DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
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FRANK F. FASI
MAYOR

JOHN P. WHALEN
DIRECTOR

(RF)

October 30, 1985

Ms. Letitia N. Uyehara, Director
Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, Hawaii 97813

Revised Environmental Impact Statement (EIS)
Kuilima Resort Expansion
Kuilima Development Company - Koolauloa, Oahu
Portions of Tax Map Keys 5-6-03, 5-7-01, 5-7-03, 5-7-06

We are notifying you that the above is an acceptable EIS document, pursuant to Chapter 343, HRS, and the EIS Regulations.

The Acceptance Report identifies one unresolved issue: the impacts of the proposed development at Kawela Bay - and particularly the proposed dredging of the Bay - on the green sea turle, which is a "threatened species" under the federal Endangered Species Act of 1973.

Several land use approvals will be required in order to implement the proposed project. These are listed in Part XI of the EIS.

A copy of our Acceptance Report is attached. If there are any questions, please contact Mr. Robin Foster of our staff at 527-5027.

Very truly yours,

John P. Whalen

JOHN P. WHALEN
Director of Land Utilization

JPW:sl
2476A
attach.

cc: Group 70
Kuilima Development Company

GROUP 70

REVISED

ENVIRONMENTAL IMPACT STATEMENT

Volume I

KUILIMA RESORT EXPANSION

Koolauloa District
Oahu, Hawaii

Portions of Tax Map Key: 1st Division
5-6-03, 5-7-01, 5-7-03 and 5-7-06

7 October 1985

GROUP 70 • Architects • Planners • Interior Designers • 924 Bethel Street • Honolulu, Hawaii 96813 • Phone (808) 533-4445

REVISED
ENVIRONMENTAL IMPACT STATEMENT

VOLUME I

PROPOSED KUILIMA RESORT EXPANSION

Koolauloa District
Oahu, Hawaii

Portions of Tax Map Key: 1st Division
5-6-03, 5-7-01, 5-7-03, 5-7-06

Prepared by
Group 70, Planners

7 October 1985

REVISED
ENVIRONMENTAL IMPACT STATEMENT
7 OCTOBER 1985

PROPOSED PROJECT:	KUILIMA RESORT EXPANSION
LOCATION:	KOOLAULOA DISTRICT ISLAND OF OAHU STATE OF HAWAII
ACCEPTING AUTHORITY:	DEPARTMENT OF LAND UTILIZATION CITY AND COUNTY OF HONOLULU
APPLICANT:	KUILIMA DEVELOPMENT COMPANY 1001 BISHOP STREET PAUAHI TOWER, SUITE 1980 HONOLULU, HAWAII 96813 CONTACT: NORMAN QUON TELEPHONE: (808) 524-7622
CONSULTANT:	GROUP 70 924 BETHEL STREET HONOLULU, HAWAII 96813 CONTACT: FRANCIS S. ODA, AIA TELEPHONE: (808) 533-4445

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PART I: SUMMARY

The proposed Kuilima Resort Expansion site is located on approximately 808 acres at the extreme northern point of the island of Oahu. Kuilima Development Company, the applicant, is seeking rezoning of the property to be compatible with the Koolauloa Development Plan (DP) Land Use Map. In addition, the applicant is proposing activities within the Special Management Area (SMA) which will require a Special Management Area Use Permit (SMP).

Approval of the necessary governmental approvals will allow the applicant to expand the facilities of the existing Kuilima Resort, in phases, with hotels, resort condominiums, a commercial area, a renovated 18-hole golf course, a new golf course clubhouse, an additional 18-hole golf course, 2 public beach parks, a private beach park, a wildlife park, 5 public right-of-ways (R.O.W.s) to the shoreline, an equestrian area, a wildlife preserve and associated infrastructure improvements.

At full development, the expanded facilities of the resort is expected to introduce a new visitor population averaging about 4,783 persons on any given day. Those sectors of the region's population who would be adversely affected by the proposed resort expansion have been identified as being: the 39 individual lessees of east Kawela Bay parcels and their families, and six agricultural lessees who would be displaced by the proposed action; and region residents opposed to economic and/or resort growth. Those sectors of the region's population who benefit from the project are identified as: future resort job holders; ocean users; region businessmen; and region residents supporting economic growth.

The completed resort facilities are estimated to generate 6,275 direct, indirect and induced jobs on Oahu, of which 3,556 jobs will be located in the region. Provided that appropriate training is available, much of the supply for this on-site labor demand could be met from within the region itself. The applicant is assisting in the development of such programs.

The major physical features within the project have been identified as being Kawela Bay, the primary sand dunes near Kahuku Point and the Punahoolapa Marsh. The applicant proposes to divert a major portion of the Kawela Stream runoff into Turtle Bay through the West Main Drain, thereby improving the water quality of the bay. The applicant is also proposing to remove the Kawela stream deposited silt from the bay.

In order to protect the primary sand dunes near Kahuku Point, the applicant is proposing to dedicate a 37-acre area around these dunes to the County for use as a passive park.

The applicant is proposing to preserve the Punahoolapa Marsh for its value as a habitat for the Hawaiian Stilt, the Hawaiian Coot, the Hawaiian Gallinule and the Hawaiian Duck, all endangered waterbirds. The value of Punahoolapa Marsh as a waterbird habitat will be enhanced by the implementation of improvements established in coordination with the U.S. Fish and Wildlife Service.

Adverse or unavoidable environmental effects include: occasional flooding of the proposed golf courses and marsh, dust generation during site clearing activities, potable water consumption, marsh drainage input, loss of agricultural uses, construction noise, electrical power plant emissions, social impacts to those who would bear the costs of the project, additional traffic, solid waste disposal and occasional demand on County protective services.

The construction and operation of the proposed project will involve the irretrievable commitment of certain natural and fiscal resources. Major resource commitments include the land upon which structures are actually constructed (does not include open space areas, such as the golf courses, marsh, parks and equestrian area), money, construction materials, manpower and energy. The impacts of using these resources should, however, be weighed against the economic benefits to the residents of the region, County and State.

The major long-term gain of the proposed action is the enhancement of the economic value of the site at the expense of the adverse and unavoidable environmental effects outlined above.

Alternatives to the proposed action studied include: no action, no further development, alternative site, less development than proposed and more development than proposed.

The proposed Kuilima Resort expansion will be consistent with: the Hawaii State Plan; the State Functional Plan; the General Plan for the City and County of Honolulu; the Development Plan for Koolauloa, City and County of Honolulu; the Hawaii Coastal Zone Management Program; and the Special Management Area Rules and Regulations of the City and County of Honolulu, Ordinance 84-4. It is the applicant's intention to comply with all of the principles and controls for the "Kahuku Point-Kawela Bay Resort Area" (Development Plan Special Provisions for Koolauloa). These include principles and controls for: setbacks, maximum building to land coverage ratio in the area between 100 feet and 300 feet from the shoreline, design review approval, design objectives, landscaping, park sites, pedestrian access-ways to the shoreline, and public walkways within the 100-foot setback area from the shoreline.

A. GENERAL DESCRIPTION OF THE SITE

The proposed Kuilima Resort Expansion site is located on approximately 808 acres at the extreme northern point of the island of Oahu (Figure 1). The property lies on the makai side of Kamehameha Highway between Kawela Bay and Kahuku Airport Road (also referred to as Marconi Road) east of Kahuku Point (Figure 2). The site is bordered on the makai side by Kawela Bay, Turtle Bay, Kuilima Point, Kaihalulu Beach (the area between Kuilima Point to Kahuku Point, hereinafter referred to as Kuilima Bay), Kahuku Point and Hanakailio Beach.

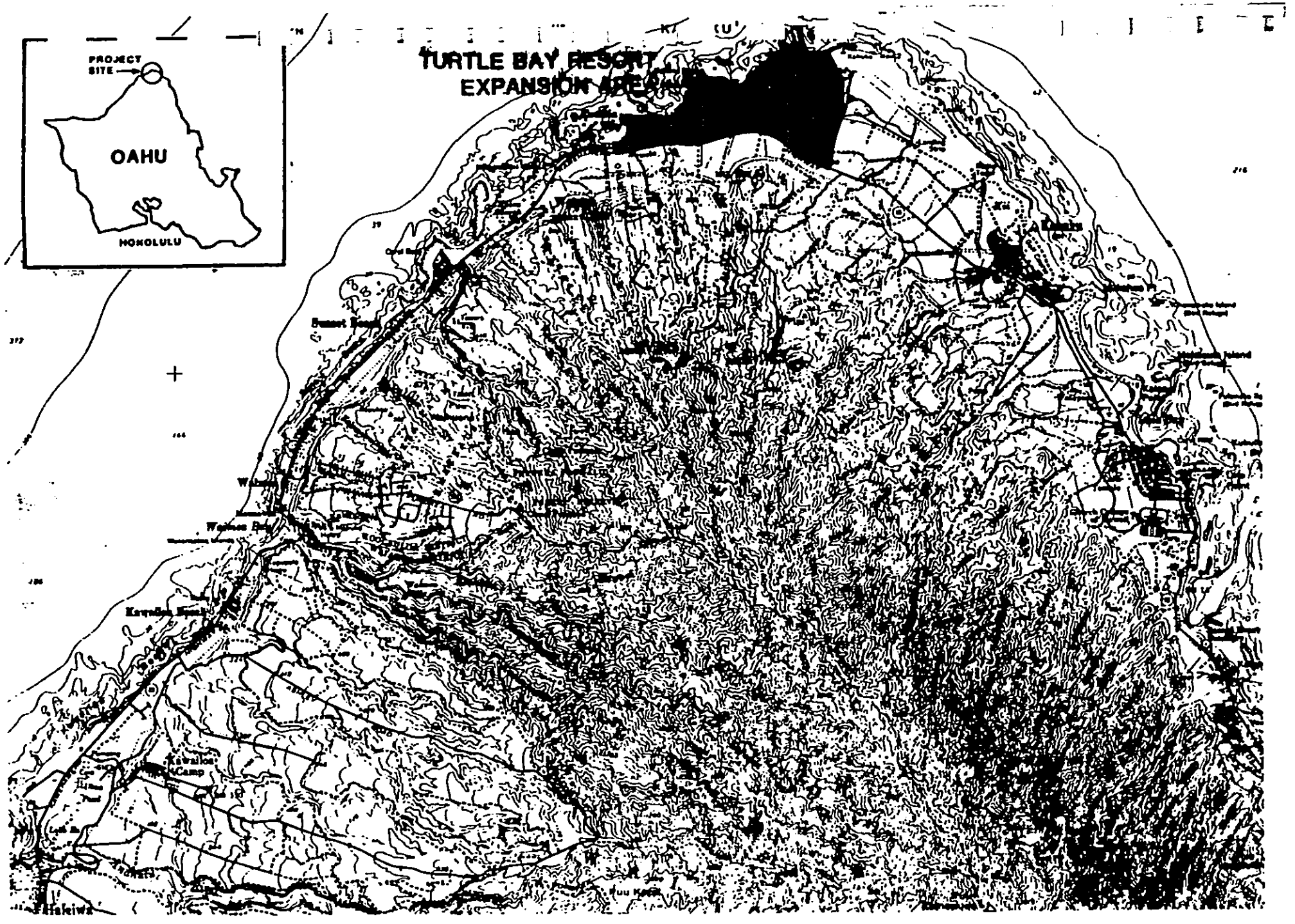
The project site is located on the relatively flat Kahuku coastal plain. The vast majority of the site is between 5 and 10 feet above sea level (Figure 3). Except for a barely noticeable rise in the extreme southeast corner of the site, the only topographic relief is provided by sand dune structures along the shoreline. Most of the shoreline consists of uplifted reefs or ledges of sandstone and limestone, but there are also unconsolidated beach and deposits at various locations. The major, natural shoreline features are Kawela Bay, Turtle Bay, Kuilima Point, and Kahuku Point (Figure 2). The other major geographical feature on the property is Punahoolapa Marsh (Figure 2).

The eastern side of Kawela Bay and the western portion of Turtle Bay are fringed with small beach cottages. The beach cottages were constructed many years ago as summer or weekend retreats. The cottages are currently on month to month leases with the applicant. Some of the structures are well kept and have retained a traditional beach house character, but many others have been poorly maintained. Despite the existence of roads through this area, access to the shoreline is discouraged by the presence of signs posted by lessees, warning against trespassing. Two plots inland of Kawela Bay parcel are leased for agricultural purposes. Inland of Kawela Bay is a small wetland with a small open water area. It is surrounded by a dense growth of shrubs.

In the central portion of the property are the existing facilities of the Kuilima Resort, the Turtle Bay Hilton and Country Club, which consists of: the recently renovated 487-room hotel, an 18-hole championship golf course, and a waste stabilization pond (Figure 2).

From the golf course to the eastern boundary of the site is a vast area that is mostly vacant. Inland of Kahuku Point are prominent, exposed sand dunes (Figure 2). Adjacent to these dunes is an abandoned military air field (Figure 2).

Mauka of the landing strips is Punahoolapa Marsh (Figure 2), which has relatively little open water areas and is mostly covered with thick vegetation. This area of the site is inaccessible to most human activity and provides the only relatively undisturbed habitat for terrestrial vertebrates.



KUILIMA RESORT

FIGURE 1 REGIONAL MAP

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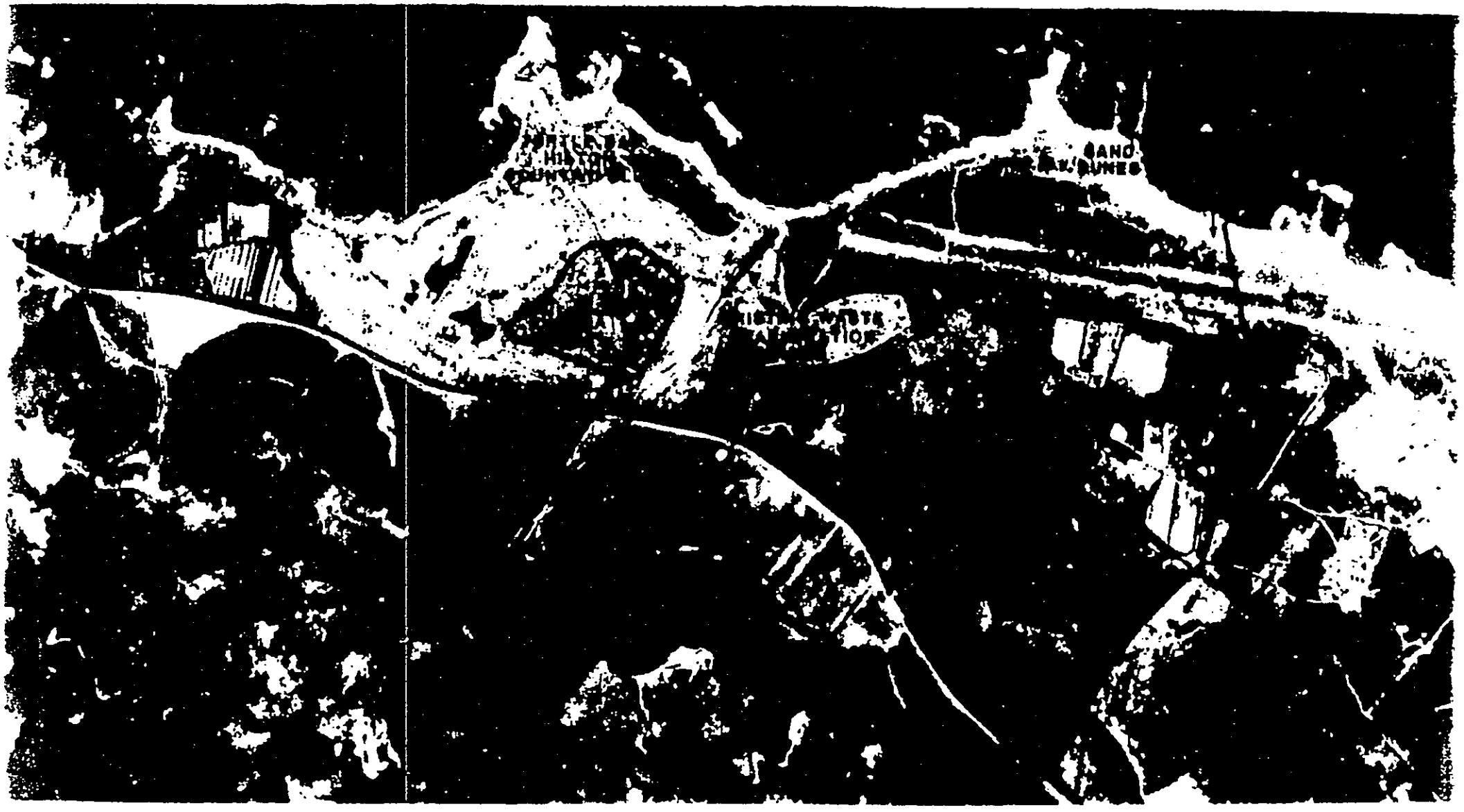
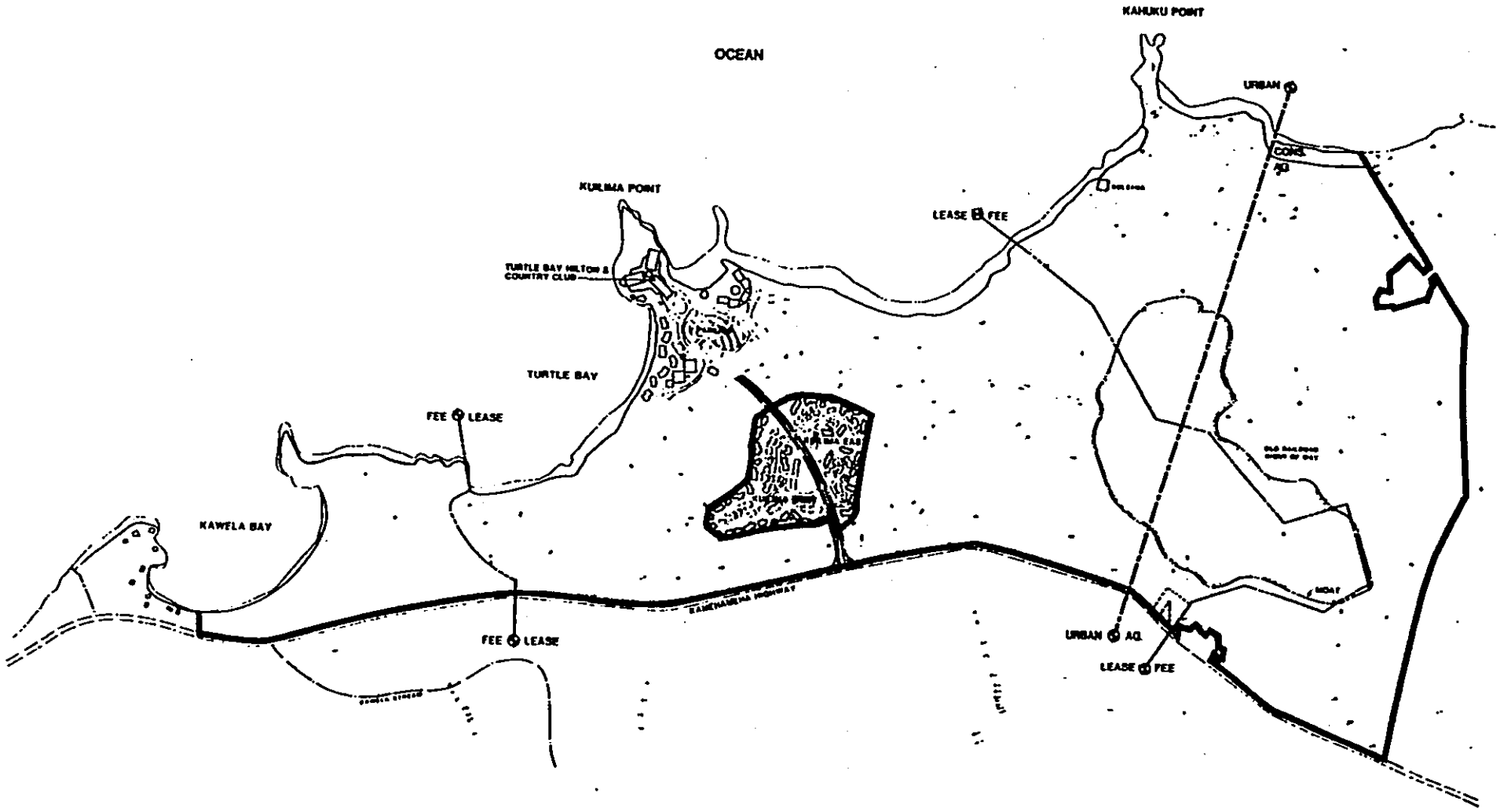


FIGURE 2 AERIAL PHOTO OF PROJECT SITE
(PHOTO BY R. M. TOWILL CORPORATION 11/18/83)



KUILIMA RESORT • BASE MAP

FIGURE 3 BASE MAP

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ARCHITECTS AND PLANNERS

NORTH

6 OCTOBER 84

To the east of the marsh are approximately 153 acres of land which are being leased by 4 farmers on a month-to-month basis. Most of agricultural lots are being used for cattle grazing. The remainder of this eastern parcel is unarable and thus remains unused.

B. HISTORY OF THE USE OF THE LAND

Throughout most of this century, the Campbell Estate's holdings, which extend from the western side of Laie all the way around to the western side of Kawela Bay and from the shoreline to the top of the Ko'olau range, were leased to Alexander & Baldwin and its Kahuku Plantation operations for the production of sugarcane. Review of aerial photographs taken in 1927, 1951 and 1968, revealed areas where extensive land modification occurred as a result of past sugar cultivation activities.

Much of the eastern portion of the property was utilized for a military airfield during the Second World War, but was abandoned immediately thereafter. Although the two parallel air strips are still very much in evidence, they are no longer usable.

By the early 1960's, it was apparent to both Alexander & Baldwin and Campbell Estate that frequent fluctuations in the price of sugar, rising production costs and relatively low productivity made sugar production on Campbell Estate lands less and less viable. In order to ease the impact of the closing of the Kahuku plantation operation on the residents of Kahuku, Campbell Estate actively pursued alternative uses for its Kahuku lands.

Since tourism was identified as an industry with significant, long-term economic (and employment) potential, Campbell Estate investigated the viability of resort development at Kahuku. It was clear to the Estate that the site's rural setting, its diverse physical features, including: beaches, rocky outcroppings, sand dunes, marsh lands and stands of ironwoods, appeared conducive for resort development. In fact, for years small beach cottages at Kawela Bay had been used by Kahuku Plantation and Campbell Estate employees and by other island families as summer or weekend retreats.

Trustees of the James E. Campbell Estate recognized that development of the resort would require a number of years because of the large capital investment required and because of anticipated fluctuations in market demand. Physical implementation of Campbell Estate's plans for the Kuilima portion of their greater Kahuku properties began when investors were sought for resort development.

In the late 1960's, as the last crops of sugar cane were being planted by Kahuku Plantation, Campbell Estate and INSCON (a joint venture made up of the Del E. Webb Corporation and PIC Realty, Prudential Insurance Company of America's real estate investment arm), planned and obtained the necessary Detailed Land Use Map (DLUM) changes for a major destination resort containing hotels, resort condominiums, recreational facilities, and residential units. In 1969, INSCON signed an agreement with Campbell Estate to build a 500-room hotel, 368 townhouse-type condominiums and an

18-hole golf course at Kuilima Point; construction was completed in 1972. In 1971, Alexander & Baldwin closed its mill and ceased agricultural operations in the area.

Between 1972 (when the hotel opened) and 1976, the hotel was managed by the Del E. Webb Corporation. Although Prudential Insurance Company of America (hereinafter referred to as Prudential) was the primary financial investor in the project, the Del E. Webb Corporation was the active partner in the development venture.

In 1976, Kuilima Development Company (KDC), a wholly owned subsidiary of Prudential purchased the interest of Del E. Webb Corporation and took full control of the project, contracting the Hyatt Corporation of America to manage the hotel (now called the Turtle Bay Hilton) and golf course.

On 2 February 1977, the General Plan document dated 18 January 1977, marked as Exhibit A, was approved by the Mayor of the City and County of Honolulu as the official General Plan of the City and County of Honolulu. One of the policies stated in this document read as follows: "Provide for the orderly growth of the resort industry by designating appropriate areas of the Island for resort use, including but not limited to Waikiki, Queen's Beach, West Beach, Kuilima, and Makaha." The Detailed Land Use Map reflected the City and County's recognition of Kuilima Resort as a resort area by designating most of the property within the State Urban District for intensive resort and residential development.

In 1983, KDC exercised an option in its contract with Hyatt and awarded the management of the hotel to the Hilton Hotel Corporation. With this change in management KDC also initiated an upgrading program involving the existing hotel, golf course, tennis courts, and entry drive. At the same time, the company began a re-evaluation of the existing resort plan for the remainder of the undeveloped land which had been leased or purchased from Campbell Estate in 1970.

On 29 May 1985, a Development Plan Land Use Amendment Map which allows the proposed uses on site was approved by the Mayor.

C. LAND OWNERSHIP

The property is a combination of fee simple ownership and long-term leasehold rights. Lands that the Kuilima Development Company (KDC), a registered Hawaii Partnership owned by the Prudential Insurance Company of America (hereinafter referred to as Prudential), owns in fee and the lands leased from the James Campbell Estate are shown in Figure 3. Tax Map Keys for the project site are noted on Table 1.

D. LAND USE DESIGNATIONS AND ZONING

State Land Use Designations are shown in Figure 3.

TABLE 1
TAX MAP KEYS

TAX MAP KEYS - FEE SIMPLE

5-6-003-041
5-6-003-042
5-6-003-044

5-7-001-031
5-7-001-033

5-7-003-001
5-7-003-002
5-7-003-003
5-7-003-004
5-7-003-005
5-7-003-006
5-7-003-007
5-7-003-008
5-7-003-009
5-7-003-010
5-7-003-011
5-7-003-012
5-7-003-013
5-7-003-014
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5-7-003-028
5-7-003-029
5-7-003-030
5-7-003-031
5-7-003-032
5-7-003-033
5-7-003-034
5-7-003-035
5-7-003-036
5-7-003-064
5-7-003-065
5-7-003-066
5-7-003-069
5-7-003-072
5-7-003-073
5-7-003-074
5-7-003-075

TAX MAP KEYS - FEE SIMPLE (CONTINUED)

5-7-006-001
5-7-006-002
5-7-006-003
5-7-006-004
5-7-006-005
5-7-006-006
5-7-006-007
5-7-006-008
5-7-006-009
5-7-006-010
5-7-006-011
5-7-006-012
5-7-006-013
5-7-006-014
5-7-006-015
5-7-006-016
5-7-006-017
5-7-006-019
5-7-006-021

TAX MAP KEYS - LEASEHOLD

5-6-003-037
5-6-003-040

5-7-001-001
5-7-001-013
5-7-001-016
5-7-001-017
5-7-001-020
5-7-001-022
5-7-001-028
5-7-001-030

County Land Use Designations and Zoning

- General Plan states that it is an economic activity policy to permit the development of a secondary resort in the area encompassing Kuilima.

- Development Plan (DP) land use designations for the property are shown on Figure 4.

- Zoning designations for the property are shown on Figure 5.

- Special Management Area (SMA) boundaries through the proposed resort expansion area are shown in Figure 6.

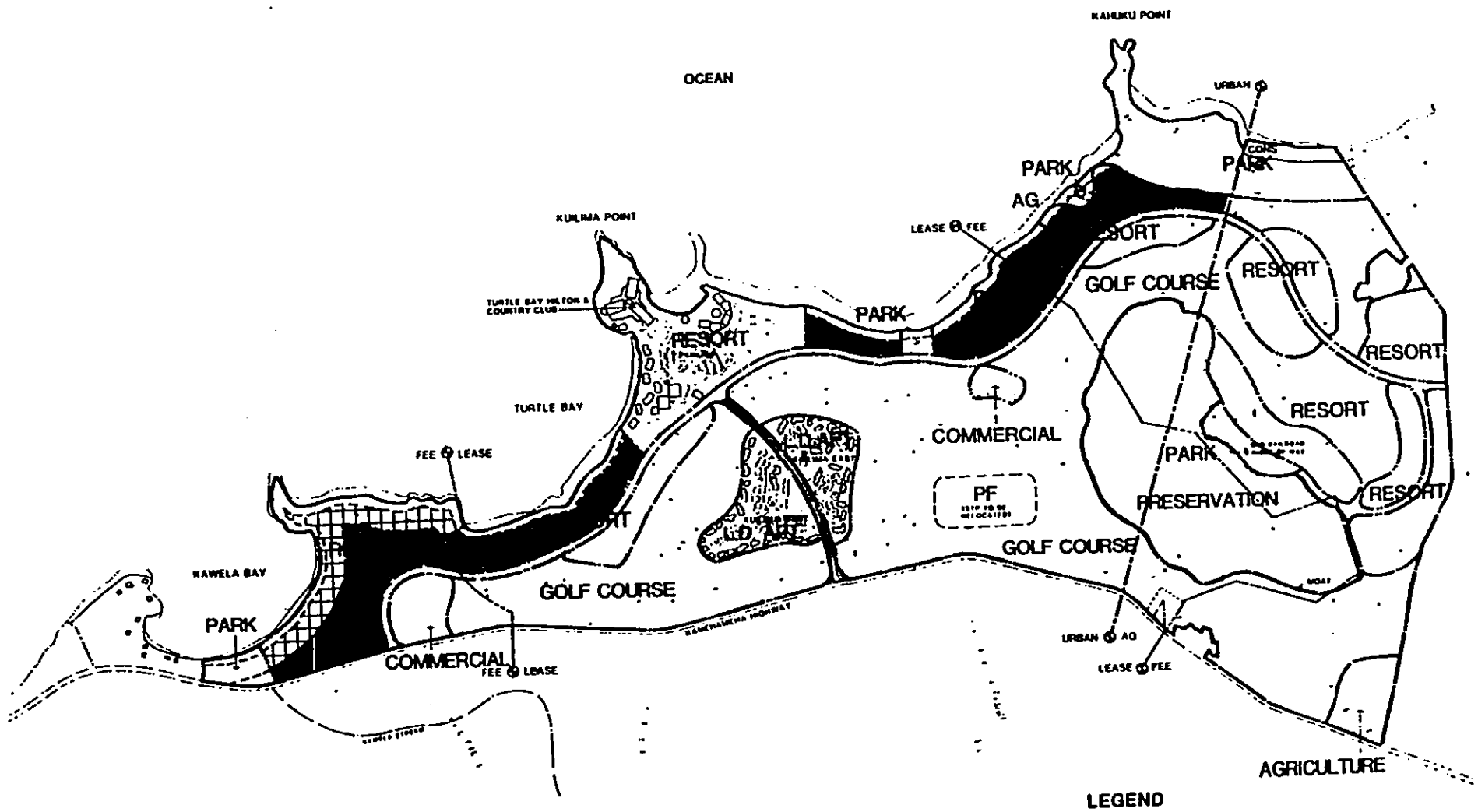
E. OBJECTIVES

1. Market Need - Concept of "Critical Mass"

It is the opinion of the Hallstrom Appraisal Group, Inc. (Hallstrom) that there will be a need for a total of up to 57,900 visitor units on Oahu by the year 2000, if operated according to standard efficiency basis (80 precent efficiency factor to account for: excess units to accommodate seasonal demand; units out of service or in repair; and superior occupancy rates). This represents a 54.66 percent or a 21,100-unit increase from the current island inventory. At a minimum, an additional 10,000 units will be required by the end of the century, assuming full occupancy and a non-seasonal average daily visitor census. Hallstrom notes that the projected number of visitor units required to be constructed on Oahu (an additional 21,100 units; minimum 10,000 units) depict a fall off in the historic growth cycle of Oahu tourism, as greater portions of travelers forego their Oahu stay for destination resorts (found only on neighbor islands).

There is a near-total lack of "Resort Hotel" designated sites which are not intensely developed in the Waikiki Special Design District. The only two "prime" hotel properties (non-public, oceanfront or having an unimpaired cross Kalakaua ocean view) remaining in non-hotel use, are currently improved with the substantial St. Augustine Catholic Church, and a Kaiser-Permanente hospital/clinic. Lacking choice on, or near, oceanfront sites, new Waikiki hotels do not have the ability to charge sufficiently high prices to justify the prevailing high construction costs. With an interior location, a new hotel is in direct competition with older, established hotels able to charge lower tariffs in conjunction with their historically lower costs of development. It is Hallstrom's opinion that Waikiki will not be able to meet the increasing lodging demands projected for Oahu throughout the end of the century.

As tourism demands increased in the 1960's, the continued urbanization of Honolulu/Waikiki, the availability of oceanfront land at reasonable prices in outlying and neighbor island locales, and the modernization of inter-island air travel were major factors in the development of master-planned resorts in the State of Hawaii.



KUILIMA RESORT

• BASE MAP • PROPOSED DEVELOPMENT PLAN

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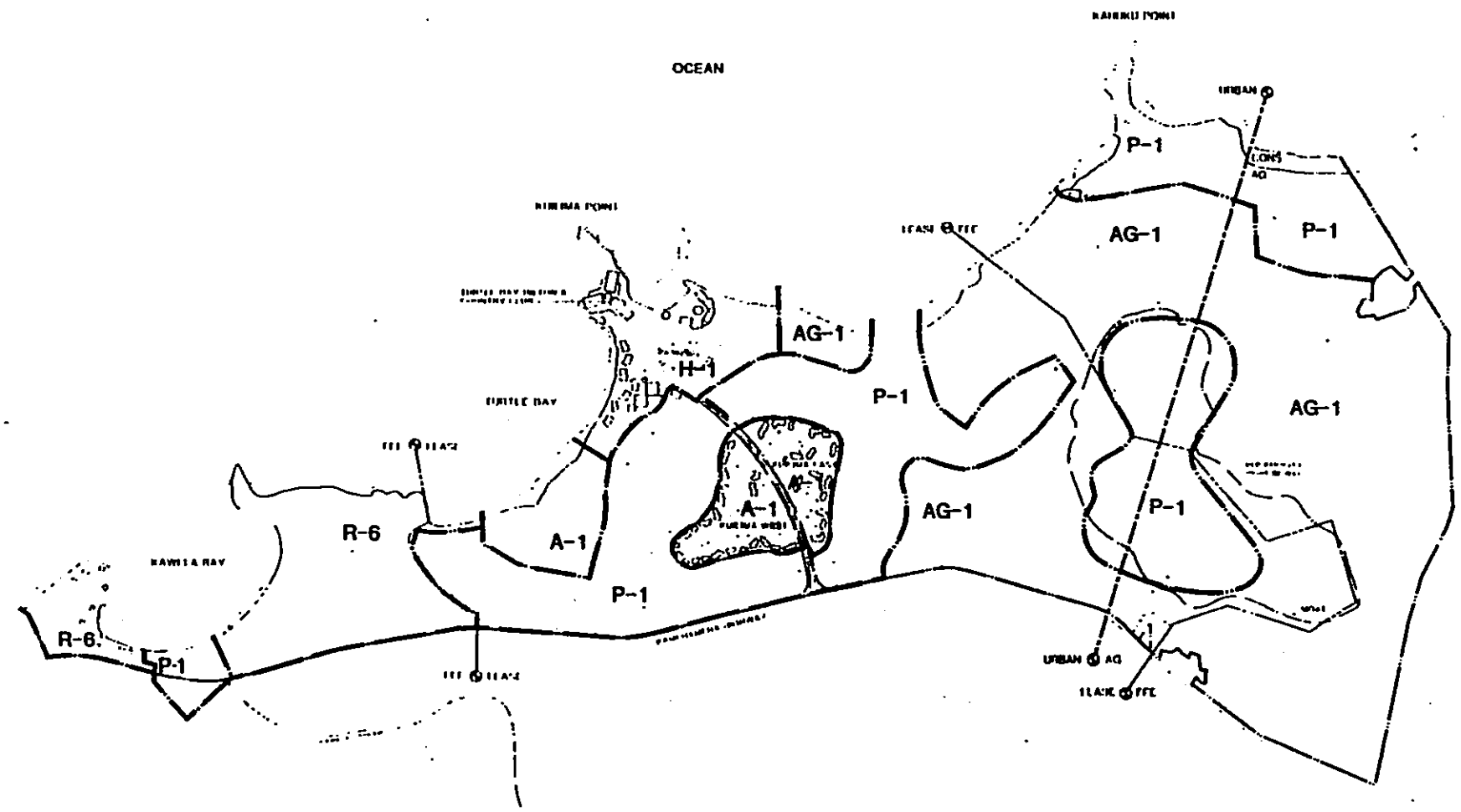
FIGURE 4 DEVELOPMENT PLAN WITH HEIGHT RESTRICTIONS



KUILIMA RESORT

FIGURE 5 EXISTING ZONING

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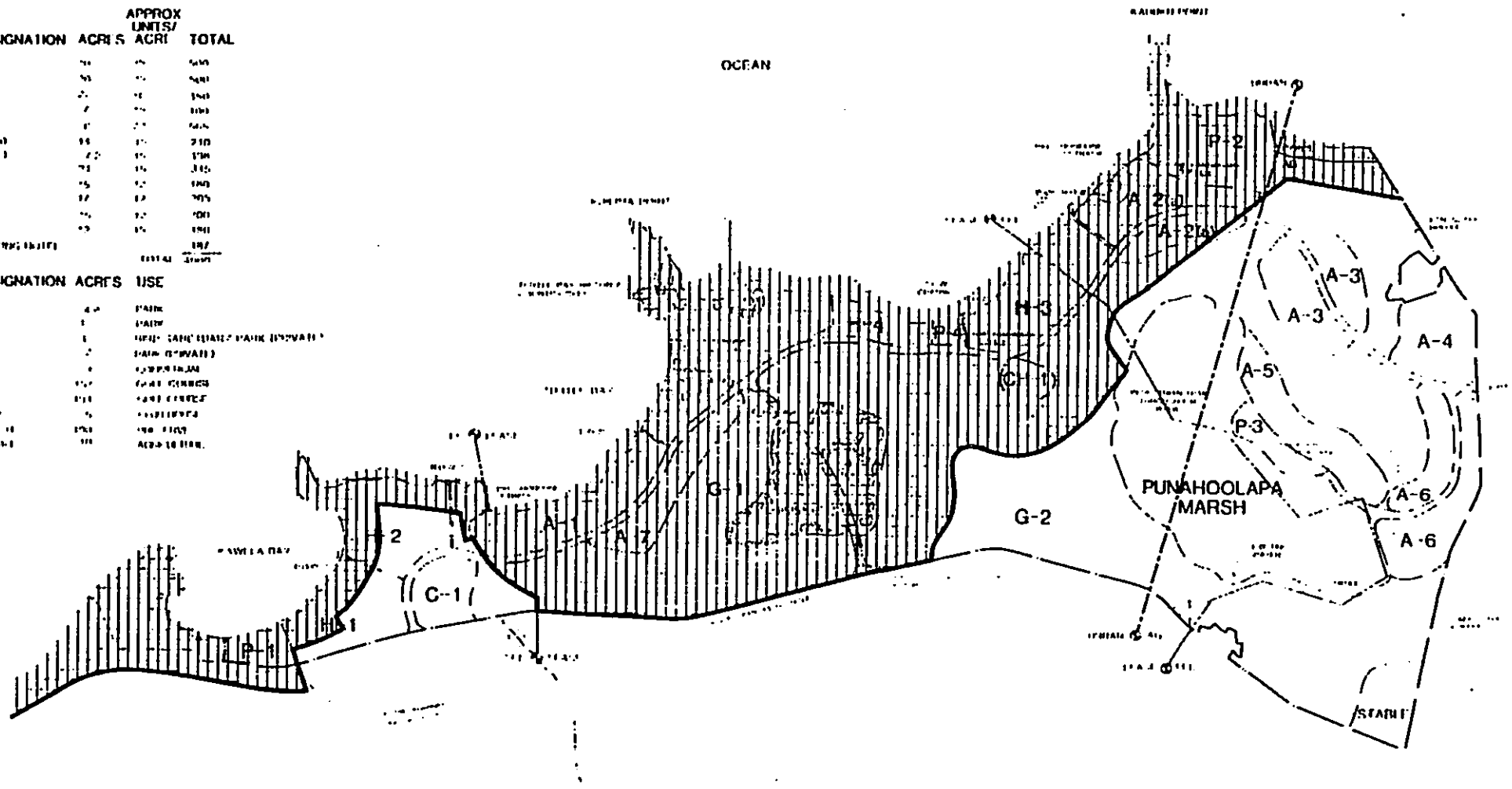
DESIGNATION	ACRES	APPROX UNITS/ ACRE	TOTAL

DESIGNATION	ACRES	USE



KUILIMA RESORT • BASE MAP • SPECIAL MANAGEMENT AREAS

FIGURE 6 SPECIAL MANAGEMENT AREAS

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Independent small-scale projects (single hotels and condominiums) were undertaken in various communities; however, success was limited due to the lack of sufficient visitor infrastructure facilities, retail, restaurant, and developed recreational opportunities.

Demand for destination resort accommmodations on a State-wide level is projected to increase at approximately 10 to 15 percent annually thoughout the century. Should Oahu fail to construct the necessary units or do so in non-competitive (i.e., non-destination resort) locations, the neighbor island exodus may continue fully unabated, hindering long-term prospects for the health of the County's tourism industry. It is Hallstrom's opinion that the conservative potential demand for tourism plant inventory at Kuilima is between 5,000 to 6,200 units. The proposed development is intended to fill a specific market niche presently lacking on Oahu and thereby adding to the diversity and viability of the island's industry.

One of the primary factors in the reevaluation of the Kuilima Resort was the concern that a "one hotel resort" is not sufficiently diverse to provide overall marketability of the resort to the international, as well as local and national markets. As a part of its planning efforts, KDC contracted Robert Charles Lesser & Co., a management and real estate market research consultant, to define various aspects of the target market for the resort. During their research, Robert Charles Lesser & Co. found that the characteristics of a successful Hawaiian destination resort include:

- "Accommodation choices and amenity offerings appropriately planned and designed for the targeted visitor and buyer markets."

- "Strong control of master planning by a single landowner."

- "A land plan that incorporates the natural amenities of the site; provides maximum view orientation (ocean and golf frontage); integrates the mixed uses of hotel, condominium, single-family residential, retail and recreational components; and creates identifiable resort entrances."

- "Vigourously enforced architectural controls."

- "Above average to very high quality of development during various phases of build-out of the resort project."

Robert Charles Lesser and Co. determined that currently, the existing facilities on the subject site do not provide the appropriate combination of characteristics for a successful destination resort. Among the key elements that were found to be lacking (the other elements concerned image): "Resort lacks sufficient variety of hotel and condominium choices..."

Despite the present lack of hotel and condominium choices, Robert Charles Lesser and Co. felt that the site was unique in comparison to other resort destinations within the State for the following reasons:

- "Diverse physical features, including protected sandy beaches, rocky outcroppings, sand dunes, and marsh lands."

- "Scenic natural vegetation, especially plentiful ironwood trees within the lowlands of the eastern portion of the subject site which emote a unique low country island atmosphere."

- "The only non-urban destination [beach] resort on the island of Oahu."

- "Proximity to world-class, famous surfing beaches."

- "Proximity to the Polynesian Cultural Center, the only existing Hawaiian cultural center."

Robert Charles Lesser and Co. identified the target markets for the Kuilima Resort (when expansion is completed) as "visitors and buyers seeking a quieter, relaxed 'get-away' destination resort that is unlike the more typical urban elements found within existing or proposed resorts on Oahu; no other Oahu resorts incorporate this marketing strategy".

In order to provide environments that could compete with the opportunities available in Waikiki (including shopping, dining, transportation and other services), outlying/outer-island resort developments would have to provide effective wide-ranging diversions, beyond physically desirable locations, in order to attract consistently high volumes of visitors. In practice, the integration of mixed resort uses (achieved through master planning) proved synergistically beneficial to each component; and the resorts experienced qualified success.

The major dilemma facing large acreage resort developers is the extent of development required to achieve a state of synergy; or at what point is there sufficient improvements, amenities and facilities so as to create a cumulative marketable attraction. This "critical mass" level and mix is important in planning decisions as the failure or insufficiency of one or more components could significantly hamper project success. In addition to man-made improvements, physical attributes (such as scenic or recreational characteristics) can contribute to the critical mass of a resort development.

The optimum relationship in achieving maximum cumulative attraction (in regard to land use type and intensity) is not readily quantifiable. Hallstrom investigated the state destination resort market in regard to existing and planned composition, and recreational and locational characteristics; establishing a market correlation of the critical mass necessary for efficient resort development. It was determined that in order to remain competitive in the market, the Kuilima Resort property would have to provide similar facilities and opportunities. The proposed resort expansion, then, is an integral component of the "critical mass" the entire Kuilima Resort requires in order to be viable. While Hallstrom estimates that there is a demand for 5,000 to 6,200 units at Kuilima,

it notes that the proposed total 4,000 units (as allowed by the Development Plan for Koolauloa, City and County of Honolulu), is representative of the intensity of development required to achieve the desirable, market attribute of "critical mass," or cumulative attraction.

It is the opinion of Hallstrom that if the resort facilities are developed as proposed, then the entire Kuilima Resort could expect market demand for finished condominium units at levels above those experienced at other major island resort destinations in the State. This opinion is based on the following factors: the lack of proximate competing inventory (which hampers other Hawaii locations); the high recognition and acceptance of the island of Oahu among visitors and its well-established visitor plant; the large market segment represented by Oahu residents which is largely untapped by outer-island projects (Hallstrom estimates that the resident population of Oahu will account for 15 to 20 percent of all future unit purchases at the resort); and, the relatively low selling prices envisioned ($165,000 to $250,000 in 1985 dollars). According to Hallstrom, the impact of the above factors should allow the resort to maintain relatively stable, long-term demand for its resort condominiums, benefitting from upward cycles in demand, and somewhat buffered from stagnate demand periods.

2. Statement of Objectives

It is the objective of KDC to develop a successful resort on its properties near Kahuku that will be beneficial both to the North Shore region and to the Prudential Insurance Company. Expansion of the resort's facilities will correct the existing resort's lack of "sufficient variety of hotel and condominium choices" and will contribute greatly towards the resort achieving the required critical mass. Furthermore, while assuring its financial viability, this proposal would serve to preserve the physical and aesthetic integrity of the Kuilima Resort.

The goal of the applicant is to develop a "neighbor island-like" resort that is in harmony with the North Shore region. Implementation will include:

- Maintenance of a low-density resort identity offering a wide range of environments;

- Design control of architectural and landscaping elements to insure sensitivity to the surrounding natural environment;

- Provision of jobs, phased over time, for integration into the social structure of the region; and

- Development of business opportunities for a variety of local goods and services, using the resort as a catalyst for regional economic growth.

PART III: PROJECT DESCRIPTION

A. GENERAL DESCRIPTION OF THE ACTION'S TECHNICAL, ECONOMIC, SOCIAL AND ENVIRONMENTAL CHARACTERISTICS

1. Technical Characteristics

As shown in Figure 7, the master plan for the resort expansion locates the general development areas for the proposed hotels, resort condominiums, parks, commercial area, additional 18-hole golf course, new club house and stable. While the overall resort will have a consistent design character, the property will have two general activity areas. The western portion of the site will be the resort core. Here the existing facilities of the Turtle Bay Hilton and Country Club, the two new hotels and the commerical complex will form the basis of activity focussing on Kawela Bay and the resort-related amenities. Circulation through this area follows a broad, landscaped, looping boulevard formed by a new interior roadway and Kuilima Drive.

The eastern portion of the site will be more rustic in character, lower in density and will highlight golf, equestrian, birdwatching and other passive, nature-oriented activities. The new golf clubhouse, with restaurants and athletic facilities to support both the existing golf course (to be renovated) and the new golf course, will be the focus for this portion of the site. This portion of the resort will include 3 parks and a stable and will offer many opportunities for walking and horse-back riding as well as ocean-related sports. Retaining the existing primary sand dunes and stands of ironwood trees will set the tone for this ranch-like area.

It should be noted that the proposed master plan for the resort expansion reflects the principles and controls for the Kahuku Point-Kawela Bay Resort Area as specified in the Development Plan for Koolauloa (listed below):

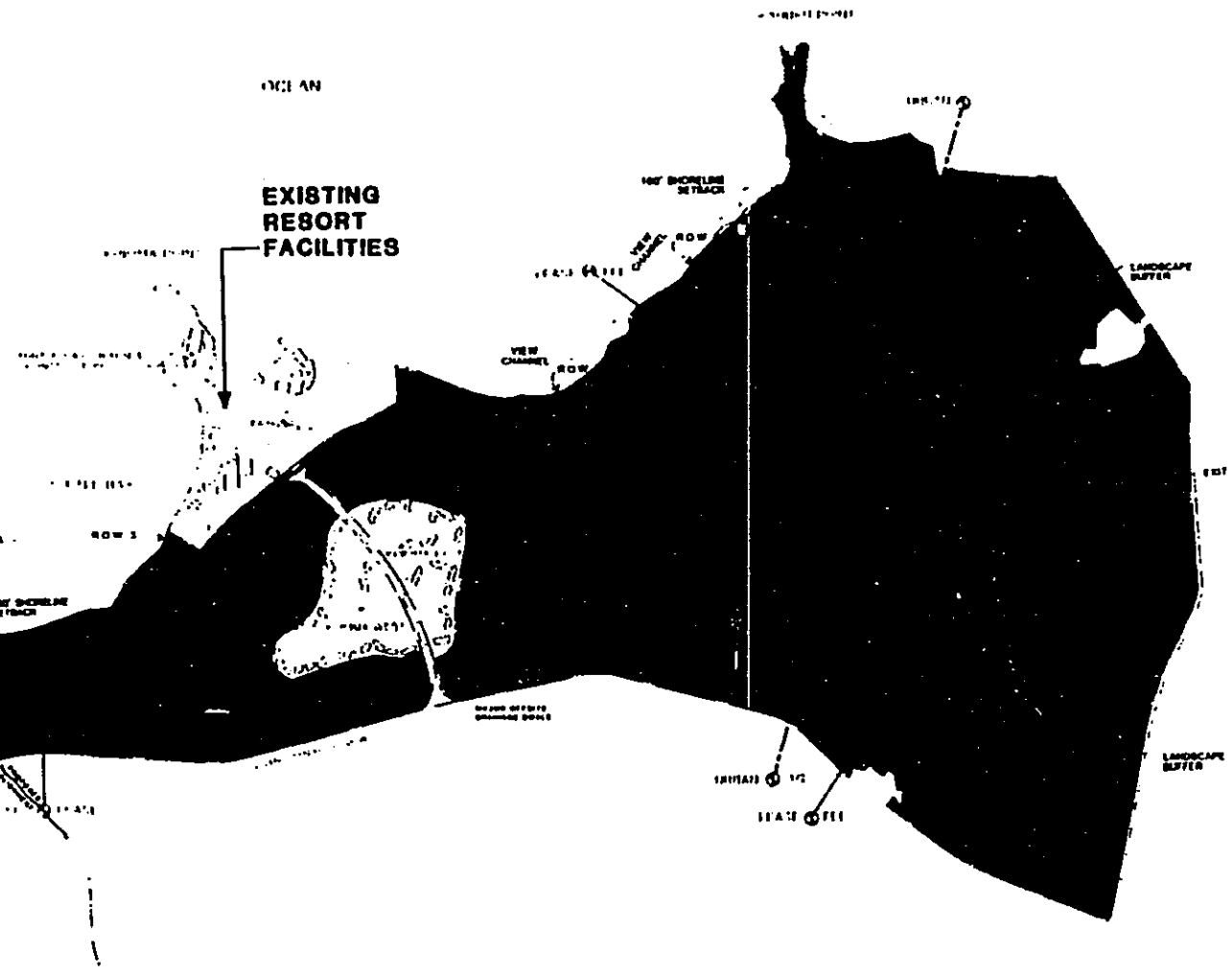
"(1) This is the area designated for Resort, Commercial, Low-Density Apartment and Park (Golf Course) uses between Kahuku Point and Kawela Bay. Resort development in this area is to continue and be expanded.

(2) Structures shall be generally setback a distance of 300 feet from the shoreline. Within the distance of 100 feet to 300 feet from the shoreline, structures shall be setback pursuant to policies set forth herein:

(a) No structure shall be located between the shoreline and 100 feet from the shoreline.

DESIGNATION	ACRES	APPROX. UNITS/ ACRE	TOTAL
H-1	20	25	500
H-2	20	25	500
H-3	22	16	350
H-4	7	15	100
A-1	28	22	565
A-2(a)	14	15	210
A-2(b)	7.2	15	108
A-3	21	15	315
A-4	15	12	180
A-5	17	12	205
A-6	25	12	300
A-7	12	15	180
EXISTING HOTEL			487
		TOTAL	4000

DESIGNATION	ACRES	USE
P-1	48	PARK
P-2	37	PARK
P-3	6	BIRD SANCTUARY PARK (PRIVATE)
P-4	2	PARK (PRIVATE)
C-1	9	COMMERCIAL
G-1	157	GOLF COURSE
G-2	194	GOLF COURSE
CH-1	5	CLUB HOUSE
MARSH	100	PRESERVE
STABLE	10	AGRICULTURE



KUILIMA RESORT • BASE MAP • MASTER PLAN

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FIGURE 7 PROPOSED KUILIMA RESORT EXPANSION MASTER PLAN

(b) For each increment fronting Kawela Bay and Kawela Point fronting Turtle Bay and between 100 feet and 300 feet from the shoreline, there shall be a maximum building to land coverage ratio of 10% of the land area makai of the 300-foot line to the property line and shall have staggered building heights with a maximum of 50 feet. The percentage of any given section shall not be clustered.

(c) Structures located between 100 feet and 300 feet from the shoreline are subject to design review approval by the Department of Land Utilization.

(d) Structures in the Kawela Bay increments over 50 feet shall be setback a minimum of 300 feet from the shoreline.

(e) Structures shall be setback at varying distances from the shoreline to promote designs that are compatible with the regions rural character.

(3) Resort facilities shall be limited to 4,000 visitor units within the area designated for Resort use and shall be permitted to be established in accordance with general height limits, building setback, and access standards as provided in this development plan.

The development of the Kahuku Point-Kawela Bay Resort Area shall be governed by the following principles and standards:

a. Building roofs shall have a "Hawaiian" character.

b. Plantings shall be placed, and structures sited, in such a manner as to preserve the natural integrity of Kawela Bay and to screen buildings from viewers on the West side of Kawela Bay.

c. Landscaping and design shall be implemented to preserve the existing character of Kawela Bay and surrounding areas.

d. Existing vegetation shall be retained and utilized in landscaping wherever possible.

e. A total of four parks sites, as designated on the Koolauloa Development Plan Map, shall be provided and shall be open to the general public. The land for two of these parks shall be dedicated to the City. The remaining two parks shall be privately owned and maintained.

f. Five pedestrian access-ways to the shoreline, as designated on the Koolauloa Development Plan Map, and five adjacent public parking areas, each containing a minimum of 15 stalls shall be provided.

g. The shoreline areas along the development shall be linked by a public walkway which shall be constructed and maintained by the owners. The walkway shall be within the 100-foot setback area from the shoreline and shall be linked to the public access-ways.

h. Areas within 100 feet from the shoreline shall be open to the public under terms and conditions to be determined at the time of zoning and to be recorded at the Bureau of Conveyances.

The Development Plan for Koolauloa also specifies general height limits for Kahuku Point-Kawela Bay. The specific DP urban design principles and controls for height controls are: "The general height limits of buildings shall be as follows:

> The height limit from Kahuku Point to Kawela Bay, shall be maximum of 90 feet and shall be subject to Section 2.2.a.(1) (setback prov.) General heights for these areas shall be 70 feet. Building heights shall be staggered. The increased in height from 70 to 90 feet shall be primarily for roof design purposes. The roof line and building design shall be of Hawaiian Character and blend into the rural setting."

A brief description for each of the proposed development areas for the Kuilima Resort expansion (areas identified by their proposed use and a number) follows.

