State of Hawaii; The Hawaii State Plan; 1978.
9. Evaluation Research Consultants; Potential Agricultural Uses of Phase I of the Proposed Waimanalo Agricultural Park; January 1981.
10. Hawaii Agricultural Reporting Service; Statistics of Hawaiian Agriculture 1980; June 1981.
11. Neal, Marie; In Gardens of Hawaii; 1965.
12. Pope, Willis; Manual of Wayside Plants of Hawaii; 1968.
13. State Land Use Commission; Rules of Practice and Procedure and District Regulations; December 1975.
14. Takasaki, K. J., Yamanaga, George, Lubke, E.R; "Preliminary Summary of Findings in Water Resources Studies of Windward Oahu, Hawaii," Water Resources Circular No. 10, 1962.
15. USDA Soil Conservation Service; Draft Watershed Plan and Environmental Impact Statement; July 1981; prepared by State of Hawaii, Department of Land and Natural Resources, Division of Water and Land Development; Windward Oahu Soil and Water Conservation District; and USDA Soil Conservation Service.
16. USDA Soil Conservation Service; Erosion and Sediment Control Guide for Hawaii; 1981.
17. University of Hawaii, College of Tropical Agriculture and Human Resources; Banana Industry Analysis; September 17, 1980.
18. University of Hawaii, College of Tropical Agriculture and Human Resources; Ornamental Potted Plant Industry Analysis; June 7, 1979.