Golf Courses:

- Golf courses G-1 and G-2 - The existing 157-acre golf course (G-1) will be renovated and upgraded. Generally, the major aspect of the renovation consists of new landscape work to beautify the course, and regrading work to improve the drainage and playing conditions of the existing golf course.

  G-2, the second championship 18-hole golf course, would occupy 194 acres and would provide an open space buffer around most of the Punahoolapa marsh. As part of the development of G-2, the existing waste stabilization pond would be removed and portions of the abandoned military airfield would be covered with fill.

Wildlife Preserve:

- Punahoolapa Marsh - The applicant is proposing to preserve the Punahoolapa Marsh for its value as a habitat for the Hawaiian Stilt, the Hawaiian Coot, the Hawaiian Gallinule and the Hawaiian Duck, all endangered waterbirds. The value of Punahoolapa Marsh as a waterbird habitat will be enhanced by the implementation of the following proposed improvements (established in coordination with the U.S. Fish and Wildlife Service):

-- The construction of a moat around the marsh surrounded by chain link fencing and a visual barrier of vegetation;

-- The construction of additional open waterways makai of the existing open water areas; and

-- The creation of a number of islands on the new waterways.

In order to develop the new golf course (G-2), the applicant is proposing to fill approximately 13 acres of transitional zone marsh land (along its perimeter) and add 6.2 acres of buffer area to the marsh boundary.

Parks:

- Park P-1 - This proposed park, which is located on the western most end of the property, would occupy an area of approximately 4.8 acres fronting Kawela Bay. Entry/exit would be from Kamehameha Highway, with adequate free public parking for 30 to 50 vehicles provided within the park. The park would provide direct public access to Kawela Bay for passive beach-oriented recreation. Such access has not been available to the general public in years. This park would be one of two on site that are proposed to be dedicated to the County for improvement and maintenance.

- Park P-2 - This 37-acre park is located from Kahuku Point to the eastern boundary on Hanaka'ilio Beach. The major feature of this beach is the primary sand dunes located along this section of the shoreline. With expected free public parking capacity for 30 to 50 cars, this park would also be dedicated to the County. Expected uses include camping and picnicking. Negotiations are currently underway with Campbell Estate to provide direct access to the park via Kahuku Airport Road. If approved, Kahuku Airport Road would be improved to County standards.

- Park P-3 - This passive, privately-maintained, 6-acre park would abut Punahoolapa Marsh and would provide an area from which the public could view the waterbirds within the marsh. It would contain: a lookout over the marsh; displays providing information on the environmental value of the marsh and the identification of various avifauna species; picnic area; and 15 free public parking stalls. P-3 would also act as a buffer between the marsh and resort condominium site A-5.

- Park P-4 - The areas adjacent to the outlet of one of the major drainage ways on the property will be used for a park. This park site of 2 acres will be privately developed and maintained. P-4 provides open space and a view corridor between hotel sites H-4 and H-3, the latter being the eastern-most hotel site on the property. P-4 will be separated from hotel site H-3 by R.O.W. 4. R.O.W. 4 would be approximately 280 feet long and would contain free public parking for 15 cars.

Hotels:

- Hotel sites H-1 and H-2 - These hotel sites would be located on 20 acres each on Kawela Bay, the best beach for swimming along the property. Each hotel would have approximately 500 units. H-2 also borders the western portion of Turtle Bay, and from portions of this site, would offer views into both bays. A right-of-way (R.O.W. 1) to Kawela Bay would separate these two hotel sites. R.O.W. 1 would be approximately 680 feet long and would contain free public parking for 15 cars.

- Hotel H-3 - This site is located on 22 acres along Kaihalulu Beach. It is presently planned to include 350 low-rise units in a village-like cluster. It is located across the proposed interior roadway from golf course G-2 and the proposed club house area, CH-1.

- Hotel H-4 - This site is located next to the existing Turtle Bay Hilton Hotel and along Kaihalulu Beach, and would provide an expansion area of 7 acres for the existing hotel. It is expected that approximately 100 cabana-type structures similar to the ones directly south of the existing hotel will be built here.

Commercial Areas:

- Commercial area C-1 - This 9 acre commercial area is sited across the interior roadway from hotel sites H-1 and H-2, and is adjacent to Kamehameha Highway. C-1 would provide 40,000 square feet of commercial space and a greater variety of shopping and dining opportunities than would be available within the proposed hotels. Regional products and crafts, as well as the region's diverse food products would be the focus of goods offered here. Its location on Kamehameha Highway is intended to attract area residents and passers-by.

- Clubhouse CH-1 - This 5-acre site will become the major clubhouse facility for the existing and new golf courses. Restaurants, and additional commercial and athletic facilities will make this site the focal point for the eastern portion of the property.

Resort condominiums:

- Resort condominium A-1 - This site is located along the middle portion of Turtle Bay between hotel site H-2 (separated by a right-of-way to the beach, R.O.W. 2) and the existing Turtle Bay Hilton hotel (separated by R.O.W. 3). The site would consist of 26 acres and would contain 565 low-rise condominium units. R.O.W. 2 would be approximately 640 feet long and would contain free public parking for 15 cars.

- Resort condominium A-2 - The proposed interior roadway runs through this site, creating two parcels of unequal size. One parcel, A-2(a), is bordered by Kaihalulu Beach, hotel H-3 (separated by R.O.W. 5) and P-2 (a proposed park). This parcel would occupy 14 acres and contain 210 condominium units. The other parcel, A-2(b) would be sited on 7.2 acres, and would contain 108 condominium units oriented toward golf course G-2. R.O.W. 5 would be approximately 540 feet long and would contain free public parking for 15 cars.

- Resort condominium A-3 - Surrounded by golf course G-2, this 21 acre site will contain 315 condominium units.

- Resort condominium A-4 - This site borders the eastern boundary of the property and is separated from resort condominium site A-6 by an interior roadway. This site would be located on 15 acres and would contain 180 condominium units.

- Resort condominium A-5 - Located between park P-3/Punahoolapa Marsh and golf course G-2, A-5 would contain 205 condominium units on 17 acres.

- Resort condominium A-6 - Bordered by the eastern boundary of the property, the golf course and the Punahoolapa Marsh, this 25 acre site would contain 300 townhouse-type units.

- Resort condominium A-7 - Located along golf course G-1, this site would occupy 12 acres and would contain 180 condominium units. There would be immediate access to the beach via R.O.W. 3, which is located across an interior roadway from this site. R.O.W. 3 would be approximately 320 feet long and would contain free public parking for 15 cars.

Stable:

- Stable - Facilities for renting horses and riding will be available on 10 acres of the subject property. In addition to use by visitors, it is expected to be used by residents due to the growing demand for equestrian facilities on Oahu.

The number of units for each of the proposed uses is summarized below:

Proposed Plan

Use	No. of Units Proposed in Master Plan
Hotel	1,450 units (69 acres total)
Resort Condominiums	2,063 units (137.2 acres total)
Commercial Space	40,000 square feet + new clubhouse and related functions (14 acres total)
18-hole Golf Courses	2 (1 new, 1 renovated; 351 acres total)
Public Beach Parks	2 (41.8 acres total)
Private Parks	2 (8 acres total)
Public R.O.W.s	5
Stable	1 (10 acres)
Wildlife Preserve (Marsh)	1 (100 acres)

A brief description of actions related to the proposed resort expansion is provided below. The cost of all of the following actions, including infrastructure improvements, will be paid for by the applicant; no public funds will be required for the action. More detailed descriptions of the proposed infrastructure improvements are provided in PART IV, Section P., INFRASTRUCTURE AND PUBLIC SERVICES.

Roadways - The applicant is proposing the phased construction of two new roadways in the interior of the project site (West and East Kuilima Drives) and the improvement of the existing Kuilima Drive and an existing roadway on the eastern boundary of the project site (Kahuku Airport Road). The construction of the roadways will be paid for by the applicant. Presently, the applicant plans to retain ownership of the internal roadways and therefore will be responsible for their maintenance. The provision of parking within the resort will be guided by the off-street parking requirements of the CZC (and, when approved, the LUO). In order to minimize traffic congestion and potential hazards for entry/exit onto Kamehameha Highway, the applicant

will be making improvements at the intersections of project's collector streets with the highway.

Potable water - Well pumping units will be developed and provided in phases as required to meet the water demand of the various phases of development proposed for the resort expansion. Initially, the Opana (Kawela) Well field will be developed and shall include one production well plus one standby well unit. The well facilities will be designed to pump water to the existing reservoir. When required, a second reservoir will be constructed. Water mains will be constructed in phases to service future developments. All facilities shall be designed to the Honolulu Board of Water Supply (BWS) standards and is intended to be dedicated to the BWS upon completion.

Wastewater disposal - A new wastewater treatment plant (WWTP) will be built off-site, and when completed, the existing waste stabilization pond will be removed. The new WWTP will be constructed mauka of Kamehameha Highway on about 20 acres of land within Campbell Estate property. The wastewater disposal system will include gravity sewers, one lift station and a pumping station to deliver the wastewater to the proposed WWTP for treatment. The treatment process shall basically consist of aerated lagoons with provisions for chlorination. The plant will be designed to comply with applicable State and Federal laws and regulations. The proposed wastewater disposal improvements will be paid for by the applicant. The WWTP shall be dedicated to the County for operation and maintenance.

Irrigation Water - Golf courses G-1 and G-2 will be irrigated with treated effluent generated by the resort. During periods when the irrigation need exceeds the amount of effluent available, an existing brackish water well will probably be used as a supplemental irrigation source.

Drainage Improvements - Changes to the existing drainage systems proposed for the new development plan are:

1. Diversion of a major portion of the runoff from Kawela Stream to the West Main Drain.

2. Conversion of the West Main Drain outlet from culvert to open channel flow.

3. Conversion of the East Main Drain outlet from culvert to open channel flow and the steepening of the slope for the East Main Drain to improve flow conditions.

4. Creation of a new drainage channel which will connect the Punahoolapa Marsh to the East Main Drain at a point about 400 feet inland from the East Main Drain outlet.

The above described drainage improvements will be paid for by the applicant.

Electricity and Telephone - Electrical and telephone service will be provided by underground ducts throughout the resort site.

2. Economic Characteristics

The completed resort facilities is estimated to generate 6,275 direct, indirect and induced jobs on Oahu, of which 3,556 jobs will be located in the region. Provided that appropriate training is available, much of the supply for this on-site labor demand could be met from within the region itself. However, maximizing employment benefits for region residents will depend on the effectiveness of job training programs in the area. It is the applicant's intention to fashion such programs, whether through improved coordination of existing programs or creating new ones. For example, the applicant has been one of the major supporters of the North Shore Career Training Corporation.

A plan to ensure that residents of the region can qualify for construction and operating jobs generated by development within the project site, encompassing training and related mitigation measures is still being formulated (refer to Appendix M) but will contain at least the following features:

- A basic education component to assist those disadvantaged residents who must first be brought to a level from which they can then be trained for specific jobs.

- Working through existing community organizations which could administer the program, such as the North Shore Career Training Corporation, which would provide local access and support services for start up training periods and counseling, referral, and placement as ongoing, long-term services.

- An in-service upgrade training component to assist local residents in moving up to supervisory positions.

- A community outreach and education component to assist people to become aware of the opportunities and also to understand the nature of the employment being provided.

- Close liaison with area schools, so that young people do not feel any alienation and so that school vocational programs can link up with what will be the region's primary employment center in the future.

The program is being prepared with input from the North Shore Career Training Corporation (described in section 3. Social Characteristics, below), the Kuilima North Shore Stategy Plan Community Advisory Committee, the personnel departments of various existing rural Hawaii resort operations (including the Turtle Bay Hilton and Country Club), existing public- and private-sector providers of job training and vocational education, and KDC's various socio-economic consultants.

3. Social Characteristics

At full development, the expanded facilities of the resort is expected to introduce a new visitor population averaging about 4,783 persons on any given day. In order to mitigate the social impact of a large development project in the region, KDC and its predecessors have been significantly involved in community affairs, particularly in Kahuku, since the project began. However, until 1983, the developer's community interactions largely focused on presentations to the community rather than obtaining early input from the community. In November 1983, the applicant established the "Kuilima North Shore Stategy Plan Community Advisory Committee". The membership of about 40 persons include business representatives, government officials, and citizen delegates from regional communities and organizations. The committee's overall purpose is to formulate a self-help community economic development strategy for the Koolauloa-North Shore area by attempting to capture as much of the employment and spin-off business development from the expanded Kuilima Resort facilities for the local region as possible. However, committee members have directed much of their energy toward providing input for the new proposed master plan, which was not yet in existence at the time of the first meeting. Their original recommendations and reactions to initial proposals are responsible for much of the current development concept. The committee continues to provide planning input on matters such as the proposed park at Kawela Bay, establishment of the marsh as a bird sanctuary, public access to the coast, traffic considerations and design options.

The membership of about 40 persons include business representatives, government officials, and citizen delegates from the following communities and groups:

-- Kaaawa (three representatives, including the chairman of the Koolauloa Community Council and a member of the Koolauloa Neighborhood Board)

-- Punaluu (two representatives, including the former chairman of the Koolauloa Neighborhood Board and the Punaluu Community Council)

-- Hauula (four representatives, including the chairman and another member of the Hauula Community Association, the chairman of Kunani-O-Hauula, and Committee member for the United Kuilima Workers)

-- Laie (two representatives, including the Laie representative on the Koolauloa Neighborhood Board)

-- Kahuku (four representatives, including a Koolauloa Neighborhood Board member and officers of the Kahuku Community Association, Kahuku Hospital, North Shore Career Training Corporation, and Kahuku Housing Corporation)

- Kuilima (three representatives, including presidents of the Kuilima Estates East and West Homeowners Associations and a Koolauloa Neighborhood Board member)

- West Kawela Bay (three representatives, all members of the West Kawela Bay Homeowners Association)

- Sunset Beach/Pupukea (two representatives, including the president of the Sunset Beach Community Association)

- Haleiwa/Kawailoa (two representatives, including present and immediate past presidents of the Haleiwa Community Association)

- Waialua (two representatives, including the chairperson of the Waialua Community Association)

- Business Community (representatives of 16 businesses or institutions: Polynesian Cultural Center, Waimea Falls Park, Turtle Bay Hilton, Zions Securities, BYU-Hawaii, Kahuku Hospital, North Shore Realty, Campbell Estate, North Shore Career Training Corp., Marine Culture Enterprises, Kahuku Sugar Mill, Oceanic Properties, Kahuku Farmers Association, Hanohano Enterprises, Kaya's General Merchandise, and Bank of Hawaii)

- Government Representatives (Sen. Charles Toguchi, Sen. Gerald Hagino, Rep. Joe Leong, Councilman Toraki Matsumoto, Councilman David Kahanu)

The above represents membership as of early 1984. In recent months, there have been informal additions, including the chairman of the North Shore Neighborhood Board.

In addition, KDC has been mailing to each resident of the region a monthly or bimonthly newsletter informing them of the project's status and providing answers to frequently asked questions regarding the project.

4. Environmental Characteristics

The major physical features within the project have been identified as being Kawela Bay, the primary sand dunes near Kahuku Point and the Punahoolapa Marsh (Figure 2). Kawela Bay is relatively well-protected and the best beach for swimming on the property. Due to the circulation pattern within the bay, there is a constant deposit of silty material in the southeastern portion of the bay. The applicant proposes to divert a major portion of the Kawela Stream runoff into Turtle Bay through the West Main Drain, thereby eliminating the environmental stress caused by the stream discharge. Diversion of Kawela Stream runoff into Turtle Bay through the West Main Drain is expected to have little effect on the ecosystem within Turtle Bay because of the submarine canyon at the west of Turtle Bay and because of the offshore current pattern in this portion of Turtle Bay.

To further enhance the attractiveness of Kawela Bay to users, the applicant is proposing to remove the sediments from the bottom of the southeastern portion of the bay. Finally, the applicant supports a proposal for an underwater park and Marine Life Conservation District designation for Kawela Bay.

As noted earlier, the primary sand dunes at Kahuku Point are a major geographical feature on site. Primary sand dunes are significant as they serve as a buffer against storm or tsunami waves. The applicant proposes that no structures be constructed on the primary dunes, and that they not be modified in any manner. In addition, a 37-acre area around these primary sand dunes will be dedicated to the County for use as a passive park (P-2).

The significance of the Punahoolapa Marsh and the applicant's proposed actions to improve its waterbird habitat value has already been described.

B. PROPOSAL AND PURPOSE OF THIS EIS

In order to implement the above objectives, KDC will require rezoning of the property (refer to Figure 8) to be generally compatible with the Development Plan (DP) Land Use Map for Koolauloa, City and County of Honolulu, and a Special Management Area Use Permit. The proposed rezoning is generally consistent with the Development Plan (DP) Land Use Map for Koolauloa. Two exceptions are:

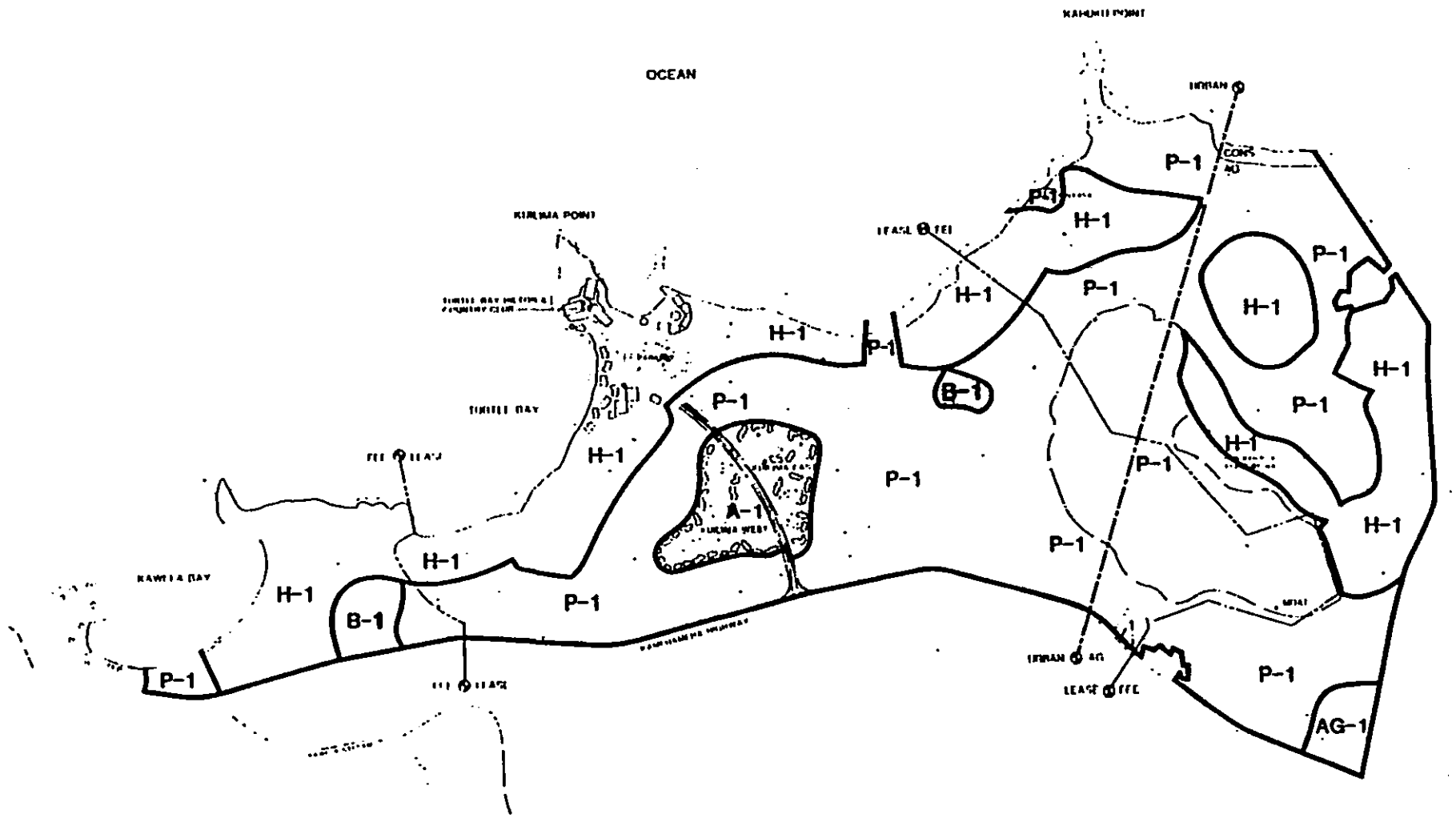
1. A small area to the west of Kahuku Point and designated Agriculture on the DP. It is requested that this area be zoned P-1. The area will form part of an open space buffer between an existing kuleana and planned resort condominiums.

2. The existing waste stabilization pond near Kamehameha Highway designated Public Facility on the DP Land Use Map. It is requested that this area be zoned to P-1. This will reflect the fact that this facility will be relocated mauka of Kamehameha Highway and the site will become a part of a planned new golf course. A DP amendment to redesignate the area to Park (Golf Course) will be initiated in the near future. In any case, public facilities are permitted uses in P-1 zoning districts.

This EIS is being prepared to satisfy the requirements of the above governmental approvals for an environmental impact statement.

C. USE OF PUBLIC FUNDS OR LANDS FOR THE ACTION

No public funds or lands will be required for the action, if granted.



KUILIMA RESORT

• BASE MAP • PROPOSED ZONING MAP

FIGURE 8 PROPOSED ZONING

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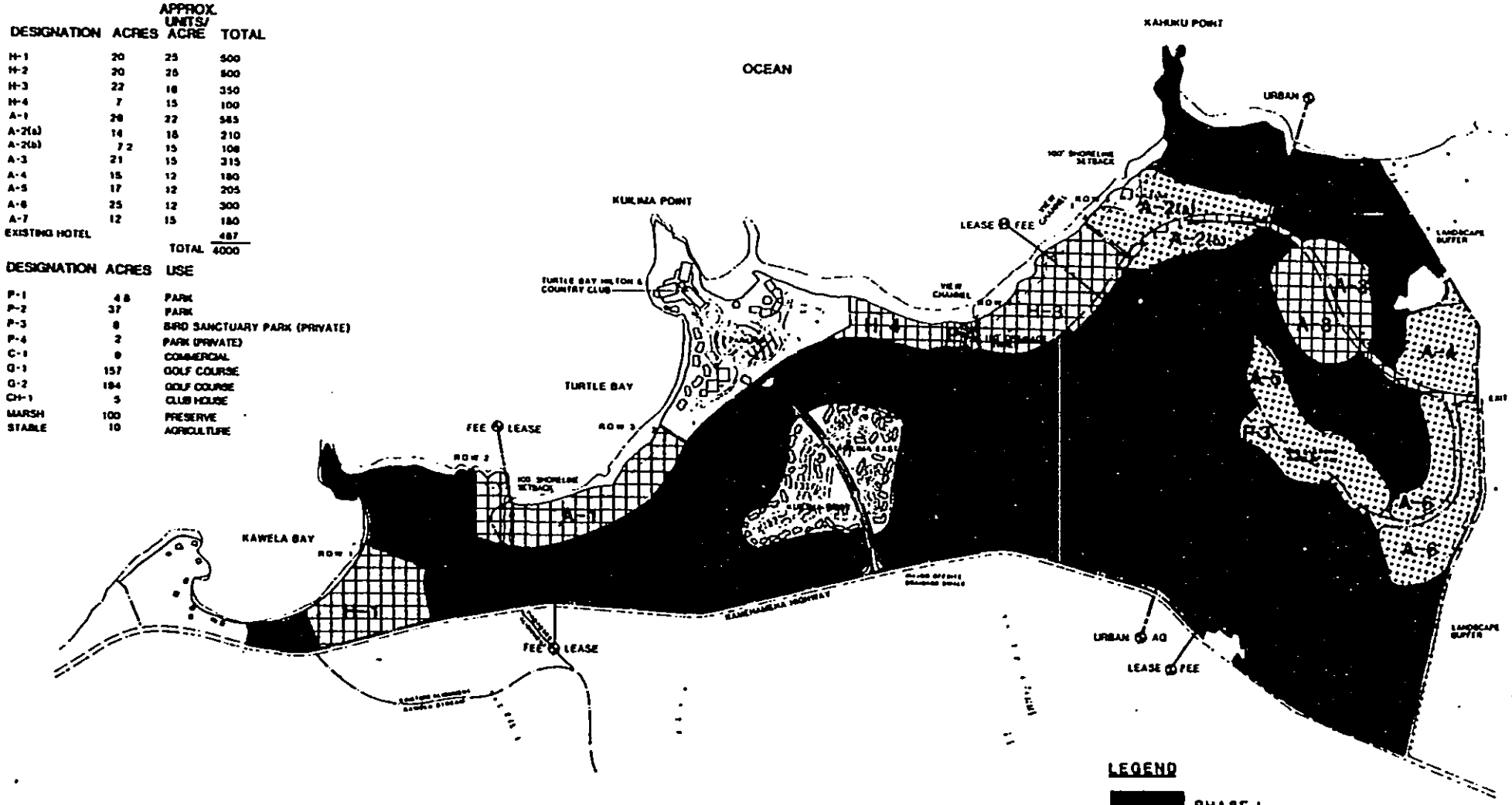
D. PHASING AND TIMING OF THE ACTION

Figure 9 shows the approximate phasing of development for the resort (phasing is dependent on receiving the necessary governmental approvals). Note that Phase I designation generally indicates a 1986 start of construction date, Phase II, commencement between 1988 to 1989, and Phase III, commencement between 1993 to 1996.

DESIGNATION	ACRES	APPROX. UNITS/ ACRE	TOTAL
H-1	20	25	500
H-2	20	25	500
H-3	22	16	350
H-4	7	15	100
A-1	28	22	585
A-2(a)	14	15	210
A-2(b)	7.2	15	108
A-3	21	15	315
A-4	15	12	180
A-5	17	12	205
A-6	25	12	300
A-7	12	15	180
EXISTING HOTEL			487
		TOTAL	4000

DESIGNATION	ACRES	USE
P-1	48	PARK
P-2	37	PARK
P-3	8	BIRD SANCTUARY PARK (PRIVATE)
P-4	2	PARK (PRIVATE)
C-1	9	COMMERCIAL
G-1	157	GOLF COURSE
G-2	194	GOLF COURSE
CH-1	5	CLUB HOUSE
MARSH	100	PRESERVE
STABLE	10	AGRICULTURE



KUILIMA RESORT

FIGURE 9 PHASING PLAN

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PART IV:
DESCRIPTION OF ENVIRONMENTAL SETTING AND THE PROBABLE IMPACT OF THE PROPOSED ACTION ON THE ENVIRONMENT

A. TOPOGRAPHY AND DRAINAGE

Existing Conditions - The project site is located on the relatively flat Kahuku coastal plain. The vast majority of the site is between 5 and 10 feet above sea level (Figure 3). Except for a barely noticeable rise in the extreme southeast corner of the site, the only topographic relief is provided by sand dune structures along the shoreline.

Currently, stormwater runoff on site flows into four major drains and into Punahoolapa Marsh. The four major drains are: Kawela Stream, West Main Drain, West Kuilima Drain and East Main Drain.

- Kawela Stream - The Kawela Stream is an unlined, open channel, with its opening (to Kawela Bay) usually blocked by sand. At the present time, Kawela Stream conveys the storm runoff from about 779 acres on the south side of Kamehameha Highway into Kawela Bay.

- West Main Drain - The West Main Drain is also an unlined, open channel. Its terminus (at Turtle Bay) consists of two 48" concrete pipe culverts which are normally plugged by sand. The West Main Drain was created primarily to provide borrow for the Kuilima Golf Course when it was constructed in 1970. The West Main Drain was also considered as a possible future route for the re-diversion of Kawela Stream. As originally designed, the West Main Drain conveys storm runoff from about 193 acres of land south of Kamehameha Highway and about 37 acres of land within the resort properties.

- West Kuilima Drain - The West Kuilima Drain consists of pipe culverts at a break in the limestone ledge. The West Kuilima Drain conveys storm runoff generated from 88.4 acres within the boundaries of the project.

- East Main Drain - The offsite drainage area south of the project site for the East Main Drain consists of 1664 acres of mountainous land, of which 1555 acres make up the drainage basin for Oio Stream (an intermittent stream). The runoff from Oio Stream crosses Kamehameha Highway through a culvert and enters the East Main Drain. The present East Main Drain is a trapezoidal channel six feet deep (including freeboard) with a 30-foot base and side slopes of 3 foot horizontal to 1 foot vertical that passes through the existing golf course. On site, the drainage area amounts to about 106 acres. The terminus of the East Main Drain is at Kuilima Bay (the area between Kuilima and Kahuku points) and consists of a concrete and rubble masonry structure with four 72" concrete pipe culverts. It was installed through the shoreline sand dune in 1971 at the same time

the existing golf course was constructed. The culverts are normally plugged with sand 8 to 10 feet deep on the ocean side of the structure. Minor amounts of runoff can impound behind the culverts and fill the channel without adverse effect to the adjacent golf course, but it takes only a moderate storm to flood the golf course. In these instances, one of two remedies is employed. First, a bulldozer will be utilized to clear the sand which blocks the pipes. If the surf conditions render the first alternative impractical, a pump is used to get the impounded floodwater over the plugged culverts to the ocean in order to make the course playable again.

- Punahoolapa Marsh - receives runoff from 423.8± acres within the project site, of which approximately 93 acres (drainage area) make up Punahoolapa Marsh. In addition, the marsh also receives runoff from areas across Kamehameha Highway to the south, including runoff from Hoolapa Gulch (298 acres) and a drainage area of 132 acres south of Pump 2. The water collected within the marsh seeps into the ground and does not flow elsewhere.

Proposed Action - A drainage master plan for the project has been reviewed and approved by the City and County of Honolulu, Department of Public Works and the proposed changes to the existing drainage systems proposed for the new development are:

1. Diversion of a major portion of the runoff from Kawela Stream to the West Main Drain.

2. Conversion of the West Main Drain outlet from culvert to open channel flow.

3. Conversion of the East Main Drain outlet from culvert to open channel flow and the steepening of the slope for the East Main Drain to improve flow conditions.

4. Creation of a new drainage channel which will connect the Punahoolapa Marsh to the East Main Drain at a point about 400 feet inland from the East Main Drain outlet.

The above described drainage improvements will be paid for by the applicant. Maintenance of the drainage system will be responsibility of the golf course operator(s).

Anticipated Impact and Mitigative Measures - After construction is completed and activities within the project site are in operation, increase in stormwater runoff due to groundcover changes is expected. The impact of the proposed storm runoff on nearshore marine environments is discussed in section E. NEARSHORE MARINE ENVIRONMENTS. It is anticipated that under probable maximum precipitation (PMP) conditions, the golf course (and Punahoolapa Marsh) will experience temporary flooding to depths of 2 to 3 feet deep (EDP Hawaii, Inc., 1984). (PMP is equal to the peak discharge obtained by using Plate 6 of the City and County of Honolulu's Drainage Standards.) In view of the very large amounts of fill that would be required, and accompanying environmental concerns, this ponding activity is considered more desirable than importing sufficient

material to create on-site slopes which will cause all runoff to flow toward shoreline outlets. In order to mitigate hazards to people and property, the habitable floors of the proposed resort condominium areas will be at least 5 feet above the finished grade of the golf course adjoining the condominium areas (EDP Hawaii, Inc., 1984).

B. SOILS

Existing Conditions - According to the Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii (Foote, 1972), soil types on site consist of:

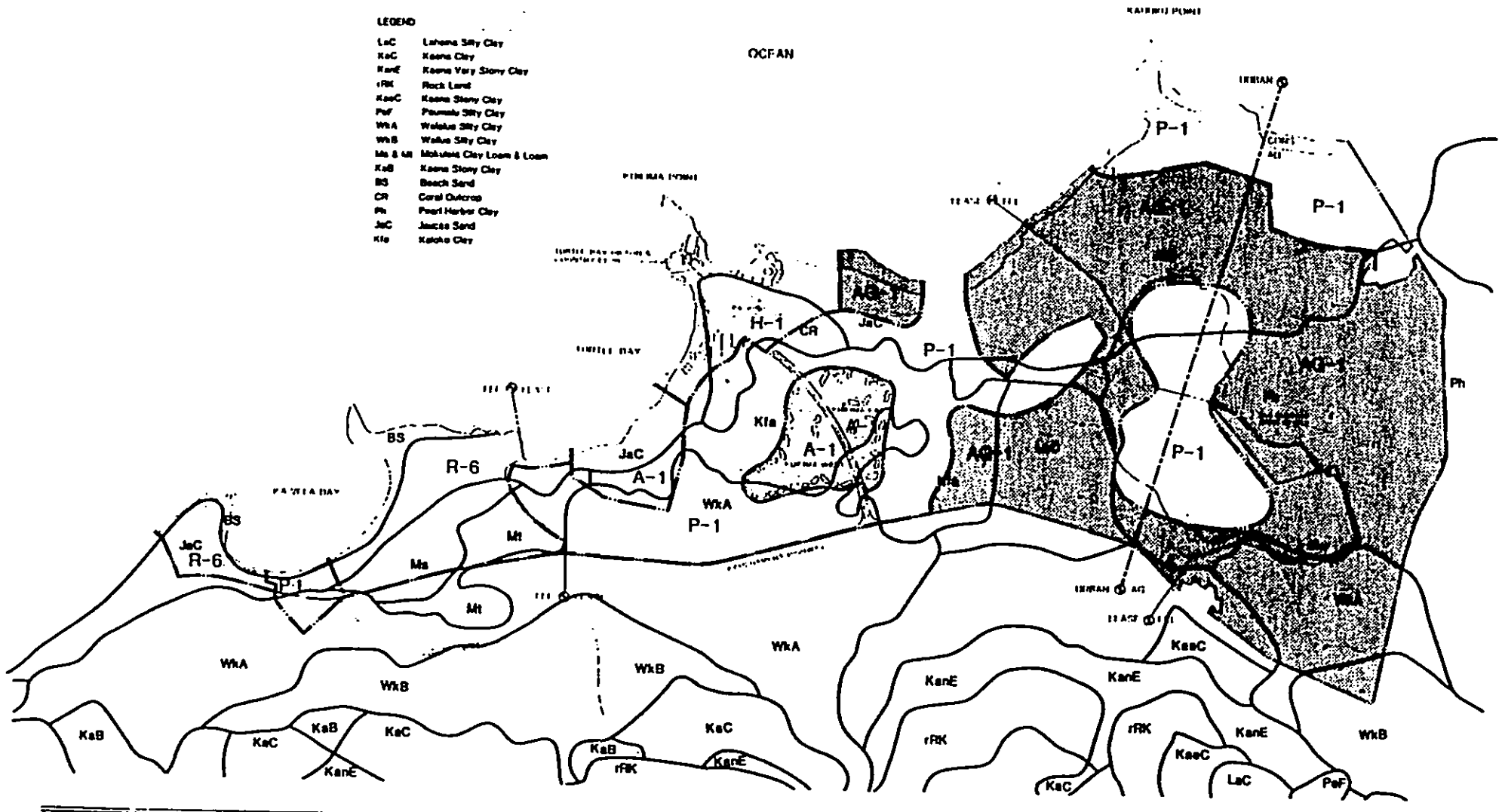
Ph	Pearl Harbor Clay
JaC	Jaucas Sand
WkA & WkB	Waialua Silty Clay
KaB	Kaena Stony Clay
BS	Beach Sand
LaC	Lahaina Silty Clay
Kfa	Kaloko Clay
CR	Coral Outcrop
Mt & Ms	Mokuleia Clay Loam & Loam

The location of these soil types on the project site are shown in Figure 10. The Soil Conservation Service (SCS) soil classifications provide descriptions of soil profiles, topography, water holding capacity, pH, depth of root penetration, erosion hazard and crop capability ratings. The following descriptions of soil types are based on the Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii.

Pearl Harbor Clay (pH) Series - The Pearl Harbor Clay (pH) series is nearly level and very poorly drained. The topsoil consists of very dark gray mottled clay about 12 inches in depth, with an angular or sub-angular blocky structure. The sub-stratum is mock or peat. The topsoil has a pH of neutral and the subsoil is moderately alkaline. Permeability is very slow, runoff is very slow to ponded and the erosion hazard is slight.

Jaucas Sand, 0 to 15 Percent Slopes (JaC) - This subseries of the Jaucas series consists of excessively drained calcareous soils developed from wind and water deposited sand derived from coral and sea shells in coastal areas. A representative profile consists of simple grain pale brown to very pale brown sandy soil of 60 or more inches in depth. The surface may be dark brown in some areas because of accumulation of humus and alluvium. The soil has a pH of neutral to moderately alkaline throughout. Permeability is rapid, but runoff is slow to very slow. Water erosion is slight, but wind erosion is severe when vegetation has been removed.

Waialua Silty Clay, 0 to 3 Percent Slopes (WkA) - This subseries of the Waialua series, consists of moderately well drained soils on alluvial fans. A representative topsoil consists of dark reddish-brown silty clay about 12 inches thick. The subsoil, which is about 26 inches thick, consists of dark reddish-brown or



KUILIMA RESORT

FIGURE 10 USDA SOIL CLASSIFICATION MAP

GROUP 70

reddish-brown silty clay with a subangular blocky structure. The substratum is dark reddish-brown, mottled silty clay. The pH is neutral for the topsoil and slightly acid in the subsoil. Permeability is moderate, runoff is slow, and the erosion hazard is no more than slight.

Waialua Silty Clay, 3 to 8 Percent Slopes (WkB) - The subseries is the same as WkA, except for somewhat greater slopes.

Lahaina Silty Clay, 7 to 15 Percent Slopes (LaC) - This subseries of the Lahaina series is well drained and consists of material weathered from basic igneous rock. The topsoil consists of dark reddish-brown silty clay about 15 inches in depth. The subsoil is about 45 inches thick and consists of dusky-red and dark reddish-brown blocky silty clay and silty clay loam with a subangular structure. The pH of the topsoil is slightly to medium acid. Permeability is moderate, runoff is medium and the erosion hazard is moderate.

Kaloko Clay (Kfa) - This subseries of the Kaloko series consists of poorly drained, nearly level, soils on coastal plains. The soils derived from basic igneous rock deposited over marly lagoon deposits. Koloko clay contains small areas of mainly coral fragments or marly material; areas of clay, very poorly drained areas underlain by muck or peat; and small areas of very deep, moderately well drained soils. The topsoil consists of dark brown clay about 12 inches thick and the subsoil is dark reddish-brown and weak red clay about 12 inches thick. Below this is a third layer of mottled, white to light gray, platy clay about 13 inches thick. This is underlain by dark greenish-gray and dark gray massive silty clay. The pH of the entire profile is mildly alkaline to neutral. Permeability is moderately slow to slow, runoff is slow to very slow and the erosion hazard is no more than slight.

Kaena Clay, 2 to 6 Percent Slopes (KaB) - The Kaena series consists of deep, poorly drained soils on alluvial fans and talus slopes. The soils are developed in alluvium and colluvium from basic igneous rock. The typical topsoil consists of dark gray clay about 10 inches thick. The subsoil is dark-gray and dark grayish-brown clay with a prismatic structure of 36 to 48 inches thick, underlain with highly weathered gravel. The soil is mottled, very sticky and very plastic. The pH of the entire soil profile is slightly acid to neutral. Permeability is slow, runoff is slow and the erosion hazard is slight.

Beach Sand - Beaches occur as sandy, gravelly, or cobbly areas. They are washed and rewashed by ocean waves. The beaches consist mainly of light-colored sands derived from coal and seashells. A few of the beaches, however, are dark colored because their sands are from basalt and andesite. Beaches have no value for farming. Where accessible and free of cobblestones and stones, they are highly suitable for recreational uses and resort development.

Coral Outcrop - Coral outcrop consists of coral or cemented calcareous sand. The coral reefs formed in shallow ocean water during the time the ocean stand was at a higher level. Small areas of coral outcrop are exposed on the ocean shore, on the coastal plains, and at the foot of the uplands. The annual rainfall amounts to 18 to 40 inches. Coral outcrop is geographically associated with Jaucas, Keaau, and Mokuleia soils. This land type is used for military installations, quarries and urban development. Vegetation is sparse.

Mokuleia Series - This series consists of well-drained soils along the coastal plains. These soils formed in recent alluvium deposited over coal sand. They are shallow and nearly level. The annual rainfall amounts to 15 to 40 inches. The mean annual soil termperature is 74 degrees.

Mokuleia clay loam. This soil occurs as small areas on the coastal plains. It is nearly level.

In a representative profile the surface layer is very dark grayish-brown clay loam about 16 inches thick. The next layer, 34 to more than 48 inches thick, is dark-brown and light-gray, single-grain sand and loamy sand. The surface layer is neutral in reaction, and the underlying material is moderately alkaline. Permeability is moderate in the surface layer and rapid in the subsoil. Runoff is very slow, and the erosion hazard is no more than slight. The available water capacity is about 1.8 inches per foot in the surface layer and about 1.0 inch per foot in the subsoil. In places roots penetrate to a depth of 5 feet or more.

Mokuleia loam. This soil has a profile like that of Mokuleia clay loam, except that the surface layer is loam and in most places is about 8 inches thick. It is nearly level.

Agricultural Lands of Importance to the State of Hawaii (ALISH) designations for the site are shown on Figure 11. Under ALISH, only 44+ acres in the south-mauka corner of the parcel are classified as "prime" agricultural land.

Proposed Action - Grading and fill will be required for the construction of the proposed hotels, resort condominiums, commercial areas, and golf courses (including the renovation of the existing course). Outside of the construction of recreational facilities and rest stations, most of the parks and equestrian areas will be relatively undisturbed. The approximate phasing of development is shown on Figure 9.

Anticipated Impact and Mitigative Measures - Clearing and grubbing activities during construction will temporarily disturb the soil retention values of the existing vegetation, and expose the soils to erosional forces. Since the topography is generally flat, the hazard from water erosion is slight, however, wind erosion of Jaucas sand soils can be severe if proper construction practices are not observed.

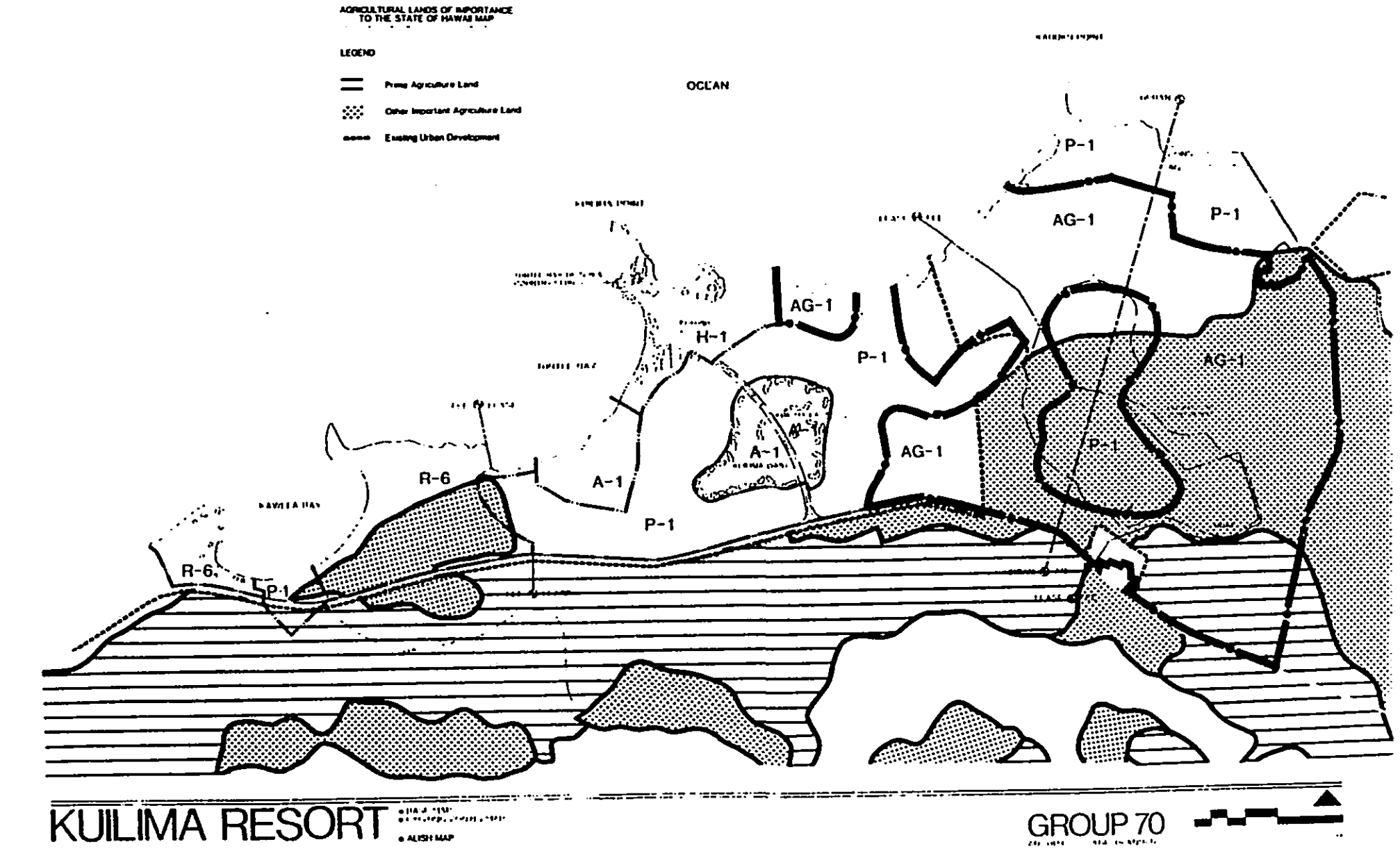


FIGURE 11 ALISH MAP

Field measurements of fugitive dust from apartment and shopping center construction projects has yielded an estimated emission rate of 1.2 tons of dust per acre of construction per month of activity (Root, 1984). This figure assumes medium level activity in a semi-arid climate with a moderate soil silt content. Actual emissions of fugitive dust from this project can vary daily depending on the amount of activity and the moisture content of the exposed soils.

Another major generator of fugitive dust is heavy construction equipment moving over unpaved roadways. This impact can be substantially mitigated by completing and paving roadways as early as possible.

The impact of construction activities can be mititgated by conforming to strict erosion control measures, particularly those specified in the City and County of Honolulu's Grading, Grubbing and Stockpiling Crdinance No. 3968, 1972; DPW's Soil Erosion Standards and Guidelines, 1975; the State Department of Health's Water Quality Standards, Chapter 37-A, Public Health Regulations, 1968; and the SCS's Erosion and Sediment Control Guide for Hawaii, 1968. Primary fugitive dust control methods include wetting down exposed soil areas with water or suitable chemicals. An effective watering program can reduce particulate emission levels from construction sites by as much as 50 percent (Root, 1984). Other control measures include good housekeeping on the jobsite and pavement or landscaping of bare soil areas as quickly as possible. Landscaping will assume the soil retention value of any existing vegetation removed.

C. WATER RESOURCES AND WATER USAGE

Existing Conditions - The Honolulu Board of Water Supply (BWS) currently provides potable water for the existing facilities of the resort from two wells of their Waialee System. The estimated water usage for the existing resort facilities is as follows:

	No. of Units	Unit Demand	Total Demand (mgd) Ave-Day	Max-Day
Turtle Bay Hilton Hotel	487	350	0.170	0.255

The 0.5 mgd source from the Waialee System is sufficient to meet the max-day water demand for the existing Turtle Bay Hilton and Country Club.

Proposed Action

Potable water - The total potable water demand for the ultimate development within the project site is estimated as follows (EDP Hawaii, Inc., 1984):

		No. of Units	Unit Demand	Total Demand (mgd)* Ave-Day	Max-Day
Turtle Bay Hilton Hotel		487	350	0.170	0.255
Hotel Units		2000	350	0.700	1.050
Condominium Units		2000	400	0.800	1.200
Commercial	(Ac)	9	3000	0.027	0.040
G. C. Clubhouse	(Ac)	5	4000	0.020	0.030
Parks	(Ac)	50	4000	0.200	0.300
Stable	(Ac)	10	4000	0.040	0.060
STP	(Ac)	20	4000	0.080	0.120
TOTALS				2.037	3.055

* "mgd" - million gallons per day

Potable water sources will need to be developed to provide the 3.0 mgd max-day water demand estimated to be required at full development of the resort. In the first phase of development, the Opana (Kawela) Well field, will be developed and shall include one production well plus one standby well unit (EDP Hawaii, Inc., 1984). The actual well pump capacity and the ultimate number of wells developable at this source is not known at this time and shall be determined upon completion of pump tests to establish the water quality and sustainable yield of this water source.

In the event that the Opana (Kawela) Well field is near full development, the nearest source would be the field designated by the BWS as the Opana wells situated north of Waialee, hereinafter referred to as the Opana (Waialee) wells (EDP Hawaii, Inc., 1984).

Irrigation water - Golf courses G-1 and G-2 within the project site will require a total of approximately 2 mgd (EDP Hawaii, Inc., 1985). In the initial phases of the Kuilima Resort expansion project, golf course G-2 will be irrigated with brackish water from sources within the resort expansion area (Punahoolapa Marsh). These sources are have a sustainable yield of approximately 5 to 10 million gallons per day (EDP Hawaii, Inc., 1983).

Anticipated Impacts and Mitigative Measures

Potable water - The water resources of the Kahuku Water Management Area (Malaekahana to Kaunala) were recently studied by EDP Hawaii, Inc. and described in the Management Guide to the Water Resources of the Kahuku Water Management Area (EDP Hawaii, Inc., 1984), and is summarized below:

A substantial sustainable yield of potable fresh water in Campbell Estate lands in the region remains to be developed. One of these untapped groundwater resources is the Waialee aquifer, a major portion of which lies within the Campbell Estate boundaries. The features and potential capacity of the Waialee Aquifer are reasonably well known. The U.S.

Geological Survey in a study completed 15 years ago (K.J. Takasaki) estimated groundwater flux through the two mile front of the aquifer to be 20 mgd. It is the opinion of EDP Hawaii, Inc.'s consultant, John Mink, that the estimate is too high and "the flux may be as low as ten mgd but is probably on the order of 15 mgd. At least half of this can be safely extracted with wells having pumps rated at or less than 600 gpm."

Only 0.5 mgd of the Waialee aquifer is currently being pumped. Mink states that "the remaining 7.0 mgd should be able to satisfy all of the urban demand projected for the Waialee-Kawela-Kuilima area and part of that for consuming centers farther away". Mink also notes that "On the basis of land ownership, the Campbell Estate should be allotted at least 5.5 mgd of the total yield". The applicant has received a commitment from Campbell Estate to make 3 to 4 mgd available for use by the resort subject to availability and State and County approvals. It should be noted that 3 mgd is the maximum day demand for the Kuilima Resort at full completion.

New wells in the Opana (Kawela) Well field have been considered for a number of years. Results of the tests conducted by the BWS in 1969, indicated a static water level at about 8 feet elevation. Drawdowns measured during pumping tests indicated a drawdown of about 4.5 feet at a pumping rate of 800 gpm, which increased to about 21.6 feet at 1780 gpm pumping. Chloride concentrations remained constant at 31 ppm at all pumping rates up to 1780 gpm. Recovery time from 1780 gpm pumping was about 10 minutes. Overall results of the five-hour tests seem to indicate the potential availability of a good source of groundwater for potable use.

All new water sources developed to serve potable water to a public water system as defined by Chapter 20, Title 11, Administrative Rules must be approved by the Director of Health prior to their use to serve potable water. In addition, the applicant will provide the State of Hawaii Department of Land and Natural Resources and the BWS with a drilling log.

According to EDP Hawaii, Inc., "the possibilities for a conflict in water use between the Kuilima Resort and the proposed Kahuku Agricultural park and other agricultural activities are remote if Campbell Estate manages its water resources as outlined in 'Management Guide to the Water Resources of the Kahuku Water Management Area' which was prepared for Campbell Estate in November 1983. As outlined in the guide with proper management of the resources by Campbell Estate, there would be ample water for the resort project and agricultural activities in Kahuku." (Low, 1984)

Irrigation water - As the hotels and condominiums within the resort are developed and are put into operation, treated wastewater from these units will be used for irrigation of golf courses G-1 and G-2, replacing some or most of the water obtained from the marsh. Use of treated effluent will mitigate the use of caprock sources for irrigation of the golf course.

D. TSUNAMI/FLOOD HAZARD

Existing Conditions - Two Federal Flood Insurance laws have been passed, the National Flood Insurance of 1968 (P. 1. 90-448 and 91-152) and the Flood Disaster Protection Act of 1973 (P.L. 93-234) and their amendments.

Recognizing that suitable land could be limited and that people would inhabit flood areas, Congress made it a stipulation that if a county or municipality were to receive Federal or Federally-assisted related financial assistance, it would be necessary for the county or municipality to adopt flood control regulations as prescribed by these laws.

One of these regulations is that the first habitable floor of new structures be equal to or above the regulator flood elevation established by the U.S. Federal Insurance Administration. These regulatory flood elevations have been delineated on the Flood Insurance Rate Maps (FIRM) on file with the Department of Land Utilization of the City and County of Honolulu (DLU).

In addition to the above regulations other regulations covering design criteria for foundations, uplift forces and flood damages have been adopted by DLU.

Areas of the subject parcel prone to the 100-year tsunami inundation are shown on Figure 12 (from information obtained from the Federal Insurance Administration Flood Insurance Rate Map). The makai-most portion of the project site is subject to 100-year tsunami inundation and the approximate maximum 100-year tsunami elevations range from 6 to 18 feet. In addition, Kawela Bay is one of the few places where a historic tsunami (that of 1946) was converted to a bore (Miller, 1985). The Civil Defense Tsunami Inundation Maps indicate that the coastline in the vicinity of Kawela Bay could be inundated to approximately $^{1}/_{2}$ mile inland.

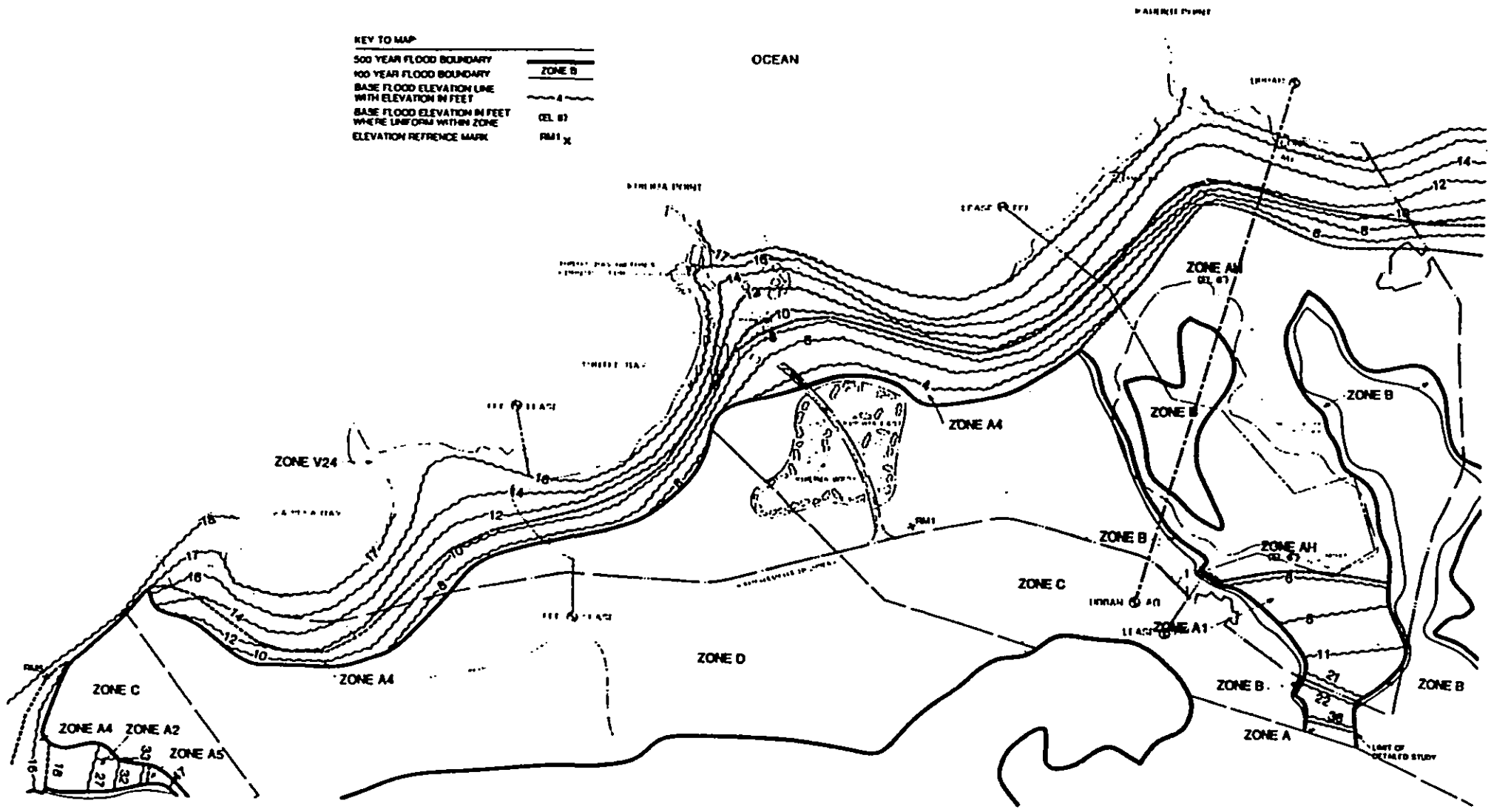
Figure 12 also indicates that portions of the project site are also designated Zones AH, B and C. Zone AH indicates areas of 100-year shallow flooding where depths are between 1 and 3 feet. For this area, the approximate 100-year flood elevation is 6 feet mean sea level. The 100-year event has a one percent chance of being equalled or exceeded in any given year.

Zone B indicates areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood.

Zone C indicates areas of minimal flooding.

Proposed Action - Under both County flood hazard ordinances and requirements of the National Flood Insurance Program, proposed structures in regulatory floodplain areas must be elevated or floodproofed to or above the 100-year flood levels established by the Federal Insurance Administration Flood Insurance Rate Map. No habitable spaces will be built below the identified maximum 100-year tsunami/flood elevations and the lower parts of the structure will be designed to withstand bore attack.

Anticipated Impacts and Mitigative Measures - The applicant will mitigate the impact of proposed development within the regulatory floodplain areas by observing both County flood hazard ordinances and requirements of the National Flood Insurance Program. In the event of a tsunami warning, persons in the potential tsunami inundation area will be evacuated to the upper floors of the higher structures in the area.



KUILIMA RESORT

• BASE MAP • TSUNAMI/ FLOOD HAZARDS

GROUP 70
ARCHITECTS AND PLANNERS

NORTH

FIGURE 12 TSUNAMI/FLOOD HAZARDS

E. COASTAL WATER QUALITY

Existing Conditions - The project site is fronted by the waters of Kawela Bay, Turtle Bay, Kuilima Bay (the area between Kuilima Point to Kahuku Point), and Kahuku Point. A description of these bays is provided below:

Kawela Bay: Kawela Bay receives the discharge of Kawela Stream. Its water quality is acceptable for recreational use except for an area in the southeastern portion of the bay. In this portion of the bay, depending on the tide and the time of the year, water visibility is poor. Bottom sediments in this section of the bay were found to be anaerobic and have a gelatinous texture that is unpleasant to stand in. The sediments in most of Kawela Bay are coarse because of adequate flushing action from tides, waves and wind. The major source of fine terrestrial sediments in the bay is believed to be from Kawela Stream. However, fine calcium carbonate sediments of oceanic origin are the major contributors to the turbidity problem. During those periods when Kawela Stream discharges into the bay, the circulation within the bay removes most of the sediments, except in the southeastern portion of the bay where sediments are deposited. The continued presence of silt and anaerobic sediments even after winter storms and/or long periods of no stream discharge indicates that the problem in Kawela Bay stems from poor circulation. During periods of high tide, wave energy is introduced into this area and causes the silty material to become suspended. It may take several minutes to several hours for the material to resettle; however, because the time required for resettling is small, with respect to the residence time of these sediments in the water column, resettling occurs before the water is removed. Thus, the natural hydrodynamics of the bay form a sediment trap. At low tide, the wave energy allowed into this area decreases and sediments further resettle. As the tide rises the sediments are resuspended and the cycle reoccurs (Oceanit, 1985).

A survey (Bienfang and Brock, 1981) studied the water quality conditions within Kawela Bay during summer (dry) and winter (wet) conditions. Samples were taken at six stations within the Bay and were analyzed. Water quality conditions were relatively uniform within the Bay during the dry sampling period, but one station showed significantly higher levels for some parameters during the wet season sampling. Water temperature (wet mean = 23.3°C; dry mean = 24.6°C) and salinity (wet mean = 32.5 ppt; dry mean = 33.8 ppt) were lower during the wet period; dissolved oxygen concentrations were lower (wet mean = 6.08 ml/l; dry mean = 4.99 ml/l) during dry weather; values were typical of nearshore marine conditions. Turbidity levels during both seasons were similar (dry mean = 0.3 - 1.4 NTU; wet mean = 0.6 - 2.1 NTU) with the exception of a high (19.8 NTU) value at Station 9 during wet conditions. With the exception of a high wet condition value (85.8 mg/l) at Station 9, filterable solids levels were lower during the wet season (mean = 18.1 mg/l) than during the dry season (mean - 29.3 mg/l).

Concentrations of nitrate-nitrite were higher in winter (mean = 1.48 uM; uM = microMolar = microgram-atom per liter) than in summer (mean = 0.73 uM). Concentrations of ammonium showed the opposite pattern: levels were higher in summer (mean = 0.43 uM) than in winter (mean = 0.11 uM). Phosphate levels were the same (mean = 0.16 - 0.18) for both seasons.

High concentrations of chlorophyll (2.66 ug/l) and phaeopigments (4.41 ug/l) were observed at Station 9 under wet conditions; for the other stations, the overall means were roughly 1.5 - 2x higher during the winter (mean chlorophyll = 0.25 ug/l; mean phaeopigments = 0.45 ug/l) than during the summer (mean chlorophyll = 0.14 ug/l; mean phaeopigments = 0.35 ug/l).

Bacterial concentrations were higher in winter than in summer. Under dry conditions, total coliforms and fecal coliforms were not found in the bacteriological tests; fecal streptococcus were low (mean = 2 colonies per 100 ml). Total coliforms (mean = 74 per 100 ml) and fecal streptococcus (mean - 15 per 100 ml) were higher under wet conditions; highest values were found near the shoreline at Station 11, and lowest values near the mouth of the Bay at Station 7. Fecal coliforms were found in low numbers (mean = 1 per 100 ml).

The above data show the changes in water quality experienced by Kawela Bay under different climatic conditions. During dry periods, the water quality of the Bay is determined by the degree of mixing with nearshore ocean water and groundwater seepage. This is reflected mainly in the higher levels of ammonium observed. During wet weather, the water quality of the bay is determined by the volume and duration of stream and surface flow. These inputs result in locally high levels of suspended material (turbidity and filterable solids), higher levels of nitrate-nitrite, and higher levels of enteric bacteria. The increased wave action which usually occurs during the winter may also contribute to the increased turbidity and suspended solids load.

Six major benthic biotopes were identified in Kawela Bay (Bienfang and Brock, 1981). The mean percent coral coverage, and mean numbers of algal and fish species observed in each biotope are summarized below.

Biotope	Mean Coral Coverage %	Mean/of Species Algae	Fish
1. Sand/Scattered Coral Heads	2	19	5
2. Shallow Limestone Bench	4	9	5
3. Hard Bottom/*P. lobata* Heads	5	11	11
4. Surge Channels	19	3	27
5. Deeper Rubble/Sand	5	2	18
6. Large *P. lobata* Heads			39

The nearshore area (Biotope 1) consists of mostly sand and small scattered coral heads. The area is relatively well protected from waves, and macrothalloid algae dominate the substratum (19 species; mean coverage = 9%), while coral coverage is only 2%. Corals in the biotope are characteristically small (5 - 15 cm diameter). Few fish or macroinvertebrates are present in this area.

Two discontinuous areas of shallow limestone bench constitute Biotope 2. These bench areas are situated in shallow (0.5 - 1.25 m) water and receive a significant amount of wave energy. Scattered across the bench are shallow depressions filled with rubble. The eastern portion of this biotope had approximately 26% algal cover (9 species) and 8% coral cover. Five species of macroinvrtebrates and six species of fish were observed. The western portion of the biotope is nearly devoid of attached forms; algal cover was less than 1%, and no corals were observed in the transects, although one small colony was noted nearby. Only one macroinvertebrate and four fish species were observed.

Biotope 3 is an area of hard bottom and scattered heads of Porites lobata. The substrate is primarily limestone with small patches of rubble and sand. Porites lobata heads 1 - 2 m in diameter spaced 3 - 15 m apart are the dominant coral in this community. Algal coverage ranged from 6 - 9% (11 species); coverage by corals other than P. lobata ranged from 3 - 7%. Fish were more abundant in this biotope than those nearer shore; eleven species were observed in transects covering two areas, with an additional 6 - 11 species observed outside the transects.

Seaward of the previously described biotope is an area of surge channels (Biotope 4). These surge channels are oriented perpendicular to shore and are 2 - 5 m in width and 20 - 40 m in length. There are scattered knolls and large Porites lobata heads. Macrothalloid algae (3 species) cover less than 1% of the bottom in this biotope. Seven species of coral cover over 18% of the bottom. The surge channels and coral heads provide shelter for a number of invertebrates and fishes. Of the biotopes quantitatively surveyed, the biotope of surge channels harbored the most diverse assemblage of fishes. A total of thirty-seven fish species (27 in transects, 10 outside transects) were observed in the area.

A deeper area of emergent limestone, coral rubble and loose limestone blocks (Biotope 5) is situated adjacent to and surrounded by the area of surge channels. Corals cover 5% of the bottom. Twenty-four species of fish (18 in transects, 6 outside transect areas) were encountered in this area.

The last and smallest biotope (Biotope 6) recognized in Kawela Bay is the biotope of large Porites lobata heads. This biotope is small, being less than 80 m in diameter. The substrate is rubble-sand and large P. lobata heads with diameters of 1.5 - 3 m spaced about 5 m apart across the bottom. The large coral heads harbor entire benthic communities, consisting of cryptic invertebrates and coral-associated fishes. A total of thirty-nine species of fish were observed within this small area.

In addition, the National Marine Fisheries is conducted surveys of of Green sea turtles (Chelonia mydas) at Kawela Bay. According to conversations with residents of Kawela Bay, Chelonia mydas are generally found in the western half of the bay. Oceanit Laboratories, Inc. found that the northwestern portion of the bay contained abundant growths of algae that are known to be important diet items of Chelonia mydas: Ulva reticulata, U. fasciata, and Codium arabacum (Oceanit Laboratories, Inc., 1985).

Turtle Bay: Turtle Bay faces north-northwest and is exposed to heavy wave and wind activity. Longshore currents in the bay are strong during winter and are sometimes strong even when the ocean is calm. A rip current runs through the channel along the western side of the Bay (OI Consultants, 1984). The West Main Drain and the West Kuilima Drain discharge into Turtle Bay.

The survey by Bienfang and Brock (1981) also studied the water quality conditions within Turtle Bay during summer and winter conditions by taking samples at five (dry) or nine (wet) stations within the bay and analyzing these samples. Water quality conditions within Turtle Bay were relatively uniform at each sampling period, and the difference between dry and wet conditions were less marked in Turtle Bay than in Kawela Bay. Mean water temperature was slightly lower (24°C) in the winter than in the summer (25.1°C). Salinity values were identical (mean = 34.7 ppt) for both periods. Dissolved oxygen levels were higher in winter (mean = 6.10 ml/l) than during the summer (4.74 ml/l), possibly reflecting increased gas exchange due to higher surf conditions and better mixing.

Turbidity and filterable solids levels were similar for both sampling periods (mean turbidity = 0.4 - 0.5 NTU; mean filterable solids = 23.7 - 29.1 mg/l). Nitrate-nitrite concentrations were relatively uniform throughout the Bay and similar for both seasons (mean = 0.40 - 0.47 uM). Ammonium and phosphate concentrations were more variable than nitrate-nitrite. High ammonium concentrations were observed at Stations 1 and 5 during the summer and at Station 3 during the winter; the overall summer mean (0.62 uM) was higher than the winter mean (0.16 uM. Higher phosphate concentations were observed at Station 3 during the summer and at Station 5 during the winter; the summer mean (0.37 uM) was higher than the winter mean (0.22 uM).

Chlorophyll and phaeopigment concentrations were relatively uniform during each season; winter values (chlorophyll mean = 0.24 ug/l; phaeopigment mean = 0.48 ug/l) were 2 - 3 times higher than summer values (chlorophyll mean = 0.09 ug/l; phaeopigment mean = 0.23 ug/l).

Enteric bacterial levels were higher during the winter than during the summer. No bacteria were observed in the summer sampling. The winter sampling found relatively low levels of total coliforms (mean = 8 per 100 ml), fecal coliforms (mean = 1 per 100 ml) and fecal streptococci (mean = 2 per 100 ml).

Seven benthic biotopes were recognized in a survey Bienfang and Brock, 1981) of Turtle Bay. The mean % coral coverage and mean number of algal and fish species observed in quantitative transects of these biotopes are presented below.

Biotope	Mean Coral Coverage %	Mean/of Species Algae	Fish
1. Subtidal Bench	1	1	18
2. Shallow Reef Flat	13	15	7
3. Sloping Bench	7	6	10
4. Rubble/Sand	1	1	10
5. High Cover and Potholes	12	0	26
6. Channels	10	3	18
7. Offshore Limestone Shallows	13	1	24

A subtidal bench (Biotope 1) extends along much of the shoreline of Turtle Bay. This bench is broken into large limestone blocks 10 - 80 m in length and 5 - 20 m in width. These blocks slope seaward and grade into sand and/or a biotope of high cover and potholes. Few corals are present in this high energy areas; coral coverage was less than 1%. Macrothalloid algae are also uncommon; only one species was observed. Eighteen fish species were observed in a quantitative transect; many of these were subadult commercially important species (kumu, Parupeneus porphyreus, munu, P. bifasciatus, moano, P. multifasciatus, and aholehole, Kuhlia sandvicensis). Lobsters (Panulirus marginatus and P. penicillatus) were also observed.

A zone of shallow, high energy reef flats (Biotope 2) is located in the northeastern corner of Turtle Bay. The substrate here is similar to the subtidal bench, but coral cover (13%) and algal cover (7%) are higher. Depressions in the substrate and the relatively high coral and coralline algae coverage create a three-dimensional biotope which is favorable for fishes and many invertebrates. Eleven species of macroinvertebrates, including octopus (Octopus cyanea), were observed in a quantitative transect. Only seven fish species were observed in the transect; however, many other fish species and lobster were seen in areas adjacent the transect.

West of the high energy reef flat is the sloping bench biotope (Biotope 3). The substrate of this area is primarily limestone which slopes at an angle of 20° or more and which grades into the adjacent zone of high cover and potholes (Biotope 4). Because the sloping bench has greater water depth and more wave scouring than shallower areas, coral diversity is locally greater but patchily distributed. Coral cover is only 7%, however, ten coral species have been recorded from this area. Algal cover averaged 3%. Few macroinvertebrates were present. Ten species of fish were observed in a transect of this zone; eight additional species were observed in the vicinity. Most were typical reef-dwelling species.

Sand/rubble pockets (Biotope 4) are distributed throughout Turtle Bay, but the majority are in the western corner. These pockets range in size from 20 - 100 m in length. Several large sandy pockets also

occur in the central part of the Bay. Corals occurring in this biotope are generally small, having settled and grown on rubble; they frequently do not grow to maturity because of the instability of the substrate. The low abundance of corals (3% cover) and lack of emergent limestone provides little cover for macroinvertebrates. Fishes encountered in this zone are typical of sand flat areas: flatfish Bothus mancus, lizardfish, Saurida gracilis, and schooling weke, Mulloidichthys flavolineatus. Some reef fishes were seen to wander into the area from adjacent, higher coverage zones.

Located through most of the central portion of the Bay is the biotope of high cover and potholes (Biotope 5). Within the confines of the Bay, this biotope is probably the most significant since it encompasses the largest part of the Bay. This biotope is dominated by a limestone substrate with troughs 0.5 - 10 m in width, generally oriented perpendicular to the shore and running from 5 - 50 m in length. In the seaward direction these troughs increase in size and complexity, giving rise to the biotope of channels (Biotope 6). Large depressions 5 - 50 m in diameter occur irregularly over the bottom; areas of limestone blocks of boulders occurring singly or in piles that may cover up to 100 m^2 provide a large amount of shelter for both invertebrates and fish.

Coral coverage in Biotope 5 ranged from 18 - 33%, and was dominated by Porites lobata. Seven species were identified in three quantitative transects; another nine species were seen in the vicinity. Large invertebrates encountered included starfishes (Ophiocoma spp., Linkia sp.), sea cucumber (Holothuria altra), molluscs (Conus spp., Octopus cyanea), crustaceans (lobsters and crabs) and polychaete worms. Forty-four species of fish were censused in the three quantitative transects; among the most numerous were the surgeonfishes, Acanthurus olivaceus and A. nigrofuscus. A large number of commercially important species were sighted in the vicinity of the transects; these included papio, Caranx melampygus, oio, Albula vulpes, menpachi, Myripristis amaenus amaenus, aweoweo, Priacanthus cruentatus, weke'ula, Mulloidichthys vanicolensis, aholehole, Kuhlia sandvicensis, and the introduced taape, Lutjanus kasmira.

Seaward of the biotope of high cover and potholes is the biotope of channels (Biotope 6). Much of this biotope extends seaward beyond the scope of the survey. The biotope of channels receives considerable impact from surf that characteristically breaks across the mouth of Turtle Bay. Algal cover was low, ranging from 0 - 4%. Coral growth was mostly crustose or prostrate, probably in response to the high surf. Coral coverage was patchy and ranged up to 30% over small areas, but averaged between 7 and 10% over the whole area. Porites lobata dominated the coral assemblage. Eight other species were censused in two quantitative transects, and two other species were observed in the vicinity.

Large adult herbiverous fish were common in the biotope; schools of kala (Naso unicornis) and large parrotfishes (Scarops rubroviolaceus, Scarus perspicillatus and Calotomus sandvicensis) were frequently

seen. A number of commercially important fish species were also encountered; these included aholehole, Kuhlia sandvicensis, menpachi, Myripristis amaenus amaenus, papio Caranx sp., weke, Mulloidichthys flavolineatus, weke'ula, M. vanicolensis, kumu, Parupeneus porphyreus, and aweoweo, Priacanthus cruentatus. A wandering school of manini, Acanthurus triostegus sandvicensis, passed thrugh the transect area. Slipper lobsters, Paribacus antarcticus, and spiny lobsters, Panulirus penicillatus and P. marginatus, were occasionally seen.

Approximately 250 - 300 m offshore in the midpart of Turtle Bay, arising in the biotope of channels, is a large, shallow (1.5 - 2.5 m depth) limestone flat (Biotope 7). On the limestone substrate are scattered small potholes spread 3 - 5 m apart. A few small ridges and channels traverse the area. Porites lobata was by far the most abundant coral species; corals had assumed a crustose growth form and averaged 13% cover. Algal cover was almost non-existent. Twenty-four fish species, including a relatively large number of herbiverous surgeonfishes, were censused in a single transect in the area.

Kuilima Bay: The East Main Drain discharges into Kuilima Bay. Nearshore waters may be discolored occasionally by terrigenous sediments, although high wave activity achieves dispersion of these sediments. The bottom is free from silt except off the East Main Drain (Belt, Collins and Associates, 1979). A strong rip current develops within Kuilima Cove through the channel running seaward adjacent to Kuilima Point. Large winter waves cause this rip current as well as other strong currents outside the cove. The area between Kuilima Cove and Kahuku Point is afforded little protection against tradewind generated waves. One or more rip currents are generated between Kuilima Cove and Kahuku Point even during calm ocean conditions. Kahuku Point is an area of convergence and divergence of ocean currents. Net water transport is generally toward the northwest, away from Oahu (Bathen, 1978).

Water quality conditions were sampled at twelve stations within Kuilima Bay and in the area east of Kahuku Point. Water quality conditions were relatively uniform both vertically and between stations. Temperature at all stations and depths was 27°C; mean salinity was 36.4 ppt. The mean pH was 8.38 and the mean dissolved oxygen concentration was 6.21 ml/l. These values are typical of nearshore marine waters around Hawaii; the low standard deviations reflect the uniform character of the area.

Turbidity values had an overall mean of 0.4 NTU; stations nearest the shoreline (Stations 6, 10, 11 and 12) had higher turbidity levels (1.0 - 1.9 NTU) than did those stations further removed from shore (0.1 - 0.9 NTU). These higher nearshore levels reflect the presence of particles stirred up into the water by wave action. However, filterable solids concentrations did not show a clear difference between near shoreline and further offshore samples; the overall mean was 48.2 mg/l. This apparent contradiction may be due to the

presence of detrital or benthic algal material in the nearshore samples (see below) which caused higher turbidity readings but did not contribute significantly to filterable solids weights.

Concentrations of nitrate-nitrite (M = 0.48 uM; SD = 0.24), ammonium (M = 2.01 uM; SD = 1.21) and phosphate (M = 0.24 uM; SD = 0.12) were typical of nearshore ocean conditions. One sample (Station 4, 6 m depth) was apparently contaminated; the high nutrient levels observed, if real, could only have come from some groundwater source near the sampling site. Other water quality parameters (especially temperature and salinity) showed no evidence (i.e., lower temperature and salinity) of groundwater influence which would support such a hypothesis. The data for Station 4, 6 m depth were not included in the above calculations of nutrient means and standard deviations.

Chlorophyll levels ranged from 0.11 ug/l at Station 6, 1m depth to 0.03 ug/l at Station 7, 5 m depth; the mean chlorophyll concentration was 0.06 ug/l. Phaeopigment levels ranged from 0.16 ug/l at Station 6, 1 m depth to 0.01 ug/l at Station 7, 1 m depth; the mean phaeopigment level was 0.07 ug/l. The highest concentrations of chlorophyll and phaeopigments were found at the stations closest to shore (Stations 6, 11 and 12). These higher values are probably the result of the suspension of benthic algal material by wave action in the surf zone.

Enteric bacterial levels were generally low throughout the area surveyed. Total coliform and fecal coliform tests found no evidence of the presence of these bacteria, which are rapidly killed off in seawater. Fecal streptococcus levels were also generally low (less than 10 per 100 ml); at the stations nearest the shoreline (Stations 6 and 12), however, higher counts (72 and 44 colonies per 100 ml) were observed. These higher counts may indicate the presence of seepage of groundwater at or near the shoreline; however, the other water quality parameters, especially dissolved nutrients, did not exhibit higher concentrations which would be expected with groundwater influx.

Kuilima Cove is a shallow inlet defined by the rocky headlands of Kalaeokamanu and Kuilima Point. Waters in the cove are protected by a shallow limestone formation across much of the mouth. Parts of this shelf emerge about the water surface. Sand channels pass to either side of this emergent formation. The channel flanking the western margin is the former watercourse of Oio Stream and is 5 - 8 feet deep and 60 - 80 feet wide. Inside the cove is a bottom of sand and rubble. Outside the cove, at depths between 20 and 30 feet, there occurs an irregular bottom of limestone. Surge channels and other depressions contribute to considerable relief off Kuilima Point.

Porites lobata is the dominant species of coral in Kuilima Cove. Few kinds of fish inhabit the cove; most common are the wrasse, Thalassoma duperreyi, the surgeonfish, Acanthurus triostegus, and the butterfly fish, Chaetodon fremblii. Outside of the cove, corals and algae each account for about 30% bottom cover. Porites lobata,

Montipora flabellata, and Pocilloporo meandrina are the most common of the coral species present. Many of the heads of the latter species appear to be dead or dying (AECOS, 1979).

The curving, mile-long shoreline between Kuilima Cove and Kahuku Point is a nearly continuous strip of beachrock, in places up to 4 feet thick. Offshore is an irregular limestone bottom interrupted by sand pockets and channels. A wide channel is located off the mouth of Oio Stream. Numerous rocks offshore are awash at low tide.

Corals cover about 40% of the bottom between Kuilima Point and Kahuku Point at depths of 20-25 feet. Porites lobata and Montipora flabellata are dominant, and Pocillopora meandrina is common. Algal cover is about 30%.

Proposed Action - Refer to the description of drainage improvements provided in A. TOPOGRAPHY AND DRAINAGE. In addition, the applicant is proposing to remove silt from the southeastern portion of Kawela Bay by means of a suction dredge after isolating the area with a silt curtain. The desilting device will consist of a shore-launched floating platform with jack-up legs. The desilting device will be connected via a 0.5 feet diameter pipeline to an adjacent containment pond. The containment pond is designed so that particles of 0.010 mm and larger can settle before the water is recirculated back into the sectioned-off corner of the bay. Dredged spoils will be used as construction material at another location on the property.

Anticipated Impacts and Mitigative Measures:

Kawela Bay - The loads of solids, nitrate and phosphate discharged into Kawela Bay under 10-year, 50-year and PMP conditions before and after stream diversion and resort development are summarized below (OI Consultants, 1984):

Before Development

	Solids (kg/d)	NO3 (g/d)	PO4 (g/d)
10-Year	761	558	56
50-Year	1015	744	74
PMP	3070	2252	225

After Development

	Solids (kg/d)	NO3 (g/d)	PO4 (g/d)
10-Year	218	162	19
50-Year	290	215	25
PMP	749	559	68

As shown above, the load of material discharged into Kawela Bay will decrease significantly.

The high turbidity in the southeastern portion of the bay will improve from the desilting operation, because some of the silt and clay sized particles that are available for suspension will become unavailable as a result of the proposed operation. While the degree of improvement will be small and the water in the bay will never be as clear as water found in the open ocean (as is the condition of most embayments), a small improvement will be realized. This will also contribute to the recreational enjoyability of the bay, thus enhancing its recreational use.

The water quality in the rest of Kawela Bay should be relatively uneffected during the dredging operation. The silt curtain should contain the suspended sediments in the area to be desilted and keep them from mixing with the rest of the bay. In fact, after the dredging operation, the water quality in the whole bay will improve because the small amount of mixing that does occur with water from the southeastern portion of the bay will have less suspended material than previously.

OI Consultants, Inc. have determined that it is highly unlikely that the de-siltation process would impact any reproductive and/or feeding grounds. All of the fish observed in Kawela Bay reproduce either by broadcasting their eggs into the water to be carried about by the prevailing currents or by attaching their eggs to hard substrate; no fish use the fine sediment to lay or hatch their eggs. This sediment area is also devoid of macroalgal or other growth, and thus does not constitute a site of feeding for resident populations. OI Consultants, Inc. did not find any evidence that Kawela Bay serves as a significant spawning ground for any commercially important fish.

The turbid waters of the southeastern part of the bay may be used by schools of small fishes as a refuge from larger predators. None of the biological surveys of the area have mentioned such schools, but their presence is possible. The fish in such schools are typically rapid swimmers which remain near the surface; the actual dredging operation, being confined to a small area and near the bottom, is unlikely to directly impact these fishes.

In addition, the desilting operation will be located across the area where the abundant growths of algae that are known to be important diet items of Chelonia mydas are found.

The impact of terrestial runoff on nearshore marine benthic communities generally takes the form of immediate mortality due to exposure to fresh or low-salinity water, mortality of corals due to the deposition of sediment, or changes in community structure such as increases in algal populations due to increased availability of nutrients (OI Consultants, Inc., 1985). The estimated volume flows into Kawela Bay under three rainfall conditions are summarized below (OI Consultants, Inc., 1985):

Volume Flows into Kawela Bay
Under Three Rainfall Conditions

	Before Development	After Development
10-Year	1660	488
50-Year	2213	650
PMP	6695	1695

The flow of storm runoff into Kawela Bay will decrease to less than 30% of current conditions after the diversion of Kawela Stream into Turtle Bay. Given the previously described decreases in sediment loading and nutrient addition, it may be reasonable to expect that the coral communities of Kawela Bay will increase in size and horizontal extent, and that fishes and invertebrates which depend upon corals for shelter will become increasingly abundant.

A concern has been raised by a resident of Kawela Kai (the residential development on the western portion of Kawela Bay, adjacent to the project site), that debris from visitors using the Kawela Bay will litter the beach. Resort operator(s) will be responsible for providing adequate litter recepticles on beach lands fronting the project site (except on beaches fronted by dedicated public beach parks) and disposing of the refuse regularly.

Turtle Bay - The loads of solids, nitrate and phosphate discharged into Turtle Bay under 10-year, 50-year and PMP conditions before and after stream diversion and resort development are summarized below (OI Consultants, 1984):

	Before Development			After Development		
	Solids (kg/d)	NO3 (g/d)	PO4 (g/d)	Solids (kg/d)	NO3 (g/d)	PO4 (g/d)
West Kuilima Drain						
10-Year	18	30	24	18	30	24
50-Year	23	40	32	23	40	32
PMP	69	134	116	69	134	116
West Main Drain						
10-Year	269	199	23	755	573	81
50-Year	358	265	30	1006	764	108
PMP	1037	782	104	3203	2412	319
Total						
10-Year	297	229	57	773	603	105
50-Year	381	305	62	1029	804	140
PMP	1108	916	220	3272	2546	435

The character of discharge from the West Kuilima Drain will not change since no alteration in watershed area of land use from the presently existing is proposed. The diversion of Kawela Stream results in a significant increase in solids and nutrients discharged into Turtle Bay. However, Turtle Bay is much more open to the action of waves, and typically is much better flushed than Kawela Bay (Oceanic Institute, 1985). A strong current runs wetward along the shore of Turtle Bay and a rip current runs offshore along the western edge of the bay under almost all sea conditions (AECOS, 1979). These currents would tend to quickly sweep any discharge into the bay out to deeper waters where strong offshore currents would disperse the discharge plume (Oceanic Institute, 1985).

The volume flows into Turtle Bay under three rainfall conditions are given below (Oceanic Institute, 1985):

Volume Flows into Turtle Bay
Under Three Rainfall Conditions

	Before Development	After Development
10-Year	749	1921
50-Year	998	2560
PMP	3100	8100

Storm runoff into Turtle Bay will increase by a factor of 2.5 times after diversion of Kawela Stream. However, due to the low coral and algal coverage in the area of the discharge and the strong local currents, there is little likelihood of changes in benthic communities in the discharge area.

Kuilima Bay - The loads of solids, nitrate and phosphate discharged into Kuilima Bay under 10-year, 50-year and PMP conditions before stream diversion and resort development are summarized below.

Before Development

	Solids (kg/d)	NO3 (g/d)	PO4 (g/d)
10-Year	942	704	86
50-Year	1257	939	115
PMP	5514	4083	457

After Development

	Solids (kg/d)	NO3 (g/d)	PO4 (g/d)
10-Year	987	793	164
50-Year	1315	1057	161
PMP	5995	4569	704

While there will be an increase in the volume of solids and nitrate discharged into Kuilima Bay after completion of the PMD system and the expanded facilities of the Kuilima Resort, this amount will not be significantly different from the amount which presently reaches the ocean from the East Main Drain as shown above.

The impact of increased phosphate load on the nearshore marine environment will probably not be detectable. Kuilima Bay experiences rapid flushing during almost all surf conditions; strong long shore currents and one or more rip currents develop which would rapidly move any runoff out to the offshore current system. In addition, there is little likelihood of a biostimulatory effect of additional supplies of phosphate. Almost all marine systems tend to have phosphate available in excess; the addition of more would not result in any blooms of phytoplankton (OI Consultants, Inc., 1985).

The volume flows into Kuilima Bay under three rainfall conditions before development and after the addition of the flow from the PMD which discharges over the weir, are summarized below (Oceanic Institute, Inc., 1985):

Volume Flows into Kuilima Bay
Under Three Rainfall Conditions

	Before Development	After Development
10-Year	2139	2607
50-Year	2853	3477
PMP	12280	14305

Storm drainage entering Kuilima Bay will increase by approximately 20% after development is complete. The character of the discharge is not likely to change, since the majority of the watershed area is agricultural or undeveloped land whose uses will not be affected by the development. Strong currents in Kuilima Bay will tend to move storm discharge out to sea rapidly.

Based on data from Appendix G, OI Consultants, Inc. assessed the potential for impact on coastal waters of HCX flowing out of the marsh, after drainage modifications:

Mean HCX loading	=	0.456 pounds per month	(Table 5*)
Mean flow into marsh	=	17,529,284 gallons per month	(Table 3*)
Percent active ingredient	=	10%	(Table 4*)
Mean Concentration	=	mean loading/mean flow	
	=	2.6×10^{-8} pounds/gallon	
	=	3.1×10^{-6} grams/liter	
	=	3.1 parts per billion (ppb)	

*Tables found in Appendix G

This concentration could vary due to changes in drainage flow. Maximum flow is approximately 195,500,000 gallons per month and minimum flow is approximately 530,000 gallons per month (Table 3 of Appendix G); these flows result in concentrations of 0.3 ppb under maximum flow and 100 ppb under minimum flow. Several processes occur in the marsh and nearshore environment which serve to decrease these concentrations. Suspended sediments carried with the drainage flow absorb some of the HCX onto the particle surfaces; some percentage of these particles settle to the bottom of the marsh, thus decreasing the concentration of HCX in the water. Note that the settling process is most effective under low flow, the time of highest HCX concentration. Under high flow, the concentration of HCX decreases due to dilution. Once the drainage water reaches the ocean, the flow is rapidly mixed with ocean water and diluted, and carried off-shore by prevailing currents.

According to OI Consultants, Inc., the low initial concentrations of HCX in the drainage water and the processes acting to decrease these concentrations still further imply that the potential for harmful impact of HCX on the nearshore ocean environment is minimal.

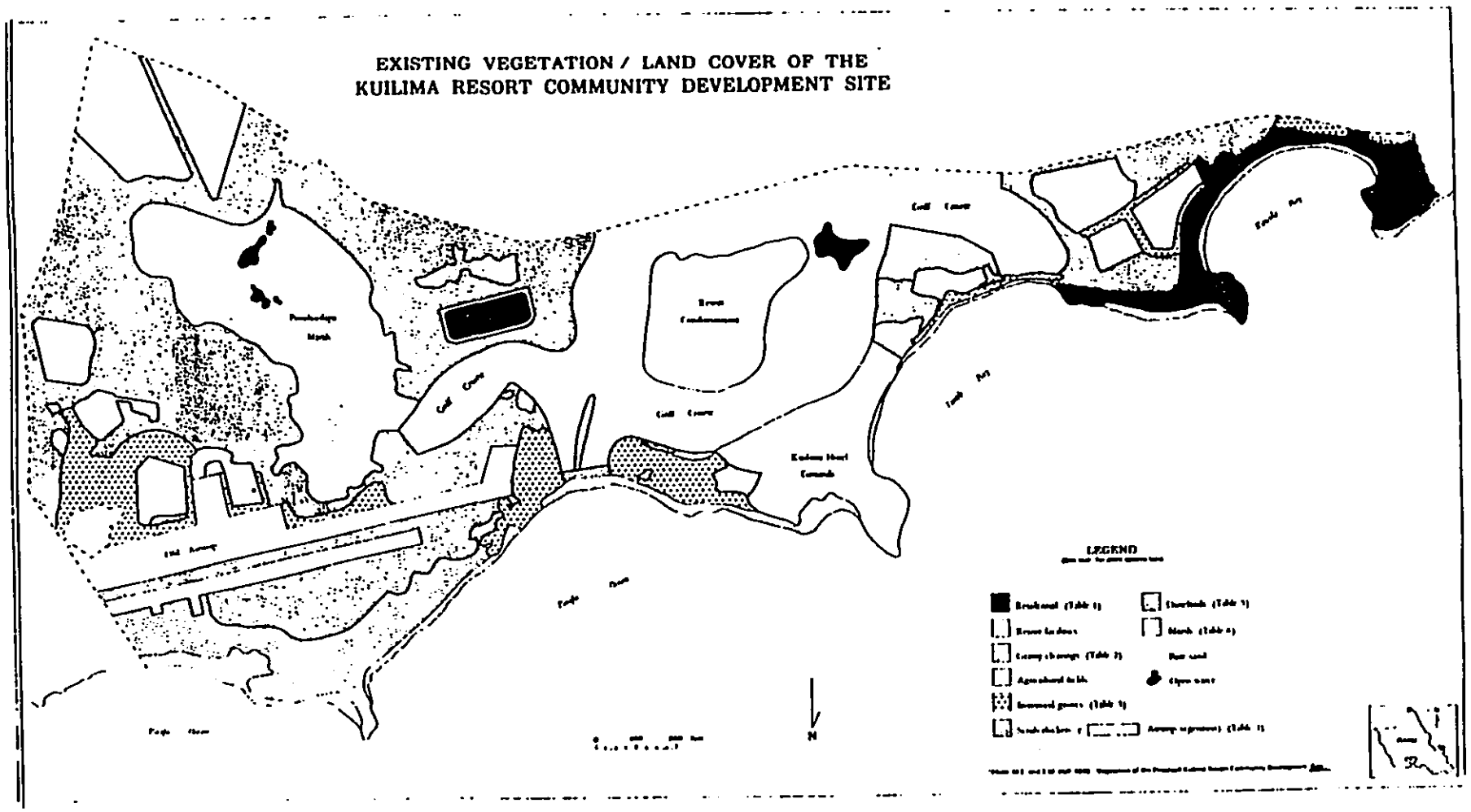


FIGURE 13 EXISTING VEGETATION

TABLE 2

GRASSY CLEARINGS

Scientific Name	Common Name Hawaiian Name	Status	Cover/ Abundance
TREE LAYER			
Casuarina equisetifolia Stickm.	ironwood paina	exotic	1
SHRUB LAYER			
Acacia farnesiana (L.)Willd.	klu kolū	exotic	1
Desmanthus virgatus (L.)Willd.	virgate mimosa	exotic	1
Lantana camara L.	lantana lākana	exotic	1
Leucaena leucocephala (Lam.)de Wit	false koa koa-haole	exotic	1
Pluchea indica (L.)Less	Indian pluchea	exotic	1
Pluchea odorata (L.)Cass.	pluchea	exotic	1
Ricinus communis L.	castor bean kolī	exotic	1
Scaevola taccada (Gaertn.)Roxb.	beach naupaka naupaka-kahakai	indig.	1
HERB LAYER			
Amaranthus spinosus L.	spiny amaranth pakai-kukū	exotic	1
Bidens pilosa L.	beggar's tick ko'oko'olau	exotic	2
Bidens pilosa var. *minor* (Bl.)Sherff		exotic	2
Boerhavia diffusa L.	alena alena	indig.	1
Cassia leschenaultiana DC.	partridge pea laukī	exotic	1
Cenchrus echinatus L.	sandbur 'ume'alu	exotic	1

Scientific Name	Common Name Hawaiian Name	Status	Cover/ Abundance
HERB LAYER (continued)			
Chenopodium album L.	lamb's quarters 'āheahea	exotic	1
Chloris inflata Link	swollen fingergrass mau'ulei	exotic	1
Cynodon dactylon (L.) Pers.	Bermuda grass mānienie	exotic	4
Cyperus polystachyus Rottb.		indig.	1
Cyperus rotundus L.	purple nutsedge kili'o'opu	exotic	1
Dactyloctenium aegyptium (L.) Willd.	beach wiregrass	exotic	1
Eleusine indica (L.) Gaertn.	wiregrass mānienie-ali'i	exotic	2
Euphorbia glomerifera (Millsp.) L.C. Wheeler	graceful spurge	exotic	1
Fimbristylis pycnocephala Hbd.	button fimbristylis	indig.	1
Gaillardia pulchella var. *picta* (Sweet) Gray	gaillardia melekulc-waikānului	exotic	1
Ipomoea brasiliensis (L.) Sweet	beach morning glory pohuehue	indig.	1
Ipomoea congesta R. Br.	morning glory koali-'awania	indig.	1
Ipomoea purpurea (L.) Roth	common morning glory	exotic	1
Melilotus indica (L.) All.		exotic	1
Mimosa pudica L.	sensitive plant pua-hilahila	exotic	1
Panicum maximum Jacq.	Guinea grass	exotic	1
Passiflora foetida L.	scarlet-fruited passionflower pohāpohā	exotic	1
Plantago lanceolata L.	narrow-leaved plantain	exotic	2
Stachytarpheta jamaicensis (L.) Vahl	Jamaica vervain oi	exotic	1

Scientific Name	Common Name Hawaiian Name	Status	Cover/ Abundance
HERB LAYER (continued)			
Sonchus oleraceus L.	sow thistle pua-lele	exotic	1
Tricachne insularis (L.) Nees	sourgrass	exotic	2
Verbesina encelioides (Cav.) B. & H. ex Gray	golden crown-beard	exotic	2
Waltheria americana L.	waltheria hi'aloa	indig.	1

1 = Few; sparse cover (< 5%)
2 = Common; sparse to moderate cover (5–25%)
3 = Abundant; moderate cover (25–60%)
4 = Very abundant; dense cover (60–100%)

TABLE 3

IRONWOOD GROVES

Scientific Name	Common Name Hawaiian Name	Status	Cover/ Abundance
TREE LAYER			
Casuarina equisetifolia Stickm.	ironwood paina	exotic	4
Leucaena leucocephala (Lam.)de Wit	false koa koa-haole	exotic	1
Schinus terebinthifolius Raddi	Christmas berry wilelaiki	exotic	1
SHRUB LAYER			
Casuarina equisetifolia Stickm.	ironwood paina	exotic	3
Leucaena leucocephala (Lam.)de Wit	false koa koa-haole	exotic	1
Pluchea indica (L.) Less	Indian pluchea	exotic	1
Pluchea odorata (L.) Cass.	pluchea	exotic	1
Scaevola taccada (Gaertn.) Roxb.	beach naupaka naupaka-kahakai	indig.	1
HERB LAYER			
Brachiaria mutica (Forsk.)Stapf	Calif. grass	exotic	1
Cynodon dactylon (L.) Pers.	Bermuda grass mānienie	exotic	1
Eleusine indica (L.) Gaertn.	wiregrass mānienie-ali'i	exotic	1
Ipomoea brasiliensis (L.) Sweet	beach morning glory pohuehue	indig.	1
Passiflora foetida L.	scarlet-fruited passionflower pohāpohā	exotic	1

1 = Few; sparse cover (< 5%)
2 = Common; sparse to moderate cover (5-25%)
3 = Abundant; moderate cover (25-60%)
4 = Very abundant; dense cover (60-100%)

- Scrub thickets and airstrip vegetation includes vegetation associated with the more stable soils leeward of the sand dunes, and vegetation growing in and along the old asphalt runways. Large dense thickets of woody shrubs meld with dune vegetation towards the ocean, thereby making the boundary between scrub thickets and dunelands at times difficult to delineate. Koa haole, Christmas berry, lantana, and pluchea are the most common woody species. Beach naupaka occurs mixed with these in the zone of transition between thicket between scrub thicket and dunelands (species list on Table 4).

- Residential Communities cover type is characterized by a great variety of ornamental garden plants around single-family house sites. In less maintained yards, empty lots and roadsides, many exotic weeds and escapes are also found. The majority of homes in this category are old beach homes nestled around the bare sand beach of Kawela Bay. Many trees are planted among these homes including ironwood, tree heliotrope, sea grape, coconut, hau, and false kamani. Ground cover is commonly Bermuda grass which serves to stabilize the underlying loose, sandy soil. Shrubs include hau, beach naupaka, tree heliotrope, ironwood, and spider lily (species list on Table 5).

  Patches of weedy scrub vegetation along roads and in empty lots contain species similar to those in "scrub thickets and airstrip vegetation" described above. Ironwood also occurs abundantly along roadsides.

- Resort Facilities includes the many ornamentals and landscaped species planted on the Kuilima hotel, and golf course grounds. Some of the more common species noted include ironwood trees, coconut trees, date palms (Phoenix spp.), oleander (Nerium oleander) and, near the beach, beach naupaka. The herb layer includes Bermuda grass, wedelia (Wedelia trilobata), and beach morning glory. Scattered throughout the developed areas were occasional patches of weedy vegetation of the type found in "grassy clearings" and "scrub thickets".

- Dunelands includes vegetation associated with the sand dunes and beach areas along the coast. Most of the dunes in the project site are stabilized by dense growths of beach naupaka (Scaevola taccada), which have become more extensive since the 1978 survey. Beach naupaka thickets most often define the landward boundary of the sand dunes, with mixed koa-haole, Christmasberry and lantana thickets occuring when the dunes grade into areas with more soil. Along the seaward edge of the dunes, typical coastal strand vegetation includes tree heliotrope (Messerschmidia argentea), hinahina (Heliotropium anomalua), koko (Euphorbia degeneri), beach dropseed (Sporobolus virginicus), pohuehue and pohinahina (Vitex ovata). Of 40 species observed in this cover type, 15 are native plant species, and 2 are endemic species found naturally only in Hawaii (koko and pa'u-o-hi'i-'aka). Ironwood groves occur on some of the dunes, and comparisons of an aerial photo taken 1983 with ones used for the 1978 vegetation survey indicate that some of the ironwood trees have filled in dunes which had previously been more open (species list in Appendix D).

TABLE 4

SCRUB THICKETS AND AIRSTRIP VEGETATION

Scientific Name	Common Name Hawaiian Name	Status	Cover/ Abundance
TREE LAYER			
Casuarina equisetifolia Stickm.	ironwood paina	exotic	1
Ficus macrophylla Desf.	Moreton Bay fig	exotic	1
Leucaena leucocephala (Lam)de Wit	false koa koa-haole	exotic	2
Musa xparadisiaca L.	banana mai'a	exotic	1
Prosopis pallida (Humb.& Bonpl.)HBK.	mesquite kiawe	exotic	1
Schinus terebinthifolius Raddi	Christmas berry wilelaiki	exotic	1
SHRUB LAYER			
Casuarina equisetifolia Stickm.	ironwood paina	exotic	2
Desmanthus virgatus (L.)Willd.	virgate mimosa	exotic	1
Leucaena leucocephala (Lam.)de Wit	false koa koa-haole	exotic	3
Pluchea xfosbergii Cooperrider & Galang		exotic	1
Pluchea indica (L.) Less	Indian pluchea	exotic	3
Pluchea odorata (L.)Cass.	pluchea	exotic	2
Prosopis pallida (Humb.& Bonpl.)HBK.	mesquite kiawe	exotic	1
Ricinus communis L.	castor bean kolī	exotic	1
Scaevola taccada (Gaertn.)Roxb.	beach naupaka naupaka-kahakai	indig.	1
Schinus terebinthifolius Raddi	Christmas berry wilelaiki	exotic	2
Lantana camara L.	lantana lākana	exotic	2

Scientific Name	Common Name Hawaiian Name	Status	Cover/ Abundance
SHRUB LAYER (continued)			
Solanum sodomeum L.	apple of Sodom pōpolo-kikania	exotic	1
Thevetia peruviana (Pers.)K. Schum.	be-still tree noho-mālie	exotic	1
Xanthium saccharatum Wallr.	cocklebur kīkania	exotic	1
HERB LAYER			
Ageratum conyzoides L.	ageratum maile-honohono	exotic	1
Amaranthus spinosus L.	spiny amaranth pakai-kukū	exotic	1
Bidens pilosa L.	beggar's tick ko'oko'olau	exotic	2
Bidens pilosa var. *minor* (Bl.)Sherff		exotic	2
Brachiaria mutica (Forsk.)Stapf	Calif. grass	exotic	1
Canavalia cathartica Thouars	mauna-loa mauna-loa	exotic	1
Chloris inflata Link	swollen fingergrass mau'ulei	exotic	2
Cynodon dactylon (L.)Pers.	Bermuda grass mānienie	exotic	1
Cyperus javanicus Houtt.	marsh cyperus 'ahu'awa	indig.	1
Eleusine indica (L.) Gaertn.	wiregrass mānienie-ali'i	exotic	1
Emilia sonchifolia (L.)DC.	floras paintbrush pualele	exotic	1
Fimbristylis pycnocephala Hbd.	button fimbristylis	indig.	1
Ipomoea brasiliensis (L.)Sweet	beach morning glory pohuehue	indig.	1
Ipomoea purpurea (L.)Roth	common morning glory	exotic	1
Leucaena leucocephala (seedling)	false koa koa-haole	exotic	1

Scientific Name	Common Name Hawaiian Name	Status	Cover/ Abundance
HERB LAYER (continued)			
Panicum maximum Jacq.	Guinea grass	exotic	1
Paspalum conjugatum Berg.	Hilo grass mau'u Hilo	exotic	1
Passiflora foetida L.	scarlet-fruited passionflower pohāpohā	exotic	1
Phaseolus lathyroides L.	cow pea	exotic	1
Plantago lanceolata L.	narrow-leaved plantain	exotic	1
Pluchea indica (seedlings)	Indian pluchea	exotic	1
Pluchea odorata (seedlings)	pluchea	exotic	1
Saccharum officinarum L.	sugar cane kō	exotic	1
Sida fallax Walp.	ilima 'ilima	indig.	1
Tricachne insularis (L.)Nees	sourgrass	exotic	1
Youngia japonica (L.) DC.	Oriental hawksbeard	exotic	1
Zea mays L.	corn kulina	exotic	1

1 = Few; sparse cover (< 5%)
2 = Common; sparse to moderate cover (5–25%)
3 = Abundant; moderate cover (25–60%)
4 = Very abundant; dense cover (60–100%)

TABLE 5

RESIDENTIAL COMMUNITIES

Scientific Name	Common Name Hawaiian Name	Status
TREE LAYER		
Casuarina equisetifolia Stickm.	ironwood paina	exotic
Coccoloba uvifera (L.) L.	sea grape waina kahakai	exotic
Cocos nucifera L.	coconut niu	exotic
Ficus benghalensis L.	banyan	exotic
Hibiscus tiliaceus L.	hau hau	indigenous
Leucaena leucocephala (Lam.)de Wit	false koa koa-haole	exotic
Messerschmidia argentea (L.f.)Johnston	tree heliotrope	exotic
Terminalia catappa L.	false kamani kamani-haole	exotic
SHRUB LAYER		
Casuarina equisetifolia Stickm.	ironwood paina	exotic
Hibiscus tiliaceus L.	hau hau	indigenous
Leucaena leucocephala (Lam.)de Wit	false koa koa-haole	exotic
Messerschmidia argentea (L.f.)Johnston	tree heliotrope	exotic
Pancratium littorale Jacq.	spider lily	exotic
Psidium cattleianum Sabine	strawberry guava waiawī-'ulu'ula	exotic
Ricinus communis L.	castor bean kolī	exotic
Scaevola taccada (Gaertn.)Roxb.	beach naupaka naupaka-kahakai	indigenous

Scientific Name	Common Name Hawaiian Name	Status
HERB LAYER		
Cenchrus echinatus L.	sandbur 'ume'alu	exotic
Cynodon dactylon (L.)Pers.	Bermuda grass mānienie	exotic
Eleusine indica (L.) Gaertn.	wiregrass mānienie-ali'i	exotic
Ipomoea cairica (L.) Sweet	five-fingered morning glory koali-ai	indig.
Ipomoea purpurea (L.)Roth	common morning glory	exotic
Passiflora spp.	passionflower	exotic
Paspalum conjugatum Berg.	Hilo grass mau'u Hilo	exotic

- Marshlands vegetation consists of four major cover types: Shrub thickets, Marshlands, Mudflats (and associated vegetation), and Open water (and associated vegetation). However, for mapping purposes, the Marshlands are further divided into three categories based on aerial photo signatures; these categories are defined by the dominant plant species within the signature as identified in the field (great bulrush, native sawgrass and California grass). There are many gradations and variations within each cover type, and often one cover type grades into another in the field and no particular plant species may be dominant in some cases. However, since mapping units needed to be defined to help describe the marsh vegetation, those indicated are considered the most representative. Cover types are based on vegetative structure (height, physiognomy, stratification, cover/abundance), floristic composition (dominant plant species), and habitat association (site and terrain characteristics). Marsh vegetation cover types are indicated in Figure 14 and described below. A separate plant species checklist for the marsh was compiled by Earthwatch (1984) and is found in Appendix D.

  — Shrub thickets. Most of the shrub thickets surrounding the marsh are dominated by Indian pluchea (Pluchea indica), an exotic species forming dense stands which often define the transition from marsh to surrounding scrub or woodland vegetation. Pluchea shrubs are also found scattered within the marshland cover, surrounding the mudflat areas, and even around the edges of some open water areas. Pluchea is a very persistent weedy shrub which spreads rapidly and can quickly inhabit open areas of a wetland and turn them into nearly impenetrable thickets. Pluchea is also sometimes found in association with Christmasberry (Schinus terebinthifolius) shrubs and trees, along edges of the marsh and on raised areas within the marshland, such as the railroad right-of-way. Hau (Hibiscus tiliaceus) forms dense thickets on the southern and eastern sides of the marsh, but since the hau thickets cannot easily be distinguished from pluchea or Christmasberry thickets on the aerial photo, they are all defined as Shrub thickets and mapped as one cover type. Other plant species found less commonly within this cover type include koa-haole (Leucaena leucocephala); ironwood (Casuarina equisetifolia), a species which occurs often but is usually scattered within this cover type rather than forming closed canopy; and java plum (Eugenia cumini).

  — Marshlands. Most of the vegetation within Punahoolapa Marsh is dominated by a dense mixture of sedges and grasses which form the "marshlands", tall (averaging 6 to 8 feet height), emergent herbaceous species including great bulrush (Scirpus validus), native sawgrass (Cladium leptostachyum) and California grass (Brachiaria mutica). Bulrush appears to be the most dominant plant species throughout the marsh as a whole, in some areas forming almost monotypic stands, in others mixed with sawgrass, California grass or both. Marshland associations are mapped according to the dominant species of the signatures as identified in the field: Bulrush Marshland (M-B), Sawgrass

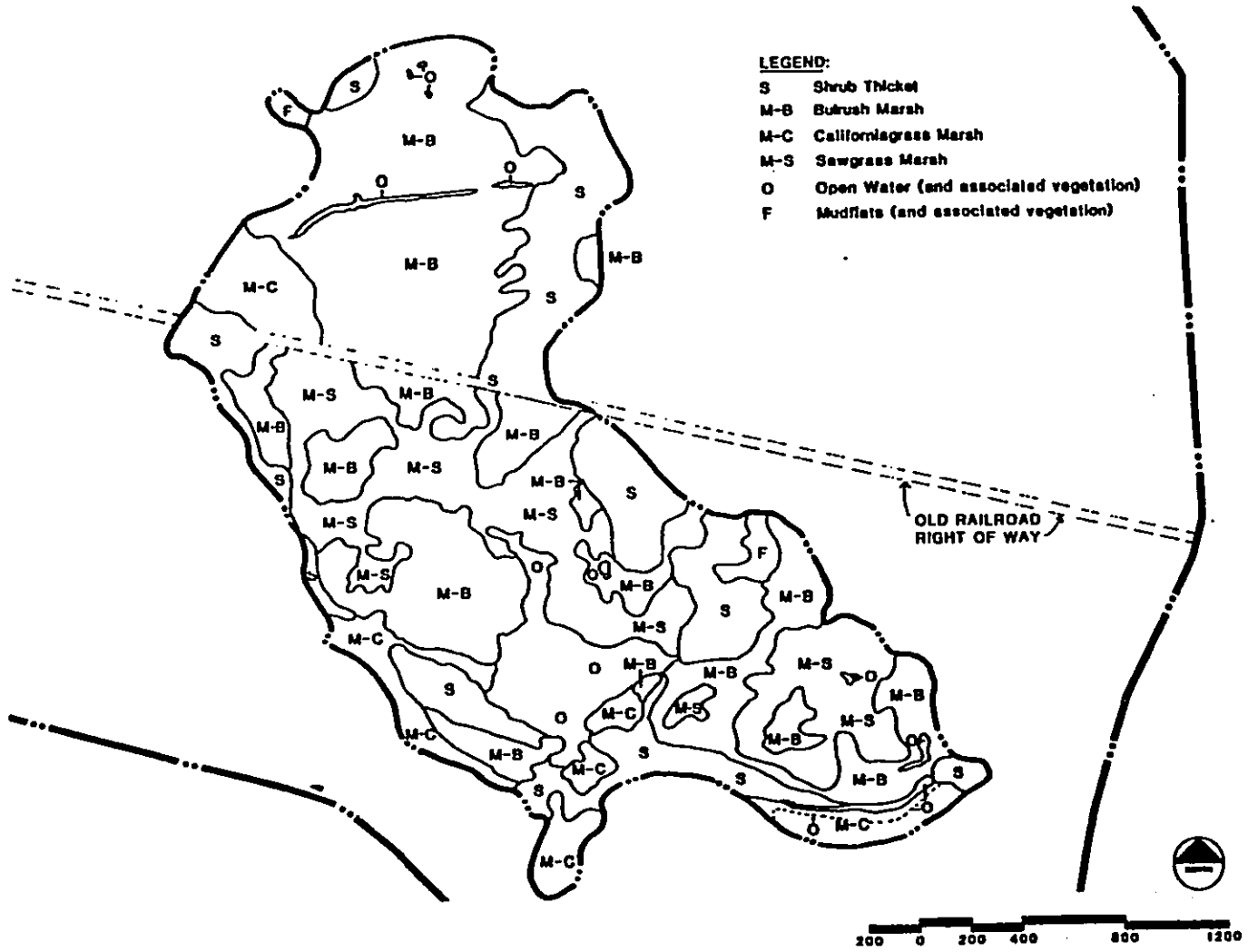


FIGURE 14
VEGETATION ASSOCIATIONS OF PUNAHOOLAPA MARSH
(EARTHWATCH, 1984)

GACUP 70

Marshland (M-S), and California grass Marshland (M-C); however, all of these cover types grade into each other and are not always easily distinguishable in the field. Cover types are generalized and mapped here primarily to facilitate descriptions of vegetation. Native sawgrass is an endemic species, the bulrush species most frequently observed is an indigenous species, and California grass is an exotic plant species. All three species are commonly found in marshes throughout the Hawaiian Islands. Other plant species less commonly observed in this cover type include primrose willow (Ludwigia octivalvis), cattail (Typha angustata), ironwood trees and shrubs (often rooted within the wetland), pluchea and Christmasberry (often rooted in raised areas, slightly above the water level).

Mudflats and Associated Vegetation. Two mudflat areas large enough to be mapped were identified during the field survey, as well as a few which were too small to be delineated separately. One mudflat located on the northern edge of the marsh (F) had decreased in size by more than half since the 1978 survey. 'Akulikuli (Sesuvium portulacastrum) covers most of this mudflat, which is almost entirely surrounded by dense pluchea thickets. Water quality measurements which had been taken during the 1978 vegetation survey indicated this area as more brackish than other parts of the marsh. The other mudflat area on the southeastern side of the marsh is characterized by water hyssop (Bacopa monnieria), sedges (Cyperus spp.) and spike rush (Eleocharis geniculata). This mudflat is partially utilized as pasture. A few small 'akulikuli and water hyssop flats were found in the midst of pluchea thickets on the southwestern side of the marsh. Other plant species observed less commonly within this cover type include 'ohelo-kai (Lucium sandwicense), pohuehue (Ipomoea brasiliensis) and Fimbristylis seiboldii, a rush not previously identified for Hawaii (Whistler, 1984), and apparently introduced into the marsh since 1978.

Open Water and Associated Vegetation. The large open water areas on the southern side of Punahoolapa Marsh are surrounded primarily by ironwood trees, California grass, hau and great bulrush. While ironwood is not usually considered a wetland species, within this marsh it was usually observed rooted in water or muck (as opposed to Christmasberry which was usually observed rooted in soil slightly above the marsh level, and would be considered a more transitional or marginal species). Other plant species observed in this cover type include cattail, Bermuda grass (Cynodon dactylon), duckweed (Lemna minor) and native sawgrass. Smaller open water areas occur throughout the marsh and are typically surrounded by Bulrush Marshland.

Shrub thickets and California grass marshland are cover types within which most of the proposed fill occurs. Both cover types are dominated by exotic species, and form such dense stands that they are not suitable for waterfowl habitat. Species found in these cover types are found elsewhere not only in this marsh but in similar marsh habitats throughout the Hawaiian Islands.

No proposed, listed or candidate endangered or threatened plant species were observed within the proposed fill areas at the periphery of the Punahoolapa Marsh.

Transects taken through the proposed fill areas into the marsh indicate that these areas are probably transitional zones, seasonally wet, and may define the outer limits of the perennially wet marshlands. No native species were observed within the pluchea shrub thickets (S) on the western side. Shrub thickets to be affected on the northeastern side are primarily ironwood, pluchea and Christmasberry, common exotic species which may sometimes be considered pests, botanically, but which may serve here as a buffer or vegetative screen for herbaceous and open water areas of the marsh. A small area of bulrush marsh which may be affected by fill probably hosts native wetland vegetation such as bulrush, sawgrass and perhaps other sedges (the most common cover type throughout the marsh).

The small 'akulikuli mudflat (F) on the northern edge of the marsh is a relatively limited wetland subtype within Punahoolapa Marsh. Comparison of the actual mudflat area to the same mudflat area surveyed in 1978 indicates that the pluchea shrub thicket is encroaching on the open wetland. It is estimated that the present open mudflat area is approximately 1/3 the size of the 1978 mudflat area, indicating that the pluchea thickets may eventually fill in the open areas.

Current vegetation over the old right-of-way consists of koa-haole, pluchea, and other weedy shrubs which have overgrown the area (the entire length could be walked in 1978, but efforts to forge through or over the vegetation during the recent surveys proved fruitless).

Not indicated on Figure 13 is a small area near Kawela Bay which does meet the criteria of wetland as defined by the existing vegetation and soil condition. Vegetation on the slopes surrounding the wetland consists primarily of koa haole (Leucaena leucocephala), Christmasberry (Schinus terebinthifolius), milo (Thespesia populnea), hau (Hibiscus tiliaceus) and coconut palms (Cocos nucifera). This wetland contains a small open water area with emergent vegetation such as taro (Colocasia esculenta), water hyacinth (Eichornia crassipes) and bulrush (Scirpus spp.). No listed or proposed endangered or threatened plant species were observed in the area.

Proposed Action - Development of the project site will involve transforming portions of the existing vegetated areas of the subject parcel in phases (refer to Table 1) into a golf course, hotels, resort condominiums, parks, stable and roadways. Plans for the project site include development of: hotels H-1 and H-2 on lands with residential communities, agricultural fields, ironwood groves and scrub thickets; commercial area C-1 on agricultural fields; resort condominium A-1 on lands mostly identified as covered with resort facilities (existing golf course), ironwood groves, grassy clearings, and scrub thickets; A-7 on lands mostly identified as covered with resort facilities (existing golf course), grassy clearings, and scrub thickets; hotel H-4 in ironwood

groves; hotel H-3 on ironwood groves and scrub thickets and airstrip vegetation; and resort condominium A-2 in scrub thickets and airstrip vegetation; golf course G-2 in on lands mostly identified as covered with scrub thickets and agricultural fields. Some ironwood groves are also located within the area proposed for golf course G-2, but it is expected that many of the major trees will be retained to be included as part of the golf course landscaping. In addition, development plans may necessitate the removal of a small portion of the duneland vegetation mauka of park P-2 for the construction of the golf course. The sites proposed for condominiums A-3, A-4 and A-6 are mostly covered with scrub thickets, with some agricultural fields and ironwood groves. Many of the ironwood trees within these sites will be retained for landscaping. Condominium site A-5 is located within the scrub thicket cover type. Dedicating park P-2 to the county will retain most of the dunelands within the project site. Park P-3 is located within scrub thicket cover type and very little modification of this cover is expected. The site proposed for the stable is located within agricultural fields and it is expected that this area will be grassed and landscaped.

Proposed plans for Punahoolapa Marsh are described in section I. PUNAHOOLAPA MARSH.

It is recommended that this small wetland be preserved and incorporated into the landscape plans. It can be enhanced by clearing away the pluchea shrubs and water hyacinth and replanting with native sedges or other wetland vegetation that might provide suitable waterfowl habitat.

Anticipated Impacts and Mitigative Measures - With the exception of the dunelands, most of the existing vegetation within the project site is dominated by exotics, many of these undesirable weeds. The impact of vegetation removal will be limited to the temporary disturbance of their soil retention values. Once construction is completed, planted landscaping materials will assume these soil retention functions. Earthwatch recommends the use of native Hawaiian and Polynesian-introduced plant species for future replanting and landscaping (Earthwatch, 1978); it is the applicant's intention to implement this measure. Species selected would be suited to the coastal environment, and would include as many native plants as possible which currently inhabit the area. Some species which may be considered include hinahina, ilima, koko, pohuehue, and pohinahina. Rare species which may grow well in the environment will also be considered, such as beach sandalwood, dwarf naupaka and 'ohai.

Most of the duneland vegetation within the project site is located within the area proposed for park P-2. The removal of any naupaka from the duneland/scrub thicket vegetation mauka of park P-2 would not be an irreplaceable or irreversible loss of vegetative resources since this species can be easily replanted, and is found on dunelands outside of the project site. If the proposed plans for the project site are implemented (replanting and the inclusion and protection of dunelands within park P-2), no significant adverse environmental impacts relative to vegetation are anticipated.

Since the small wetland near Kawela Bay and surrounding vegetation consists primarily of non-native plant species, no significant adverse environmental impacts relative to vegetation are anticipated by clearing of vegetation, as long as the wetland is left in its natural state and suitable vegetation replaces any that is removed to preserve the wetland habitat.

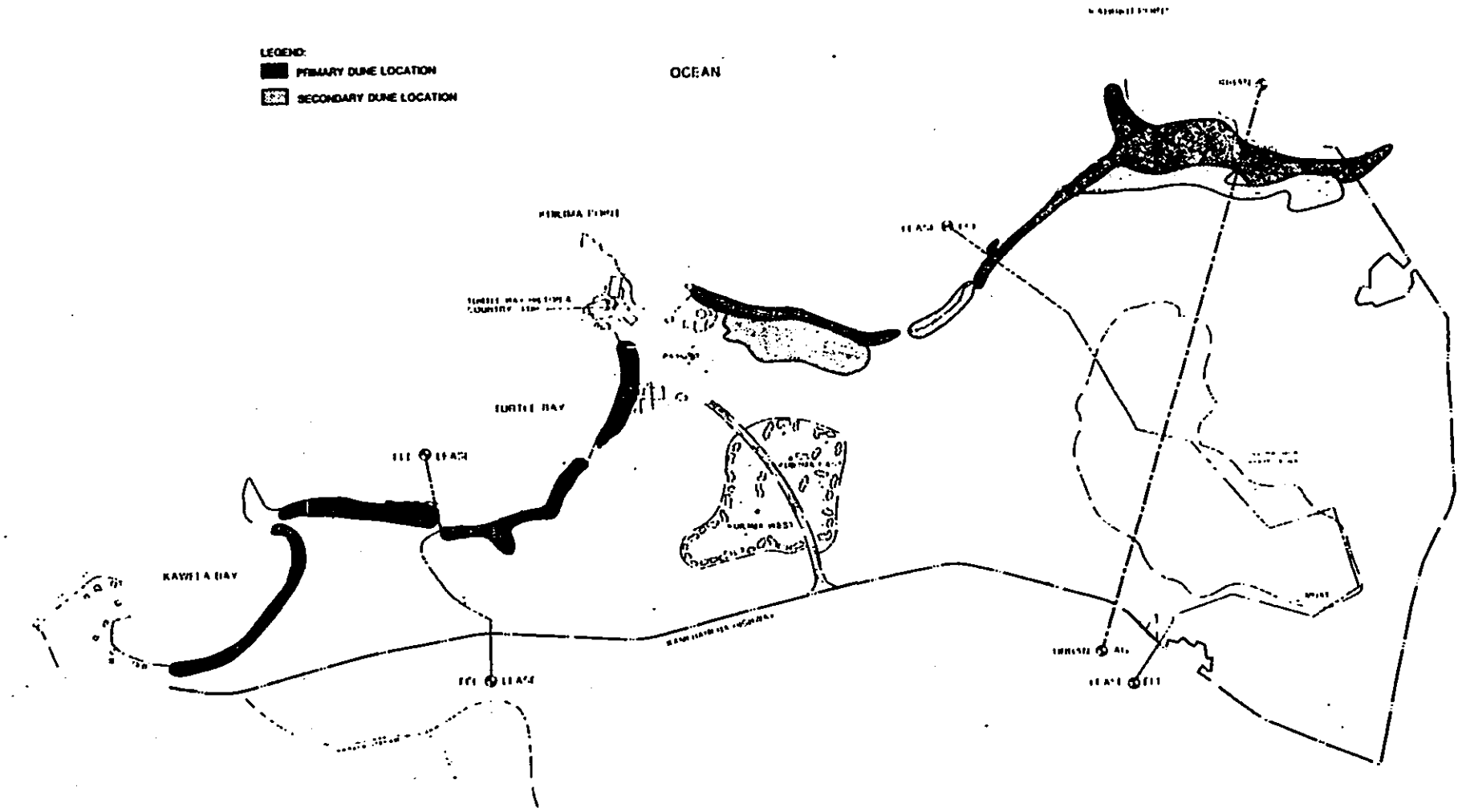
G. SAND DUNES

Existing Conditions - Dames & Moore conducted a field reconnaissance to delineate the approximate locations of primary and secondary dunes within the Kuilima resort expansion area for planning purposes. The approximate locations of primary and secondary dunes within the project site are shown on Figure 15. The following definition of primary and secondary dunes was provided by Dames & Moore (1985):

> "The primary dunes, located directly behind the beach zone, are greatly influenced by wind and water. The height and movement of these dunes are determined by wind direction and intensity. Because the prevailing winds are onshore, the dunes tend to migrate inland. Storm winds and waves deplete the dunes, shifting the sand seaward. The dune vegetation impedes the rate of sand movement. The cycle of accretion and depletion of primary dunes occurs over a time scale of years (as compared to months or tens of years). Vegetation characteristic of the primary dunes are low growing species that are extremely tolerant of salt water, strong winds, and sandy soil. These include grasses, succulent herbs, and herbaceous vines. Species prevalent at Kuilima are the pohuehue, naupaka, and akulikuli."
>
> "The secondary dunes are located inland of the primary dunes and are characterized by more mature vegetation -- shrubs and trees, such as the ironwoods prevalent at Kahuku. Formed by the accretion of wind blown sand, these dunes act as a second barrier against severe wind and wave erosion. The secondary dunes are occasionally destroyed by storm or tsunami waves but not as frequently as the primary dunes (on the scale of tens of years)."

Proposed Action - All of the primary dunes and most of the secondary dunes mauka of Hanakailio Beach, east of Kahuku Point, are located within the area proposed for park P-2. No structures other than those associated with public beach parks, such as showers and toilet facilities are proposed within this area. No structures will be constructed on the primary dunes on site, nor will they be modified in any way.

Anticipated Impacts and Mitigative Measures - Since showers and toilet facilities will be developed on the inland portions of park P-2, no construction or modification will occur on the primary sand dunes and there should be no alteration of their ability to absorb and dissipate high wave energy. In addition, the primary dunes will be retained as a natural area within the park, with activities limited to passive use of the area.



KUILIMA RESORT

- BASE MAP
- DUNE LOCATION MAP

GROUP 70
ARCHITECTS AND PLANNERS

NORTH

FIGURE 15 APPROXIMATE LOCATIONS OF PRIMARY & SECONDARY SAND DUNES

As per recommendations provided by Earthwatch (1978), in areas of expected high traffic in park P-2, turf-forming species resistant to trampling, such as Bermuda grass or seashore paspalum will be planted. Elsewhere on the dunes, native flora already found in the area will be used in the selection of plant materials.

H. TERRESTIAL VERTEBRATES

Existing Conditions - Dr. Andrew J. Berger was contracted to survey terrestrial vertebrates of the Kuilima Resort properties, including any birds, mammals, reptiles, or amphibians (1984). Berger's study is summarized below.

The only class of terrestrial vertebrates with threatened or endangered endemic species are birds. Endemic birds are species that are unique to the Hawaiian Islands; they occur naturally nowhere else in the world. All of the four Hawaiian waterbirds listed on the State of Hawaii and Federal endangered species list (the Hawaiian Stilt or Ae'O, Himantopus mexicanus knudseni; the Hawaiian Duck or Koloa, Anas wyvilliana; the Hawaiian Gallinule or 'Alae 'Ula, Gallinula chloropus sandvicensis; the Hawaiian Coot or 'Alae ke'o ke'O, Fulica americana alai) have been sighted at the Punahoolapa Marsh.

- The Hawaiian Stilt is a subspecies of the North American black-necked stilt. The largest populations now occur on Maui and Oahu. "Stilt forage in shallow water or on mudflats...Shallow open water and mudflats are limited in the Punahoolapa Marsh yet feeding stilt were observed in the marsh."

"Stilts nest on the open ground usually close to water. They are protective of their young and are easily agitated by the presence of man or other predators. Small islands that isolate them from such disturbance is usually necessary to insure nesting success. At present little or no habitat conducive to successful stilt nesting exists in the Punahoolapa wetland. Where mud flats or open water are found, a variety of predators have ready access." For these reasons Bruner (Bruner, 1978) found no evidence of breeding at the marsh.

A total of 28 stilt were counted at the marsh during Bruner's surveys (Bruner, 1978). "Six individuals were the most seen at any one time. Most birds were found on the mud flats at the eastern end of the site. Two stilt were observed feeding in the small ponds located on the northern edge of the wetland. Several stilt were seen flying from Punamano Pond towards Punahoolapa."

- The Hawaiian Coot is a subspecies of the American coot that has an extensive breeding range from Canada southward to Panama. Coots feed on a variety of items including aquatic vegetation, invertebrates, tadpoles, and small fish. They will dive for food or take it directly from the surface of the water. Although they occasionally come up onto mud flats, most of their feeding is confined to open water.

"Coots prefer open fresh and brackish water ponds, nesting along fringes or in small open areas in marsh vegetation...Coots build large, floating nests of aquatic vegetation...Coots are easily disturbed from their nests or from feeding areas by humans, yet will adapt somewhat to regular, non-threatening presence of humans."

Bruner (Bruner, 1978) counted an average of nine coots at Punahoolapa Marsh during each of his surveys.

- The Hawaiian Gallinule is an endemic subspecies of the Common Gallinule of North America and Eurasia. Although once more widely distributed, the gallinule is thought now to inhabit only Kauai and Oahu.

"Feeding is generally restricted to areas of shallow water close to emergent vegetation. Occasionally they will venture out onto floating vegetation or onto mud flats in search of food."

Nests consist of simple structures of folded vegetation.

Gallinules are much shyer than other waterbirds and they typically seek cover when they hear people approaching. During the January 1982 statewide census by personnel of the State Division of Forestry and Wildlife, only 194 gallinules were counted.

- The Hawaiian Duck is similar to and probably derived from the Mallard (Anas platyrhynchos). The Koloa was classified as a game bird until 1939, with a bag limit of 25 ducks per day. The species became extinct on Oahu during the 1950's. In 1972, a Koloa restoration project was initiated at Pohakuloa, Hawaii, and as of April 1979, 347 captive-raised Koloa had been released on Oahu: 199 birds at Kawainui swamp, 103 at Waimea Falls Park, and 45 at Nuupia pond on the Kaneohe Marine Corps Station. Birds from these release sites have spread to the James Campbell National Wildlife Refuge at Kahuku and to Punahoolapa marsh. Between 40 and 50 Koloa were flushed from open water areas at Punahoolapa during Berger's field survey.

"Koloa inhabit not only ponds but streams as well. They take a wide variety of foods including algae, snails, insects, and seeds of aquatic plants. At Punahoolapa, Koloa were observed feeding along the water's edge at the base of large Ironwood trees. Perhaps the Koloa were taking snails or other invertebrates that were attached to these roots. Koloa were also observed feeding and loafing on the sewage pond."

Koloa are reported to nest on the ground. Since the edge of this wetland is accessible to dogs and other predators, suitable nesting habitat is probably limited to the small patches of land surrounding the bases of the Ironwoods in the main pond complex...The meandering waterways around these Ironwoods tends to create small isolated islands." Bruner feels that these latter areas would be suitable for future nests (Bruner, 1978).

The endangered status of the Koloa, gallinule, coot and stilt results from a number of factors. Eggs and newly hatched young of all species are easy prey to mongooses, cats, and dogs. The downy young also enter the water shortly after hatching, where they are prey to bass, bullfrogs, and black-crowned night herons (Berger, 1981). Sudden changes in water level also cause the destruction of nests. Of equal importance is the historical loss of many lowland marsh areas. Review of aerial photographs taken in 1977 and 1983 reveals that open water areas of the marsh have been significantly reduced. This has resulted in a reduction of feeding and loafing areas within the marsh.

These endangered waterbirds also frequent nearby areas, including the James Campbell National Wildlife Refuge (which includes the Ki'i and Punamano ponds) and the resort's existing wastewater stabilization pond.

Other significant wildlife include indigenous birds. These birds are native to the Hawaiian Islands but are not unique to them. In this category are 22 species of sea birds, the Hawaiian black-crowned night heron, and a number of migratory species that spend their winter or non-breeding season in the islands. Indigenous birds sighted or presumed to inhabit the project site include: the Black-crowned night heron, Nycitcorax n. hoactli; the Golden plover, Pluvialis dominica fulva; and the Osprey, Pandion haliaetus.

In addition, more than 170 species of alien birds have been introduced to the Hawaiian Islands by man since 1796 (Berger, 1984). Berger identified the following introduced species in the Kuilima area:

Common Name	Scientific Name
Cattle Egret	Bubulcus ibis
Spotted or Lace-necked Dove	Streptopelia c. chinensis
Barred Dove or Zebra Dove	Geopelia striata
Barn Owl	Tyto alba pratincola
Melodious Laughing-thrush	Garrulax canorus
Red-vented Bulbul	Pynonotus cafer
Shama	Copsychus malabaricus
Japanese Bush Warbler	Cettia diphone cantans
Japanese White-eye	Zosterops japonicus
Common Indian Myna	Acridotheres tristis
Spotted Munia or Ricebird	Lonchura punctulata
Black-headed Munia	Lonchura malacca atricapilla
House Sparrow	Passer domesticus
Red-eared Waxbill	Estrilda troglodytes
Red-crested Cardinal	Paroaria coronata
Cardinal	Cardinalis cardinalis
House Finch	Carpodacus mexicanus frontalis

None of the above species are endangered, and many have proven to be serious pests, especially to agricultural crops, and the Barn Owl is known to prey on native birds. There have been no important changes in the avifauna of the area since a survey conducted in 1978 (Berger, 1984),

although there have been considerable increases in the populations of some of the alien seed-eating birds, notably the Black-headed Munia and the Red-eared Waxbill.

The only endemic land mammal in the Hawaiian Islands is the Hawaiian bat (Lasiurus cinereus semotus), a subspecies of the North American hoary bat. The Hawaiian bat is found primarily on Hawaii and Kauai (Kramer, 1971).

All of the introduced species of mammals sighted or presumed to inhabit the project site have proven highly detrimental to man, his buildings, products, agricultural crops, and/or to the native forests and their birdlife. None is an endangered species. With the possible exception of the house mouse (Mus musculus), all of the smaller introduced or alien mammals prey on birds, their eggs, and young. These small mammals include the roof rat (Rattus rattus), Polynesian rat (Rattus exulans), Norway rat (Rattus norvegicus), small Indian mongoose (Herpestes auropunctatus), feral cat (Felis catus), and feral dog (Canis familiaris). Also, cattle (Bos taurus) are grazing within the project site.

There are no endemic amphibians or land reptiles in the Hawaiian Islands. All, therefore, have been introduced (either intentionally or accidentally) by man. None are endangered species. Reptiles and amphibians presumed to inhabit the project site include: the Blind Snake, Typhlina bramina; eleven species of skinks (family Scincidae) and geckos (family Gekkonidae); the American Bullfrog, Rana catesbeiana; the Wrinkled Frog, Rana rugosa; and the Giant Neotropical Toad, Bufo marinus.

Proposed Action - Refer to the description of vegetation disturbance provided in section F. VEGETATION. For a description of the actions proposed for the waterbird habitat at Punahoolapa Marsh, refer to section I. PUNAHOOLAPA MARSH.

Anticipated Impacts and Mitigating Measures - During site development, a portion of the existing vegetation will be removed, and it is anticipated that the avi-fauna and mammals (introduced) which frequent the area being cleared will relocate to undisturbed portions of the site or to more suitable environs on adjacent lands (Punahoolapa Marsh). It is expected that these animals may return to disturbed areas when the landscaping that is planted mature enough to provide suitable food and shelter.

I. PUNAHOOLAPA MARSH

Existing Conditions - "Punahoolapa Marsh is a 106.8 acre wetland. Geologically the marsh lies in a large solution depression on the low-lying Kahuku plain. The surface of the marsh, which lies between Elevation 2 and 5 feet, is very level and is underlain by a peat and organic clayey silt up to 20 feet thick. Several small ponds occupy sinkholes within the area." (Dames & Moore, 1985)

"The only other geographic feature of note in the marsh is an old railroad right-of-way causeway several feet high which bisects the marsh on an east-west line. This causeway is currently overgrown with shrubby

vegetation and is nearly impassable. During the time of the survey, much of the marsh was covered by several inches of water, but in most places this was not visible because of the dense vegetation covering the area. The water is fresh to slightly brackish." (Dames & Moore, 1985)

Punahoolapa Marsh receives runoff from approximately 430 acres within the Kuilima Resort site, of which approximately 93 acres (drainage area) make up Punahoolapa Marsh (EDP Hawaii, Inc., 1984). In addition, the marsh also receives runoff from areas across Kamehameha Highway to the south, including runoff from Hoolapa Gulch (298 acres) and a drainage area of 132 acres south of Pump 2 (EDP Hawaii, Inc., 1984). The water collected within the marsh seeps into the ground and does not flow elsewhere.

Proposed Action - Development of the project site will also involve: transforming portions of the presently mostly undeveloped drainage areas into golf course, resort condominiums, roadways, and stable; and using fertilizers, herbicides and pesticides on the golf course.

Shown below is the estimated runoff for the Punahoolapa Marsh Drainage Basin (EDP Hawaii, Inc., 1984).

	10 Year	50 Year	PMP*
Hoolapa Gulch	626	834	2700
Area Above Pump 2	166	222	1350
Total Kuilima Resort expansion Area	769	1025	2700
Total Flow through Punahoolapa Marsh	1561	2081	6750

* PMP is equal to the peak discharge obtained by using Plate 6 of the City and County of Honolulu's Drainage Standards.

The applicant is planning to implement the following actions to preserve and improve the Punahoolapa Marsh habitat for the endangered Hawaiian waterbirds:

- The construction of a moat around the marsh surrounded by chain link fencing and a visual barrier of vegetation;

- The construction of additional open waterways makai of the existing open water areas; and

- The creation of a number of small islands.

Anticipated Impacts and Mitigative Measures - The proposed land modifications of the area adjacent to the marsh will result in increases in: nitrogen, total suspended solids, lead, and polychlorinated hydrocarbons (HCX) into the marsh. Most of the increase in nitrogen will be from the use of fertilizers on the proposed golf-course G-2 (Dames & Moore, 1985). It is expected that "This increase in nutrients will stimulate growth of both the algal species in the pond and the emergent vegetation along the perimeters of the pond" (Dames & Moore, 1985). While total suspended solids and lead will increase, it is anticipated that these inputs do not represent a significant increase from what is presently entering the the marsh.

It is expected that there will be a substantial percentage increase in HCX over existing levels (due to the increased use of herbicides and pesticides of golf course G-2), however, future total loading will remain small (Dames & Moore, 1985). The increase could be further minimized through the re-assessment of needs for pesticides, herbicides, and the like.

Increased drainage to the marsh will also occur as a result of the development. This increased flow will be a significant factor in how much of the estimated pollutant loadings are retained in the marsh. As flow increases, fewer suspended solids settle out of the runoff, and the time that hydrocarbons are in contact with the flora or fauna is likewise reduced. Increased flow through the marsh will result in many of the algal species, that might otherwise benefit from the increased nitrogen, being washed out of the ecosystem.

It is anticipated that implementation of the proposed enhancements to the Punahoolapa Marsh will have a positive impact on the marsh's value as a habitat for waterbirds. The U.S. Department of Interior Fish and Wildlife Service was consulted regarding the proposed filling activities on portions of the perimeter of the Punahoolapa Marsh and the proposed enhancements of the waterbird habitat within the marsh. Plans to fill and alter the marsh would be reviewed and controlled through a Department of Army Permit (the U.S. Fish and Wildlife Service is required to be consulted during the processing of the permit). The Fish and Wildlife Service reviewed the master plan of the proposed activities, conducted a field survey of the marsh (representatives from the State of Hawaii Division of Forestry and Wildlife, and the U.S. Army Corps of Engineers were in attendance; Dr. Berger was present also). The U.S. Fish and Wildlife Service recently wrote: "We are particularly pleased to note the improvements planned for Punahoolapa Marsh. Completion of these enhancement measures coupled with perpetual management to protect the native ecosystem character of the marshlands will provide significant benefits to both endangered Hawaiian waterbirds and to migratory waterfowl. We look forward with excitement to implementation of the proposed plans for the marsh" (Marmelstein, 1984).

J. HISTORICAL AND ARCHAEOLOGICAL RESOURCES

In 1977, a surface reconnaissance survey of the project site was conducted by the Anthropology Department of the Bishop Museum (Dye, 1977)as part of their reconnaissance survey of the Kuilima Resort expansion area. The survey was accomplished by walking coordinated sweeps through the project site, with survey team members spaced at regular intervals to insure thorough coverage. The abandoned asphalt runways and existing agricultural plots were not surveyed because they obviously appeared to be extensively modified. At that time, two sites (50-0a-F4-14 and 50-0a-F4-15), and one possible site were identified within the project site.

Recently, Paul H. Rosendahl, Ph.D., Inc. (PHRI) was contracted to conduct a subsurface reconnaissance of the Kuilima Resort expansion area. Review of aerial photographs taken in 1927, 1951 and 1968, and blueprints of the

Kahuku Air Base revealed areas where extensive land modification occurred as a result of past sugar cultivation and military activities. Based on the analysis of the above sources, 13 survey areas were selected within the project site. Survey areas are indicated on Figure 16.

Included in PHRI's scope of work within the project site was the following: inspection of all existing subsurface exposures for the presence of buried cultural deposits or features; subsurface testing of proposed drainage and stream alignments/realignments passing through both the Kuilima Resort property and the adjacent shoreline area (State Conservation District); subsurface testing of Site 50-0a-F4-15 to determine if the exposed black layer represents evidence of prehistoric wetland agriculture; subsurface testing of Site 50-0a-F4-14 to clarify the nature, age, and horizontal extent of previously identified buried cultural deposits (Dye 1977:3-5); subsurface testing of previously identified "possible site" to determine if exposed grey deposit is cultural in nature (Dye 1977:3); and general subsurface reconnaissance testing to sample remaining areas within the project site, including areas which are proposed for condominiums and areas where water hazards within golf course G-2 are proposed.

The areas occupied by the existing hotel and associated hotel units, the condominium complex, and the golf course were not included within the coverage of the subsurface reconnaisance project. The original construction of the resort, which reportedly did uncover archaeological remains, including human burials (Neller, pers. comm.), was assumed to have effectively destroyed all evidence of past occupations and activities.

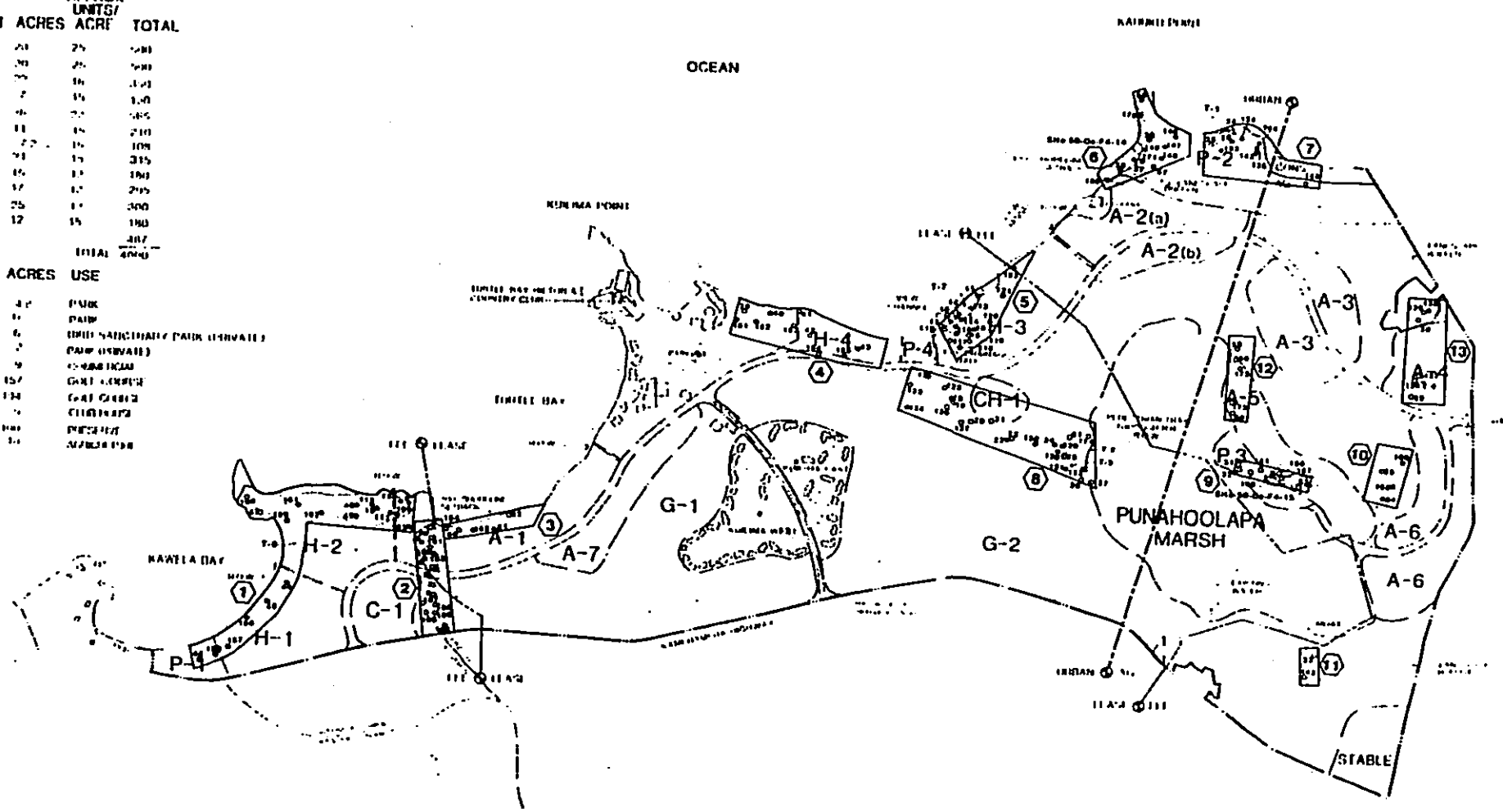
One specific area that was explicitly excluded from the subsurface testing is the beach exit of the existing drainage between the eastern edge of Survey Area 4 and the western edge of Survey Area 5. A visual check of the beach confirmed that sand-moving activities related to recurrent drainage clearing have been ongoing, probably since the construction of the barrier wall and culvert connecting the drainage channel to the beach. So much modification of the previously natural landscape has taken place in this small area that the possibility of any archaeological deposits surviving was judged to be very remote.

The scope of work was formally reviewed and approved by the State Historic Preservation Office (Nagata, 1984). The following is a summary of PHRI's report.

Existing Conditions - In addition to the sites identified during the 1977 Bishop Museum survey, seven sites (T-1 thru T-7) were identified. The range of archaeological features found within the project area includes prehistoric subsurface cultural deposits and burials, historic walls, possible agricultural soils, and recent military and other structures. The overall physical condition of the archaeological remains is fair. In general, the potentially most significant remains, the prehistoric subsurface cultural deposits and associated burials, are located along the coast. The inland portion of the project area has been extensively modified during the recent historic past, as documented by a 1951 aerial photo of the Kahuku area and the Kahuku Air Base General Plan, and as confirmed by recent field work findings. One area that appears to have

DESIGNATION	ACRES	APPROX UNITS/ ACRE	TOTAL
H-1	20	25	500
H-2	20	25	500
H-3	20	15	300
H-4	7	15	105
A-1	45	15	675
A-2(a)	11	15	210
A-2(b)	22	15	105
A-3	21	15	315
A-4	15	13	195
A-5	17	17	295
A-6	25	12	300
A-7	12	15	180
EXISTING HOTEL			407
		TOTAL	4060

DESIGNATION	ACRES	USE
P-1	3.5	PARK
P-2	6	PARK
P-3	6	BIRD SANCTUARY PARK (PRIVATE)
P-4	3	PARK (PRIVATE)
C-1	9	CHAMPIONSHIP
G-1	157	GOLF COURSE
G-2	134	GOLF COURSE
CH-1	4	CHURCH SITE
MARSH	140	PRESERVE
STABLE	3.5	STABLE USE



KUILIMA RESORT

BASE MAP

FIGURE 16 ARCHAEOLOGICAL SURVEY AREA AND TEST LOCATION MAP

Subsurface Archaeological Reconnaissance Survey
Kuilima Resort Expansion Project
Lands of Opana, Kawela, Hanakoa, Kahuku
Waiahoahoa, Punaluu and Kahuku
Koolauloa District, Island of Oahu
PHRI Project 84-137 September 1984

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escaped substantial human modification is the Punahoolapa Marsh, located in the eastern portion of the project area. Sites in the general vicinity of the marsh include possible agricultural soils, historic walls, and recent military and other structures.

During the earlier survey, 50-0a-F4-15 was viewed as a possible wetland agricultural site because of the presence of a peat layer overlying a layer of Pearl Harbor clay; "the black layer, [that] may represent the remains of prehistoric agriculture" (Dye, 1977). Dye stated that "Limited test excavations and laboratory analyses are needed to determine whether wet-land agriculture was practiced prehistorically at Site 50-0a-F4-15". A faced-section test (TU 53) was placed in the vicinity of the original Bishop Museum test location, 50-0a-F4-15. Both (50-0a-F4-15 and TU 53) displayed a stratigraphy that had a black peat layer over a very dark grey clay layer. This stratigraphy has these layers reversed when compared with the column for Pearl Harbor clay (Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii). Thorough examination of the area, clarified the discrepency. The backhoe cut was made through a back dirt pile which was formed by the deposition of excavated material from a sink hole, thus inverting the stratigraphy. The site still has low to moderate research value because the underlying Pearl Harbor clay soils could have supported taro cultivation. Limited testing and archaeological monitoring is recommended for this area.

Located along the coastal stretches of Kahuku Point, site 50-0a-F4-14 was described as two subsurface occupation layers found at Kahuku Point. The upper layer appeared to be transitional from prehistoric to historic, while the lower was judged to be prehistoric on the basis of its stratigraphic position and the absence of historic artifacts. Subsurface testing demonstrated that three cultural layers to be present here. The cultural nature of the layers is evidenced by the recovery of midden remains (PHRI 1984; Dye 1977:5), and the previously excavated firepits and artifacts (Dye 1977:5). The radiocarbon date obtained on the stratigraphically lowest of these cultural layers has a date range of 165 B.C.-A.D. 210. What it specifically dates is not certain, it is entirely possible that the date may be from pre-human (natural) organic materials which became mixed with the cultural deposit. The fact that no diagonistic early artifacts were associated with the dated layer further indicates the need for extreme caution in interpreting the potential significance of the date. In addition, the other age determination from the site* yielded a late 15th century to present date for a subsurface feature. *(As noted on page 49 of the "Subsurface Archaeological Reconnaissance Survey Kuilima Resort Expansion Project" (PHRI, 1984), Site T-1 is quite likely an eastward portion of Site 50-0a-F4-14, as the two cultural layers found at T-1 are very similar to Layers III and IV on the other side of Kahuku Point.) The similarity of stratigraphy noted in F4-14 on the west side of Kahuku Point and T-1 on the east side of Kahuku Point also raises a very important question. If the observed similarity of the stratigraphic layers actually represents equivalence, then there is a wide disparity in age which needs clarification. The later date is more than 500 years later than the former, and this fact combined with the absence of a deposit of sufficient depth to represent over 1500 years of cultural deposition should also be a strong indication that the earlier date must be interpreted with great caution. Intensive survey and testing of both sites is strongly recommended in order to determine fully and document their nature and significance.

In the earlier survey (Dye 1977), a third site was noted as a "possible site" but not recorded. This site was located in a beach berm somewhat to the west of Kahuku Point, and the evidence cited was the presence of subsurface grey layers visible on the ocean side of the eroding berm. In this area, Site T-7 (PHRI) was found along the ocean side of the high beach berm, or dune. On the evidence so far gathered, the cultural deposits in the berm are either early historic or recent. The co-occurrence of wood and corrugated iron roofing materials with firepits and imu suggests that the site may be recent. The beach location implies that the site may be related to present-day shoreline fishing activities. From ground inspection, subsurface auger testing, and study of the Kahuku Air Base maps, it is clear that this area was heavily modified by WW II runway construction. The construction activity apparently was extensive enough that any evidence of prior prehistoric or historic occupation which may have been present has been obliterated. PHRI recommends limited testing for Site T-7, and archaeological clearance for the rest of Survey Area 5.

Two layers of subsurface cultural deposits and burials are evident in the T-1 site: the upper is a grey layer associated with burials; and the lower is characterized by a heavy charcoal deposit and firepits. One radiocarbon age testing for a firepit from the lower layer of the site yielded a calibrated date range of A.D. 1655 to 1950. The actual occupation could fall anywhere within this range. The fact that the burials which overlie the dated layer produced no post-contact remains would strongly suggest that the dated layer is prehistoric, and probably dates toward the earlier portion of the corrected date range. Site T-1 has been determined to have high research value.

Sites T-2 and T-5, are stacked coral walls that require no further archaeological work, but which are recommended for incorporation into project area landscaping. They possess low research value, and low to moderate interpretive value, as they are surface structures that have been identified on early historic maps as related to ranching activities.

Sites T-3 and T-4 are both recent in origin. Site T-3 was determined to be an animal pen consisting of an enclosure of wooden posts (cut from logs), walled with corrugated iron. The nails used appeared modern rather than earlier historic. Some cow bones were noted adjacent to the enclosure. Site T-4 is an octagonal poured concrete roofless structure which is assumed to be of military origin. Sites T-3 and T-4 possess little or no archaeological significance, and require no further archaeological work.

Site T-6 is located along the coastal section Kawela Bay and extending to the east. Auger tests suggest that it is a single component occupation site. A subsurface cultural deposit yielded both indigenous and historic artifacts, and has a calibrated date range of A.D. 1630 to 1950. Burials are clearly present, but how they relate to the occupation is not clear on the basis of reconnaissance testing. The recovery of indigenous artifacts lends some strength to the historically documented pre-contact phase at Kawela Bay. Historical documentary records suggest extensive use of the area around site T-6 in the past. The Land Commission records of 1847 and

1848 indicate that many of the Hawaiians represented in land claims examined had their house lots at Kawela Bay. Rights of occupancy for some of these lots were testified to as dating back to Kamehameha I, and by implication even earlier. Thus the site is possibly a transitional one, which could provide valuable evidence bearing on both pre- and post-contact adaptations and the processes of change.

The full subsurface limits of Site T-6 were not determined. It is quite probable that the buried deposit that constitutes the site continues around to the west side of Kawela Bay, outside of the project area limits. Inland of the coastal fringe, the land has been plowed for agricultural purposes since at least 1927. Because the cultural deposit consists of the upper portion of the stragigraphic profile, the probability is high that the deposit has been disturbed by plowing in these fields. The eastern boundary of the site is established, as the cultural deposit does not extend into Survey Areas 2 and 3. The primary site area remaining is along the beach front that has been used for residential purposes, and it is quite likely that extensive portions of the site are still intact.

Test units revealing what were originally suspected as agricultural soils extend across the inland area and include Survey Areas 8, 11, and 13. The soils are classified as Pearl Harbor clays and are considered suitable for taro cultivation (Foote et al. 1972:112-113). It is still very likely that the Punahoolapa Marsh and surrounding area supported some wetland taro cultivation in the past, even though there are no field findings to substantiate directly this claim. Referring to the presence of old taro terraces in 1935, Handy and Handy stated that "...in the seaward swampland north and south of Kukio Pond there were such remains" (1972:462). This reference describes the area inland of Kahuku Point, an area that has been extensively modified, except for Punahoolapa Marsh and its immediate periphery. The historical documentary records, the suitability of soils for taro cultivation, and the subsistance requirements of the local prehistoric and early historic populations all tend to support the contention that the areas surrounding the marsh were most likely cultivated in the past. Limited testing and archaeological monitoring during land modification activities in the marsh area are therefore recommended to clarify this issue of possible agricultural soils.

The State Historic Preservation Office has made the determination that three sites in the project area are eligible for inclusion on the National Register of Historic Places. Their determination is based on the sites' potential for archaeological research. The three sites are PHRI sites T-1 and T-6, and Punahoolapa Marsh. When a formal statement regarding the eligibility of sites is recieved it will be included in the EIS.

Proposed Action - It is the applicant's intention to implement all of the previously described recommendations. In addition, the applicant proposes to dedicate park P-2 (in which all of site T-1 is located) to the County for the development of a passive beach park.

Anticipated Impact and Mitigative Measures - According to their determination the State Historic Preservation Office, the project will have an adverse effect on the three sites deemed eligible for the National

Register of Historic Places. However, the previously described recommendations will be implemented, consultations with the National Advisory Council will be initiated (pursuant to the procedures outlined in 36 CFR 800) and a Memorandum of Agreement will be drawn to minimize impacts to the eligible sites prior to construction.

It should be noted that there is always a possibility that previously unrecorded sites or features could be uncovered in the project site during construction. It is expected that the Memorandum of Agreement will include a clause that a professional archaeologist be present during construction to monitor soil disturbance activities. If any unanticipated sites are encountered within the project area after the intensive level surveys are completed, the archaeologist will stop work and contact the State Historic Preservation Office.

Since no construction or improvements, including roads, are proposed within the area to be left in the Conservation District, no direct impacts to archaeological sites in that area are expected.

K. AGRICULTURE

An agricultural feasibility study of the project area zoned Ag-1 was conducted by Frank S. Scott, Jr., Ph.D. (1984). While some lands are being leased for agricultural purposes inland of Kawela Bay, the agricultural feasibility of these lands were not studied because the present use of these lands represent an underutilization of their R-6 zoning designation. Scott's report is summarized as follows:

Existing Conditions - Lands zoned Ag-1 within the project site covers approximately 394.0 acres. Of the 138 acres currently leased by four farmers within the project area zoned Ag-1, Scott estimates that not more than 20 acres is in crop production and the remainder is utilized for farm structures, roadways and cattle grazing.

Scott studied the soil types of the lands zoned Ag-1 according to classifications by: the State of Hawaii Department of Agriculture, Agricultural Lands of Importance to the State of Hawaii (ALISH); the Soil Conservation Service (SCS); and the Land Study Bureau (LSB). After analyzing the various soil classifications and conducting an on-site field inspection, Scott determined that the only moderately good to prime land is located on approximately 48 acres in the south-mauka corner of the project site. Another 60± acres, classified by SCS as type III (with severe limitations), and extending makai and north of the prime land, can be considered submarginal for commercial agriculture under irrigation. Scott determined that the remaining land within the project area zoned Ag-1 is infeasible for any type of cultivated crop production.

Proposed Action - Crop production and grazing will be discontinued within the project site, and in its place resort condominiums, a major portion of an 18-hole golf course, parks, and a stable will be developed.

Anticipated Impacts and Mitigative Measures - Implementation of the proposed activities within the Ag-1 zoned lands will involve the loss of approximately 48 acres of good agricultural land. However, Scott notes that the climate and the marketability of the crops that would be environmentally suited to the project site, in comparison to crops grown elsewhere, leaves the Ag-1 zoned lands as being infeasible for agricultural use.

The types of crops suited for the existing soils and climate are extremely limited. Truck crops are currently grown under irrigation in the south-mauka corner of the project site. Low growing crops, such as watermelons, are well adapted, except for disease and insect problems. Limited amounts of warm climate vegetables are also grown, but staked vine crops are subject to wind damage as well as disease and insect problems. Many vegetables grown in Hawaii require a more temperate climate than in the project site, such as Kula on Maui, and Waimea on Hawaii. Among the crops in this category are cabbage, onions, celery and certain types of lettuce. Other major vegetables, such as Irish potatoes are not generally grown in Hawaii.

Flower and foliage production is better adapted to areas less subject to wind and salt problems than the project site. Papayas are only marginally adaptable to the area because of wind damage and phytophthora root rot, which is aggravated by heavy winter rains and inadequate drainage. Citrus, avocados, and macadamias are better adapted to areas with less severe wind problems and better drainage, but could be grown, with limitations, in the south-mauka corner of the project site, which has good soil, fairly good drainage and is subject to less damage from prevailing winds than areas closer to the ocean. Bananas are well adapted to the south-mauka corner of the project site, except for potential serious losses from both prevailing and Kona wind storms.

Cattle grazing is marginally adaptable to portions of the project site with better drainage and freedom from ponding. The intensity of grazing is limited without irrigation because of minimal warm season rainfall and is economically infeasible with irrigation because of water cost. Grazing offers the least productive use value of the land and would provide a prohibitively low net return per acre. Most cattle grazing in the state is restricted to marginal lands of minimal market value at higher elevations.

Better drained lands in the Ag-1 zoned lands could feasibly be used as sites for hog or dairy production, except for incompatibility with existing nearby resort and residential areas.

Scott determined that only truck crops can meet all the criteria for agricultural feasiblity other than the sales potential, such as: ecological adaptation, economic viability, comparative costs of production and intensity of production (this does not imply that other crops are not grown or cannot be grown in the area).

The acreage required to displace imports of truck crops that can be grown in Hawaii is sufficiently large that the market potential itself is not a limiting factor for the 48 acres within the Ag-1 zoned lands. Scott found, however, that the sales potential or the ability to compete with other production areas in the market is a potential problem.

Although subject to production problems, watermelons are currently the most important truck crop in the Ag-1 zoned lands. Only 39 percent of the Hawaii Market supply of 9,770,000 pounds of watermelons in 1983 was produced in Hawaii. The annual harvested acreage of watermelons on Oahu has averaged about 70 acres during the past five years, but Oahu's share of state production has declined from 56 percent of 125 acres in 1979 to 23 percent of 310 acres in 1983. The major expansion in production has taken place on Molokai and Kauai, where production per acre is higher and costs are lower than on Oahu. These conditions indicate a probable impending decline in watermelon production on Oahu.

While Kahuku is the center of watermelon production on Oahu, harvested acreage in the Ag-1 zoned lands is estimated at not more than 20 acres during any one year. Insect damage has caused low per acre yields, although recent better production practices have tended to alleviate this problem. The harvest season has generally been restricted to the period from May through October, because of the adverse effects of heavy rains and reduced light intensity during winter months. The several months duration in harvest reflects staggered plantings rather than multiple cropping and watermelon production on Oahu is generally limited to one crop per year.

Although ecologically adapted to the project site if irrigated, guava cannot be considered a crop with good soils potential because of the recent large excess of supply over demand, resulting in depressed prices and abandonment of orchards.

Displacement of banana imports offers a substantial market. However, expansion in production is expected to take place on large, well-managed farms in Puna and to a lesser extent on Kauai, at the expense of production on Oahu.

While papayas have been produced in the project site, ecological adaptation is marginal.

According to Scott's studies, the market is a major limiting factor to expanded vegetable production in the Ag-1 zoned lands. The only promising crops, insofar as the market is concerned, are green peppers, for which displacement of 1983 imports would require about 90 acres, and cucumbers, for which displacement of imports would require about 78 acres. Displacement of sweet potato imports would require 32 acres, but other areas on Oahu and on the outside islands are considered superior to the project site for sweetpotato production with respect to both ecology and cost of production. A substantial market exists for certain other vegetables, such as tomatoes, but tomato production is better adapted to greenhouse production, rather than as a minor crop in small farm field production which characterizes farming in the project site.

Scott noted that the acreage in cultivated crops on Oahu has steadily declined during the past ten years from 51,900 acres in 1974 to 49,100 acres in 1979 and 41,400 acres in 1983. The very marked decline of 7,700 acres of crop production between 1974 and 1979 exceeds that which has been converted to uses other than agriculture, resulting in a stockpile of unused agricultural land of good quality. Most of the decline has been in sugar and pineapple production. Some of this land offers a potential for expansion in diversified crop production with respect to ecology, but high land prices, market limitations and difficulties in obtaining agricultural subdivision permits have prevented its use for this purpose.

Scott has determined that the loss of 48 acres of good land within the Ag-1 zoned lands will not be adverse to Oahu agricultural production needs, as the total acreage of available good agricultural land on Oahu is estimated to exceed foreseeable crop production needs by over 11,000 acres. Because of lower land cost and lower or no irrigation water cost, production centers for crops such as bananas, watermelons, and guavas are moving to outside islands, thus increasing the amount of unused prime agricultural land and decreasing the agricultural need for it on Oahu.

A comparison of the economic impact of the proposed activities within the Ag-1 zoned lands with the estimated value of existing agricultural production is discussed in Section 0. SOCIO-ECONOMIC CHARACTERISTICS.

Scott states in his report that "rezoning of the entire 394± acres of Ag-1 land in the Kuilima Resort Expansion Project would have no adverse effect on agriculture in the state, except for the displacement of four lessees whose lease agreements are currently on a month-to-month basis". Subsequent to the filing of the Draft EIS, we have learned that the applicant has been assisting the farmer/lessee in their search for agricultural lands off-site. The applicant has met with the farmer/lessees on three occasions. The farmers provided information on the acreage that they are seeking and the crops to be potentially cultivated. The applicant then researched the availability of land in the area (including acreage immediately mauka of the project site), on Oahu and on the neighboring islands, and the availability of federal grants and provided this information to the farmers. Essentially, the farmers found that their existing leases with the applicant were significantly lower than existing market rates. (When the applicant assumed the fee simple ownership of the lands presently being leased to the farmers, it had decided to allow the tenants to enjoy the use of the lands as long as possible, with no increases in lease rent.)

It should be noted that a possible alternative relocation site for the farmers could be the Kahuku Agricultural Park. Pending approval of subdivision and construction plans by the City and County of Honolulu, the Park will contain 24, 5- to 10-acre lots (550 acres total) for a mix of truck crops, orchards and nurseries.

Coordination between the farmers and Kuilima Development Company is still ongoing. In any event, the applicant will still provide 6 months notice prior to the termination of leases (it should be noted that the lessees have been aware of the eventual termination of their leases since 1978), and will allow the farmers rent-free tenancy during that six month period.

L. NOISE

Existing Conditions - The project site is bordered on the north by the ocean; on the west by residences along west Kawela Bay; on the south by Kamehameha Highway and a small kuleana; and on the east by Kahuku Airport road and another small kuleana. Beyond Kamehameha Highway are agricultural fields without any inhabitants. Beyond Kahuku Airport Road are mostly agricultural and aquacultural activities. In the middle of the project site are the condominiums of Kuilima East and West. Depending on the location within the project site, noise from wind and vegetation, ocean surf, traffic along Kamehameha Highway, and military activity (helicopters) contribute to the sound level. During the preparation of the Kahuku Wind Energy Project Revised EIS, background noise measurements were taken at 5 stations off Kamehameha Highway between 2:00 p.m. and 3:00 p.m. (Bechtel Power Corporation, 1981). Three of the stations were located on the site's mauka boundaries: one on a private road near Kawela Bay; one on the existing golf course west of Kuilima Drive; and another in an open field near or within the western boundary of the project site near Kamehameha Highway. The noise level reading for the Kawela Bay area was 60 (dB(A)); the reading for the golf course was 54 (dB(A)); and the reading for the open field was 50 (dB(A)). In comparison, levels of sound which are commonly experienced (not limited to project site) are shown on Table 6 (Bechtel Power Corporation, 1981).

Proposed Action - Development of the project site will involve land clearing, site preparation, construction of infrastructure and buildings, and the installation of landscaping.

Anticipated Impacts and Mitigative Measures - The construction phases of a development project generally generate significant amounts of noise; the actual amounts generated are dependent upon the methods employed during each stage of the process. Typical construction equipment noise ranges (in dB(A)) are shown on Figure 17 (Bolt, 1971). Earthmoving equipment such as bulldozers (76-96 dB(A)); and diesel powered trucks (74-94 dB(A)) will probably be the loudest equipment used during construction.

Title 11, Administrative Rules, Chapter 43, Community Noise Control for Oahu specifies maximum allowable levels of noise for each use zone contained in the City and County of Honolulu's Comprehensive Zoning Ordinance. Allowable noise levels from the project site, assuming Preservation and Apartment zoning, are:

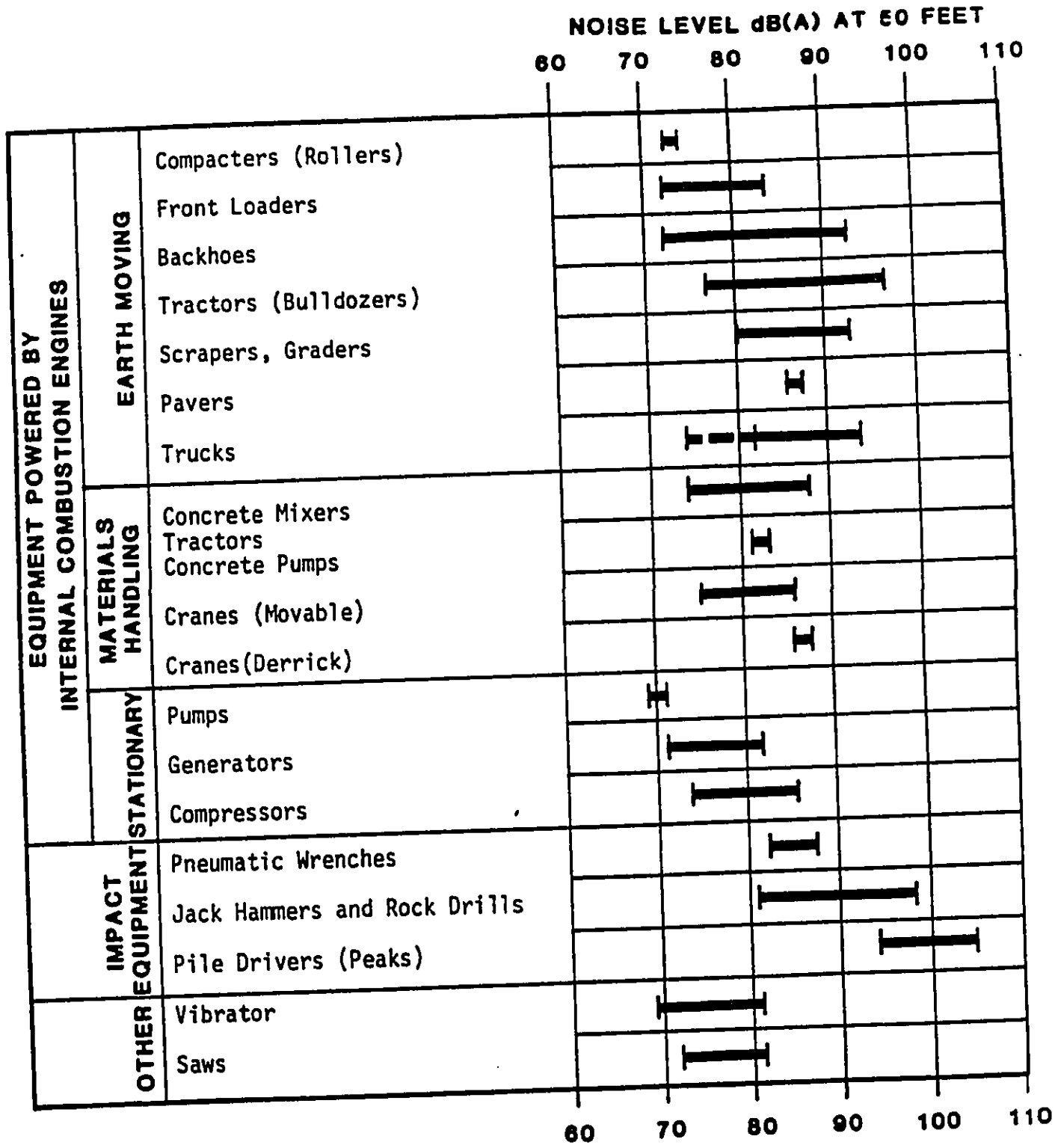
Preservation (P-1)
Daytime (7 a.m.-10 p.m.): 55 dBA
Nighttime (10 p.m.-7 a.m.): 45 dBA.

Apartment (A-1 through current A-5)
Daytime (7 a.m.-10 p.m.): 60 dBA
Nighttime (10 p.m.-7 a.m.): 55 dBA.

These standards apply to continuous sounds. The allowable level for "impulse" noise is 10 dB(A) above those listed. The Comprehensive Zoning Code also regulates stationary noise levels on private property.

Table 6
COMMONLY OCCURRING LEVELS OF SOUND (dB)

0	
	Threshold of Hearing
10	
	Broadcasting Studio
20	
	Bedroom at Night
30	
	Library
40	
	Residence
50	
	Conversational Speech
60	
	Street Traffic at 100 Feet
70	
	Light Truck at 20 Feet
80	
	Inside Motor Bus
90	
	Looms in Textile Mill
100	
	Loud Motorcycle at 20 Feet
110	
	Peak Level from a Rock and Roll Band
120	
	Pneumatic Chipper
130	
	Jet Plane on the Ground at 20 Feet
140	
	Threshold of Pain
150	



Note: Based on Limited Available Data Samples

SOURCE: Bolt, Beranek, and Newman (1971), p. 11.

FIGURE 17 CONSTRUCTION EQUIPMENT NOISE RANGES

and West condominiums will continue to be completely surrounded by golf course G-1, and is unlikely to experience any significant differences in ambient noise levels. Due to expected increase in recreational use of Kawela Bay (from P-4, hotel sites H-1 and H-2, and R.O.W. 1), the residences of west Kawela Bay, Kawela Kai, can be expected to experience the greatest change in daylight noise levels. Since most of the hotel facilities within hotel sites H-1 and H-2 will be setback 300 feet from the shoreline, and will be heavily landscaped, it is expected that there will a significant buffer between the residences of Kawela Kai and sounds generated by the evening functions at the proposed hotels.

While noise is usually associated with recreational facilities, the proposed facilities within the project site will either be of a passive nature or will be buffered by the proposed golf courses, which by themselves will generate very little noise. P-3 is proposed to be a passive park with facilities focussing on the appreciation of the Punahoolapa Marsh waterbird habitat. It is expected that activities that would disturb the waterbirds in the marsh will not be allowed in this park. Likewise, most of the boundary of the project site shared by the marsh will be occupied by golf course G-2 and park P-3, areas which should generate little noise and which should act as a buffer from more "active" areas. The proposed equestrian area is surrounded by golf course G-2 and the noise generated by the former facility is likely to be heard only by golfers. The kuleana on the eastern boundary of the project site and A-3 are buffered from park P-2 by golf course G-2. The kuleana on Kamehameha Highway is surrounded by golf course G-2 and will be subject to very little recreational noise.

M. AIR QUALITY

The impact of the project on the air quality of the area was studied by Barry D. Root (1984). Root's report is summarized as follows:

Existing Conditions - The project site is located on the windward side of Oahu with no industrial activity upwind for thousands of miles. The only significant sources of man-made air pollution in the area are motor vehicles traveling along Kamehameha Highway adjacent to the mauka project site boundary (and downwind of the project site). There is no agricultural activity requiring open field burning in the immediate area.

Natural air pollutant producers, which could affect air quality in the project site, include the ocean (sea spray), plants (aero-allergens), dust, and on occasion, a distant volcanic eruption on the Island of Hawaii. Concentrations of air pollutants from these kinds of sources should be fairly uniform for most windward Oahu locations.

There are no ambient air quality monitoring stations within the immediate vicinity of the proposed project. The only long-term air pollution monitoring station along the windward coast of Oahu is located in Waimanalo, about 32 miles southeast, and only particulates are measured at that location. For the past 15 years, 24 hour and annual averages of particulate measurements at Waimanalo have been running at about one-half of the allowable State of Hawaii Air Quality Standards.

Proposed Action - The undeveloped portions of the property will be developed to construct the proposed hotels, resort condominiums, commercial areas, and golf courses (including the renovation of the existing course). Also, refer to the discussion of the expected increase in traffic to be generated by the project in section P., 1. Traffic and Roads.

Anticipated Impacts and Mitigative Measures - During the site preparation and construction phases of this project, it is unavoidable that some fugitive dust will be generated. This impact and proposed mitigative measures are discussed in section B. SOILS.

It is also inevitable that construction equipment will emit some air pollutants in the form of engine exhausts. The largest equipment is usually diesel powered. For this type of equipment, individual carbon monoxide emissions are usually no more than those of the average automobile, but nitrogen dioxide emissions can be relatively higher. However, nitrogen dioxide emissions from other sources in the area should be relatively low, and the overall impact of pollutant emissions from construction equipment should be minor compared to levels generated on Kamehameha Highway.

Once completed, the only potential long-term indirect impact from the Kuilima Resort expansion project will be in the form of increased power plant emissions associated with provision of electricity to the project and increased automobile emissions from vehicles arriving and departing the project area.

It is expected that nearly all of this electricity will be generated by burning fuel oil. The major impact of any fuel oil burned to supply the needs of this project, will be increased sulfer dioxide and particulate levels in the vicinity of present Hawaiian Electric power plants, primarily the Kahe Plant on the Waianae coast. Electrical requirements for the project can be reduced considerably by designing all structures on site to accomodate solar water heaters and/or energy efficient appliances.

In order to evaluate the air quality impact of increased traffic in the Kuilima Resort area, a study was designed to yield carbon monoxide concentration values which could be directly compared to allowable State and Federal Air Quality Standards. The modeling study indicates that air pollutant concentrations from vehicular sources in and around the Kuilima Resort expansion project can be expected to be within allowable air quality standards even under worst case traffic and meteorological conditions. For this reason, no special mitigation measures seem necessary in this regard (Root, 1984).

Motor vehicles, especially those with gasoline-powered engines, emit carbon monoxide and some nitrogen dioxide. Those motor vehicles burning fuel which contain lead as an additive, contribute some lead particles to the atmosphere as well. The major control measure designed to limit lead emissions is a Federal law requiring the use of unleaded fuel in most new automobiles. As older cars are removed from the vehicle fleet, lead emissions should continue to fall. Federal control regulations also call for increased efficiency in removing carbon monoxide and nitrogen dioxide

from vehicle exhausts. By 1995 carbon monoxide emissions from the vehicle fleet then operating are mandated to be little more than half the amounts now emitted.

N. VISUAL

Existing Conditions - Valued scenic resources on the project site include: Kawela Bay, Turtle Bay, Kahuku Point (and inland sand dunes), and Kuilima Point. Due to the distance of the shoreline from the nearest inland public roadway, Kamehameha Highway, these scenic resources and the shoreline are presently not visible to the public. The only major residences nearby the project site are located on west Kawela Bay.

Proposed Action - The proposed resort expansion includes the development of two hotels, the dedication of public park P-1 at Kawela Bay and the widening of the outlets of the East and West Main Drains.

Anticipated Impacts and Mitigating Measures - The proposed development will not substantially interfere with or detract from the line of sight toward the sea from the State highway nearest the coast, Kamehameha Highway. The applicant proposes the establishment of a minimum 100-foot setback along the project shoreline (except for the existing Turtle Bay Hilton and Country Club); this should maintain existing public views along the shoreline.

In order to minimize the visual impact of the proposed hotels at Kawela Bay, it is the applicant's intention to observe the Development Plan for Koolauloa principles and controls for the Kahuku Point-Kawela Bay Resort Area in designing the hotels. These are listed in PART IX, section D., 2. Development Plan Special Provisions, and include the following: "Structures in the Kawela Bay increments over 50 feet shall be setback a minimum of 300 feet from the shoreline...Plantings shall be placed, and structures sited, in such a manner as to preserve the natural integrity of Kawela Bay and to screen buildings from viewers on the West side of Kawela Bay...Landscaping and design shall be implemented to preserve the existing character of Kawela Bay and surrounding areas...Existing vegetation shall be retained and utilized in landscaping wherever possible." A visual analysis of existing and future views of hotel site H-1 from the west side of Kawela Bay is shown on Figure 18, before and after construction.

In order to maintain and enhance views of the ocean from the project site, all structures will be sited and designed with appropriate building heights, setbacks, design and siting controls established in the CZC. It is expected that the widening of the outlets of the West and East Main Drains will improve these view corridors to the ocean.

O. SOCIO-ECONOMIC CHARACTERISTICS

1. Population

The socio-economic impact of the proposed resort expansion was studied by Community Resources, Inc. and A. Lono Lyman, Inc. (1984). Their joint report is summarized in this section as follows:

EXISTING

PROPOSED

KUILIMA RESORT

GROUP 70
ARCHITECTS AND PLANNERS

FIGURE 18 VISUAL ANALYSIS: VIEW OF H-1 SITE

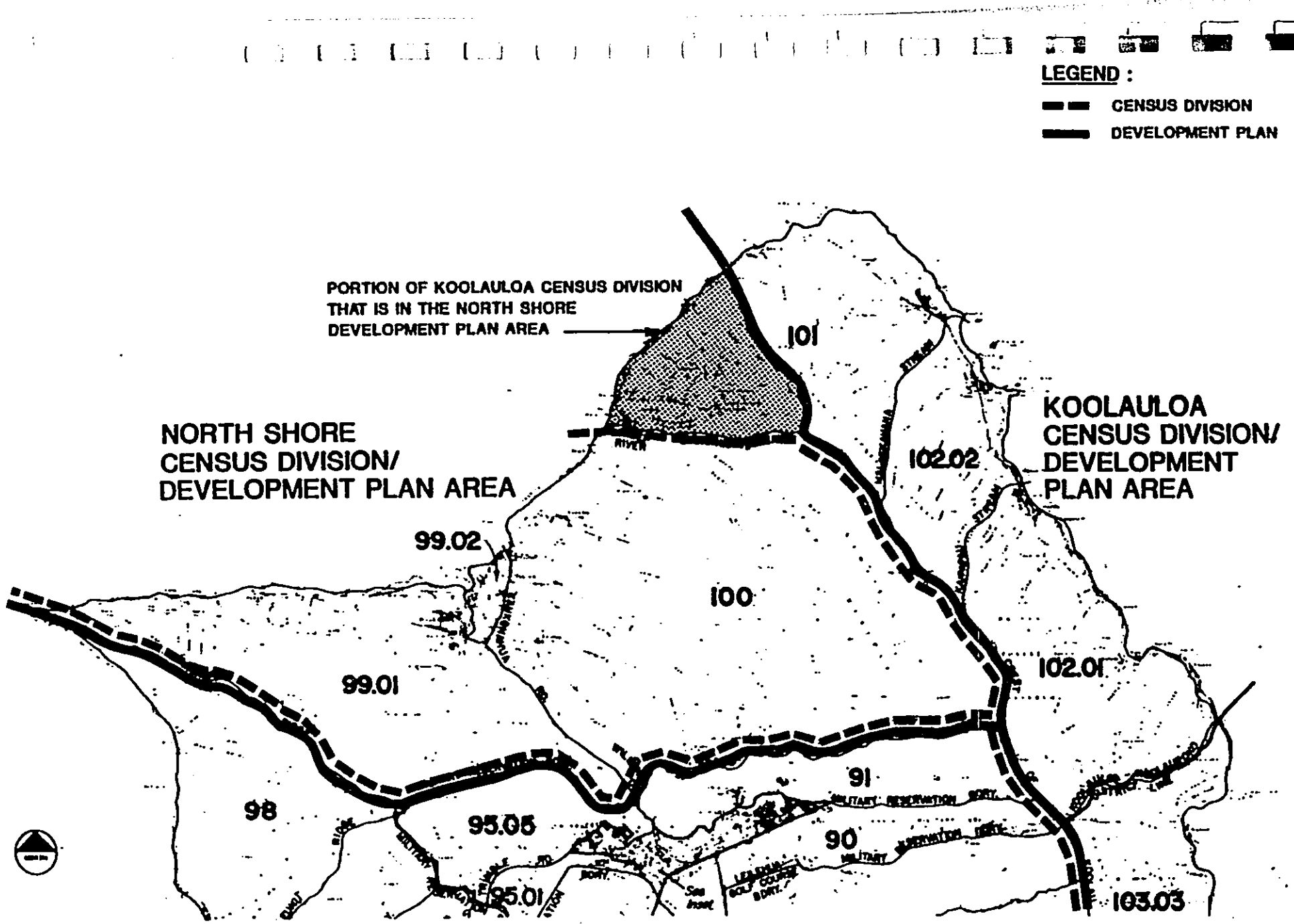
Existing Conditions - The existing facilities of the Kuilima Resort, the Turtle Bay Hilton and Country Club, provides a de facto population of approximately 740 persons. According to information provided by the property management company contracted by Prudential, approximately half of the 37 leased parcels at Kawela Bay are occupied on a full-time basis. Based on the 1980 census of population and housing, an average household size per occupied year-round housing unit is approximately 3.79 persons in Koolauloa. The population of the residences on Kawela Bay (within the project site) then, is approximately 140 persons. Existing leases with the 6 farmers within the project site are for agricultural use only, therefore there are presently no legal residents living within areas leased for agricultural purposes.

The project site is located entirely in the City and County of Honolulu's Development Planning Area of Koolauloa. However, the proximity of the North Shore communities makes it appropriate to consider the project site as being located in the Koolauloa/North Shore region (which coincide with the Koolauloa and North Shore neighborhood board areas), hereinafter referred to as the region (as shown in Figure 19). The region also consists of U.S. Census Divisions Koolauloa (census tracts 101, 102.1 and 102.02) and Waialua (census tracts 99.01, 99.02 and 100, hereinafter referred to as North Shore). It should be noted that the Development Planning Areas differ from the census divisions primarily in that a portion of Census Tract 101 (part of the Koolauloa Census Division) is regarded by the City as being part of the North Shore, rather than the Koolauloa Development Planning Area (Figure 19).

The region's 114,950 acres represents 30.3% of Oahu's total land area, but its 1980 population of 24,044 (14,195 residents in the Koolauloa Census Division; 9,489 in the North Shore Census Division) represented less than 3.2% of the City and County of Honolulu's total population of 762,565. The region is more densely settled than the foregoing figures would suggest. This is because much of the land in Koolauloa and the North Shore consists of terrain too mountainous to be inhabitable. Most of the inhabitable land is a narrow strip between the mountains and the ocean, and there are only a few stretches of highway through this coastal strip which have no bordering houses or subdivisions.

Population growth for the region has been occurring much more slowly than for the county as a whole, so that the relative proportion of Oahu's population to be found in the Koolauloa-North Shore region declined from 3.72% in 1950 to 3.13% in 1970, then up very slightly to 3.15% in 1980. However, it may also be observed that this was primarily due to the very slow growth in the North Shore area. The Koolauloa Census Division's growth, while modest in absolute terms, has exceeded countywide growth rates, particularly in the 1970-1980 decade (20.9% for the County; 34.4% for Koolauloa).

Proposed Action - The proposed resort expansion will displace approximately 140 persons from the residences along Kawela Bay and result in the projected introduction of new visitor population averaging about 4,783 persons on any given day.



KUILIMA RESORT

GROUP 70
ARCHITECTS AND PLANNERS

FIGURE 19 KOOLAULOA & NORTH SHORE:
CENSUS DIVISIONS VS. DEVELOPMENT PLAN AREAS

Anticipated Impacts and Mitigative Measures - The proposed activities within the project site will place an additional demand on the housing inventory of the region through: (1) increasing formation of new households among current area residents which would be triggered by any increase in prosperity; (2) employees desiring to move into the region; and (3) increasing out-of-state interest in rural Oahu vacation home and/or investment units.

The latter source of housing pressure, which would come as much or more from the hotels proposed as part of the Kuilima Resort expansion master plan as from the proposed resort condominium units, may well be relieved through the provision of condominium units at the resort. Therefore, the requested approvals in a sense represent one "mitigation" for impacts anticipated from the already-approved hotel units. Housing pressures from employees desiring to move into the region will be greatly reduced if job training programs (discussed in 3. Employment) succeed in maximizing resort employment for residents already housed in the region. Another mitigation measure involves assisting in providing approximately 95 units of low moderate housing.

The impacts of increased population on traffic, public services and recreation are discussed in P. INFRASTRUCTURE AND PUBLIC AND SERVICES.

2. Economic Development

Existing Conditions - At the current lease rent of $280 a month, lease rental income from the cottages along Kawela Bay is approximately $131,040 a year (39 parcels x $280 a month x 12 months). Dr. Scott estimates that the aggregate annual gross value of agricultural activities within the Ag-1 zoned lands within the project area is $115,000.00, including $104,000.00 for the estimated 20 acres in crops and $11,000 for the 100 acres utilized for livestock grazing (Scott, 1984). Aggregate net returns to family farms with no out of pocket costs for labor are estimated at $60,000.00, including $52,000.00 for crops and $8,000.00 for livestock grazing (Scott, 1984).

Presently, the major businesses in the region are: the Waialua Sugar Plantation, the Turtle Bay Hilton and Country Club and the Polynesian Cultural Center. Other economic activities in the region are extremely limited, among them are: visitor attractions (Waimea Bay, the Mormon Temple, Crouching Lion restaurant, Pat's at Punaluu hotel/condominium, numerous arts and crafts shops and restaurants in Haleiwa), small military facilities, diversified agriculture (watermelons and corn), and aquaculture. The economic development in the region has been much more limited than in the rest of the County. The limitations are reflected in higher rates of unemployment; lower average income; the greater percentage of residents who must commute longer distances to their place of employment; and relatively fewer residents participating in the civilian labor force.

Proposed Action - The replacement of lease rentals with expanded resort facilities.

Anticipated Impacts and Mitigative Measures - Implementation of the proposed resort land uses within the project site will result in the loss of income generated from cottages along Kawela Bay and agricultural leases. However, this loss is estimated to be more than offset by the income that will be generated by the proposed resort land uses.

The impact of the proposed activities within the project site on State and County finances was studied by Decision Analysts, Inc. (1985). The report is summarized in this section as follows:

> The proposed expansion of the Kuilima Resort will have a significant impact on the economy of Oahu and, correspondingly, will have a significant impact on State and County revenues and expenditures.
>
> Growth Assumptions: A major growth assumption which underlies much of the following fiscal analysis summary is that the increase in employment, people and homes directly and indirectly supported by the activities within the project site are expected to number about 6,275, 14,809 and 4,894 respectively.
>
> The tax base is estimated to increase by $1.1764 billion dollars, including $635.1 million for the resort condominiums, $52.0 million for offsite businesses, and $489.4 million for the value of homes directly and indirectly supported by the activities within the project site.
>
> Upon project completion, direct, indirect, and induced sales and household income are projected to be $304.5 million and $110.8 million, respectively. The increase in sales and household income will occur throughout Oahu, with only a fraction occurring at the Kuilima Resort itself.
>
> Excluded from these estimates are the economic impacts of tip income, government employment supported by revenues derived from the Kuilima Resort expansion, and government expenditures of the added tax revenues.
>
> Revenues: Construction activity is estimated to generate a total of $86.7 million in tax revenues to the State, with $48.1 million generated by construction of the resort facilities within the project site, and the remainder from construction of offsite business facilities and homes. These revenues will be distributed over time as construction proceeds.
>
> During full operations, the estimate for the added County revenues is $12.1 million per year, the bulk of which will derive from property taxes, including about $5.0 million per year in property taxes generated by activities within the project site. The increase in State tax revenues is expected to

be $24.1 million per year, with the largest source being excise taxes. Excluded from these revenue estimates are increased Federal-to-State/County transfers and State-to-County transfers based on population formulae.

The combined State and County revenues during full operations is expected to total $36.2 million per year.

Expenditures:

Capital Improvements: For the County, the major capital improvements projects needed on the North Shore to accommodate growth (and satisfy health standards even without the Kuilima Resort expansion) are local sewers now under development. It should be noted that the applicant will improve its own sewer system for the resort expansion.

For the State, the major capital improvement projects needed on the North Shore to accommodate growth are highway improvements. Efforts will be made to minimize traffic by providing many activities on site at the resort, and by adding jitney and shuttle services. Nevertheless, new development on the North Shore will contribute to the need for highway improvements. In the short term, relatively inexpensive but temporary spot improvements will suffice, including pavement widening, paved shoulders, left-turn lanes, and bridge widening. However, only a portion of the cost for transportation improvements can be fairly attributed to the expansion of the Kuilima Resort, since a major share of the increased travel will derive from residents who are independent of the resort, and from visitors staying elsewhere on Oahu. A high allocation of the cost for highway improvements to growth supported by activities within the project site is $23.2 million.

Other State capital improvement projects which will be required to accommodate growth supported by activities within the project site are school improvements. A high estimate for their cost is $1.6 million.

The total cost estimate for State capital improvement projects which can be allocated to growth supported by the activities within the project site is $24.8 million, with a debt service of about $2.6 million per year.

The combined State and County debt service for capital improvement projects which can be allocated to growth supported by the activities within the project site is about $3.4 million per year.

Operations and Maintenance: An approximate estimate for operations and maintenance expenditures needed to service the growth supported by the activities within the project site is $23.7 million per year, with $7.8 million of this

allocated to the County and $15.9 million to the State. These expenditures should provide approximately the same level of per-unit services to residents, visitors, and businesses as is currently the case with locally generated revenues. The cost estimates include appropriate adjustments for Federal grants, and aging of the population to reflect slower growth in the school-age population.

Summary: State and County revenues derived from the proposed expansion of the Kuilima Resort will be very large, and will be sufficient for government to easily afford capital improvements and services needed to accommodate resident, visitor, and business growth which will be directly or indirectly dependent on the increased visitor activity made possible by the expansion of the Kuilima Resort. The revenues will be sufficient to: (1) finance the fair share of the cost for major transportation and other capital improvements which are or will be needed on the North Shore; (2) provide the same level of per-unit services as are currently provided; and (3) serve other community needs with the remaining net revenues. Furthermore, government will be exposed to little, if any, risk since major government investment need not be made until the success of the expanded resort is proven, and substantially increased tax revenues are already being derived.

3. Employment

Existing Conditions - According to Dr. Scott, total current employment within the Ag-1 zoned lands, including both labor and management for the 20 acres estimated to be under cultivation is approximately 6.0 man units. Employment for the remainder of the lands leased for agricultural purposes, most of which is used for cattle grazing, does not exceed 2.0 man units (Scott, 1984).

The major employers in the region are: the Waialua Sugar Plantation (460 employees), the Turtle Bay Hilton and Country Club (488 employees) and the Polynesian Cultural Center (1,000 employees, mainly part-time and/or student).

Identified characteristics of employment in the region include:

1. The limited economic base in the region which in turn limits employment opportunities located within the region.

2. The physical distance between the region and major concentrations of employment. Towards the east, major employment centers include Kaneohe, and towards the west, the Campbell Industrial Park, Waipahu, Pearl Harbor, and Honolulu. The region's relative distance from these areas have effectively reduced the employment opportunities available to its residents.

3. The relatively younger median age of the region's residents contributes to current unemployment levels, since a youthful population has fewer job-related skills. As would be expected, unemployment is greatest among the residents between the ages of 18 and 25 years.

4. Many of the region's residents have relatively lower levels of education. This places them at a disadvantage in competing for employment.

Proposed Action - The development of the expanded resort facilities.

Anticipated Impacts and Mitigative Measures - Based on the existing agricultural leases of 138 acres and current production practices, implementation of the proposed action would displace approximately 8.0 man units (Scott, 1984).

Operational employment at the completed facilities within the project site is estimated to generate 6,275 direct, indirect and induced jobs on Oahu, of which 3,556 jobs will be located in the region (Decision Analysts Hawaii, Inc.). (These jobs are annual equivalents; more persons will actually be employed, since some of the jobs will be divided into part-time work).

Provided that appropriate training is available, much of the supply for this on-site labor demand could be met from within the region itself: currently unemployed persons; anticipated increases in labor force participation; future high school graduates; underemployed persons; some commuters switching to jobs nearer homes; and dependents of Wahiawa-based military personnel. However, maximizing employment benefits for region residents will depend on the effectiveness of job training programs in the area. It is the applicant's intention to fashion such programs, whether through improved coordination of existing programs or creating new ones. The applicant has been one of the major supporters of the North Shore Career Training Corporation (Community Resources Inc., 1984).

As noted in PART III., A., 2. Economic Characteristics, a plan to ensure that residents of the region can qualify for construction and operating jobs generated by development within the project site, encompassing training and related mitigation measures is still being formulated but will contain at least the following features: a basic education component; working through existing community organizations which could administer the program; an in-service upgrade training component; a community outreach and education component; and close liaison with area schools (see Appendix M).

There are a number of socio-political and psychological aspects of resort employment, some of them associated with any major workforce situation in a rural Hawaii setting and some of them relatively unique to tourism (Community Resources, Inc., 1984). These include (1) social group competition for jobs and potential resentments if certain groups seem to receive favoritism for better jobs; (2) alleged self-image and mental health concerns of tourism employment

(stemming either from the "service" nature of the work or sex role confusion), which is a real problem for some persons, but which may also be heavily outweighed by demonstrated negative mental health consequences of poverty and unemployment; (3) threats to marital stability from factors such as shift work, increased exposure to the opposite sex, and changing sex roles, which, again, must be weighed against demonstrated family problems associated with unemployment; and (4) concerns about adequate supervision of children when both parents are employed and working schedules are uncertain.

If any such issues become of significant concern to a large number of employees, mitigations will probably be determined through union-management negotiations. Two mitigation measures suggested by Community Resources, Inc. (1984) involve (1) the already described consideration of on-site or nearby day care facilities; and (2) occasional resort events or recreational programs for the families of employees.

4. Lifestyle

Existing Conditions - Of the 39 parcels located along Kawela Bay (within the resort properties), there is a total of 37 lessees (one individual leases 3 parcels). All of these parcels contain residential structures. Approximately 19 of the cottages are occupied full-time, 5 are frequently occupied (e.g., weekend use), 10 are infrequently occupied (e.g., vacation use), and 5 are unoccupied.

Proposed Action - Implementation of the project will result in replacing the existing land uses (vacant, grazing, residential and cultivation) with resort use.

Anticipated Impacts and Mitigative Measures - The proposed resort expansion will require termination of the 37 month-to-month leases at Kawela Bay. All tenants have been on a low-rental, month-to-month basis since 1978, when they were informed of plans for eventual termination of their leases (Community Resources, Inc., 1984). A minimum of 6 months notice will be given to each of the lessees before actual termination.

Most organized community groups in the Koolauloa/North Shore region which have taken positions in the last year which support all or most aspects of the proposed expansion (Community Resources, Inc., 1984). At the same time, the number of years over which permit applications have been sought has contributed to a feeling of extended controversy, as reflected both in past opinion surveys (Community Resources, Inc., 1984) and in-depth interviews held last year with various community leaders (Community Resources, Inc., 1984).

At a very general level, there is an apparent value difference between residents who are primarily concerned with preserving a "country" feeling and those who are more concerned with preserving a current "community" for existing family and friends. While most residents would like both, if forced to choose, they tend to lean to

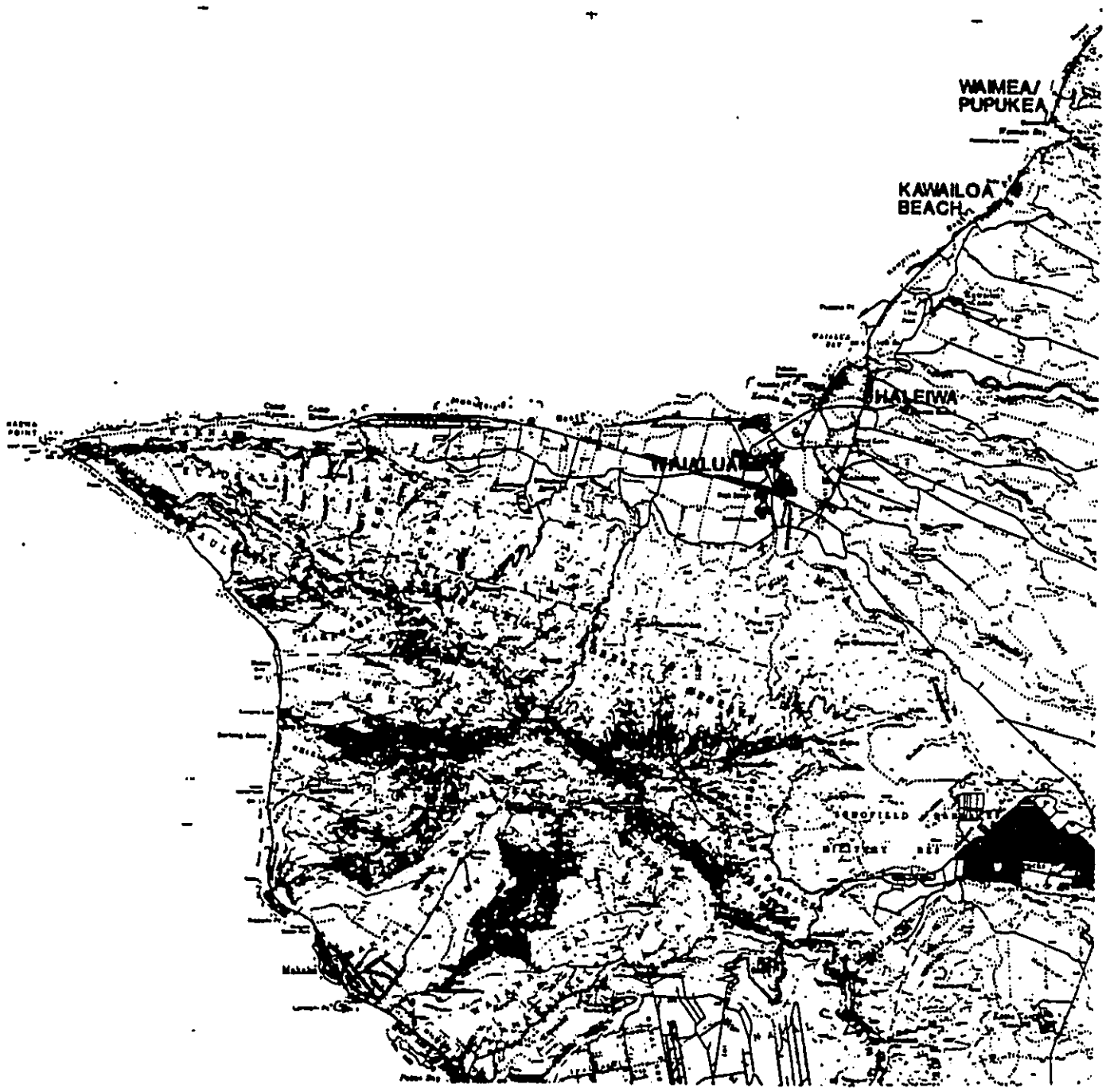
one value or the other. As plantation agriculture has declined in the region, proposals such as the Kuilima Resort expansion have resulted in many people feeling they are indeed facing a choice between economic survival of communities and preservation of the "country" environment. Prudential's recent creation of a North Shore Strategy Committee and major reductions in proposed development scale have resulted in some feeling that the proposal now better serves both values, but there is still a tendency in the wider community for "country"-oriented people to be concerned about negative impacts and for "community"-oriented people to be more optimistic and supportive.

Those inclined to preserving "country" values, question whether residents of the region, particularly young people, would desire to work in tourism and will not eventually outmigrate anyway. Their concerns about project impacts include both physical effects (traffic, water, aesthetics, etc.) and socio-economic impacts (employment quality and working conditions, population change, land values, crime, etc.).

Those inclined to preservation of "community" values tend to place by far the most value in weighing the costs and benefits of the proposed resort expansion on new employment opportunities. They believe that many outmigrating young people will remain (or return) if jobs are provided, whether in the *resort* itself, or in surrounding businesses created or strengthened by the resort expansion. Their primary concerns involve the future hotel operators' commitment to employ area residents, need for adequate job training, and apprehensions about community influence once all land use approvals have been granted.

While the issue of younger residents' desire for resort jobs is a central theme in this value debate, the present report cannot definitively answer the question (although limited evidence reviewed in by Community Resources, Inc. suggest there is a clear potential for resort jobs to attract young people in the region). As with many other social impacts, it is more useful to try to manage this impact through job training and other programs than to attempt to predict its outcome.

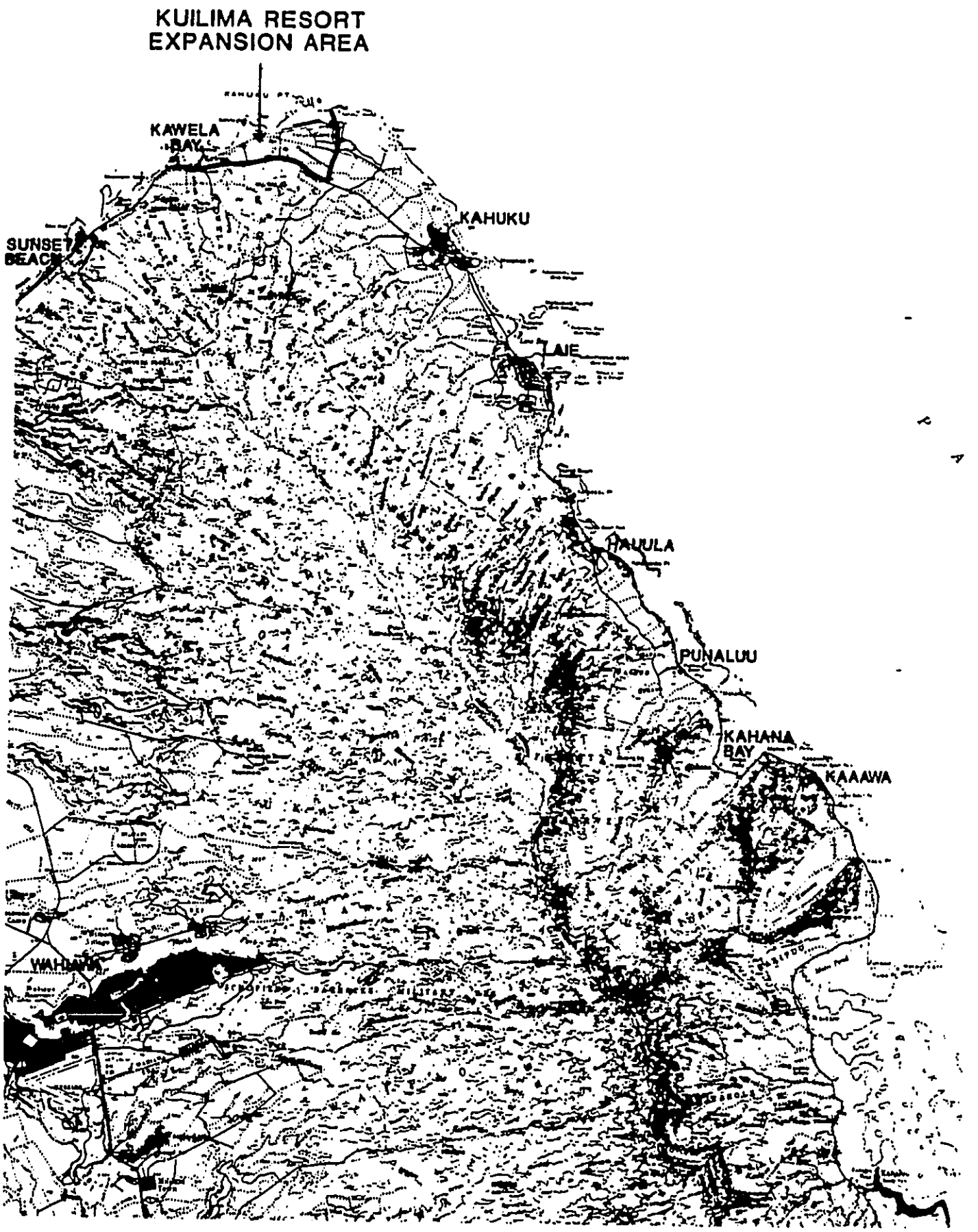
The proposed resort expansion will have an impact on the overall social values and structure of the various communities from Kaaawa to Waialua (although it is noted that such impacts are among the "most intangible and speculative" of social outcomes). The location of these communities are shown on Figures 20a and 20b. It is felt that Kuilima Resort expansion would little affect social values or structure in Kaaawa, Kahana, or Punaluu. Hauula, with significant poverty problems, will potentially benefit from employment opportunities, although residents there may be particularly divided if there is any perceived inequity in the distribution of jobs. Employed Laie residents now work primarily in Laie itself; provision of large numbers of jobs at the resort can provide an alternative to commuting to Honolulu for Laie's expanding labor force, at the same time requiring some value adjustments for residents working in a



KUILIMA RESORT

GROUP 70
ARCHITECTS AND PLANNERS

FIGURE 20a MAP OF STUDY AREA & MAJOR COMMUNITIES



KUILIMA RESORT

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FIGURE 20b MAP OF STUDY AREA & MAJOR COMMUNITIES

non-Mormon environment for the first time. The recent housing developments and planned future additions in Kahuku suggest a natural period of social divisions between oldtimers and newcomers with or without resort expansion; provision of employee housing in Kahuku could contribute to a "company town" feeling more familiar to established, ex-plantation residents than to newcomers.

Towards the North Shore, housing pressures in the Sunset/Waimea/Pupukea communities may make it more difficult for young people leading a "surfer" lifestyle to obtain low-rent lodging without doubling and tripling up. Impacts on Haleiwa would be significant only if entrepreneurs capitalize on increased tourist presence in such a fashion that a Lahaina-style "street scene" is created; however, this can only happen if public agencies permit significant amendments to Haleiwa's Special Design District and Development Plan. The resort development should have little impact on social structure or values in Waialua unless there are significant employment cutbacks at the sugar plantation and many new jobs simultaneously become available at the resort, conceivably leading to some of the extensive social restructuring experienced by Kahuku residents more than a decade ago.

Land use impacts, other than at the Resort or the off-resort housing impacts (which are discussed separately) would include increased demand for retail and commercial land, and limited additional demand for industrial zoned land. Land values for ocean-front properties would also be likely to appreciate at a faster rate. The value of other urban (residential, commercial, retail, and industrial) land uses would be impacted to a lesser extent with the impact being determined ultimately by the supply permitted by governmental policy. Finally, individuals who are on fixed incomes and who own land that is rapidly appreciating in value may have their real property taxes increased at a faster rate than their fixed incomes allow them to afford. This effect will be felt primarily by owners of ocean-front properties.

The quality of resident-visitor interactions is of direct import to the long-term economic viability of resort areas and of indirect significance to residents overall quality of life (Community Resources, Inc., 1984). The region's community most affected by visitor presence to date has been Laie (site of the Polynesian Cultural Center) and community leaders there report no negative resident reactions except to traffic problems caused by tour buses. However, a variety of studies indicate that the nature of resident-visitor interaction can be affected by a great variety of factors, including perceived competition for resources, location of encounters, age levels, visitor respect for residents, and the extent to which residents feel they have control over or involvement in resort-related decision making, which affects their communities as well. The last factor is particularly significant in light of the previously-mentioned resident concerns about the willingness of future operators to honor the commitments of the applicant and about the community's continuing involvement and input once land use approvals have been granted.

In these regards, forecasting social impacts seems of less value than managing them, and the following are some suggested strategies (Community Resources, Inc., 1984):

- Creation of a Kuilima Resort Association, comprised of the applicant and all resort operators and businesses, to provide a single and continuing entity with whom the residents of the region can communicate. It is further suggested that the Association fund an office of community affairs coordination which can coordinate both local small business contracts for the overall resort and many of the suggested communication channels with nearby communities (as described in the following paragraph).

- Various communication mechanisms, including (1) publication of the "North Shore Guide" for all visitors, to direct them toward places or events where they are desired by residents (and perhaps away from sensitive areas); (2) distribution of bulletins for regular part-time condominium occupants to assist social integration into the community; (3) preparation of columns for regional newspapers on developments at the resort; (4) creation of a standing citizens advisory committee, perhaps an extension of the existing North Shore Strategy Committee, to provide an ongoing communication link, and to perhaps help plan community events at the resort (as described below).

- Search for opportunities to stage events of interest to both visitors and residents, such as: water sports events on Kawela Bay; holiday festivals recognizing both national and Hawaiian holidays; and resident discount days for recreational facilities.

- The applicant's and resort operators' support for programs aimed at early introduction of school children to resort grounds and visitors, in order to: (1) reduce alienation; (2) improve attitudes toward (and aptitudes for) future resort employment; (3) improve attitudes toward visitors as people; and (4) provide a controlled opportunity for older school-aged children to tour each new hotel and facility as or before it opens.

Summary

Focusing on residents of the Koolauloa/North Shore region, the identities of beneficiaries and cost-bearers are not completely certain, but several groups can reasonably be placed in each category.

Costs:

(1) Displacees consist primarily of the 37 individual lessees of the 39 East Kawela Bay parcels, and six agricultural lessees.

(2) West Kawela Bay Homeowners and Renters will experience a change in the visual character of the landscape and increased number of outsiders in the area, due to development of two hotels on the eastern side of the Bay and dedication of land for a public park at the middle of the Bay. While property values are expected to rise significantly (with consequent implications for property taxes and rents), at least some owners now say they prefer conditions as they are.

(3) Residents Opposed to Economic (and/or) Resort Growth will at least feel disappointment. These people often value "country" or "rural atmosphere" more than opportunity for economic advancement, some because their own economic situation is secure, and some because they are willing to make sacrifices to live closer to the land.

Benefits:

(1) Future Resort Employees will benefit directly from the proposed resort resort expansion. The extent to which these jobs benefit residents of the region itself will depend on such factors as job training programs.

(2) Ocean Users, especially around the Kahuku area, should experience a net gain from increased coastal access through the resort and at the two proposed public parks to be created at both ends of the resort.

(3) Region Businessmen, including both entreprenuers and well-established visitor businesses such as the Polynesian Cultural Center, will have an opportunity for greatly increased markets.

(4) Residents Supporting Economic (and/or) Resort Growth for reasons other than direct personal employment would feel at the very least some satisfaction over this desired form of economic progress in the region. This group tends to consist of residents hoping to preserve their present communities through increased employment opportunities for grown children or for other friends/family facing possible outmigration for economic reasons.

P. INFRASTRUCTURE AND PUBLIC SERVICES

1. Traffic and Roads

The traffic impact of the proposed resort expansion was studied by Austin, Tsutsumi & Associates, Inc. (1985). Their report is summarized below:

Existing Conditions - Access to the project site is via Kamehameha Highway. Kamehameha Highway is the only arterial highway serving the North Shore and Windward Oahu. It is a two-lane, two-way, undivided State highway generally following the coastline, except for the Kahuku area where it turns inland. The roadway width of Kamehameha Highway varies between 20 and 24 feet, with generally unpaved shoulders. The highway varies from flat straightaways with few

driveway connections to a curvilinear alignment with many driveway connections. Between Kahuku and Haleiwa, there are no provisions for left-turn lanes or bus turnouts (except at Waimea Bay).

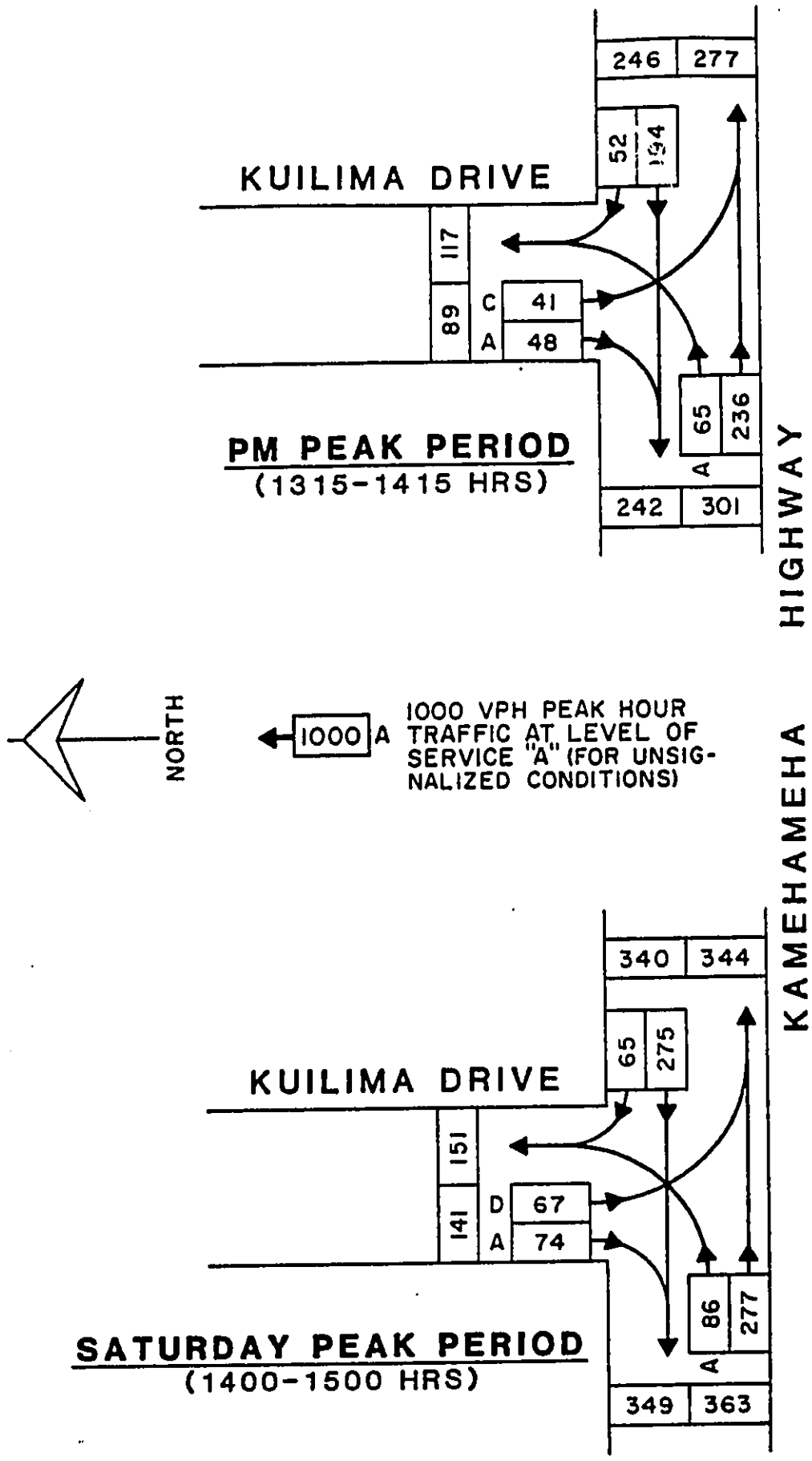
In most of the communities between Haleiwa and Punaluu, the great majority of residents live within a few blocks of Kamehameha Highway. The highway is each community's link with the rest of Oahu and a sense of increasing congestion is a major source of concern of area residents. Field investigations of traffic conditions on weekends and holidays show that traffic congestion occurs because of "bottleneck" locations rather than a breakdown of the overall highway facility. This indicates that the highway's capacity restraint is not the number of lanes on the roadway but rather highway geometrics and increased roadside activity.

Haleiwa and Waimea Bay are the primary capacity restraints along the North Shore. The narrow Anahulu Bridge located near Haleiwa Beach Park requires opposing stream of vehicles to slow down. Through Haleiwa, left-turn traffic and motorists pulling off to park on the roadside queue traffic in both directions. Similarly, at Waimea Bay, motorists parking on the roadside and turning left into Waimea Beach Park or into Waimea Valley Road queue traffic in both directions. The curvilinear highway alignment along Waimea Bay causes a further slowdown. Finally, the vehicles parked on the roadside impose additional restraints on capacity and operating speeds. Similar frictional effects occur at other beach parks such as at Pupukea, Sunset, Hauula and Swanzy Beach Parks when large gatherings occur (a surf meet or a community picnic). Furthermore, periodic slowdowns occur behind MTL buses stopping in the highway to pick up or drop off passengers.

On the Windward side, between Kuilima to Laie, there are no restraints on capacity other than the highway itself.

Manual and machine traffic count surveys were conducted during the month of July. According to historical traffic count data taken at the State Department of Transportation continuous count station on Kamehameha Highway at the Old Sugar Mill ruins at Kualoa, the heaviest daily traffic for both the weekday and the weekend occurs during the summer months of June, July and August.

Manual counts were taken between 9:00 a.m. and 5:00 p.m. on Tuesday, July 10 and Saturday, July 14, 1984 at Kuilima Drive. The count data show that peak periods occur between 1:15 p.m. and 2:15 p.m., during the weekdays and between 2:00 p.m. and 3:00 p.m. on weekends. The traditional morning peak period was not measurable. Recreation and tourist trips and resort employee trips appeared to be the primary components of the afternoon peak period traffic. Recreation and tourist trips appear to be made up of both visitors and residents bound for other North Shore destinations, or just driving around the island. The Kuilima Resort is the only rest stop between Laie and Waimea Falls Park and therefore it is attractive to recreational and visitor traffic. Figure 21 shows the weekday and weekend peak periods of traffic.



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KOOLAULOA, OAHU, HAWAII

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EXISTING CONDITION

FIGU

21

Machine counts were taken for 24-hour periods on Kamehameha Highway, north of Kawailoa, west of Kuilima Drive, and at Hauula Kai Shopping Center and on Kuilima Drive. Additional counts were obtained from the City and County of Honolulu Department of Transportation Services (DTS), and from the State of Hawaii Department of Transportation (DOT) on Kamehameha Highway at various locations between Kualoa and Haleiwa (see Figure 22).

To measure the quality of flow on Kamehameha Highway in this area, travel time runs were conducted. Travel time/average speed under free flow conditions were compared with those conducted during periods of congestion. Under free flow conditions, the "comfortable" operating speed can be compared to the posted speed limit to assess the adequacy of the highway design.

Travel time runs were taken on July 4, 1984 (holiday), July 10-11, 1984 (Tuesday-Wednesday) and July 14, 1984 (Saturday) between Weed Junction in Haleiwa and Swanzy Beach Park in Kaaawa. Figure 23 illustrates the July 4 data, indicating a wide variation in average operating speeds between Haleiwa Town and Waimea Bay. The July 10, 11 and 14 data, shown on Figure 24, displays a more normalized speed distribution. The approximate time of day for the major slowdowns are indicated.

The travel time survey indicates that temporary slowdowns and stoppages experienced during the average weekday and weekend do not significantly affect overall travel time. However the July 4 survey shows the impact of increased traffic on the quality of flow, especially in the Haleiwa to Waimea Bay area. The remainder of Kamehameha Highway operates under a relatively high quality of flow. Even under heavy traffic conditions the average operating speeds are at or near the posted speed limit.

Proposed Action - Expansion of the resort facilities will include the development of 1,450 hotel units, 2,063 resort condominiums and 40,000 square feet of commercial space.

Anticipated Impacts and Mitigative Measures - Table 7 shows the estimated trip generation volumes for the hotel, resort condominium and commercial areas during the afternoon peak period traffic, the Saturday peak period traffic, total weekday traffic and total Saturday traffic (Austin, Tsutsumi & Associates, Inc., 1985).

These projections are in aggregate form which includes: guest trips; employee trips; delivery/service trips; and non-guest patrons of the resort facilities.

ATA developed traffic projections for the Kuilima Resort expansion project at full development. The traffic anticipated to be generated is distributed among the turning movements for each of the three proposed access roads to the Kuilima Resort: West Kuilima Drive, Kuilima Drive and Kahuku Airport Road. The eastbound/westbound distribution is based upon the split observed during the manual

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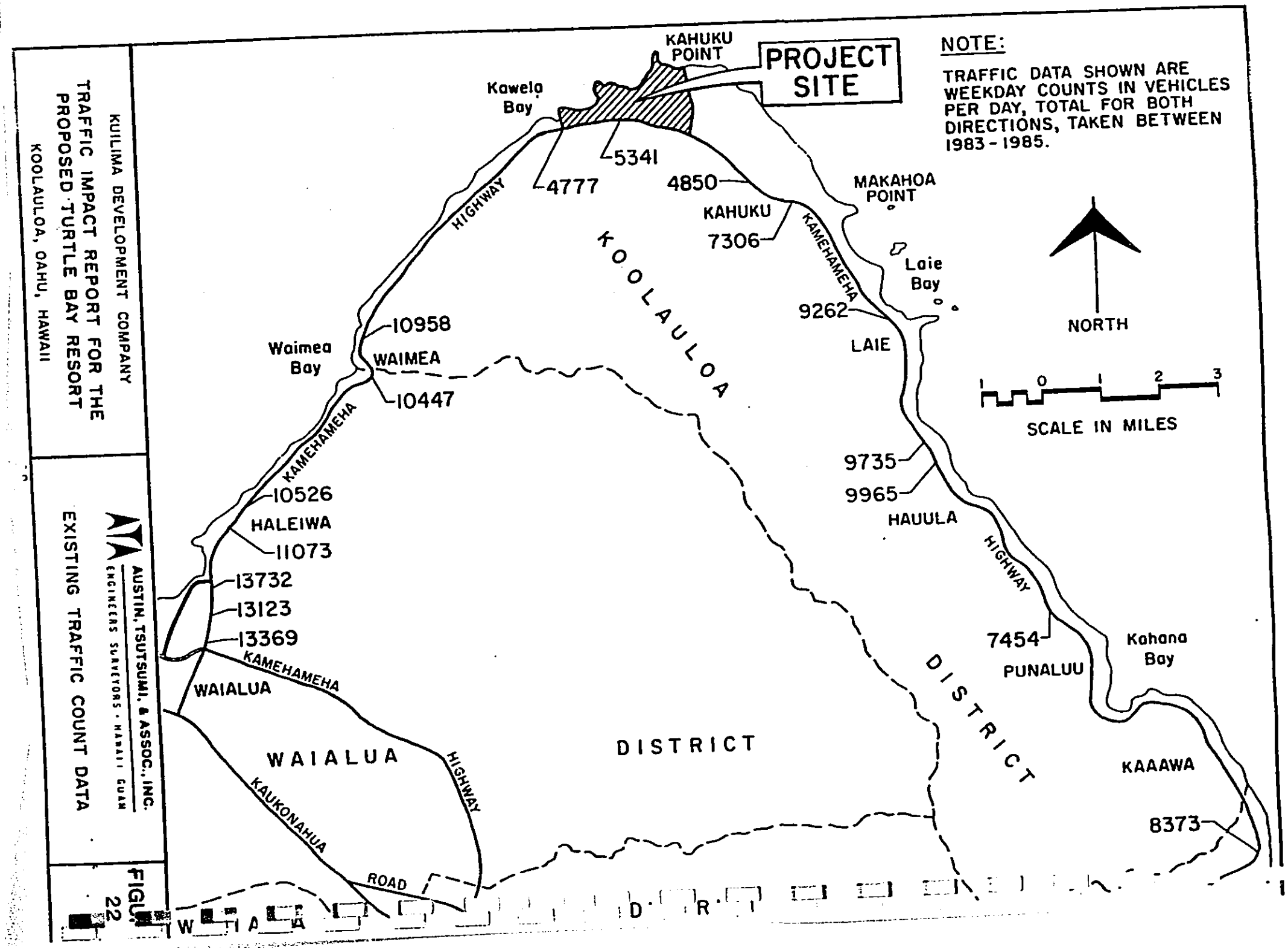
EXISTING TRAFFIC COUNT DATA

FIGURE 22



NOTE:

TRAFFIC DATA SHOWN ARE WEEKDAY COUNTS IN VEHICLES PER DAY, TOTAL FOR BOTH DIRECTIONS, TAKEN BETWEEN 1983 - 1985.

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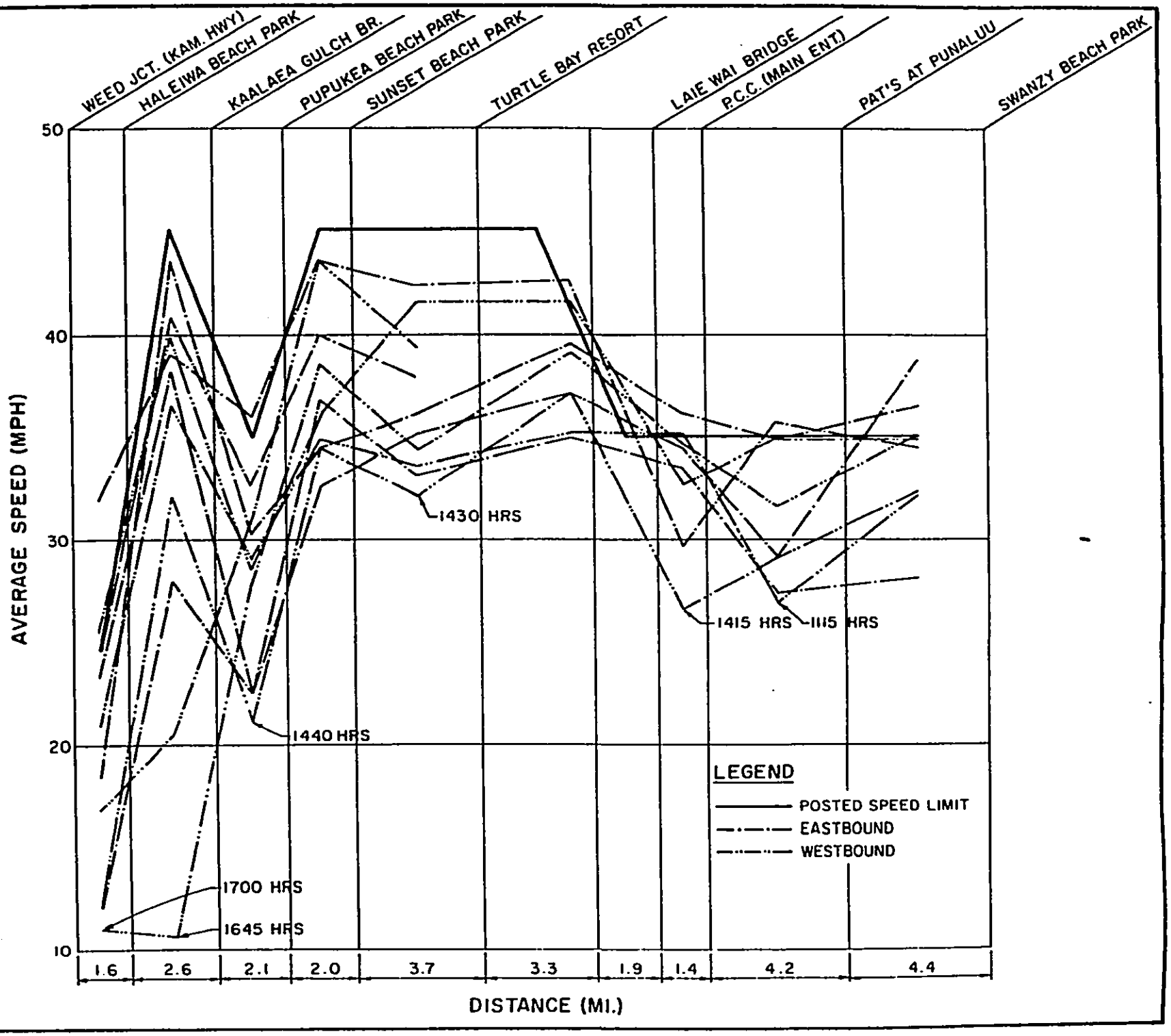
OPERATING SPEED DISTRIBUTION

JULY 4, 1984

FIGURE 23



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OPERATING SPEED DISTRIBUTION
JULY 10, 1984 AND JULY 14, 1984

FIGURE 24

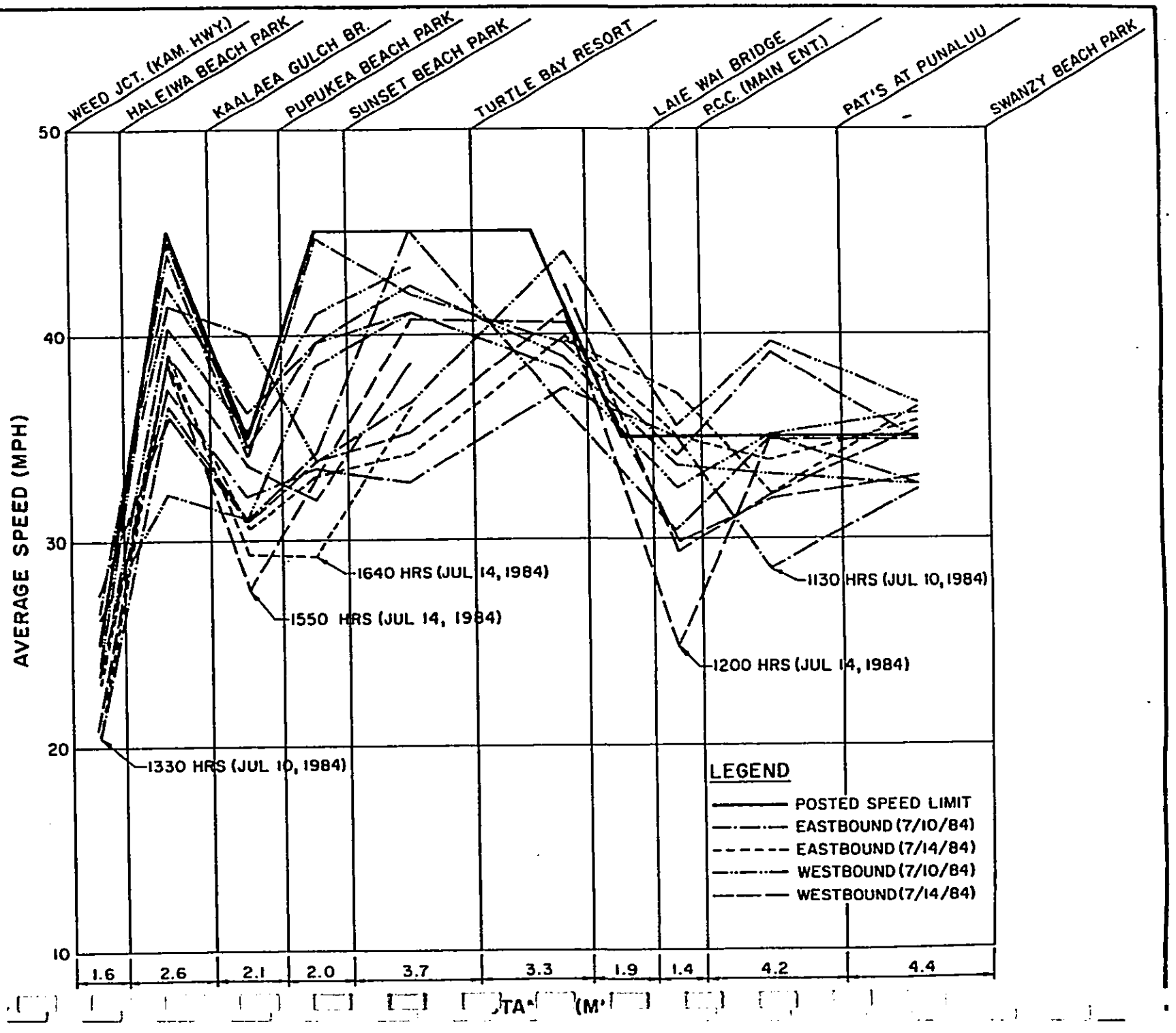

TABLE 3 TRIP GENERATION TABLE

PHASE	PARCEL	IND. VAR.	OCCUP. UNITS	AVG. TRIP RATE	AVG. DAILY TRIPS	PM PEAK HOUR RATE IN	PM PEAK HOUR RATE OUT	PM PEAK HOUR TRIPS IN	PM PEAK HOUR TRIPS OUT	SAT. TRIP RATE	SAT. VEH. TRIPS	SAT. PEAK HOUR RATE IN	SAT. PEAK HOUR RATE OUT	SAT. PEAK HOUR TRIPS IN	SAT. PEAK HOUR TRIPS OUT
I	H-2	ROOM	400	3.33	1332	0.14	0.15	56	60	2.57	1028	0.14	0.13	56	52
	A-7	ROOM	126	3.33	420	0.14	0.15	18	19	2.57	324	0.14	0.13	18	16
	C-1	1000 SF	20	47.16	943	2.74	2.81	55	56	61.94	1239	1.28	3.90	26	78
	SUBTOTAL				2695			129	135		2591			100	146
II	H-1	ROOM	400	3.33	1332	0.14	0.15	56	60	2.57	1028	0.14	0.13	56	52
	H-3	ROOM	280	3.33	932	0.14	0.15	39	42	2.57	720	0.14	0.13	39	36
	H-4	ROOM	80	3.33	266	0.14	0.15	11	12	2.57	206	0.14	0.13	11	10
	C-1	1000 SF	20	47.16	943	2.74	2.81	55	56	61.94	1239	1.28	3.90	26	78
	A-1	ROOM	395	3.33	1317	0.14	0.15	55	59	2.57	1016	0.14	0.13	55	51
	A-3	ROOM	220	3.33	734	0.14	0.15	31	33	2.57	567	0.14	0.13	31	29
	SUBTOTAL				5525			247	262		4776			218	256
III	A-2a	ROOM	147	3.33	490	0.14	0.15	21	22	2.57	378	0.14	0.13	21	19
	A-2b	ROOM	76	3.33	252	0.14	0.15	11	11	2.57	194	0.14	0.13	11	10
	A-4	ROOM	126	3.33	420	0.14	0.15	18	19	2.57	324	0.14	0.13	18	16
	A-5	ROOM	143	3.33	478	0.14	0.15	20	22	2.57	369	0.14	0.13	20	19
	A-6	ROOM	210	3.33	699	0.14	0.15	29	31	2.57	540	0.14	0.13	29	27
	SUBTOTAL				2338			99	105		1805			99	91
	TOTAL				10558			475	502		9172			417	493

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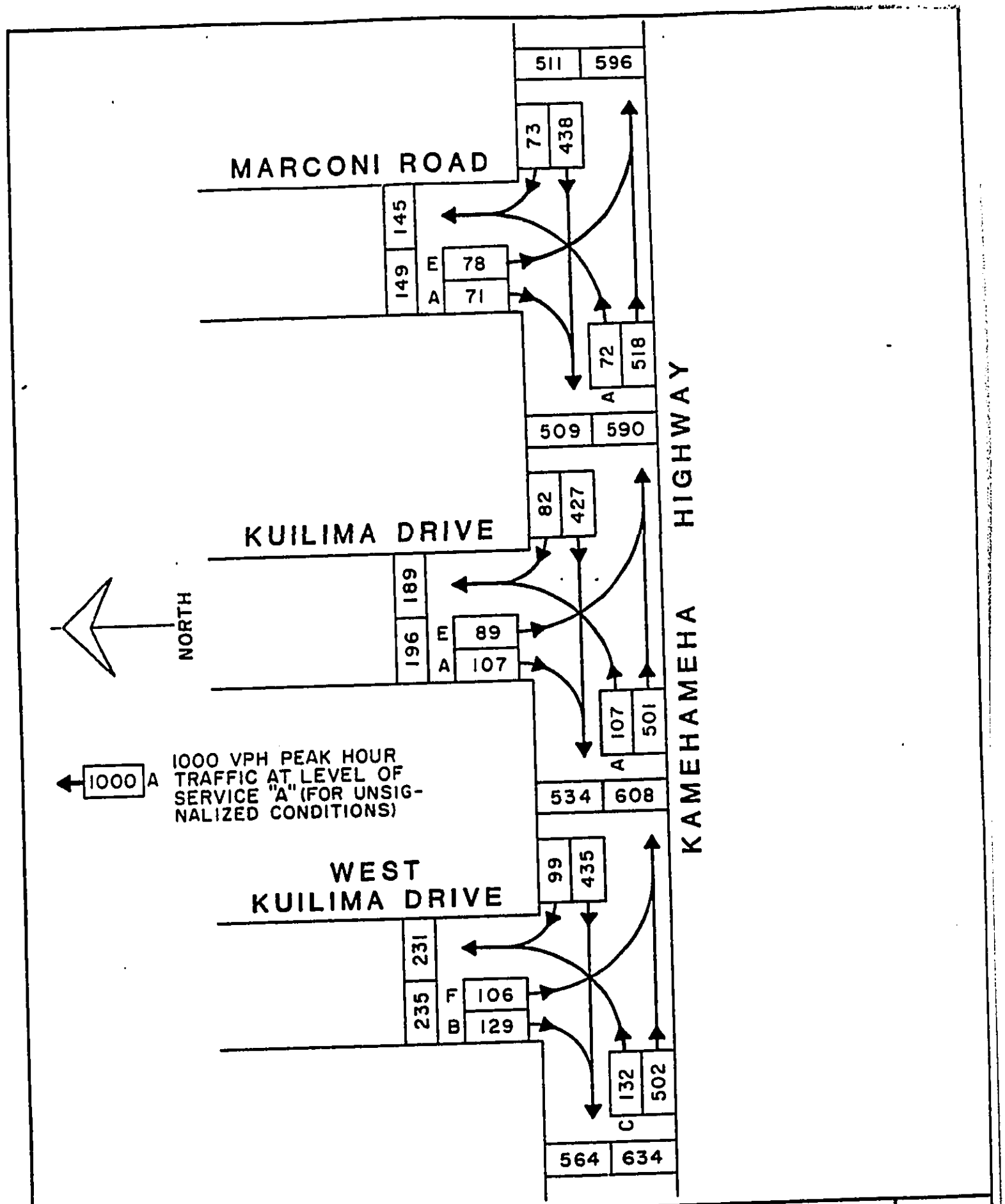
traffic counts taken at Kuilima Drive. Figures 25 and 26 illustrate the intersection traffic assignments for the resort at full development under two conditions: the average weekday afternoon peak hour and the Saturday peak hour. (Since the traditional morning peak period is virtually non-existent, it is anticipated that the greatest impact on traffic will occur during the afternoon peak period. Therefore, only the afternoon peak period for the average weekday and Saturday will be discussed along with their total daily traffic.) Note that the expected levels of service or the available capacity on each movement to and from side streets (West Kuilima Drive, Kuilima Drive and Kahuku Airport Road) are also indicated. Definitions of levels of service are provided in (Austin, Tsutsumi & Associates, Inc., 1984). Analysis of levels of service for the proposed Kuilima Resort expansion at full development indicates that left-turn movement from the side streets will become difficult.

In order to mitigate the impact of entry/exit onto Kamehameha Highway from the proposed resort at full development, ATA provided the following recommendations:

- Construct left-turn lane on Kamehameha Highway at the existing Kuilima Drive;
- Construct fully channelized intersections on Kamehameha Highway, including left-turn lanes on the main highway and separate right- and left-turn lanes on the side road, at the proposed West Kuilima Drive and at the existing Kahuku Airport Road; and
- If warrented, install traffic signals on Kamehameha Highway at the intersections of Kuilima Drive; Kahuku Airport Road and West Kuilima Drive (installation will be coordinated with the State Department of Transportation).

Other recommendations made by ATA would serve to minimize visitors' use of automobiles; these include: the establishment of shuttle service between Honolulu International Airport and the Kuilima Resort by resort operators; the establishment of local shuttle service or expanded MTL operation to accommodate resort visitor trips to and from the Polynesian Cultural Center and Haleiwa; and the establishment of a jitney service within the resort itself. It is the applicant's intention to implement the above described mitigation measures.

The proposed Kuilima Resort expansion will not occur in a vacuum. Assuming that the North Shore/Kahuku region remains relatively stable with no further major developments (as stipulated in the Koolauloa and North Shore Development Plans), the increase in traffic in the area will be primarily due to the increase in the de facto population of Oahu, i.e., both resident and visitor population. ATA developed traffic projections for Kahuku, Kawailoa and Hauula in the year 2000 as summarized in Table 8 and shown graphically on Figures 27, 28 and 29.



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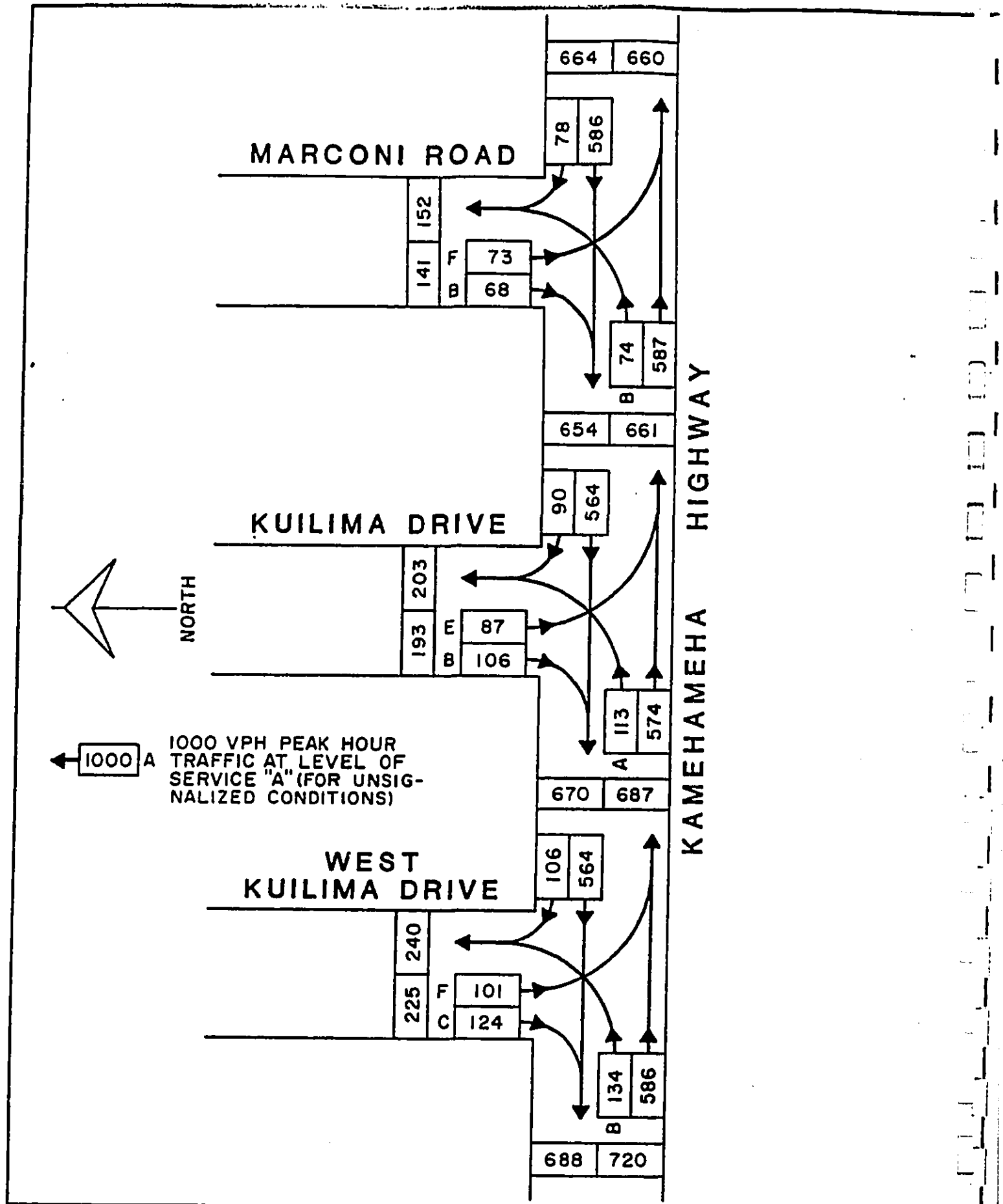
PHASE III
PM PEAK PERIOD

FIGURE .25



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PHASE III
SATURDAY PEAK PERIOD

FIGURE 26

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PHASE III TRAFFIC PROJECTIONS

KAHUKU

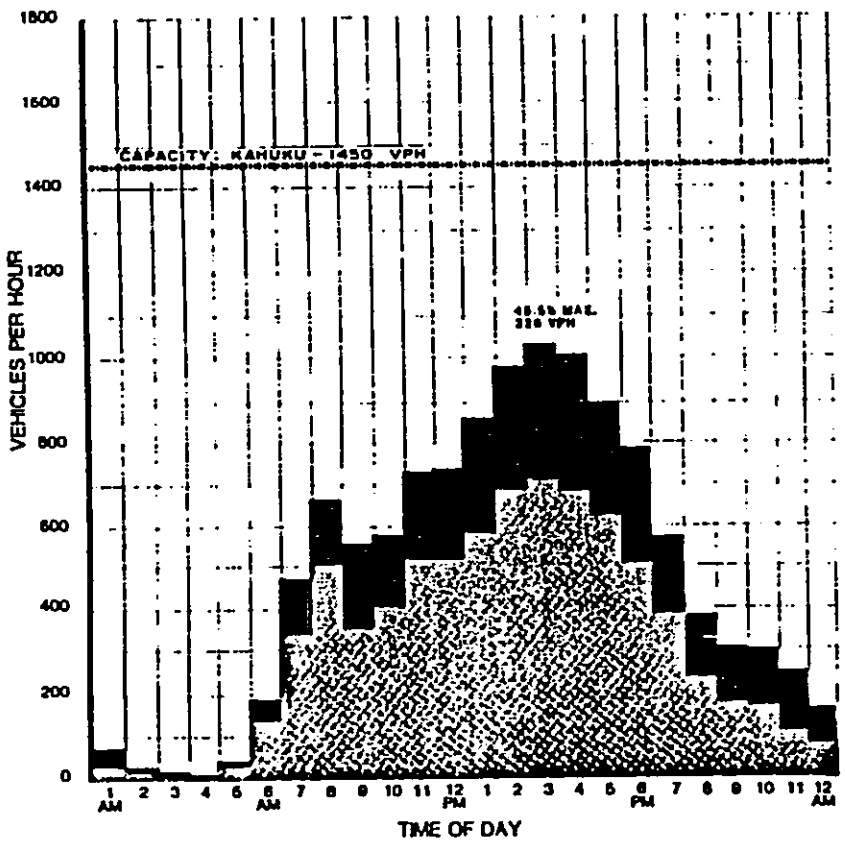
FIGURE 27

KAHUKU

LEGEND

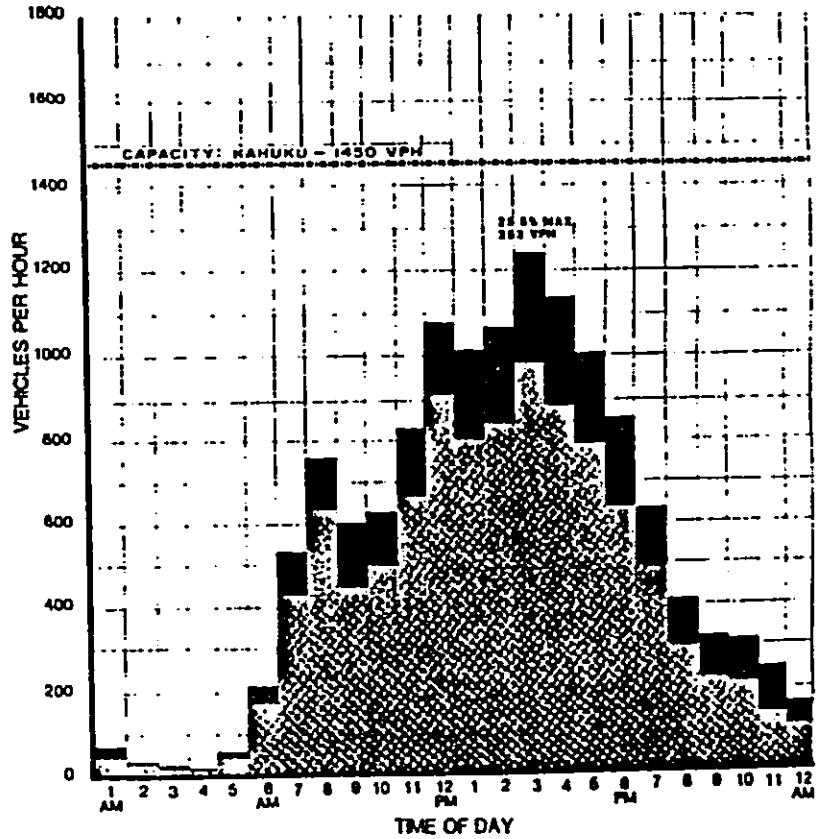
- PHASE III TRAFFIC (VPH)
- YEAR 2000 TRAFFIC W/O PROJECT (VPH)
- 1% MAX. PERCENT INCREASE OVER PEAK HOUR TRAFFIC W/O PROJECT
- 100 VPH PROJECT-GENERATED TRAFFIC DURING THE PEAK HOUR

WEEKDAYS



YEAR 2000

WEEKENDS



YEAR 2000

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PHASE III TRAFFIC PROJECTIONS
KAWAILOA

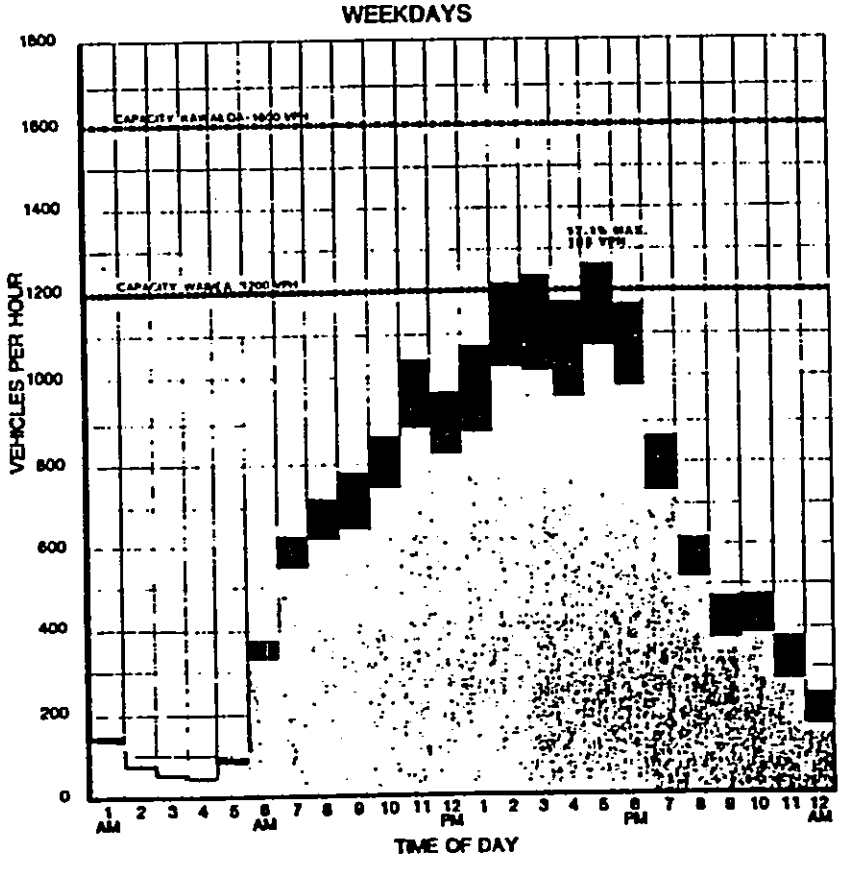
FIGURE 24

KAWAILOA

LEGEND

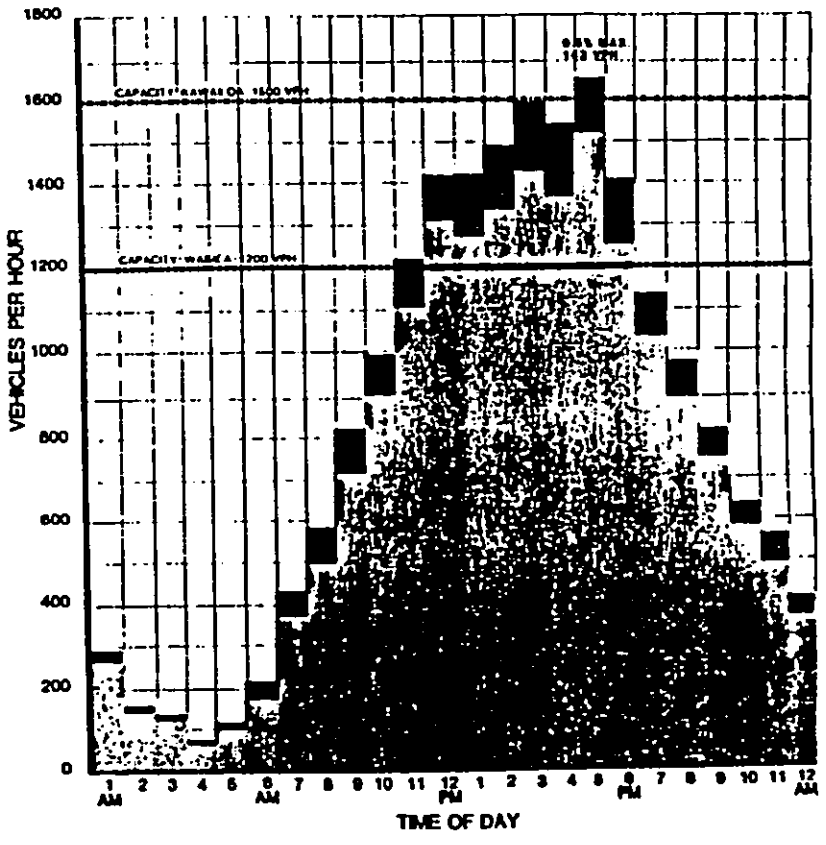
- PHASE III TRAFFIC (VPH)
- YEAR 2000 TRAFFIC W/O PROJECT (VPH)
- 1% MAX. PERCENT INCREASE OVER PEAK HOUR TRAFFIC W/O PROJECT
- 100 VPH PROJECT-GENERATED TRAFFIC DURING THE PEAK HOUR

WEEKDAYS



YEAR 2000

WEEKENDS



YEAR 2000

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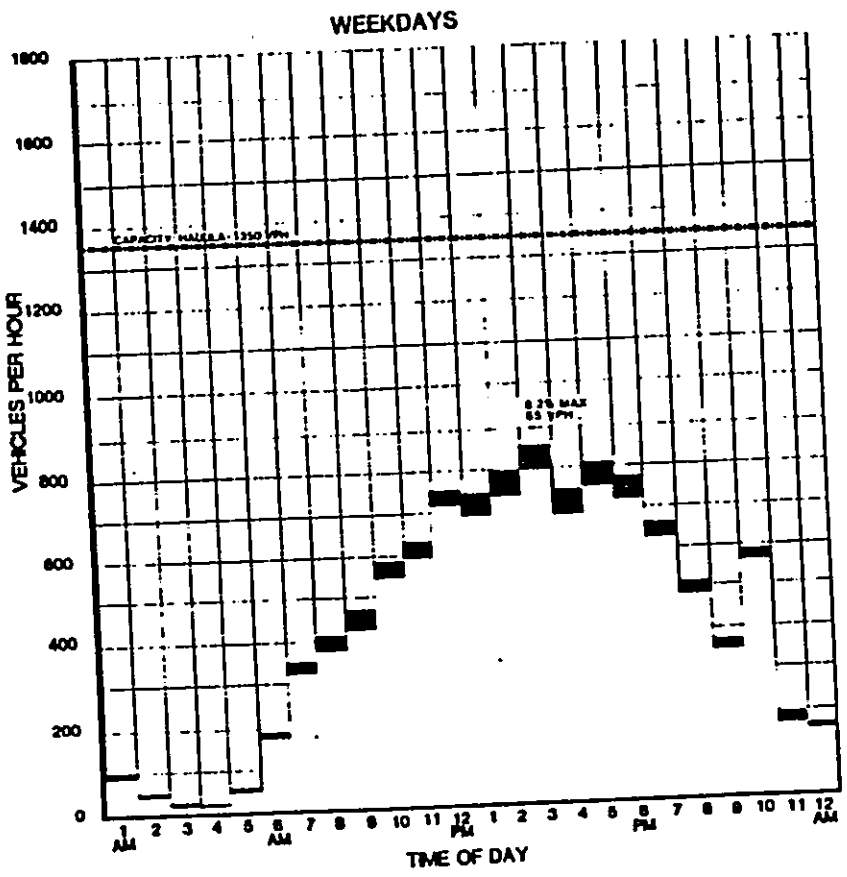
PHASE III TRAFFIC PROJECTIONS
HAUULA

FIGURE 29

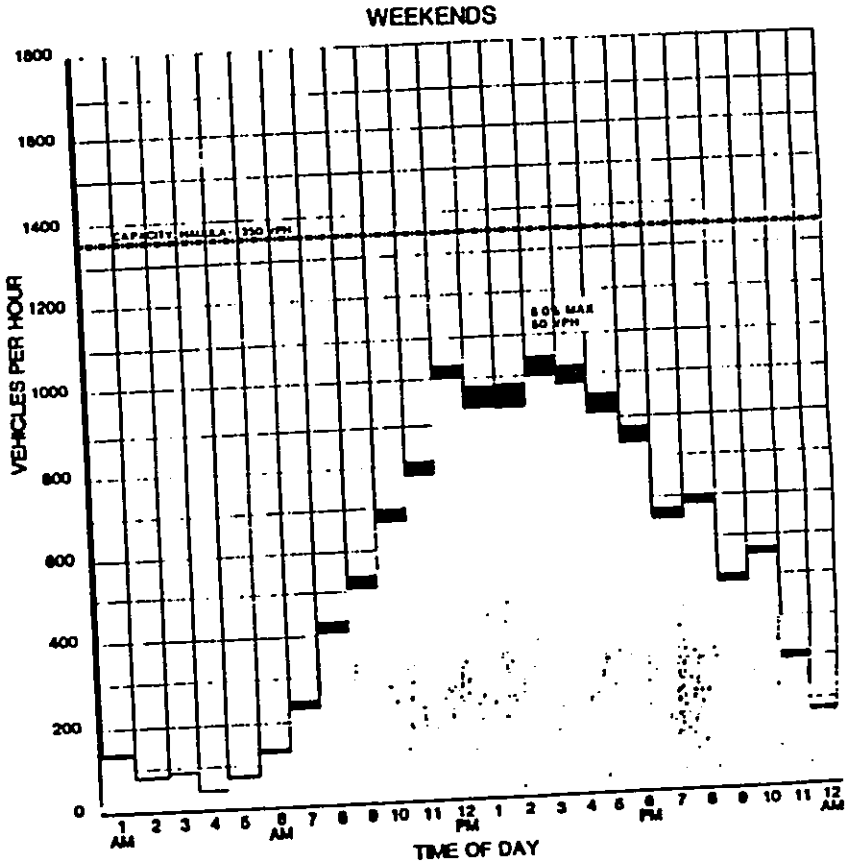
HAUULA

LEGEND

- PHASE III TRAFFIC (VPH)
- YEAR 2000 TRAFFIC W/O PROJECT (VPH)
- 1% MAX. PERCENT INCREASE OVER PEAK HOUR TRAFFIC W/O PROJECT
- 100 VPH PROJECT-GENERATED TRAFFIC DURING THE PEAK HOUR



YEAR 2000



YEAR 2000

GRAPHICS BY GROUP 70

Table 8
TRAFFIC PROJECTIONS

Area	Year 2000 Without Resort Expansion	Year 2000 With Resort Expansion	Percent Change
Kahuku			
24 HR-WKDY	7,900	11,800	49.4
24 HR-SAT	10,311	13,322	29.2
PEAK HR-WKDY	717	1,043	45.5
PEAK HR-SAT	989	1,241	25.5
Kawailoa			
24 HR-WKDY	13,400	16,000	19.4
24 HR-SAT	17,996	20,003	11.2
PEAK HR-WKDY	1,080	1,265	17.1
PEAK HR-SAT	1,511	1,654	9.5
Hauula			
24 HR-WKDY	10,100	10,880	7.7
24 HR-SAT	12,569	13,172	4.8
PEAK HR-WKDY	794	859	8.2
PEAK HR-SAT	998	1,048	5.0

The greatest increase of traffic will occur near Kahuku; however, the total peak period traffic is still well below the highway's capacity (as shown in Figure 27). While Kamehameha Highway at Kawailoa will not reach its capacity until the year 2000, the section along Waimea Bay, which is almost at capacity on weekends under current conditions, will reach its capacity during the weekday by the Year 2000 (refer to Figure 28). The weekend conditions at Waimea Bay by the year 2000 will reach proportions similar to those experienced on holidays. Figure 29 indicates that there is very little effect from the proposed project on Kamehameha Highway in Hauula.

On the regional level, previous studies have recognized the highway alignment problems at Haleiwa and Waimea Bay and need for upgrade of the existing Kamehameha Highway. ATA's report and previous studies (Haleiwa Bypass, Final Environmental Impact Statement (U.S. Department of Transportation, 1981); Proposed Expansion of the Kuilima Resort Community Environmental Impact Statement, "Report on the Kamehameha Highway Traffic Improvement Study for the Kuilima Resort Community (Belt, Collins & Associates, Inc., 1979)"; and Tourist Travel Study in Honolulu - Final Report (PRC Voorhees, 1984)) have identified problem areas along the North Shore and the need for highway improvements. While the applicant will be implementing site-specific roadway improvements on Kamehameha Highway, regional improvements are a governmental responsibility and not that of any single developer. However, it should be noted that the resort will be generating revenues for the State and County that should be

sufficient to pay for the resort's fair share of regional improvements and to provide the same level of public roadway maintenance services as are currently provided (PART IV., Section O., 2. Economic Development). Recommended regional improvements are as follows:

- Construction of the Haleiwa Bypass (as proposed by the State of Hawaii);

- Improvement of Kamehameha Highway between the proposed Haleiwa Bypass and Kaaawa, including: paved shoulders, bus turnouts, left-turn deceleration/storage lanes and possible traffic signals at key intersections, and bridge widening to accommodate the full roadway width; and

- Improvement of Kamehameha Highway at Waimea Bay (originally proposed in Proposed Expansion of the Kuilima Resort Community Environmental Impact Statement, and "Report on the Kamehameha Highway Traffic Improvement Study for the Kuilima Resort Community").

Specific improvements at Waimea Bay recommended by ATA include: providing full 12-foot wide lanes; constructing a left-turn lane to Waimea Bay Beach Park and Waimea Falls Park; widening or reconstructing the existing Waimea River Bridge to accommodate the roadway widening; providing a minimum 6-foot wide paved shoulders; restricting roadside parking along Kamehameha Highway; constructing a scenic lookout at Waimea Bay for sightseeing motorists; and improving other beach parks in the region to alleviate some of the demand at Waimea Bay.

ATA determined that: "While the increased traffic generated by the proposed resort expansion is significant when compared to the projected background conditions, it is not beyond the carrying capcaity of an upgraded, high quality two-lane arterial." (Austin, Tsutsumi & Associates, Inc., 1984)

2. Recreational Resources

Existing Conditions - Natural recreational resources on site are limited to the beaches and nearshore waters fronting the project site. These beaches and nearshore waters are used by: fishermen, including divers, pole fishers and net throwers; surfers; and sailboarders. While there is unobstructed lateral access along the beaches fronting the project site, there is presently only one dedicated public right-of-way to the shoreline.

Man-made recreational facilities of the resort include the existing 18-hole golf course and tennis courts of the Turtle Bay Hilton and Country Club.

A sand vehicle operation, Sand Wheels, Inc., uses: a sand riding area located near Kahuku Point, but outside of the Conservation District; a network of trails leading to and from the sand riding area; and the abandoned airstrips which are located within the project site. As conditions of their SMA Use Permit, Sand Wheels, Inc. is prohibited from operating on sand dunes, on sand beach areas and on beach vegetation.

Numerous recreational facilities and sites are located in the region extending from Kaaawa to Waialua. However, the communities of Hauula, Laie and Kahuku all strongly feel a need for improved recreational facilities. Much of this need relates to active facilities such as ballgrounds and playing fields, but several elements involve area beach parks. These community concerns range from: the lack of any public beach parks in either Laie or Kahuku; insufficient parking and overcrowded camping at other beach parks in the region; and inadequately-maintained and supervised parks (Community Resources, Inc., 1984).

In addition, the region contains many sites suitable for food gathering activities, including pole fishing, diving, torch fishing, snorkeling, net throwing and gathering of seaweed and shellfish.

Proposed Action - As part of the plans for the resort expansion, proposed recreational facilities include: the dedication of two beach parks (one 5-acre park on the best swimming beach fronting the project site; another park, consisting of 37 acres, in an area which contains the site's most prominent sand dunes); a 2-acre beach park to be privately maintained; 5 right-of-ways providing public access to the shoreline (each with free public parking for 15 cars); a privately developed and maintained 6-acre nature park adjoining Punahoolapa Marsh; the renovation of the existing 18-hole golf course; the construction of an additional 18-hole golf course; and a 10-acre equestrian area.

Also, the applicant is proposing to improve the water quality of Kawela Bay through the realignment of Kawela Stream and the removal of silt deposited by Kawela Stream from the bay.

Anticipated Impacts and Mitigative Measures - With the development of golf courses G-1 and G-2, the equestrian area, parks P-1, P-2, P-3 and P-4, approximately 410.8 acres of the 808± acre project site (Figure 7) will be used for active and passive recreational uses. The implementation of the proposed activities will increase the recreational value of the project site to visitors and residents.

According to Community Resources Inc., the projected increase in resort visitor population will not result in undue crowding of most nearby beach parks because the proposed availability of full-service resort facilities (including developed beach areas on Kawela Bay) means that most guests will tend to remain on site. Community Resources Inc. based their assessment on a 1983 modeling study of Oahu visitor travel conducted for the Oahu Metropolitan Planning Organization (PRC Voorhees, 1984), which indicated that existing

Kuilima Resort guests use on-site facilities much more than Waikiki hotel guests, as is the intent of a destination resort. A possible exception could involve more cars and observers at North Shore surfing areas during surfing season and/or when heavily-advertised surfing meets are taking place. In line with the applicant's goal to develop a resort with complete amenities, a component of the master plan for the Kuilima Resort expansion area is to enhance the attractiveness of Kawela Bay for swimming. This will be accomplished by diverting a major portion of Kawela Stream flow away from the bay, and removing the sediments from the southeastern portion of the bay.

Future growth in visitor use of the region's parks is probably linked as much to islandwide growth in the visitor population as to growth at the Kuilima Resort (Community Resources, Inc., 1984). Implementation of the City and County of Honolulu's plans for expanding beach parks within the region (including the proposed Kakela Beach Park) and the dedication of park P-2 to the City and County of Honolulu, will help to meet this demand on these regional recreational resources.

It is unlikely that the region's sites for near shore food-gathering activities will be directly affected by growth in the islandwide or Kuilima Resort visitor population, since visitors are usually not involved in these type of activities.

The development of the resort will, however, open up the coastal resources to the local community, which may lead to some competition for shoreline resources. To mitigate the potential impact of recreational conflicts, the applicant will draw up general guidelines for future recreational activities on the project site. These guidelines will be presented as part of the Special Management Area Use Permit application.

3. Water Distribution

Existing Conditions - The BWS distribution system which services the existing facilities within the Kuilima Resort includes a 20-inch main from a 2.0 million gallon (mg) reservoir to Kamehameha Highway. This main is connected to a 16-inch main that runs along Kamehameha Highway to Kuilima Drive.

Proposed Action - The proposed well facilities (described in section C. WATER RESOURCES AND WATER USAGE) will be designed to pump water to the existing 2.0 million gallon (mg) reservoir. The existing reservoir will be adequate until the total, cumulative max-day demand of actual developments at the Kuilima Resort reaches 2.0 mgd. A second reservoir with a capacity of 1.0 mg will be required to provide the max-day storage for the proposed Kuilima Resort expansion at full development. This second reservoir shall be constructed on the site reserved for it adjacent to the existing 2.0 mg reservoir, when required (EDP Hawaii, Inc., 1984).

In addition, the existing 16-inch main along Kamehameha Highway will be extended to the eastern boundary of the project site and additional mains will be constructed along West and East Kuilima Drives, and Marconi Road, in phases, to service the expanded resort facilities.

The applicant will pay and install the necessary modifications to make the Waialee and Kawela Sytems compatible. Construction of the necessary wells, storage facilities, and transmission/distribution system will be at the applicant's expense. All facilities shall be designed to BWS standards and is intended to be dedicated to the BWS upon completion. Maintenance of the system will be paid for through the collection of BWS's charges.

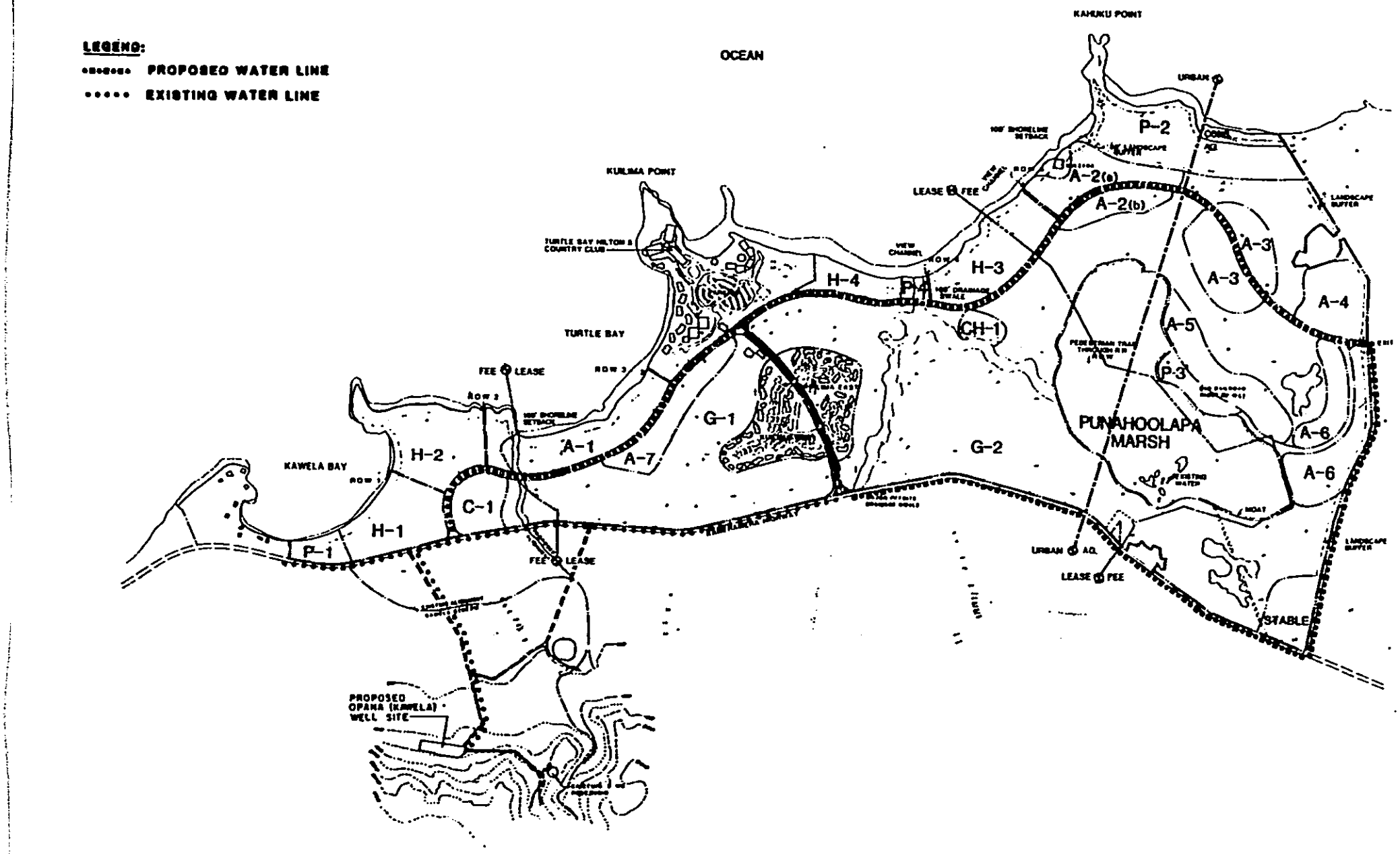
A water master plan for the project has been reviewed and approved by the BWS (EDP Hawaii, Inc., 1984). Proposed facilities are shown on Figure 30.

Anticipated Impacts and Mitigative Measures - The construction of the reservoir and the installation of water transmission lines will require excavation and trenching, respectively. The anticipated impact and mitigative measures of soil disturbance are described in section B. SOILS. A general description of noise generated during construction, and proposed mitigative measures are described in section L. NOISE.

The visual impact of the proposed reservoir should be minimal as it will located over 2,000' from Kamehameha Highway at the 225-foot elevation.

4. Wastewater Disposal

Existing Conditions - The existing wastewater system at the resort consists of gravity sewers, which convey all wastewater from the Turtle Bay Hilton Hotel to a sewage pumping station (SPS). The SPS is a factory-built type station with a 1,000 GPM pump unit which delivers all incoming wastewater to a waste stabilization pond for treatment. Treated effluent from the pond is chlorinated and used for irrigation of the existing golf course at Kuilima. Lessees on the project site dispose of their wastewater via cesspools.



KUILIMA RESORT : BASE MAP : MASTER PLAN

FIGURE 30 WATER MASTER PLAN

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Proposed Action - Since the capacity of the existing wastewater system is limited and it is expected that the facility itself will conflict with resort uses (visual and odor problems), the applicant is proposing the replacement of the waste stabilization pond with a wastewater treatment plant (WWTP) built off-site.

The proposed sewer system for the Kuilima Resort expansion shall basically consist of gravity sewers and one lift station (LS) to convey the wastewater flows from the various development areas to the proposed SPS, from which all flows will be pumped to the proposed WWTP. The gravity sewers shall be designed to accommodate estimated peak flows. The existing SPS servicing the resort shall be replaced by the proposed pumping station. The proposed lift station shall be constructed in the future as required. Each station (LS, SPS) shall be designed with one pumping unit of adequate capacity to accommodate the peak flows, with the provision of one full standby unit and standby electrical generator.

Although the final location has not been established, a WWTP shall be constructed mauka of Kamehameha Highway on about 20 acres of agricultural land within Campbell Estate property. The 1.3 million gallon per day WWTP shall be designed to provide secondary treatment of wastewaters from the Kuilima Resort development. The treatment process shall basically consist of aerated lagoons with provisions for chlorination. The ponds will be lined to prevent percolation of wastewaters and will be constructed in phases, as required, to accommodate the developments planned for the proposed resort expansion. In the event of a system breakdown or electrical shortage, the effluent will be disposed via injection wells. The WWTP will be designed to comply with applicable State and Federal laws and regulations.

The treated effluent will be conveyed via transmission mains, to holding ponds, for irrigation of the Kuilima Resort golf courses. The operation and maintenance of the effluent disposal system from the point of effluent discharge from the WWTP site shall be the responsibility of the applicant and/or user of the effluent. The County however, shall be responsible to insure that effluent, at the point of discharge from the WWTP site, meets all applicable effluent discharge limitations.

The proposed wastewater disposal improvements will be paid for by the applicant. The proposed sewerage system, including the WWTP, shall be dedicated to the County for operation and maintenance. The system will be maintained by assessing users of the system a users' charge.

Review of the Wastewater Master Plan (EDP Hawaii, Inc., 1984) for the proposed Kuilima Resort expansion project by the State Department of Health, the BWS, and DPW Division of Wastewater Management, has been completed with no major objections.

Anticipated Impacts and Mitigative Measures - The construction of the WWTP, gravity sewers, pump stations, and force main will result in temporary soil disturbance. The anticipated impact and mitigative measures of soil disturbance are described in section B. SOILS. A general description of noise generated during construction, and proposed mitigative measures are described in section L. NOISE.

While the specific location of the wastewater treatment plant is still being negotiated with Campbell Estate. It is known that the WWTP will be located in an area east of Oio Stream, at a minimum of 300 feet from the bluffs (a requirement of the City and County of Honolulu Department of Public Works). The approximate area for the WWTP was chosen to minimize the loss of agricultural land uses. The area is presently fallow. There will be a loss of about 20 acres of agricultural land. However, the loss of this land may be offset by the use of the treated wastewater for irrigation of the proposed golf courses. The use of treated wastewater will reduce the amount of brackish water required for irrigation of the golf course, allowing the potential use of this brackish water for agricultural activities on lands nearby the project site.

The social impact of siting the WWTP outside of the project site will be minimal because the facility will be located in an area without any nearby residences. The WWTP will also be down wind of Kamehameha Highway and should not affect the air quality of the resort or passers by. In addition, the WWTP will be visually screened with landscaping.

The proposed WWTP will have positive social benefits to residents in Kawela Kai as the facility is being designed to accomodate the wastewater generated by their homes (these residents will have to provide transmission mains to connect to the system). This will eliminate the need of these residents to maintain their individual wastewater disposal systems (cesspools) in exchange for the cost of using the proposed resort system. Implementation of the facilities is necessary for the safe and sanitary disposal of wastewater generated by the proposed activities within the project site.

While effluent water is currently used by several golf courses in the State for irrigation, concerns have been raised that health problems can accompany its use. However, the State of Hawaii Department of Health has set standards on the quality of water used for irrigation. The water quality standards could be met by using sand filters and applying additional chlorination prior to irrigation (in addition to chlorination during treatment). Other mitigation measures include: educating the public on the proposed use of effluent; educating the golf course maintenance personnel on the use of effluent for irrigation; and applying effluent with low volume sprinklers near habitated areas. If the water quality standards are met, it will be unlikely that health problems will occur.

5. Solid Waste Disposal

Existing Conditions - Presently, solid waste generated within project site is not collected by the City and County of Honolulu, Department of Public Works, Refuse Division. Lessees haul their own refuse to transfer stations, or public or private landfills.

Proposed Action - It is anticipated that at full development the activities within the project site will generate a de facto population of 4,783, who will each generate approximately 2.32 to 4 pounds of refuse each day (Spencer, 1974), for a total of 9.5 tons of solid waste each day. Solid waste will be collected by private collection companies and disposed of at public or private landfills.

Anticipated Impacts and Mitigative Measures - The proposed activities within the project site will place additional demand on County waste disposal facilities. It is expected that State and County revenues derived from the completed resort facilities will be sufficient to finance the resort's fair share of the cost for major capital improvements such as solid waste disposal facilities, and to provide the same level of per-unit services. The County has future plans to construct a solid waste transfer station in Laie. Solid waste collected at this transfer station will be hauled either to a Windward Sanitary Landfill site for disposal or to a proposed refuse-to-energy plant.

6. Drainage

Refer to section A. TOPOGRAPHY AND DRAINAGE

7. Power and Telephone

Existing Conditions - Presently, commercial electrical power and telephone service are available on site.

Proposed Action - Electrical and telephone service will be provided by underground ducts throughout the resort site. These will link to existing overhead service lines along Kamehameha Highway.

Anticipated Impacts and Mitigative Measures - The installation of electrical and telephone lines will require excavation and trenching. The anticipated impact and mitigative measures of soil disturbance are described in section B. SOILS. A general description of noise generated during construction, and proposed mitigative measures are described in section L. NOISE.

The proposed activities within the resort will require electricity. The impact of electricity generation on air quality is discussed in section M. AIR QUALITY.

Costs for electrical and telephone service extensions to and within the project site will be paid by the applicant.

8. Public Access and Parking

Existing Conditions - The site is bordered on the makai side by Kawela Bay, Turtle Bay, Kuilima Bay, and Hanakailio Beach. Presently, there is only one public right-of-way to these beaches. There is, however, public access to these beaches along the shoreline.

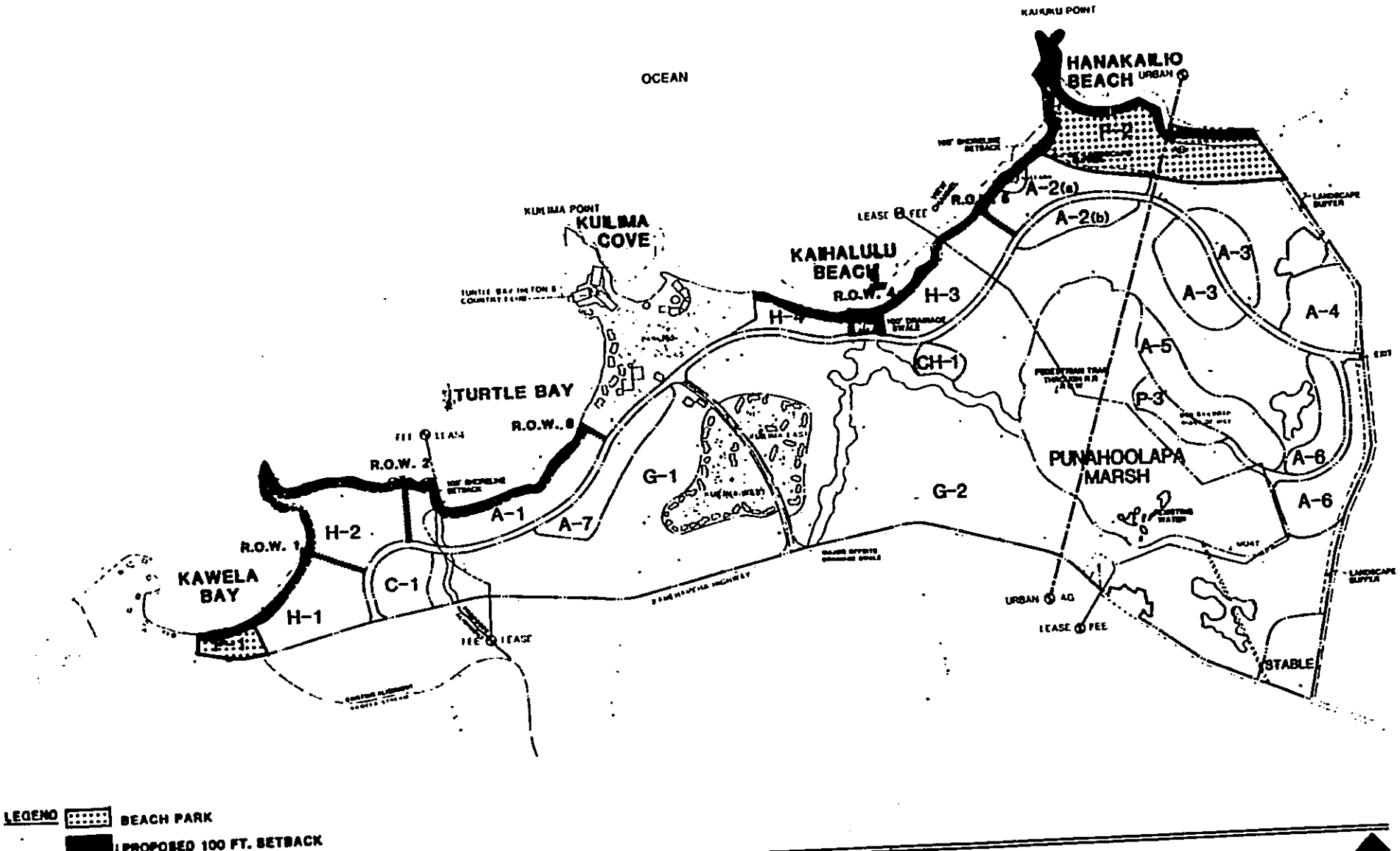
No reliable quantitative data are available about the average numbers of residents using these beaches. However, interviews with area residents and resort personnel familiar with long-term patterns suggest that (1) the number of users is not large on any given day; and (2) users are primarily residents of nearby communities, since residents driving from areas further away are more likely to go to public parks (Community Resources, Inc., 1984). During these same interviews, one of the general concerns identified regarding resident use of the beaches fronting the Kuilima Resort included the lack of beach rights-of-way around Kahuku.

In addition, the region contains many sites suitable for food gathering activities, including pole fishing, diving, torch fishing, snorkeling, net throwing and gathering of seaweed and shellfish.

Proposed Action - As part of the plans for the resort expansion, proposed recreational facilities include: the dedication of beach parks P-1 and P-2; the development of a 2-acre beach park (P-4) to be privately maintained; and the provision of 5 public right-of-ways to the shoreline (with free public parking). Refer to Figure 31. In addition, improvements proposed for the West Main Drain at the shoreline are as follows: the removal of the two 48-inch culverts at the terminus of the West Main Drain; the widening of the existing West Main Drain to a trapezoidal channel with a base of 75 feet with side slopes of 3 to 1; and the provision of a footbridge or similar structure across the West Main Drain.

The channel of the East Main Drain will be widened from a base of 30 feet to a base of 100 feet and the slopes will be made more steep, from 0.002 to 0.0032. Also, the four 72-inch culverts including the headwalls at the terminus of the drain will be removed and the channel will be left unlined. No footbridge or similar structure is proposed at the mouth of the East Main Drain.

Anticipated Impacts and Mitigative Measures - No impacts to public access along the shoreline in the vicinity of the West Main Drain are expected. (Although a similar structure is not proposed at the mouth of the East Main Drain, it is anticipated that the drainage outlet of the East Main Drain will not disrupt lateral access along the shoreline.) It is expected that during normal conditions, the outlet will be blocked by sand, not unlike the Ulehawa Stream drainage outlet at Ulehawa Beach in Nanakuli. According to Mike Honma of the Turtle Bay Golf Course, the beach at the existing East Main Drain outlet returns within 24 hours after storm flow ceases. According to Beach Changes on Oahu as Revealed by Aerial Photographs (Hwang, 1981), the beach fronting the existing East Main Drain outlet is approximately 100 feet wide. In addition, the outlet is surrounded by proposed park P-4. In the event of wet weather conditions, the



KUILIMA RESORT

• BASE MAP
• MASTER PLAN

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FIGURE 31 PROPOSED 100 FT. SETBACK, BEACH PARKS AND BEACH ACCESS

public will be able to walk through the park to the internal roadway bridge over the East Main Drain. The bridge will include a 10-foot wide pavement on the makai side for pedestrian access.

The establishment of the proposed beach parks (both public and private) will provide greater effective access to the shoreline, and its food gathering resources. While this might result in an eventual sense of crowding to the fisherman who use these beaches presently, it should be noted that visitors are unlikely to compete for food sources and will likely limit their activities to sunbathing, swimming, surfing and sightseeing. The negative impact of greater public access is that it will unavoidably expose more users (both visitors and residents) to strong ocean currents. Mitigation measures for the latter impact is posted warnings and/or continuous lifeguard supervision.

In addition, there is a potential that there will be increasing competition for stalls dedicated for public beach accessways. This impact will be mitigated by implementing the following measures: clearly marking and delineating the stalls for public access use only; and directing the private security service(s) of the resort to ensure that the stalls are not used for employee parking.

9. Fire Protection Services

Existing Conditions - The nearest fire stations are located at Kahuku and Sunset Beach, located approximately 3 miles away in either direction. The Kahuku Engine Company is the first arriving unit and is backed up by the Sunset Beach Unit. Approximate response time from the new Kahuku Fire Station (1 engine) under ideal conditions is 7 minutes. Presently, the location of fire hydrants on site are limited to along Kuilima Drive and Kamehameha Highway.

Proposed Action - The proposed action will introduce a de facto population of 4,783 within the project site.

Anticipated Impacts and Mitigative Measures - There will be an occasional, unavoidable demand for fire protection services. A new fire station is projected for Kawela Bay in the County's Capital Improvement Program. As part of the proposed potable water transmission system through the resort, lines with adequate fire flow capacity and fire hydrants will be installed by the applicant within the proposed roadways. The location of fire hydrants will be reviewed by the BWS and the Fire Department when construction plans are submitted for approval.

10. Police Services

Existing Conditions - Police protection is provided through the City and County of Honolulu, Kaneohe District Headquarters. Approximate response time under ideal conditions is 7 minutes.

Proposed Action - The proposed action will introduce a de facto population of 4,783 within the project site.

Anticipated Impacts and Mitigative Measures - There will be an occasional, unavoidable demand for police services. A detailed analysis of known statistical studies on tourism and crime was conducted by Community Resources, Inc. (1984). In the analysis, an examination of changes in overall crime rates for several rural Hawaii resort areas somewhat comparable to the Kuilima Resort indicate that while crime has been increasing everywhere in Hawaii, crime rates have not increased more rapidly in those rural areas with high tourism growth.

Because of limitations of statistical crime-tourism studies, interviews were conducted with police in various rural Hawaii resort areas (Community Resources, Inc. 1984). Among the responses were: (1) rural resorts generate very little on-site crime, whether at hotels or condominiums; (2) the most frequent off-site crimes involve theft of property from visitors, rarely crimes of violence; (3) nearby residents of resort areas are not felt to be affected by tourism development; and (4) despite publicity over the recent Sacred Falls robbery and earlier vandalism of tour buses going to Laie, Koolauloa police report the area has a low crime rate and experiences few problems from the existing Kuilima Resort.

The Police Department has started construction of a new district station in Kahuku, with completion estimated by March 1986.

The applicant will be taking other measures towards providing security on-site. Buildings and other facilities within the project site will be designed with adequate attention to the principles of fire safety and environmental security (from crimes against property and persons). In addition, private security services will provided within the resort facilities.

11. Schools

Existing Conditions - Presently, school-aged children within the project site attend Kahuku Elementary School (grades Kindergarten to 6) and Kahuku High School (grades 7-12).

Proposed Action - The proposed project includes the phased development of 2,063 resort condominium units and 1,450 additional hotel units within the Kuilima Resort and assisting the State and/or County in providing approximately 95 units of low moderate housing.

Anticipated Impacts and Mitigative Measures - Based on consultation comments provided by the State of Hawaii Department of Education (Hatanaka, 1984), the proposed project at full development will produce an approximate enrollment of 80 to 150 students in grades K-6, and 50 to 100 students in grades 7-12.

According to Francis M. Hatanaka, Superintendent of the State of Hawaii Department of Education, "Kahuku High and Elementary is currently overcrowded and is being remaster planned to provide for future growth. Our ability to provide classrooms to accommodate the projected student increase is subject to the availability of funds to acquire additional land and to construct classrooms" (Hatanaka, 1984). As previously noted, the proposed resort expansion is expected to generate revenues that will pay for the resort's share of capital improvements required for the aforementioned schools.

12. Health Care Facilities

Existing Conditions - The nearest health care facility is the 26-bed Kahuku Hospital in Kahuku. The hospital is the base for city ambulances and maintains a helipad for medical evacuation helicopters furnished by the Medical Assistance to Safety in Traffic (MAST) program based at Wheeler Air Force Base. The hospital is the only modern medical facility within 25 miles that offers 24-hour comprehensive medical, surgical and intensive care, as well as long-term skilled nursing and childbirth services.

Proposed Action - The proposed action will introduce a de facto population of 4,783 within the project site.

Anticipated Impacts and Mitigative Measures - There will be an occasional and unavoidable demand for emergency care from the future population within the project site. In the event that facilities at Kahuku Hospital are unable to meet emergency needs, patients can be flown by MAST to Honolulu. It is anticipated that the health care network, public and private, would develop according to the needs of the population, and that as soon as there is sufficent demand for it, Kahuku Hospital could expand its intensive care facilities. The population generated by the project will add to Kahuku Hospital's market, thereby increasing its financial feasibility.

PART V:
ANY PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED AND MITIGATION MEASURES PROPOSED TO MINIMIZE IMPACT

This section summarizes any adverse and unavoidable impacts described in PART IV. In addition, this section provides a description of any mitigation measures included in the proposed project that would reduce significant, unavoidable and adverse impacts.

A. DRAINAGE

1. Adverse effect

After construction is completed and activities within the project site are in operation, an unavoidable increase in stormwater runoff due to groundcover changes is expected. It is anticipated that under probable maximum precipitation (PMP) conditions, the golf course (and Punahoolapa Marsh) will experience temporary flooding to depths of 2 to 3 feet deep.

2. Mitigation Measure

In view of the very large amounts of fill that would be required, and accompanying environmental concerns, the ponding activity described above is considered more desirable than importing sufficient material to create on-site slopes which will cause all runoff to flow toward shoreline outlets. In order to mitigate hazards to people and property, the habitable floors of the proposed resort condominium areas will be at least 5 feet above the finished grade of the golf course adjoining the condominium areas.

B. DUST GENERATION

1. Adverse Effect

Clearing and grubbing activities during construction will temporarily disturb the soil retention values of the existing vegetation, and expose the soils to wind erosion. Soil will also be exposed during the excavation of trenches for utility lines. Heavy construction equipment traffic along unpaved roads will also generate fugitive dust.

2. Mitigation Measures

The impact of construction activities can be mitigated by conforming to strict erosion control measures. Primary fugitive dust control methods include wetting down exposed soil areas with water or suitable chemicals. Other control measures include good housekeeping on the jobsite and landscaping or paving (in the case of roadways) of

bare soil areas as quickly as possible. Landscaping will assume the soil retention value of any existing vegetation removed.

C. WATER CONSUMPTION

1. Adverse Effect

At completion, the maximum potable water usage by the proposed project is estimated to be 3.0 mgd. As previously noted, the conservative estimate of sustainable yield of the potable water source for the project is 7 mgd and the applicant has received a commitment from Campbell Estate to make 3 to 4 mgd available for use by the resort subject to availability and State and County approvals. This is more than adequate for the water requirements of the proposed project.

2. Mitigation Measures

As a precaution, the proposed wells will be monitored for chloride. An increase in the chloride level will be indicative of salt water intrusion and appropriate action (such as reducing or halting pumping) can be taken should this situation arise. Provision of drilling logs to the BWS and DLNR will provide the agencies responsible for managing the potable water supply, information to efficiently monitor resources.

D. MARSH DRAINAGE INPUT

1. Adverse Effect

It is expected that due to the increased use of herbicides and pesticides for the proposed golf courses there will be a substantial percentage increase in HCX over existing levels, although future total loading will remain small.

2. Mitigation Measure

Increased drainage to the marsh will also occur as a result of the development. This increased flow will be a significant factor in how much of the estimated pollutant loadings are retained in the marsh. As flow increases, the time that hydrocarbons are in contact with the flora or fauna is reduced. The expected increase in HCX over existing levels could be further minimized through the re-assessment of needs for pesticides, herbicides, and the substitution of these substances with others known to be less harmful to wildlife.

E. LOSS OF AGRICULTURAL USES

1. Adverse Effect

The adverse effect of rezoning of the entire 394± acres of Ag-1 land in the resort properties will be limited to the loss the month-to-month lease agreements held by four farmers.

2. Mitigation Measure

The applicant will provide 6 months notice prior to the termination of leases, and will allow the farmers rent-free tenancy during that six month period.

F. CONSTRUCTION NOISE

1. Adverse Effect

The construction phases of a development project generally generate significant amounts of noise; the actual amounts generated are dependent upon the methods employed during each stage of the process. Earthmoving equipment such as bulldozers; and diesel powered trucks will probably be the loudest equipment used during construction.

2. Mitigation Measure

Since it is anticipated that noise generated during construction will exceed allowable limits, a permit will be obtained from the State of Hawaii Department of Health (DOH). Required permit conditions for construction activities are described in PART IV, Section L. NOISE and if observed, will mitigate the effects of construction noise.

Traffic noise from heavy vehicles traveling to and from the construction site will be minimized to daylight hours in residential areas and will comply with the provisions of Title 11, Administrative Rules Chapter 42, Vehicular Noise Control for Oahu.

G. AIR QUALITY

1. Adverse Effect

During the site preparation and construction phases of this project, it is unavoidable that some fugitive dust will be generated. This impact and proposed mitigative measures are discussed in PART V, B. DUST GENERATION.

Once completed, the only potential adverse, long-term, indirect impact from the Kuilima Resort expansion project will be in the form of increased power plant emissions associated with the provision of electricity to the project. It is expected that nearly all of this electricity will be generated by burning fuel oil. The major impact

of any fuel oil burned to supply the needs of this project, will be increased sulfer dioxide and particulate levels in the vicinity of present Hawaiian Electric power plants, primarily the Kahe Plant on the Waianae coast.

2. Mitigation Measure

Electrical requirements, and accompanying power plant emissions, for the project can be reduced considerably by designing all structures on site to accomodate solar water heaters and/or energy efficient appliances.

H. SOCIO-ECONOMIC

1. Adverse Effect

As noted earlier, those sectors of the region's population who would unavoidably be adversely affected by the proposed resort expansion include those expected to be displaced by the project and those region residents opposed to economic and/or resort growth.

2. Mitigation Measure

The applicant has taken actions to mitigate adverse social impacts through their establishment of the Kuilima North Shore Stategy Plan Community Advisory Committee, their presentations to numerous regional community groups and the distribution of a project newsletter to region residents. It is also the applicant's intention to implement future mitigation measures summarized in PART IV, O. SOCIO-ECONOMIC CHARACTERISTICS, 4. Lifestyle, Anticipated Impacts and Mitigative Measures. Despite the implementation of these measures, it is highly probable that the concerns of those opposed to economic growth will not be allayed by these measures.

I. TRAFFIC

1. Adverse Effect

Assuming that the North Shore/Kahuku region remains relatively stable with no further major developments (as stipulated in the Koolauloa and North Shore Development Plans), the projected increase in traffic in the area will be primarily due to the increase in the de facto population of Oahu, i.e., both resident and visitor population. On the regional level, previous studies have recognized the highway alignment problems at Haleiwa and Waimea Bay and need for upgrade of the existing Kamehameha Highway. Austin, Tsutsumi and Associates, Inc.'s report (1985) and previous studies have identified problem areas along the North Shore and the need for highway improvements.

2. Mitigation Measure

Recommended regional improvements were outlined in PART IV, section P., 1. Traffic and Roads. While the applicant will be implementing

site-specific roadway improvements on Kamehameha Highway, regional improvements are a governmental responsibility and not that of any single developer. However, it should be noted that State and County revenues derived from the expanded resort facilities will be sufficient to finance the resort's fair share of the cost for major capital improvements such as highway improvements which are or will be needed in the region.

J. SOLID WASTE DISPOSAL

1. Adverse Effect

The solid waste generated by the completed resort expansion will place an additional burden on County disposal facilities.

2. Mitigation Measure

The County has future plans to construct a solid waste transfer station in Laie. Solid waste collected at this transfer station will be hauled either to a Windward Sanitary Landfill site for disposal or to a proposed refuse-to-energy plant. As noted earlier, it is expected that State and County revenues derived from the completed resort facilities will be sufficient to finance the resort's fair share of the cost for major capital improvements such as solid waste disposal facilities, and to provide the same level of per-unit services.

K. DEMAND ON COUNTY PROTECTIVE SERVICES

1. Adverse Effect

There will be an unavoidable demand on County services for police, emergency and fire protection.

2. Mitigation Measures

The cost of providing the above services will be offset by the projected tax revenues that will be generated by the project.

PART VI:
ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The construction and operation of the proposed project will involve the irretrievable commitment of certain natural and fiscal resources. Major resource commitments include the land upon which structures are actually constructed (does not include open space areas, such as the golf courses, marsh, parks and equestrian area), money, construction materials, manpower and energy. The impacts of using these resources should, however, be weighed against the economic benefits to the residents of the region, County and State, and the consequences resulting from taking no action (PART VIII, ALTERNATIVES TO THE PROPOSED ACTION).

Large areas of the project site will be devoted to open space. Fourty-two (41.8) acres of beach parks (parks P-1 and P-2), 8 acres of private parks (parks P-3 and P-4), 351 acres of golf courses (golf courses G-1 and G-2), 10 acres of equestrian area (stable) and 100 acres of preserve area (Punahoolapa Marsh) comprising a total of 63% of the total project area will be dedicated to open space. This does not include the landscaped open space to be provided within each buildable parcel. Approximately 50% of the hotels and resort condominium areas or 103 acres will be in open space, therefore only the remaining 103 acres will represent a permanent, irreversible or irretrievable commitment of land.

Rezoning of the entire 394± acres of Ag-1 land in the resort properties could be viewed as a major loss of existing and potential agricultural uses. However, it is estimated that currently no more than 20 acres is in crop production and an additional 138 acres being is utilized for farm structures, roadways and cattle grazing (the remainder of the 394± acres of Ag-1 land is not being used for cultivation or grazing). It has been determined that the only moderately good to prime land is located on approximately 48 acres in the south-mauka corner of the project site. Implementation of the proposed activities within the Ag-1 zoned lands will involve the loss of approximately 48 acres of good agricultural land. However, the climate and the marketability of the crops that would be environmentally suited to the project site, in comparison to crops grown elsewhere, leaves the Ag-1 zoned lands on the property as being infeasible for agricultural use. Moreover, this loss is not expected to be significant, as the total acreage of available good agricultural land on Oahu is estimated to exceed foreseeable crop production needs by over 11,000 acres.

The commitment of resources required to accomplish the project includes labor and materials, which are mostly unrenewable and irretrievable. The operation of the project will also include the consumption of potable water and petroleum-generated electricity which also represents the irretrievable commitment of resources. However, it should be noted that most of the potable water used will be reused for the irrigation of the golf courses.

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

Inherent in any intensification of land use is the trade-off between short-term gains at the expense of long-term losses and vice-versa. The implementation of this project is no exception.

The major short-term gain of the proposed action is the rezoning of the property to generally conform with the Development Plan for Koolauloa Land Use Map designations. Most of this gain would be at the expense of Ag-1 lands. However, retaining the lands project site in Ag-1 may represent a long-term loss, by narrowing the range of beneficial uses of the site. It is estimated that not more than 20 acres is in crop production and the remainder of the 138 acres leased by four farmers is utilized for farm structures, roadways and cattle grazing (the remainder of the 394± acres of Ag-1 land is not being used for cultivation or grazing). It has been determined that the only moderately good to prime land is located on approximately 48 acres in the south-mauka corner of the project site. Implementation of the proposed activities within the Ag-1 zoned lands will involve the loss of approximately 48 acres of good agricultural land. However, this loss is not expected to be significant, as the total acreage of available good agricultural land on Oahu is estimated to exceed foreseeable crop production needs by over 11,000 acres.

The major long-term gain of the proposed action is the enhancement of the economic value of the site at the expense of the adverse and unavoidable effects outlined in PART V.

The proposed action poses no long-term risks to health or safety.

Approval of the project will not foreclose future options on the portions of the property to be dedicated in open space, as none of the proposed actions involve the commitment of these areas for the life of any structures (other than park rest stations or equestrian stable facilities). It is the applicant's intention to minimize the alteration of the open space character of the site.

PART VIII: ALTERNATIVES TO THE PROPOSED ACTION

A. NO ACTION

No action would mean not receiving the proposed governmental approvals. The applicant would probably not intitiate development under the existing approvals. Specifically, the existing zoning designations for the DP approved 4,000 units does not permit the quality of development which would satisfy Prudential's corporate standards and which blends in with the region. However, Prudential has made substantial investments in the property to date and would seek some way to regain this initial investment. The applicant has made no decision about what steps might be taken, preferring to concentrate its energies on securing approvals for an economically feasible and high-quality resort.

Among its options to be weighed, Prudential would likely consider selling the lands owned in fee. The Development Plan for Koolauloa, City and County of Honolulu, allows for 4,000 visitor units within the areas of the project site designated for Resort use. Presently, the zoning designation for the site between Kuilima Point and Kawela Bay is R-6 and A-1. This portion of the property is underutilized according to their zoning designations and DP controls and these parcels will be attractive to investors. A possible scenario if the current request is denied, is that development, if it occurs, would be of a significantly lower quality, predominantly condominium, and possibly carried out on a piecemeal basis by various new landowners. This can be expected because finding a single one investor to buy all of KDC's fee lands is unlikely. It is likely then, that piecemeal development, including any required infrastructure improvements, will occur on these latter parcels.

Disapproval of proposed zoning changes as per a master plan approach to the property will probably result in higher densities as each developer will seek to maximize development on their own properties. Higher densities suggest a more urbanized appearance which would be less desirable than a larger but integrated and master-planned resort.

The lack of a single development entity may result in the proposed amenities, such as a second 18-hole championship golf course, new clubhouse, and stables, not being built. It is unlikely that the proposed improvements to the Punahoolapa Marsh avifauna habitat will be implemented by private investors. In the event that a private investor does not implement the proposed enhancements to the marsh, there is a possibility that the U.S. Fish and Wildlife Service or an organization such as Nature Conservancy would try to acquire the marsh for their management. However, because of the large capital investment required, the public would have little or no direct access to the marsh. It can also be expected that the proposed improvements to Kawela Bay and the protection of the primary sand dunes near Kahuku Point (through the dedication of a park) would not be implemented.

B. NO FURTHER DEVELOPMENT

This alternative, no further development, has been proposed by residents in the region opposed to economic and/or resort growth (Community Resources, Inc., 1984). The no further development alternative would be to retain most of the site in its vacant condition. Present uses of the site not occupied by the facilities of the Turtle Bay Hilton and Country Club include occasional grazing, crop production, vacation cottage, and limited recreational activities. No development would preclude most of the adverse and unavoidable environmental effects summarized in PART V, although implementation of this alternative may present an adverse effect on those sectors of the region's residents who would benefit from the implementation of the proposed action. From the community perspective, the lack of an employment base to replace Kahuku Sugar (and possibly Waialua Sugar) would mean continued out-migration of longtime residents and continued replacement by relatively affluent and/or transient newcomers.

The applicant believes it would be economically infeasible for the applicant's parent company, Prudential, to continue its investments in the property (such as periodic renovations of existing facilities), because of the past financial performance of the existing facilities, and since market studies conducted by Robert Charles Lesser and Co. determined that the existing facilities on the subject site do not provide the appropriate combination of characteristics for a successful destination resort.

As in the "no action" alternative, it is unlikely that the proposed improvements to Kawela Bay and the protection of the primary sand dunes near Kahuku Point (through the dedication of a park) would be implemented.

Implementation of this alternative would require downzoning of the property. As previously mentioned, portions of the property are presently zoned R-6 and A-1, which are underutilized according to their zoning designations. In order to insure that these parcels remain in its present state, these parcels would have to be downzoned and an amendment to the DP be requested to disallow future resort units. As with the no action alternative, implementation of the no further development alternative will force Prudential to reconsider its investments at Kuilima.

C. ALTERNATIVE SITE

Moving the proposed action to an alternative site is essentially the same as no action. The applicant would have to acquire new property at a site which will more than likely have unique environmental characteristics. The General Plan for the City and County of Honolulu states that development of secondary resorts (to Waikiki) is permitted only in West Beach, Kahuku (the area encompassing Kuilima), Makaha and Laie. The social impacts of development at Laie would be similar to those anticipated for the project site, however, because of the unavailability of a large parcel of oceanfront land and since Laie has existing mixed uses, the development of a consistent, master-planned resort identity would be difficult. The development area at Makaha is separated from the ocean and would therefore be unattractive for resort development. West

Beach has positive climatic conditions and access characteristics, but has ocean frontage which must be improved to be attractive for resort development and is located near industrial uses that might appear to be incompatible with resort activities. Thus, the construction of the proposed action at an alternative site will face differing environmental impacts, some of which will be less or more severe than the proposed action.

D. MORE DEVELOPMENT THAN PROPOSED

In 1979, there was a different, more intensive proposal to expand the Kuilima Resort. Aspects of the previous proposal and a comparison with the current master plan is summarized below:

1979 and Present Proposed Plans

Use	No. of Units Proposed in 1979 Plan	No. of Units Proposed in Present Plan
Hotel	4,700 units	1,450 units
Resort Condominiums	1,700 units	2,063 units
Resort Single-Family	50 units	none
Residential	425 units	none
Commercial Space	100,000 square feet	40,000 square feet
18-hole Golf Courses	2 (300 to 350 acres)	2 (351 acres)
Public Beach Parks	2 (24 acres total)	2 (41.8 acres total)
Private Parks	1 (2 acres)	2 (8 acres total)
New Public R.O.W.	3	5
Stable	none	1 (10 acres)
Wildlife Preserve (marsh)	1 (80 acres)	1 (100 acres)

It should be noted the 1979 proposal of 6,400 additional resort units is comparable to Hallstrom's estimate of a potential demand for 5,000 to 6,200 units. The alternative of "more development than proposed" would be

more costly to implement, but would provide a more economically viable project, and would result in greater employment opportunities and economic benefits than the proposed action.

The 1979 plans included the development of six new hotels (three at Kawela Bay, another three at Turtle Bay) ranging in size from 525 rooms to 900 rooms (under the present proposal, maximum units per hotel is 500 units). The new proposed Kuilima Resort Expansion Master Plan results in fewer units and lower overall density. It distributes the total units over the entire project site rather than concentrating them in the Kawela and Turtle Bay areas.

While the 1979 proposal included 60 acres for agriculture and/or residential expansion, it devotes less area to recreational activities and open space. Due to its higher densities, the 1979 proposal will have greater adverse impacts on potable water sources, traffic and those sectors of the population who would be affected by any additional development at the resort than the proposed action.

E. LESS DEVELOPMENT THAN PROPOSED

For comparison purposes, the previous Development Plan approvals for 1,513 additional resort units will be used as a means of describing the benefits and costs of this alternative. The previous approvals reflect a portion of a previous proposal for a much larger development (refer to D. MORE DEVELOPMENT THAN PROPOSED). However, even under the previous proposal (1979), the existing zoning designation of the property would not have been considered viable for quality development. The County established the boundaries for the previous DP approvals as part of an effort to scale down the previous more intensive development proposal (1979). Additionally, the existing zoning designation for even the 1,513 units of this alternative (separated from Kawela Bay by a strip of residential property and subject to restrictive setback and height requirements) makes high-quality development unlikely. Ocean frontage is usually essential for luxury-class hotels in Hawaii.

This alternative is essentially the same as the alternative of no further development: it would not offer the density and variety of hotel and condominium choices to make this resort economically feasible for Prudential to continue its investments in the property. KDC's financial study indicates that the project would lose money without at least a total of 4,000 rooms. The City's own 1978 Assessment of Potential Off-Waikiki Resorts includes acknowledgement that such resorts must have a "critical mass" of at least 3,000 rooms.

In the event that Prudential decides to sell its lands owned in fee, it is expected that a number of investors will buy portions of the property. It is likely then, that piecemeal development will occur on these latter parcels. The lack of a single development entity will probably mean that a second 18-hole championship golf course, new clubhouse, and stables, will not be built and that the proposed improvements to Kawela Bay will not be implemented.

PART IX:
THE RELATIONSHIP OF THE PROPOSED ACTION TO LAND USE POLICIES AND CONTROLS FOR THE AFFECTED AREA

The proposed Kuilima Resort expansion will be consistent with: the Hawaii State Plan; the State Functional Plan; the General Plan for the City and County of Honolulu; the Development Plan for Koolauloa, City and County of Honolulu; the Hawaii Coastal Zone Management Program; and the Special Management Area Rules and Regulations of the City and County of Honolulu, Ordinance 84-4.

A. HAWAII STATE PLAN

The proposed Kuilima Resort expansion would be consistent with the Hawaii State Plan objectives and policies which follow:

Objectives and policies for the economy in general, Section 6 (a) states:

> "(1) Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawaii's people."

Other applicable policies for the economy (Section 6 [b]) include:

> "(9) Encourage labor-intensive activities that are economically satisfying."
>
> "(11) Promote economic activities, especially those which benefit areas with substantial unemployment problems."
>
> "(14) Encourage businesses that have favorable financial multiplier effects within Hawaii's economy."

Discussion: When fully developed, the labor-intensive, resort development will provide employment and new business opportunities (to service the resort development) for the Koolauloa and North Shore areas which had 4.8% unemployment in 1980. The completed resort facilities is estimated to generate 6,275 direct, indirect and induced jobs on Oahu, of which 3,556 jobs will be located in the region. The increase in people and homes directly and indirectly supported by the activities from the expanded resort facilities are expected to number about 14,809 and 4,894, respectively.

While the exact breakdown in job choices cannot be determined at this time, the State Tourism Manpower Simulation Model provides a preliminary basis for estimating the type of jobs that might be generated by the project, both by industry and occupational characteristics (State of Hawaii, Department of Planning and Economic Development, 1978. Manpower, State Tourism Study). The projected percent distribution by industry and occupation of direct, indirect and induced employment generated by the

proposed expansion of the Kuilima Resort is as follows: 31 percent of all jobs that are generated could potentially be in eating and drinking establishments; 28 percent in resort and hotel facilities; 22 percent in transportation related sectors; 14 percent in the service sectors; and 5 percent in the retail trade.

Relevant Hawaii State Plan policies for the economy - visitor industry (Section 8 [b]) are as follows:

> "(3) Improve the quality of existing visitor destination areas."
>
> "(5) Ensure that visitor facilities and destination areas are carefully planned and sensitive to existing neighboring communities and activities."
>
> "(7) Provide opportunities for Hawaii's people to obtain job training and education that will allow for upward mobility within the visitor industry."

Discussion: As noted in PART II, Section E., 1. Market Need - Concept of "Critical Mass", there is a near-total lack of "Resort Hotel" designated sites which are not intensely developed in the Waikiki Special Design District and it is apparent that Waikiki will not be able to meet the increasing lodging demands projected for Oahu throughout the end of the century.

Five areas are generally cited as having visitor lodging development potential on Oahu outside of Waikiki: Kahuku/Kuilima, Makaha, West Beach, Queen's Beach and Kakaako/Downtown. The projected number of visitor units required to be constructed on Oahu (an additional 21,100 units; minimum 10,000 units) depict a fall off in the historic growth cycle of Oahu tourism, as greater portions of travelers forego their Oahu stay for destination resorts (found only on neighbor islands). Demand for destination resort accommmodations on a State-wide level, on the other hand, is projected to increase at approximately 10 to 15 percent annually thoughout the century. Should Oahu fail to construct the necessary units or do so in non-competitive (i.e., non-destination resort) locations, the neighbor island exodus may continue fully unabated, hindering long-term prospects for the health of the County's tourism industry. The proposed development is intended to fill a specific market niche presently lacking on Oahu and thereby adding to the diversity and viability of the island's industry. Moreover, as noted in PART II, Section E., 1. Market Need - Concept of "Critical Mass", the proposed resort expansion is needed to correct the deficiency of the existing facilities on the subject site which do not provide the appropriate combination of characteristics of a successful destination resort.

The proposed development within the project site was planned with the assistance of the Kuilima North Shore Strategy Plan Community Advisory Committee, which is comprised of representatives from various organizations and businesses from the region.

In order to provide employment and training opportunities for residents of the upper Windward Coast and North Shore, the KDC and Campbell Estate have been the primary sponsors of the private, non-profit North Shore Career Training Corporation. The Corporation was created in November 1978 as an outgrowth of the regional community's concern for its long-term economic welfare. As noted in PART III, A., 3. Social Characteristics, a plan to ensure that residents of the region can qualify for construction and operating jobs generated by development within the project site, encompassing training and related mitigation measures is still being formulated but will contain an in-service upgrade training component to assist local residents in moving up to supervisory positions.

Relevant Hawaii State Plan policies for the physical environment - land-based, shoreline, and marine resources (Section 11 [b]) include:

> "(3) Take into account the physical attributes of areas when planning and designing activities and facilities."
>
> "(9) Promote greater accessibility and prudent use of the shoreline for public recreational, educational, and scientific resources."

Discussion: The major physical features within the project have been identified as being Kawela Bay, the primary sand dunes near Kahuku Point and the Punahoolapa Marsh. In order to protect and enhance Kawela Bay, the applicant proposes to divert a major portion of the Kawela Stream runoff, thereby eliminating the environmental stress caused by the stream discharge. To enhance the attractiveness of the bay to users, the applicant is proposing to remove the gelatinous-textured sediment from the bottom of the southeastern portion of the bay. Finally, the applicant supports a proposal for an underwater park and Marine Life Conservation District designation for Kawela Bay.

The applicant proposes that no structures be constructed on the primary sand dunes at Kahuku Point, and that they not be modified in any manner. In addition, a 37-acre area around these primary sand dunes will be dedicated to the County for use as a passive park (P-2).

The applicant is also proposing to improve the Punahoolapa Marsh to enhance its value as a waterbird habitat and is planning to develop a new golf course around most of the marsh's boundaries to provide an open space buffer.

The applicant is proposing to provide opportunities for public recreational, educational and scientific use of the shoreline fronting the project site, through the development of 5 public right-of-ways to the shoreline, the development of a privately-maintained beach park at Kuilima Bay, and the dedication of two public beach parks at both ends of the property.

Relevant Hawaii State Plan policies for socio-cultural advancement - education (Section 21 [b]) include:

> "(4) Provide job preparation training for groups experiencing critical unemployment conditions."
>
> "(6) Assist individuals, especially those who are disadvantaged in meeting job qualifications, through manpower and other related training opportunities."

Discussion: Refer to the previous discussion of the Hawaii State Plan policies for the economy - visitor industry: Section 8 [b], (7).

Relevant Hawaii State Plan policies for socio-cultural advancement - leisure (Section 23 [b]) include:

> "(4) Promote the recreational and educational potential of natural resources having scenic, open space, cultural, historical, geological, or biological values."
>
> "(5) Ensure opportunities for everyone to use and enjoy Hawaii's recreational resources."

Discussion: Park P-3 is planned to contain displays providing information on the environmental value of the adjacent Punahoolapa Marsh and the identification of various avifauna species. Park P-2 will include pedestrian right-of-ways established at intervals with free public parking and informational graphics available at each location. Existing stands of ironwood trees will be integrated with the proposed structures where possible. In addition, the applicant supports a proposal for an underwater park at Kawela Bay.

With the development of 4 parks (totaling 49.8 acres), two golf courses (totaling 351 acres) and 10 acres of equestrian use, approximately 410.8 acres of the 808± acre site will be used for active and passive recreational uses. The implementation of the proposed resort expansion will increase the recreational value of the resort site.

B. STATE FUNCTIONAL PLANS

By 22 April 1985, all of the 12 mandated State Functional Plans (pursuant to Chapter 226, HRS) had been adopted. The State Functional Plans translate the broad goals and objectives of the Hawaii State Plan into detailed courses of action. The relationship of the proposed actions within the project site to the relevant State Functional Plan objectives is described below:

State Agriculture Functional Plan - Land

"B(5)(c). IMPLEMENTING ACTION: Until standards and criteria to conserve and protect important agricultural lands are enacted by the Legislature, important agricultural lands should be classified in the State Agricultural District and zoned for agricultural use, except where, by the preponderance of the evidence presented, injustice or inequity will result or overriding public interest exists to provide such lands for other objectives of the Hawaii State Plan."

Discussion: There appears to be an overriding public interest (PART IV, O., 4. Lifestyle) that the lands of the project site be "provided" for resort expansion. As noted in the discussion of the Hawaii State Plan (A. HAWAII STATE PLAN), implementation of the proposed action would fulfill an objective for the economy in general: "Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawaii's people."

State Historic Preservation Functional Plan - Historic Properties

"B. Objective: Compilation of an inventory that adequately locates and describes a significant portion of Hawaii's historic properties."

Discussion: Although earlier limited reconnaissance work was conducted in 1977 (Thomas S. Dye, 1977. Archaeological Reconnaissance Survey of Prudential Insurance Company Lands Near Kuilima Hyatt Resort, Kahuku, Oahu Island. Bishop Museum Anthropology Dept. Report Ms.100777), the applicant contracted PHRI to conduct a subsurface archaeological reconnaissance survey and a literature survey of the project area. The reconnaissance survey included the testing recommended on the basis of the earlier limited reconnaissance work conducted in 1977. This additional work will assist the State in achieving its goals to inventory Hawaii's historic properties.

State Housing Functional Plan

"B. Objective: Assist the orderly development of residential areas sensitive to community needs and other land uses."

Discussion: If the necessary governmental approvals are received as requested, the applicant will assist in providing 95 units of low moderate housing.

State Recreation Functional Plan - Access

"D. Objective: Assure the provision of adequate public access to lands and waters with public recreation value."

Discussion: The project will conform to the objective of assuring adequate public access to waters with recreational value, by providing

unobstructed pedestrian access along the shoreline and providing mauka-makai access to the shoreline through proposed public beach parks P-1 and P-2, private beach park P-4, and 5 public right-of-ways.

State Tourism Functional Plan - Physical Development

"B. Objective: Development and maintenance of a well-designed and adequately serviced visitor industry and related developments in keeping with the needs and aspirations of Hawaii's people."

Discussion: The applicant has initiated physical planning for the proposed Kuilima Resort expansion in order to develop a visitor facility of high quality. Implementation of a one-developer resort, as opposed to a multi-developer resort, such as Waikiki, will eliminate the need for government funds for capital improvements. Planning for the proposed resort expansion has taken into consideration land and water resources and the competition for these resources for residential and agricultural uses. The master plan for the resort also reflects consideration for environmental, scenic and cultural resources. Moreover, the City and County of Honolulu General Plan states that it is an economic activity policy to permit the development of a secondary resort in the area encompassing Kuilima.

State Tourism Functional Plan - Employment and Career Development

"C. Objective: Enhancement of career and employment opportunities in the visitor industry."

Discussion: Refer to the discussion of the Hawaii State Plan policies for the economy - visitor industry: Section 8 [b], (7).

State Tourism Functional Plan - Community Relations

"D. Objective: Development of better relations and mutual awareness and sensitivity between the visitor industry and the community."

Discussion: Kuilima Development Company and its predecessors have been significantly involved in community affairs, particularly in Kahuku, since the project began. The community interaction has had mixed results, however. In the key informant interview process carried out by Community Resources, Inc., residents of some communities praised the developer's efforts over the years, while others were sharply critical of "hired-gun" community liaison personnel and of a perceived pattern of "poor communications." This difference in viewpoint may largely reflect a basic underlying split both in philosophies and in economic interests which differentiates those who emphasize economic growth vs. those who wish to "Keep the country country." However, other factors may also be at work. The developer's repeated series of permit applications to the City has necessitated a repeated series of community presentations, causing some residents to feel cynical about "still another plan" and still other

residents to feel simply confused by the changes over time. Also, until last year, the developer's community interactions largely focused on presentations to the community rather than obtaining early input from the community.

In November 1983, the applicant established the "Kuilima North Shore Stategy Plan Community Advisory Committee". The committee's overall purpose is to formulate a self-help community economic development strategy for the Koolauloa-North Shore area by attempting to capture as much of the employment and spin-off business development from the Kuilima Resort for the local region as possible. However, committee members have decided to direct much of their energy toward providing input for the proposed master plan. Their original recommendations and reactions to initial proposals are responsible for much of the current development concept. The committee continues to provide planning input on matters such as the proposed park at Kawela Bay, establishment of the marsh as a bird sanctuary, public access to the coast, traffic considerations and design options. This committee is now investigating the employment and business multiplier effects of the resort.

When Hilton Hotel Corporation was awarded the management contract for the existing hotel, it terminated 360 employees, of which only 230 were rehired. The non-rehiring of the remaining 130 former employees became a major issue in the community. A group called the United Kuilima Workers was formed and appealed to legislators, unions and area communities to assist them in getting their jobs back. A picket line was set up and continued until February 11, 1984 when the United Kuilima Workers, the Turtle Bay Hilton and the applicant signed an agreement for the establishment of a "Dislocated Workers Program". The program called for participants to be paid a salary comparable to that of their previous employment at the hotel while performing various forms of community-oriented service work. The North Shore Career Training Corporation admininistered the program, which was funded by the applicant at an estimated cost of $442,000. For its part, Hilton agreed to rehire participating workers when a position opened, provided that the workers were qualified. Of the 130 original non-rehired workers, 52 elected to participate in the program (with the remainder either not interested, often because they had already found other work, or not qualified because they had been just on call or part-time in 1983). Because all of the workers have either been rehired by Hilton or found satisfactory alternative work, the Dislocated Workers Program has recently been discontinued.

In addition, the applicant has been conducting an active, on-going program of seeking input from various organizations and communities within the region.

C. GENERAL PLAN FOR THE CITY AND COUNTY OF HONOLULU

The following discussion provides an assessment of how the proposed project conforms to and implements the General Plan.

POPULATION

- Objective B, Policy 2

"Provide adequate support facilities to accommodate future growth in the number of visitors to Oahu."

Discussion:

It is estimated that there will be a need for a 21,100-unit increase from the current island inventory. Since there is a near-total lack of "Resort Hotel" designated sites which are not intensely developed in the Waikiki Special Design District, it is expected that Waikiki will not be able to meet the increasing lodging demands projected for Oahu throughout the end of the century.

Five areas are generally cited as having visitor lodging development potential on Oahu outside of Waikiki: Kahuku/Kuilima, Makaha, West Beach, Queen's Beach and Kakaako/Downtown. The following table gives some indication of the numbers of units that have been publicly proposed for each area at various times:

Identified Resort Area	Range of Proposed Units		
West Beach	6,500	to	9,200
Queen's Beach	500	to	3,000
Kuilima	4,400	to	6,200
Makaha	400	to	1,400
Kakaako/Downtown	400	to	6,800
Total	12,200	to	26,600

- Objective B, Policy 3

"Manage physical growth and development in the urban-fringe and rural areas so that:
a. An undesirable spreading of development is prevented; and
b. Their proportion of the islandwide resident population remains unchanged."

Discussion: The major step being taken to manage "undesirable spreading of development" is the concentration of virtually all resort-related activities on the project site, which would eventually become the North Shore's major employment center. No significant structural development will occur off-site. It is possible that the resort will generate unforeseen pressures for off-site development, but these would be subject to County review and control through the land use permit process.

To manage population growth, the principal strategy will be a resident-oriented job training program now being developed in conjunction with the North Shore Career Training Corporation. The intent of this program is to ensure that current residents within the region will be maximally aware of, and competitive for, entry-level jobs. Also, the program is intended to ensure that in-service upgrade training will be available to help promote current residents to supervisory and management positions.

An analysis of the likely impact of such a program on labor supply and inmigration is currently underway, pending tabulation of the best available evidence about current residents' interest in and qualifications for resort jobs, i.e., job applications at the Turtle Bay Hilton since its opening.

It should be noted that the resort expansion could affect population in either or both of two ways: generating inmigration or preventing outmigration. The major purpose of the jobs training population management strategy would be to limit inmigration, not to encourage outmigration as might possibly be required to achieve Objective B, Policy 3(b).

The 1980 residential population for the Koolauloa/North Shore region (census tracts 99.01 - 102.02) was 24,044. The current City population target for the region in the year 2005 is 30,585 (City and County of Honolulu, Department of General Planning, Land Supply Review: Population Implications of the Development Plans, 1984). This is a difference of 6,541. The population growth rate implied between 1980 and 2000 or 2005 is substantially less than historic growth rates (particularly for Koolauloa), suggesting that out-migration of current residents may be required to accommodate this figure.

ECONOMIC ACTIVITY

- Objective A

  "To promote employment opportunities that will enable all the people of Oahu to attain a decent standard of living."

- Objective A, Policy 2

  "Encourage the development of small businesses and larger industries which will contribute to the economic and social well-being of Oahu residents."

Discussion: Operational employment at the completed resort facilities is estimated to generate 6,275 direct, indirect and induced jobs on Oahu, of which 3,556 jobs will be located in the region (Koolauloa and North Shore Districts). The proposed project will also provide opportunities for short-term construction employment.

The increase in people and homes directly and indirectly supported by the activities from the expanded resort facilities are expected to number about 14,809 and 4,894, respectively.

Upon project completion, direct, indirect, and induced sales and household income are projected to be $304.5 million and $110.8 million, respectively. The increase in sales and household income will occur throughout Oahu, with only a fraction occurring at the Kuilima Resort itself.

- Objective A, Policy 3

  "Encourage the development in appropriate locations on Oahu of trade, communications, and other industries of a nonpolluting nature."

Discussion: The proposed expansion of the Kuilima resort will provide a wide range of tourist-related amenities in an area designated by the City and County of Honolulu General Plan as suitable for resort development. The site's diverse physical features, including: beaches, rocky outcroppings, sand dunes, marsh lands and stands of ironwoods, is conducive to resort development. The applicant is proposing to develop a "neighbor island-type" resort (a non-polluting industry) that is in harmony with the region.

- Objective B

  "To maintain the viability of Oahu's visitor industry."

Discussion: The projected number of visitor units required to be constructed (an additional 21,100 units) depict a fall off in the historic growth cycle of Oahu tourism, as greater portions of travelers forego their Oahu stay for destination resorts (found only on neighbor islands). (Demand for destination resort accommmodations on a State-wide level is projected to increase at approximately 10 to 15 percent annually thoughout the century.) Should Oahu fail to construct the necessary units or do so in non-competitive (i.e., non-destination resort) locations, the neighbor island exodus may continue fully unabated, hindering long-term prospects for the health of the County's tourism industry. The proposed development is intended to fill a specific market niche presently lacking on Oahu and thereby adding to the diversity and viability of the island's industry.

- Objective B, Policy 6

  "Permit the development of secondary resort areas in West Beach, Kahuku* [Kahuku is the area encompassing Kuilima], Makaha and Laie."

- Objective B, Policy 7

  "Manage the development of secondary resort areas in a manner which respects existing lifestyles and the natural environment, and avoids substantial increases in the cost of providing public services in the area."

- Objective B, Policy 8

  "Preserve the well-known and widely publicized beauty of Oahu for visitors as well as residents."

Discussion: As stated in the General Plan, development of a secondary resort is permitted at Kuilima.

Existing lifestyles and environmental factors were taken into consideration when planning the proposed facilities. To minimize any adverse social impacts on residents in the Koolauloa and North Shore regions, the applicant has sought public participation in the planning of the resort. A description of this process is described in the discussion of section B., State Tourism Functional Plan - Community Relations. The applicant is proposing to develop a "neighbor island-type" resort that will protect and preserve the site's natural environment and beauty, including its bays, beaches, sand dunes, and marsh lands.

The proposed resort expansion will be managed in a manner which avoids substantial increases in the cost of providing public services in the area. State and County revenues derived from the proposed expansion of the Kuilima Resort will be sufficient to finance the fair share of the cost for major capital improvements such as schools which are or will be needed in the region and provide the same level of per-unit services as are currently provided (such as solid waste disposal, fire/police services, and public education).

- Objective E, Policy 1

  "Encourage the training and employment of present residents for currently available and future jobs."

Discussion: Provided that appropriate training is available, much of the supply for the projected 3,556 direct, indirect and induced jobs in the region could be met from within the region itself. However, maximizing employment benefits for region residents will depend on the effectiveness of job training programs in the area. It is the applicant's intention to fashion such programs, whether through improved coordination of existing programs or creating new ones. The applicant has been one of the major supporters of the North Shore Career Training Corporation.

A plan to ensure that residents of the region can qualify for construction and operating jobs generated by development within the project site, encompassing training and related mitigation measures is still being formulated but will contain at least the following features: a basic education component; working through existing community organizations which could administer the program; an in-service upgrade training component; a community outreach and education component; and close liaison with area schools (Appendix M).

NATURAL ENVIRONMENT

- Objective A, Policy 8

  "Protect plants, birds, and other animals that are unique to the State of Hawaii and the Island of Oahu."

Discussion: The applicant is proposing to preserve 100 acres of the Punahoolapa Marsh for its value as a habitat for the Hawaiian Stilt, the Hawaiian Coot, the Hawaiian Gallinule and the Hawaiian Duck, all endangered waterbirds. The value of Punahoolapa Marsh as a waterbird habitat will be enhanced by the implementation of the following proposed improvements (established in coordination with the U.S. Fish and Wildlife Service): the construction of a moat around the marsh, surrounded by chain link fencing and a visual barrier of vegetation; the construction of additional open waterways makai of the existing open water areas; and, the creation of a number of islands on the new waterways. In addition, the master plan includes the development of a new golf course, G-2; this will provide an open space buffer around most of the marsh.

- Objective B, Policy 1

  "Protect the Island's well-known resources: its mountains and craters; forests and watershed areas; marshes, rivers, and streams; shoreline, fishponds, and bays; and reefs and offshore islands."

Discussion: Refer to the discussion above regarding the protection of the Punahoolapa Marsh. In addition, the applicant supports a proposal for an underwater park and Marine Life Conservation District designation for Kawela Bay.

- Objective B, Policy 2

  "Protect Oahu's scenic views, especially those seen from highly developed and heavily travelled areas."

Discussion: Valued scenic resources on the project site include: Kawela Bay, Turtle Bay, Kahuku Point (and inland sand dunes), and Kuilima Point. Due to the distance of the shoreline from the nearest

inland public roadway, Kamehameha Highway, these scenic resources and the shoreline are presently not visible to the public. The applicant proposes the establishment of a minimum 100-foot setback along the project shoreline (except for the existing Turtle Bay Hilton and Country Club); this should maintain existing public views along the shoreline. In order to maintain and enhance views of the ocean from the project site, all structures will be sited and designed with appropriate building heights, setbacks, design and siting controls established in the CZC.

- Objective B, Policy 4

  "Provide opportunities for recreational and educational use and physical contact with Oahu's natural environment."

Discussion: The project site contains a natural environment uniquely suited for birdwatching, Punahoolapa Marsh. This waterbird habitat will be able to be viewed from the proposed elevated walkway through the marsh and from a proposed park (P-3) on the eastern boundary of the marsh, that will be open to the public.

The applicant is proposing to provide opportunities for recreational and educational use, and physical contact with the bays, beaches and shoreline fronting the project site through the development of 5 public right-of-ways to the shoreline, the development of a privately-maintained beach park at Kuilima Bay, and the dedication of two public beach parks at both ends of the property.

HOUSING

- Objective A, Policy 8

  "Encourage and participate in joint public-private development of low- and moderate-income housing."

Discussion: If the necessary governmental approvals are received as requested, the applicant will assist in providing 95 units of low moderate housing.

TRANSPORATION AND UTILITIES

- Objective B

  "To meet the needs of the people of Oahu for an adequate supply of water and for environmentally sound systems of waste disposal."

- Objective B, Policy 1

"Develop and maintain an adequate supply of water for both residents and visitors."

- Objective B, Policy 5

"Provide safe, efficient, and environmentally sensitive waste-collection and waste-disposal services."

- Objective B, Policy 6

"Support programs to recover resources from solid-waste and recycle wastewater."

Discussion: The applicant will be developing the necessary wells, storage facilities and transmission/distribution system to meet the potable water demand of the expanded resort facilities. The water resources of the Kahuku Water Management Area (Malaekahana to Kaunala) were recently studied by EDP Hawaii, Inc. and described in the Management Guide to the Water Resources of the Kahuku Water Management Area. According to the latter study, a substantial sustainable yield of potable fresh water in the region remains to be developed. One of these untapped groundwater resources is the Waialee aquifer. The features and potential capacity of the Waialee Aquifer are reasonably well known. It is the opinion of EDP Hawaii, Inc.'s consultant, John Mink, that the "the flux may be as low as ten mgd but is probably on the order of 15 mgd. At least half of this can be safely extracted with wells having pumps rated at or less than 600 gpm." The estimated max-day water demand estimated to be required at full development of the resort is 3.0 mgd. Only 0.5 mgd of the Waialee aquifer is currently being pumped.

The applicant has prepared a Wastewater Master Plan for the proposed Kuilima Resort expansion project which has been reviewed by the State Department of Health, the Honolulu Board of Water Supply, and City and County of Honolulu Department of Public Works Division of Wastewater Management, with no major objections. The proposed Wastewater Treatment Plant will be designed to comply with applicable State and Federal laws and regulations. The treated effluent will be used for irrigation of the Kuilima Resort golf courses.

Solid waste will be collected by private collection companies and disposed of at public or private sanitary landfills.

- Objective C, Policy 3

"Plan for the timely and orderly expansion of utility systems."

Discussion: The applicant is planning infrastructure improvements to be coordinated with the phased development of the project. The proposed improvements are described in PART IV, P. INFRASTRUCTURE AND PUBLIC SERVICES.

- Objective D, Policy 5

  "Require the installation of underground utility lines wherever possible."

Discussion: Electrical and telephone service will be provided by underground ducts throughout the resort site.

ENERGY

- Objective C, Policy 1

  "Encourage the use of commercially available solar energy systems in public facilities, institutions, residences, and business developments."

Discussion: The structures on site will be designed to accommodate solar water heaters and/or energy efficient appliances.

PHYSICAL DEVELOPMENT AND URBAN DESIGN

- Objective A, Policy 4

  "Require new developments to provide or pay the cost of all essential community services, including roads, utilities, schools, parks, and emergency facilities that are intended to directly serve the development."

Discussion: The construction of all infrastructure improvements required for the project will be financed by the applicant. As previously mentioned, State and County revenues derived from the proposed expansion of the Kuilima Resort will be sufficient for government to afford capital improvements and services needed to accommodate resident, visitor, and business growth which will be directly or indirectly dependent on the increased visitor activity made possible by the expansion of the Kuilima Resort. The revenues will be sufficient to: (1) finance the fair share of the cost for major transportation and other capital improvements which are or will be needed on the North Shore; (2) provide the same level of per-unit services as are currently provided; and (3) serve other community needs with the remaining net revenues. The proposed uses within the project site will not place an undue burden on the government.

- Objective A, Policy 7

  "Locate new industries and new commercial areas so that they will be well related to their markets and suppliers, and to residential areas and transportation facilities."

Discussion: There is very little in the way of commercial facilities in the existing resort and in the immediately surrounding area. Existing commercial facilities in the resort and trade area (7 mile radius of the resort) consist of the following: Turtle Bay Hilton and Country Club, Laie Village Shopping Center (approximately 6 miles away), Foodland Supermarket at Pupukea (approximately $5\frac{1}{2}$ miles away), Waimea Falls Park (approximately $6\frac{1}{2}$ miles away), and a few service stations and small retail shops within a seven mile radius of the resort, on or near Kamehameha Highway. It is anticipated that the primary market segment for the proposed commercial area (C-1) will be the visitors, residents and employees associated with the resort expansion. The secondary market segment will be residents who live within the trade area, and the tertiary market segment will be those residents or visitors who are driving around Oahu and who would stop and visit at the resort. Regional products and crafts, as well as the region's diverse food products would be the focus of goods offered at C-1.

- Objective D

  "To create and maintain attractive, meaningful, and stimulating environments throughout Oahu."

Discussion: The granting of the necessary governmental approvals will allow the creation of a master planned destination resort with the following features: a physical design with a consistent and low-density appearance; which will be a major stimulus to the region's economy; and which will be a focus for regional recreational and cultural activity.

- Objective D, Policy 2

  "Integrate the City and County's urban-design plan into all levels of physical planning and developmental controls."

Discussion: The City and County of Honolulu's Urban Design Guide will be consulted in the design of the physical plan for the project. Urban design concepts and guidelines in the Urban Design Guide will be incorporated into the physical planning and developmental controls of the proposed project.

- Objective D, Policy 3

  "Encourage distinctive community identities for both new and existing districts and neighborhoods."

Discussion: As previously noted, the project site will have a consistent, low-density, destination resort identity.

- Objective D, Policy 4

  "Require the consideration of urban-design principles in all development projects."

Discussion: Refer to the discussion of Physical Development and Urban Design, Objective D, Policy 2

- Objective D, Policy 7

  "Promote public and private programs to beautify the urban and rural environments."

Discussion: Landscaping will be provided along Kamehameha Highway and along collector streets within the project site. Streetscape elements along project roadways will include plantings, street lamps, sidewalk paving treatments, coordinated street sign design and building facades, and building setbacks. All parking areas on site will be visually buffered with landscaping.

PUBLIC SAFETY

- Objective B, Policy 2

  "Require all developments in areas subject to floods and tsunamis to be located and constructed in a manner that will not create any health or safety hazard.

Discussion: The applicant will mitigate the impact of proposed development within the regulatory floodplain areas by observing both County flood hazard ordinances and requirements of the National Flood Insurance Program.

CULTURE AND RECREATION

- Objective B

  "To protect Oahu's cultural, historic, architectural, and archaeological resources."

- Objective B, Policy 1

  "Encourage the restoration and preservation of early Hawaiian structures, artifacts, and landmarks."

- Objective B, Policy 2

  "Identify, and to the extent possible, preserve and restore buildings, sites, and areas of social, cultural, historic, architectural, and archaeological significance."

- Objective B, Policy 4

"Promote the interpretive and educational use of cultural, historic, architectural, and archaeological sites, buildings, and artifacts."

Discussion: While previous reconnaissance work had already been conducted (Dye, 1977), the applicant contracted Paul H. Rosendahl, Ph.D., Inc. (PHRI) to conduct another reconnaissance survey of the project area. The new reconnaissance survey included the testing recommended on the basis of the earlier limited reconnaissance work conducted in 1977.

In order to coordinate the new archaeological survey with the interests of the State in inventorying all historic properties, Dr. Rosendahl has maintained contact with Earl Neller, staff archaeologist with the State Historic Preservation Office. It should be noted that the scope of work for the new reconnaissance survey and the draft report of the survey were formally reviewed and approved by the State Historic Preservation Office.

After completion of the subsurface reconnaissance survey, PHRI made a number of recommendations for the protection of man-made historic and pre-historic resources found within project site. It is the applicant's intention to implement these recommendations.

- Objective D, Policy 4

"Encourage public and private botanic and zoological parks on Oahu to foster an awareness and appreciation of the natural environment."

Discussion: As previously noted, the applicant is proposing to preserve 100 acres of the Punahoolapa Marsh for its value as a habitat for endangered waterbirds. The applicant is also providing a park (that will be open to the public), on the eastern boundary of the marsh, from which to view the waterbirds in the marsh.

Since the highest diversity of coastal species and greatest number of species occurs in a thin strand of coastal vegetation along the shoreline, the applicant will protect most of these species through the proposed minimum 100-foot setback along the shoreline and through the dedication of 37 acres to the County for the development of a beach park (P-2).

- Objective D, Policy 6

"Provide convenient access to all beaches and inland recreation areas."

- Objective D, Policy 10

"Encourage the private provision of recreation and leisure-time facilities and services."

Discussion: The proposed project will provide coastal recreational opportunities accessible to the public, in the form of shoreline parks, rights-of-ways and setbacks. Parks proposed to be dedicated to the County include P-1 and P-2. Park P-1 will be located on the western most end of the project site, and will occupy an area of approximately 4.8 acres. Entry/exit will be from Kamehameha Highway, with free public parking provided within the park. Park P-1 will provide direct public access to Kawela Bay for passive beach-oriented recreation. Such access has not previously been available to the general public.

Park P-2 will be located on 37 acres between Kahuku Point and the eastern boundary of the project site on Hanaka'ilio Beach. The major feature of this beach park is the sand dunes located along this section of the shoreline.

The areas adjacent to the outlet of one of the major drainage ways on the property will be used for a park (P-4). This park site of 2 acres will be privately developed and maintained. Park P-4 provides open space and a view corridor between hotel sites H-4 and H-3, the latter being the eastern-most hotel site on the property.

A 100-foot setback is proposed along the shoreline of the project site, except for the area presently occupied by the Turtle Bay Hilton. This setback will contain a continuous walkway, with landscaping, and will ensure unimpeded lateral access along the shoreline.

It is proposed that 5 right-of-ways providing public access to the shoreline from the internal roadway, with free public parking, be developed. Development of parks P-1, P-2 and P-4, the 100-foot setback and the right-of-ways will encourage public recreational use of shoreline lands and waters fronting the project site.

Other provisions of recreation and leisure-time facilities include the proposed renovation of the existing 18-hole golf course, the construction of an additional 18-hole golf course, and the development of 10-acre equestrian area.

D. DEVELOPMENT PLAN FOR KOOLAULOA, CITY AND COUNTY OF HONOLULU

The following discussion provides a preliminary assessment of how the proposed resort expansion conforms to and implements the Development Plan.

1. Development Plan Common Provisions

General Urban Design Principles and Controls - Public Views: The DP urban design principles and controls for public views are: "public views shall be protected,...maintain and enhance available views of significant landmarks."

Discussion: Refer to the discussion of C. GENERAL PLAN FOR THE CITY AND COUNTY OF HONOLULU, NATURAL ENVIRONMENT, Objective B, Policy 2.

General Urban Design Principles and Controls - Open Space: The DP urban design principles and controls for open space are: "the City's mountains, hills, shoreline and streams shall be considered as major scenic, open space and recreational resources. Adequate public access to these resources shall be incorporated as part of developments adjacent to them."

Discussion: The major scenic, open space and recreational resources of the project site are its shoreline and bays, Punahoolapa Marsh and the sand dunes near Kahuku Point. The applicant will be incorporating public access to these resources as part of the proposed resort expansion. Development of the two proposed public beach parks, the 100-foot setback and the 5 right-of-ways will encourage public recreational use of shoreline lands and waters fronting the project site. It should be noted that nearly all of the prominent sand dunes within the project site are located within an area proposed for one of the beach parks (P-2), and will therefore be protected for the public to enjoy. In addition, the applicant will be providing opportunites for the public to experience the improved Punahoolapa Marsh by developing an elevated walkway through the marsh and a 6-acre park on the eastern boundary of the marsh.

General Urban Design Principles and Controls - Vehicular and Pedestrian Routes: The DP urban design principles and controls for vehicular and pedestrian routes are: "landscaping shall be provided along major vehicular arterials and collector streets as a means to increase the general attractiveness of the community and the enjoyment of vehicular travel for visitors and residents,...pedestrian corridors shall be provided in heavy traffic areas."

Discussion: Landscaping will be provided along collector streets within the project site. Major roadway intersections, particularly along arterial and collector roadways, will be made easily identifiable through the use of distinctive landscaping, lighting and signage. Streetscape elements along project roadways will include

plantings, street lamps, sidewalk paving treatments, coordinated street sign design and building facades, and building setbacks. All parking areas on site will be visually buffered with landscaping.

Walkways connecting major resort facilities will be provided throughout the project site, including a walkway within the proposed 100-foot setback along the shoreline. These walkways will include plantings, street furniture, attractive building frontages and other pedestrian-oriented design elements.

General Urban Design Principles and Controls - General Height Controls: The DP urban design principle and control for general height controls is as follows: "maximum allowable heights for structures in each land use classification and for designated special areas are specified in Part II of this development plan."

Discussion: The applicant will comply with the maximum allowable heights for structures which are specified in the Koolaupoko DP Special Provisions (Ordinance No. 83-9, as amended by Ordinance No. 85-50) which states that: "The general height limits of buildings *shall be as follows:*

> 'The height limit from Kahuku Point to Kawela Bay, shall be maximum of 90 feet and shall be subject to Section 2.2.a.(1) (setback prov.) General heights for these areas shall be 70 feet. Building heights shall be staggered. The increased in height from 70 to 90 feet shall be primarily for roof design purposes. The roof line and building design shall be of Hawaiian Character and blend into the rural setting.'

General Urban Design Principles and Controls - Energy Efficiency in Developments: The DP urban design principle and control for energy efficiency in developments is as follows: "efficient energy use shall be encouraged in all developments."

Discussion: All structures on site will be designed to accomodate solar water heaters and/or energy efficient appliances.

General Principles and Controls for Parks, Recreation and Preservation Areas: The general principles and controls for parks, recreation and preservation areas are: "suburban and new development areas shall include land for open space and recreation purposes at a minimum of 2 acres per thousand persons."

Discussion: Based on the above requirement and a projected introduction of new visitor population averaging about 4,783 persons on any given day, the applicant would normally be required to include 9.56 acres of land for open space and recreation purposes; however, the applicant is proposing to provide 613.9 acres of land for open space and recreation (4 parks totaling 49.8 acres; two golf courses

totaling 351 acres; the 100-acre Punahoolapa Marsh; 10 acres of equestrian use, and approximately 50% of each of the hotel and resort condominium areas or 103.1 acres). This represents 76 percent of the total 808± acre project site.

Identification of areas, sites and structures of historical significance: The objective of the identification of areas, sites and structures of historical significance is as follows: "the continued use, enhancement or preservation of such areas, sites and structures shall be incorporated or promoted in any applicable action by the City."

Discussion: The applicant's archaeological consultant, Paul H. Rosendahl, Ph.D., Inc., made a number of recommendations for the protection of man-made historic and pre-historic resources found within project site. It is the applicant's intention to implement these recommendations.

Social Impact of Development: The objective of the social impact of development is as follows: "in evaluating any proposed development, the objectives relating to the distribution of social benefits shall be considered."

Discussion: The proposed resort expansion's social impact was studied by Community Resources, Inc. and the impact of the proposed resort expansion was studied by Decision Analysts, Inc. The major findings of their respective reports are summarized below:

Demographic - The cumulative impact of the total Kuilima Resort expansion is the projected introduction of new visitor population averaging about 4,783 persons on any given day. It is felt that Kuilima Resort expansion would little affect social values or structure in Kaaawa, Kahana, or Punaluu. Hauula, with significant poverty problems, will potentially benefit from employment opportunities, although residents there may be particularly divided if there is any perceived inequity in the distribution of jobs. Employed Laie residents now work primarily in Laie itself; provision of large numbers of jobs at the resort can provide an alternative to commuting to Honolulu for Laie's expanding labor force, at the same time requiring some value adjustments for residents working in a non-Mormon environment for the first time. The recent housing developments and planned future additions in Kahuku suggest a natural period of social divisions between oldtimers and newcomers with or without resort expansion; provision of employee housing in Kahuku could contribute to a "company town" feeling more familiar to established, ex-plantation residents than to newcomers.

Towards the North Shore, housing pressures in the Sunset/Waimea/Pupukea communities may make it more difficult for young people leading a "surfer" lifestyle to obtain low-rent lodging without doubling and tripling up. Impacts on Haleiwa would be significant only if entrepreneurs capitalize on increased tourist presence in such a fashion that a Lahaina-style "street scene" is created; however, this can only happen if public agencies permit significant amendments to Haleiwa's Special Design District and Development Plan. The resort development should have little impact on social structure or values in Waialua unless there are significant employment cutbacks at the sugar plantation and many new jobs simultaneously become available at the resort, conceivably leading to some of the extensive social restructuring experienced by Kahuku residents more than a decade ago.

Economic - The increase in employment, people and homes directly and indirectly supported by the activities from the expanded resort facilities are expected to number about 6,275, 14,809 and 4,894, respectively.

The tax base is estimated to increase by $1.1765 billion dollars, including $635.1 million for the resort, $52.0 million for offsite businesses, and $489.4 million for the value of homes directly and indirectly supported by the activities within the project site.

Upon project completion, direct, indirect, and induced sales and household income are projected to be $304.5 million and $110.8 million, respectively. The increase in sales and household income will occur throughout Oahu, with only a fraction occurring at the Kuilima Resort itself.

The completed resort facilities is estimated to generate 6,275 direct, indirect and induced jobs on Oahu, of which 3,556 jobs will be located in the region. (These jobs are annual equivalents; more persons will actually be employed, since some of the jobs will be divided into part-time work).

The State Tourism Manpower Simulation Model provides a preliminary basis for estimating the distribution of employment by both industry and occupational characteristics (State of Hawaii, Department of Planning and Economic Development, 1978. Manpower, State Tourism Study). The projected percent distribution by industry and occupation of direct, indirect and induced employment generated by the proposed expansion of the Kuilima Resort is as follows: 31 percent of all jobs that are generated could potentially be in eating and drinking establishments; 28 percent in resort and hotel facilities; 22 percent in transportation related sectors; 14 percent in the service sectors; and 5 percent in the retail trade.

The State Tourism Manpower Simulation Model also indicated that the greatest share of hotel/resort employment will be generated in food service occupations. Other service positions (principally housekeeping and other cleaning), will constitute the next most prevalent job opportunities directly generated, followed by clerical and sales positions, and professional, managerial, technical, and related positions. The estimated wage rates for these jobs are unknown at this time.

The economic development in the region has been much more limited than in the rest of the County. Presently, the major businesses in the region are: the Waialua Sugar Plantation, the Turtle Bay Hilton and Country Club and the Polynesian Cultural Center. Other economic activities in the region are extremely limited, among them are: visitor attractions (Waimea Bay, the Mormon Temple, Crouching Lion restaurant, Pat's at Punaluu hotel/condominium, numerous arts and crafts shops and restaurants in Haleiwa), small military facilities, diversified agriculture (watermelons and corn), and aquaculture. Other than the Waialua Sugar Plantation and the military activities, the completed Kuilima Resort should expand the markets for the above mentioned businesses.

Housing: Development at the Resort is expected to add to an already existing pent-up demand for residential housing in the region. The existing pent-up demand results primarily from County and State policies which effectively limit the supply of housing particularly in rural areas such as the region. The proposed resort expansion will place an additional demand on the housing inventory of the region through: (1) increasing formation of new households among current area residents which would be triggered by any increase in prosperity; (2) employees desiring to move into the region; and (3) increasing out-of-state interest in rural Oahu vacation home and/or investment units.

The latter source of housing pressure, which would come as much or more from the hotels proposed as part of the entire Kuilima Resort expansion master plan as from the resort condominium units, may well be relieved through the provision of condominium units at the resort. Therefore, the proposed resort condominiums in a sense represent one form of "mitigation" for impacts anticipated from the proposed hotel units. An additional effect of the development of resort condominium units at the resort is that it could reduce the demand for off-site vacation rentals in the region, and by doing so make these units available for residential use. Resort units would offer amenities that are not available at off-site resort vacation rentals. The greater supply of units as a result of the resort expansion, could serve to reduce speculation in land and housing. However, changes in governmental land use policies would be more effective in expanding housing inventory.

Housing pressures from employees desiring to move into the region will be greatly reduced if proposed job training programs succeed in maximizing resort employment for residents already housed in the region. Another potential mitigation measure involves assisting in providing approximately 95 units of low moderate housing.

Due to the increasing out-of-state interest in rural Oahu vacation home and/or investment units, the property values of existing homes with ocean front locations could be expected to experience increases.

Public Service - Public services and infrastructure are discussed in PART IV, P. INFRASTRUCTURE AND PUBLIC SERVICES.

Physical/Environmental - The effect of the development on the natural environment, existing natural monuments, landmarks, scenic views, open space and aesthetic quality of the subject area have been discussed in this section.

Social Impact Management System: The objective of the social impact management system is: "to enable residents of an area who will be affected by a proposed development project to systematically examine the expected social impact of that development and,...to identify alternative ways of managing or mitigating any expected negative social impacts."

Discussion: According to the Department of General Planning, the Social Impact Management System presently consists of consultations with the appropriate Neighborhood Boards.

The Koolauloa Neighborhood Board in its 13 September 1984 meeting voted to support the proposed 90-foot height limit (up from 70 feet); the redesignation from Residential to Resort for the Kawela Bay hotel sites; and to allow construction of the golf course and the establishment of the marsh as a bird sanctuary. The Board opposed a blanket change of the beach setback from 300 feet to 100 feet, but indicated the 100-foot setback would be permissible for Kawela Bay. The Board has also taken the position that 2,000 hotel units are sufficient and that the proposed resort condominium units are unnecessary since they will generate little employment.

On 22 January 1985, the North Shore Neighborhood Board voted to support the project in concept.

It should be noted that KDC instituted a much broader citizen involvement program as described in PART III, A., 3. Social Characteristics.

2. Development Plan Special Provisions

Specific Urban Design Principles and Controls - Open Space: The specific DP urban design principles and controls for open space are: "The visibility, preservation, enhancement and accessibility of open space areas,...shall be given high priority in the design of adjacent and nearby development in Koolauloa. These areas include but are not limited to the slopes of the Koolau mountain range, streams and the shoreline..."

Specific Urban Design Principles and Controls - Public Views: The specific DP urban design principles and controls for public views are: "Panoramic and continuous views from public places of the coast and the sea, as well as views of the expansive Kahuku plain, shall also be protected. The visual integrity of Kawela Bay shall also be protected."

Discussion: Refer to the discussion of General Urban Design Principles and Controls - Open Space. As noted in the discussion of General Urban Design Principles and Controls - General Height Controls, the applicant will comply with the maximum allowable heights for structures which are specified in the Koolaupoko DP Special Provisions (Ordinance No. 83-9, as amended by Ordinance No. 85-50) which states that the general height limits of buildings from Kahuku Point to Kawela Bay, shall be 70 feet, with a maximum of 90 feet. In addition, building heights shall be staggered. The visual integrity of Kawela will be protected by designing the roof line and building with a "Hawaiian Character".

Specific Urban Design Principles and Controls - Height Controls: The specific DP urban design principles and controls for height controls are: "The general height limits of buildings shall be as follows:

> The height limit from Kahuku Point to Kawela Bay, shall be maximum of 90 feet and shall be subject to Section 2.2.a.(1) (setback prov.) General heights for these areas shall be 70 feet. Building heights shall be staggered. The increased in height from 70 to 90 feet shall be primarily for roof design purposes. The roof line and building design shall be of Hawaiian Character and blend into the rural setting."

Discussion: Refer to the discussion of General Urban Design Principles and Controls - General Height Controls.

Principles and Controls for Special Areas - Kahuku Point-Kawela Bay Resort Area: The principles and controls for special areas for Kahuku Point-Kawela Bay Resort Area are:

"(1) This is the area designated for Resort, Commercial, Low-Density Apartment and Park (Golf Course) uses between Kahuku Point and Kawela Bay. Resort development in this area is to continue and be expanded.

(2) Structures shall be generally setback a distance of 300 feet from the shoreline. Within the distance of 100 feet to 300 feet from the shoreline, structures shall be setback pursuant to policies set forth herein:

(a) No structure shall be located between the shoreline and 100 feet from the shoreline.

(b) For each increment fronting Kawela Bay and Kawela Point fronting Turtle Bay and between 100 feet and 300 feet from the shoreline, there shall be a maximum building to land coverage ratio of 10% of the land area makai of the 300-foot line to the property line and shall have staggered building heights with a maximum of 50 feet. The percentage of any given section shall not be clustered.

(c) Structures located between 100 feet and 300 feet from the shoreline are subject to design review approval by the Department of Land Utilization.

(d) Structures in the Kawela Bay increments over 50 feet shall be setback a minimum of 300 feet from the shoreline.

(e) Structures shall be setback at varying distances from the shoreline to promote designs that are compatible with the regions rural character.

(3) Resort facilities shall be limited to 4,000 visitor units within the area designated for Resort use and shall be permitted to be established in accordance with general height limits, building setback, and access standards as provided in this development plan.

The development of the Kahuku Point-Kawela Bay Resort Area shall be governed by the following principles and standards:

a. Building roofs shall have a "Hawaiian" character.

b. Plantings shall be placed, and structures sited, in such a manner as to preserve the natural integrity of Kawela Bay and to screen buildings from viewers on the West side of Kawela Bay.

c. Landscaping and design shall be implemented to preserve the existing character of Kawela Bay and surrounding areas.

d. Existing vegetation shall be retained and utilized in landscaping wherever possible.

e. A total of four parks sites, as designated on the Koolauloa Development Plan Map, shall be provided and shall be open to the general public. The land for two of these parks shall be dedicated to the City. The remaining two parks shall be privately owned and maintained.

f. Five pedestrian access-ways to the shoreline, as designated on the Koolauloa Development Plan Map, and five adjacent public parking areas, each containing a minimum of 15 stalls shall be provided.

g. The shoreline areas along the development shall be linked by a public walkway which shall be constructed and maintained by the owners. The walkway shall be within the 100-foot setback area from the shoreline and shall be linked to the public access-ways.

h. Areas within 100 feet from the shoreline shall be open to the public under terms and conditions to be determined at the time of zoning and to be recorded at the Bureau of Conveyances.

Discussion: It is the applicant's intention to comply with the principles and controls for special areas for Kahuku Point-Kawela Bay Resort Area listed above.

E. HAWAII COASTAL ZONE MANAGEMENT PROGRAM

The objectives of the Hawaii Coastal Zone Management Program, Section 205A-2, HRS, are to protect valuable and vulnerable coastal resources such as coastal ecosystems, special scenic and cultural values and recreational opportunities. The objectives of the program are also to reduce coastal hazards and to improve the review process for activities proposed within the coastal zone. The following are the objectives of the Hawaii Coastal Zone Management Program and an assessment of how the proposed project relates to them:

Recreational Resources Objective: Provide coastal recreational opportunities accessible to the public.

Discussion: The development of public beach parks P-1 and P-2, the 100-foot setback and 5 right-of-ways (with free public parking) will provide coastal recreational opportunities accessible to the public. Parks proposed to be dedicated to the County include P-1 and P-2. Park P-1 will be located on the western most end of the project site, and will occupy an area of approximately 4.8 acres. Entry/exit will be from Kamehameha Highway, with free public parking provided within the park. Park P-1 will provide direct public access to Kawela Bay for passive beach-oriented recreation. Such access has not been available to the general public.

Park P-2 will be located on 37 acres between Kahuku Point to the eastern boundary of the project site on Hanaka'ilio Beach. The major feature of this beach park is the sand dunes located along this section of the shoreline. Dedication of these shoreline areas (parks P-1 and P-2) for public use will meet the requirements of Section 46-6, HRS.

A 100-foot setback is proposed along the shoreline of the project site, except for the area presently occupied by the Turtle Bay Hilton. This setback will contain a continuous walkway, with landscaping, and will ensure unimpeded lateral access along the shoreline.

The applicant is proposing to improve the water quality of Kawela Bay by diverting a major portion of the Kawela Stream runoff (which presently discharges into Kawela Bay) into Turtle Bay. This action would result in the reduction of sediment in Kawela Bay thereby improving its water quality. In addition, the applicant is proposing to clean a portion of Kawela Bay by removing the silt deposited by Kawela Stream. Both of these actions would enhance Kawela Bay for swimming, snorkeling and other water-oriented recreational activities. (It is believed that diverting a major portion of the Kawela Stream runoff into Turtle Bay would have little effect on the ecosystem within Turtle Bay because of its off-shore current patterns.)

The project site contains a coastal resource uniquely suited for birdwatching, Punahoolapa Marsh. The value of Punahoolapa Marsh as a waterbird habitat and birdwatching site will be enhanced by the implementation of the following proposed improvements (established in coordination with the U.S. Fish and Wildlife Service): the construction of a moat around the marsh, surrounded by chain link fencing and a visual barrier of vegetation; the construction of additional open waterways makai of the existing open water areas; and, the creation of a number of islands on the new waterways. The improved wetland habitat will be able to be viewed from the proposed elevated walkway through the marsh and from a proposed park (P-3) on the eastern boundary of the marsh.

As part of the proposed development within the project site, the applicant is proposing to fill approximately 12 acres of Punahoolapa Marsh along its perimeter. The applicant will mitigate the impact of the loss of a portion of this resource by implementing the proposed improvements to the Punahoolapa Marsh described above and by adding 6.2 acres of buffer area to the existing marsh boundary. It should be noted that the U.S. Fish and Wildlife Service stated that "based upon discussions with the consultants for the project, the Service feels that the implementation of appropriate measures at the site will compensate for the loss of these 12 acres of wetland habitat."

Historic Resources Objective: Protect, preserve, and where desirable, restore those natural and man-made historic and pre-historic resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

Discussion: Refer to the discussion of C. GENERAL PLAN FOR THE CITY AND COUNTY OF HONOLULU, CULTURE AND RECREATION, Objective B, Policies 1, 2 and 4.

Scenic and Open Space Resources Objective: Protect, preserve and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Discussion: The master plan for the proposed Kuilima Resort expansion includes 613.9 acres of open space (4 parks totaling 49.8 acres; two golf courses totaling 351 acres; the 100 acre Punahoolapa Marsh; 10 acres of equestrian use, and approximately 50% of each of the hotel and resort

condominium areas or 103.1 acres). This represents 76 percent of the total 808-acre project site.

Refer to the discussion of C. GENERAL PLAN FOR THE CITY AND COUNTY OF HONOLULU, NATURAL ENVIRONMENT, Objective B, Policy 2.

Coastal Ecosystems Objective: Protect valuable coastal ecosystems from disruption and minimize adverse impacts on all coastal ecosystems.

Discussion: The applicant is proposing to preserve 100 acres of the Punahoolapa Marsh for its value as a waterbird habitat and sump area for the flood plain. Improvements will be made to the 100 acre area to enhance its value as a waterbird habitat (improvements summarized in the discussion on Recreational Resources).

The following studies were completed to assess the impact of preserving almost the entire Punahoolapa Marsh:

"Vegetation for the Proposed Kuilima Resort, Island of Oahu". Prepared by Earthwatch for Group 70, Honolulu, Hawaii, October 1984. As part of its studies, Earthwatch conducted a survey of the overall vegetation cover types of the Punahoolapa Marsh. Earthwatch determined that shrub thickets and California grass marshland are cover types within which most of the proposed fill occurs. Both cover types are dominated by exotic species, and form such dense stands that they are not suitable for waterbird habitat. Species found in these cover types are found elsewhere not only in this marsh but in similar marsh habitats throughout the Hawaiian Islands. Transects taken through these cover types into the marsh indicated that these areas are probably transitional zones, seasonally wet, and may define the outer limits of the perennially wet marshlands.

"Terrestial Vertebrates of the Kuilima Resort Properties". Prepared by Dr. Andrew J. Berger for Group 70, Honolulu, Hawaii, August 1984. Dr. Berger was contracted to study the changes of the marsh avifauna habitat since the publication of "An Ornithological Survey of the Punahoolapa Wetlands", prepared by Phillip Bruner for Belt, Collins & Associates, May 1978. In addition, the U.S. Department of Interior Fish and Wildlife Service was consulted regarding the proposed enhancements of the waterbird habitat within the marsh and the proposed filling activities on portions of the perimeter of the Punahoolapa Marsh. (The proposed improvements to the waterbird habitat of the marsh were summarized in the discussion of E. HAWAII COASTAL ZONE MANAGEMENT PROGRAM, Recreational Resources Objective) The Fish and Wildlife Service reviewed the master plan of the proposed activities, conducted a field survey (representatives from the State Division of Foresty and Wildlife, and the U.S. Army Corps of Engineers were in attendance; Dr. Berger was present also).

In order to assess the significance of the proposed drainage improvements on coastal water quality, OI Consultants, Inc. was contracted to survey the water quality in the coastal ocean environment between Kuilima Point and the eastern boundary of the subject property beyond Kahuku Point. OI Consultants, Inc. determined that "The development of the Kuilima Resort does not appear likely to result in any significant decrease in nearshore

water quality or in any negative changes in benthic communities. Conditions in Kawela Bay are likely to improve; conditions in Turtle Bay and Kuilima Bay will likely remain unchanged."

Recently, Allan Marmelstein, Pacific Islands Administrator of the Fish and Wildlife Service wrote that:

"We are particularly pleased to note the improvements planned for Punahoolapa Marsh. Completion of these enhancement measures coupled with perpetual management to protect the native ecosystem character of the marshlands will provide significant benefits to both endangered Hawaiian waterbirds and to migratory waterfowl. We look forward with excitement to implementation of the proposed plans for the marsh."

Economic Uses Objective: Provide public or private facilities and improvements important to the State's economy in suitable locations.

Discussion: The proposed expansion of the Kuilima resort will provide a wide range of tourist-related amenities in an area designated by the General Plan for the City and County of Honolulu as suitable for resort development. The site's diverse physical features, including: beaches, rocky outcroppings, sand dunes, marsh lands and stands of ironwoods, is conducive to resort development. The applicant is proposing to develop a "neighbor island-type" resort that is in harmony with the North Shore region.

Social, visual and environmental factors were taken into consideration when planning the proposed facilities. To minimize any adverse social impacts on residents in the Koolauloa and North Shore regions, the applicant has sought public participation in the planning of the resort. A description of this process was described in Section B., State Tourism Functional Plan.

To reduce adverse visual impacts, the applicant is allocating approximately 76 percent of the total resort area in open space, including a 100-foot setback along the shoreline. In addition, the applicant is proposing that the resort structures be of low to moderate density.

In order to minimize environmental impacts in the coastal zone management area, the applicant is proposing to preserve most of the Punahoolapa Marsh for its value as a waterbird habitat, and the primary sand dunes onsite for their value as natural landforms and tsunami buffers.

Coastal Hazards Objective: Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, and subsidence.

Discussion: A drainage study for the project site has been completed, submitted to the City and County of Honolulu Department of Public Works and accepted. The drainage study contains suggested improvements to the drainage system which will reduce hazard to life and property from storm runoff.

In addition to the drainage study, the U.S. Department of Housing and Urban Development Flood Insurance Rate Map has been obtained and studied to determine the effects of flooding and tsunami on the area. The applicant will mitigate the impact of flooding and tsunami on the proposed development within the regulatory floodplain areas by observing both County flood hazard ordinances and requirements of the National Flood Insurance Program. Under both County flood hazard ordinances and requirements of the National Flood Insurance Program, proposed structures in regulatory floodplain areas must be elevated or floodproofed to or above the 100-year flood levels established by the Federal Insurance Administration Flood Insurance Rate Map and designed and constructed according to the criteria established in the Flood Insurance Program. No habitable spaces will be built below the identified maximum 100-year tsunami/flood elevations.

Managing Development Objective: Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Discussion: In order to implement the proposed Kuilima Resort expansion, a number of governmental approvals are required, including: rezoning compatible with the DP designation; a Department of Army permit; and a Special Management Area permit. During processing of these approvals, public hearings will be held. Further public participation is provided during the review of the NEPA EIS (for the Department of Army Permit). Potential short- and long-term impacts will be communicated to the general public through this environmental impact statement.

As stated in Section B., STATE FUNCTIONAL PLANS, State Tourism Functional Plan - Community Relations, KDC and its predecessors have been significantly involved in community affairs, particularly in Kahuku, since the project began. In November 1983, the applicant established the "Kuilima North Shore Stategy Plan Community Advisory Committee". The membership as of early 1984 is described in PART III, 3. Social Characteristics. Committee members have directed much of their energy toward providing input for the proposed master plan. Their original recommendations and reactions to initial proposals are responsible for much of the current development concept.

To the extent possible, the applicant and their consultants, have tried to identify all necessary governmental approvals and to plan the processing of these approvals concurrently. Every attempt is being made to avoid unnecessary duplication of governmental review.

F. SPECIAL MANAGEMENT RULES AND REGULATIONS OF THE CITY AND COUNTY OF HONOLULU, ORDINANCE 84-4

The review guidelines of Section 4., Ordinance 84-4 are used by the City Council and the Department of Land Utilization for the review of developments proposed in the Special Management Area (refer to Figure 6 for the location of the resort properties within the Special Management Area). These guidelines are derived from Section 205A-26, HRS, which was

amended by Act 113 (18 May 1984), and the consistency of the proposed project with the latter guidelines are discussed below:

"(1) All development in the special management area shall be subject to reasonable terms and conditions set by the authority in order to ensure:

(A) Adequate access, by dedication or other means, to publicly owned or used beaches, recreation areas, and natural reserves is provided to the extent consistent with sound conservation principles;

(B) Adequate and properly located public recreation areas and wildlife preserves are reserved;

(C) Provisions are made for solid and liquid waste treatment, disposition, and management which will minimize adverse effects upon special management area resources; and

(D) Alterations to existing land forms and vegetation, except crops, and construction of structures shall cause minimum adverse effect to water resources and scenic and recreational amenities and minimum danger of floods, landslides, erosion, siltation, or failure in the event of earthquake."

Discussion: As stipulated in the Development Plan for Koolauloa, Principles and Controls for Special Areas - Kahuku Point-Kawela Bay Resort Area, 5 pedestrian right-of-ways to the shoreline will be provided and areas within 100 feet from the shoreline will be open to the public. Within the 100-foot setback, the applicant and/or development owners will construct and maintain a public walkway which will be linked to the public right-of-ways. The Development Plan for Koolauloa also stipulates that a total of 4 parks sites be provided and be open to the general public (one of the parks is located outside of the Special Managment Area). The land for two of these parks will be dedicated to the County. The remaining two parks will be privately owned and maintained.

The applicant has prepared a Wastewater Master Plan for the proposed Kuilima Resort expansion project which has been reviewed by the State Department of Health, the Honolulu Board of Water Supply, and City and County of Honolulu Department of Public Works Division of Wastewater Management, with no major objections. The treated effluent will be conveyed via transmission mains, to holding ponds, for irrigation of the Kuilima Resort golf courses. The County will be responsible to insure that effluent, at the point of discharge from the WWTP site, meets all applicable effluent discharge limitations.

Solid waste will be collected by private collection companies and disposed of at public or private sanitary landfills. Public Health Regulations Chapter 58 of Title 11 provides guidelines on solid waste management at both public and private sanitary landfills.

The proposed development within the Special Management Area (SMA) is expected to have minimal effect on the wetland near Kawela Bay, and on the scenic and recreational resources of the shoreline. While it is anticipated that under probable maximum precipitation (PMP) conditions, the golf courses will experience temporary flooding to depths of 2 to 3 feet deep, in view of the very large amounts of fill that would be required, and accompanying environmental concerns, this ponding activity is considered more desirable than importing sufficient material to create on-site slopes which will cause all runoff to flow toward shoreline outlets. In order to mitigate hazards to people and property, the habitable floors of the proposed resort condominium areas will be at least 5 feet above the finished grade of the golf course adjoining the condominium areas. Barring unusual conditions, no other hazards such as landslides, erosion, siltation or failure in the event of earthquake are expected during the life of the project.

"(2) No development shall be approved unless the authority has first found:

(A) That the development will not have any substantial, adverse environmental or ecological effect except such as adverse effect is minimized to the extent practicable and clearly outweighed by public health and safety, or compelling public interests. Such adverse effect shall include, but not be limited to, the potential cumulative impact of individual developments, each one of which taken in itself might not have a substantial adverse effect, and the elimination of planning options; and

(B) That development is consistent with the objectives, policies, and special management area guidelines of this chapter and any guidelines enacted by the legislature.

(C) That the development is consistent with the county general plan and zoning. Such a finding of consistency does not preclude concurrent processing where a general plan or zoning amendment may also be required."

Discussion: As discussed in PART V., adverse or unavoidable environmental effects include: occasional flooding of the proposed golf courses and marsh, dust generation during site clearing activities, potable water consumption, marsh drainage input, loss of agricultural uses, construction noise, electrical power plant emissions, social impacts to those who would bear the costs of the project, additional traffic, solid waste disposal and occasional demand on County protective services. Some of these environmental impacts will be limited to the construction phase of the project (dust generation, construction noise). Other adverse effects will be minimized to the extent practicable (habitable floors of the proposed resort condominiums will be raised above expected flood levels; potable water consumption will be constantly monitored; the effects of marsh drainage input on wildlife will be monitored by the U.S. Fish and Wildlife Service; electrical requirements can be reduced by designing all structures on site to accomodate solar water heaters and/or energy efficient appliances; and the resort's fair share of regional capital improvements such as for highways and solid waste disposal facilities, and

the use of County protective services will be paid for by the projected tax revenues that will be generated by the project). It is expected that the remaining adverse effects (loss of agricultural uses; social impacts to those who would bear the costs of the project) will be offset by the larger sector of the population who would benefit from the enhanced economic value of the site.

The objectives and policies set forth in Section 3 of Ordinance 84-4 are those contained in Section 205A-2, HRS, Hawaii Coastal Zone Management Program.

The consistency of the proposed development with Section 205A-26, HRS, the General Plan for the City and County of Honolulu, and the Development Plan for Koolauloa, is described in this section of this document. Upon receipt of requested zone change applications and subdivision approvals, the applicant will observe the applicable regulations of the CZC (or LUO), subdivision codes and other applicable Ordinances.

"(3) The authority shall seek to minimize, where reasonable:

(A) Dredging, filling or otherwise altering any bay, estuary, salt marsh, river mouth, slough, or lagoon;

(B) Any development which would reduce the size of any beach or other area usable for public recreation;

(C) Any development which would reduce or impose restrictions upon public access to tidal and submerged lands, beaches, portions of rivers and streams within the special management area and the mean high tide line where there is no beach;

(D) Any development which would substantially interfere with or detract from the line of sight toward the sea from the state highway nearest the coast; and

(E) Any development which would adversely affect water quality, existing areas of open water free of visible structures, existing and potential fisheries and fishing grounds, wildlife habitats, or potential or existing agricultural uses of land.

Discussion: The applicant is proposing to desilt a portion of Kawela Bay and to fill a portion of the periphery of Punahoolapa Marsh. Desilting of Kawela Bay is proposed in order to improve the attractiveness of the bay to users. This action would be consistent with the applicant's support for a proposal for an underwater park and Marine Life Conservation District designation for Kawela Bay. In regards to filling a portion of Punahoolapa Marsh, the U.S. Fish and Wildlife Service noted that "The Service generally works to prevent loss of these valuable and scarce habitats. However, based upon discussions with the consultants for the project, the Service feels that the implementation of appropriate measures at the site will compensate for the loss of these 12 acres of wetland habitat."

No actions are proposed which would reduce the size of any beach or other area usable for public recreation. In addition to the existing 18-hole golf course, the master plan for the resort calls for the development of 4 parks (totaling 49.8 acres), an additional 18-hole championship golf course (194 acres) and 10 acres of equestrian use. These proposed land uses will expand the area within the project site usable for public recreation, resulting in approximately 410.8 acres of the 808± acre site set aside for active and passive recreational uses.

Presently, free public access to beaches fronting the project site are limited to access along the shoreline. The applicant is proposing to expand opportunities for public access to the shoreline fronting the project site through the development of 5 right-of-ways to the shoreline (with free public parking for 15 cars), the development of a privately-maintained beach park at Kuilima Bay (free public parking to be provided at a nearby right-of-way), and the dedication of two public beach parks at both ends of the property (with free public parking).

Due to the distance of the ocean from the nearest inland public roadway, Kamehameha Highway, the shoreline is presently not visible to the public. The proposed development will not substantially interfere with or detract from the line of sight toward the sea from Kamehameha Highway.

It is anticipated that the proposed resort expansion will not adversely affect water quality, existing areas of open water free of visible structures, existing and potential fisheries and fishing grounds, and wildlife habitats. While the effect of rezoning of the entire 394± acres of Ag-1 land in the resort properties could be interpreted as a major loss of existing and potential agricultural uses, it is estimated that not more than 20 acres is in crop production and the remainder of the 138 acres leased by four farmers is utilized for farm structures, roadways and cattle grazing (the remainder of the 394± acres of Ag-1 land is not being used for cultivation or grazing). It has been determined that the only moderately good to prime land is located on approximately 48 acres in the south-mauka corner of the project site. Implementation of the proposed activities within the Ag-1 zoned lands will involve the loss of approximately 48 acres of good agricultural land. However, the climate and the marketability of the crops that would be environmentally suited to the project site, in comparison to crops grown elsewhere, leaves the Ag-1 zoned lands as being infeasible for agricultural use. Moreover, this loss is not expected to be significant, as the total acreage of available good agricultural land on Oahu is estimated to exceed foreseeable crop production needs by over 11,000 acres.

PART X:
AN INDICATION OF WHAT OTHER INTERESTS AND CONSIDERATIONS OF GOVERNMENT POLICIES ARE THOUGHT TO OFFSET THE ADVERSE ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION

The purpose of this section is to indicate that other interests and considerations of governmental policies, other than compliance with regulatory requirements associated with construction (listed in PART XI), are thought to offset the adverse and unavoidable environmental effects of the proposed action, outlined in PART V. One of the most significant ways in which the proposed action fulfills governmental policies, and therefore, is thought to offset any adverse effects, is through the satisfaction of the Hawaii State Plan policy which states that "Planning for the State's economy in general shall be directed toward achievement of the following objectives: (1) Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawaii's people...To achieve the general economic objectives, it shall be the policy of this State to:...Encourage labor-intensive activities that are economically satisfying...Promote economic activities, especially those which benefit areas with substantial unemployment problems...Encourage businesses that have favorable financial multiplier effects within Hawaii's economy."

The proposed project is also consistent with the following objectives and policies of the General Plan for the City and County of Honolulu: "To maintain the viability of Oahu's visitor industry...Permit the development of secondary resort areas in West Beach, Kahuku, Makaha and Laie."

Finally, the master plan for the proposed expansion of the Kuilima Resort reflects the consideration of the principles and controls for the Kahuku Point-Kawela Bay Resort Area as specified in the Development Plan for Koolauloa (listed in PART III, Section A., 1. Technical Characteristics.

PART XI: LIST OF NECESSARY APPROVALS

The following is a list of approvals anticipated to be required in order to complete the development.

Approval Needed	Approving Agency or Body	Status
Development Plan Amendment	City Council	Approved
Rezoning	County Department of Land Utilization	Application to be filed
Special Management Area Use Permit	County Department of Land Utilization	Application to be filed
Grading Permits	County Department of Public Works	Application to be filed
Building Permits	County Building Department	Application to be filed
Shoreline Certification	State Surveyor	Application to be filed
Subdivision Approval	County Department of Land Utilization	Application to be filed
State Land Use Boundary Amendment	State Land Use Commission	Application recently filed
Conditional Use Permit	County Department of Land Utilization	Application to be filed

'pproval Needed	Approving Agency or Body	Status
Department of Army Permit	U.S. Army Corps of Engineers	Application recently filed
Section 7 Consultation (Endangered Species)	U.S. Fish and Wildlife Service	Request for consultation to be filed
Federal Consistency (with Coastal Zone Management Act)	State Department of Planning and Economic Development (DPED)	Application accepted; assessment being reviewed
Conservation District Use Permit	State Department of Land and Natural Resources	Application to be filed
Stream Permit	State Department of Land and Natural Resources	Application filed
Approval of Drainage System	Federal Highway Administration/ County Department of Public Works (DPW)	Master plan approved by DPW
Approval of Wastewater Disposal System	State Department of Health/ County Department of Public Works/County Department of Land Utilization	Master plan being reviewed by DPW
Amendment to the Koolauloa DP Public Facilities Map	County Department of General Planning/County Planning Commission/City Council	Application to be filed
Approval of Potable Water System	State Department of Land and Natural Resources/State Department of Health/County Board of Water Supply	Master plan approved by BWS
Drilling Permit	State Department of Land and Natural Resources	Application to be filed

Approval Needed	Approving Agency or Body	Status
Historic Sites Review	State Department of Land and Natural Resources	Application to be filed
Permit for Construction within State Highway Rights-of-way	Federal Highway Administration/ County Department of Transportation Services (DOTS)	Application to be filed
Permit for Installation of Utility Lines within State Highway Rights-of-way	State Department of Transportation, Highways Division	Application to be filed
Electric Connection Approval	Hawaiian Electric (HEI)	Master plan approved
Telephone Connection Approval	Hawaiian Telephone Company	Master plan approved

It is the applicant's intention to comply with all applicable laws, rules and regulations by obtaining all of the required approvals.

PART XII:
AGENCIES, ORGANIZATIONS AND PERSONS WHO WERE SENT A COPY OF THE NOP

The EIS Notice of Preparation (NOP) was officially published in the Office of Environmental Quality Control (OEQC) Bulletin on 8 November 1983. The following agencies, organizations and persons received a copy(ies) of the NOP. As of 3 August 1985, a total of 37 letters were received; of this total, 24 provided comments that assisted in the preparation of the EIS. Starred (*) individuals sent letters regarding the NOP, but did not provide substantive comments. Double starred (**) respondants provided comments that assisted in the preparation of the EIS. Their letters and our replies are reproduced in this section. In addition, one respondant, Doug Meller, of VTN Pacific and Life of the Land, provided verbal comments. His comments also assisted in the preparation of this EIS.

A. CITY AND COUNTY OF HONOLULU

Mayor
** Board of Water Supply
Building Department
City Council
George Akahane
** Marilyn Bornhorst
Leigh-Wai Doo
Welcome Fawcett
David Kahanu
Toraki Matsumoto
** Patsy Mink
Tony Narvaes
Rudy Pacarro
Office of Council Services
Fire Department
** Department of General Planning
* Department of Health
** Department of Housing & Community Development
** Department of Land Utilization
Municipal Records and Reference Center
* Department of Parks & Recreation
** Police Department
** Department of Public Works
** Department of Transportation Services

B. STATE

Governor
* Department of Accounting & General Services
** Department of Agriculture
* Department of Defense

B. STATE (continued)

** Department of Education
Main Library
Kahuku Library
Kaneohe Regional Library
Pearl City Regional Library
** Department of Health
Office of Environmental Quality Control
* Department of Labor and Industrial Relations
Department of Land and Natural Resources
** Chair of the Board of Land and Natural Resources
** State Historic Preservation Officer
** Division of State Parks, Outdoor Recreation and Historic Sites
Legislature
Senator Gerald Hagino
Senator Joe Kuroda
Representative Joe Leong
Representative Robert Nakata
Senator Charles Toguchi
Legislative Reference Bureau
** Department of Planning & Economic Development
Energy Office
Library
Department of Social Services and Housing
** Department of Transportation
Office of Hawaiian Affairs
University of Hawaii
Environmental Center
Hamilton Library
Kapiolani Community College
* Water Resources Research Center
Windward Community College

C. FEDERAL

** Department of Agriculture, Soil Conservation Service
* Air Force, 15th ABW/DEE, Hickam
** Army Corps of Engineers
Army - DAFE (Facilities Eng. - USACH)
* Coast Guard
* Department of Interior, Fish & Wildlife Service
* Navy

D. COMMUNITY ORGANIZATIONS

American Lung Association of Hawaii
Amorient
BYU-Hawaii
Campbell Estate

E. COMMUNITY ORGANIZATIONS (continued)

Chamber of Commerce of Hawaii
Conservation Council for Hawaii
Haleiwa Community Association
Hauula Community Association
Hawaii Audubon Society
** Hawaiian Electric Co.
* Hawaiian Telephone
James Hoffman
Ka'a'awa Community Association
** Kahuku Community Association
Kahuku Hospital
Kahuku Housing Corporation
Kahuku Village Association
Jan Karasek
Koolauloa Community Council
Koolauloa Lion's Club
** Koolauloa Neighborhood Board No. 28
Kuilima Estates East
Kuilima Estates West
Kunani O' Hauula
Laie Community Association
Deedee Letts
Life of the Land
Marine Culture Enterprises
Creighton and Kathy Mattoon
** Eloise A. McIntosh
North Shore Career Training Corporation
North Shore Neighborhood Board No. 27
North Shore News
North Shore Realtors Association
North Shore Visitors Association
Outdoor Circle
Eno Plumely
Polynesian Cultural Center
** Punaluu Community Association
Sierra Club, Hawaii Chapter
Sunset Beach Community Association
Taxpayer
R.M. Towill Corporation
Turtle Bay Hilton and Country Club
United Kuilima Worker's Committee
Wahiawa Community and Businessmen's Association
Waialua Community Association
Waimea Falls Park
West Kawela Bay Community Association

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA
HONOLULU, HAWAII 96843

November 27, 1984

EILEEN R. ANDERSON, Mayor
WALTER A. DODS, JR., Chairman
ERNEST A. WATARI, Vice-Chairman
MILTON J. AGARD
MICHAEL J. CARR
HYEKICHI HIGASHIONNA
PAUL R. RATH
WAYNE J. YAMASAKI

KAZU HAYASHIDA
Manager and Chief Engineer

RECEIVED
DEC 3 1984
GROUP 70

Group 70
924 Bethel Street
Honolulu, Hawaii 96813

Attention: Mr. Francis S. Oda

Gentlemen:

Subject: Your Letter of October 31, 1984 on the Preparation Notice for the Proposed Kuilima Resort Expansion

Thank you for the opportunity to review the environmental assessment for the proposed resort expansion.

We have the following comments on the assessment:

1. A map showing the water system improvements required to serve the resort expansion should be included in the environmental document. The map should indicate the location of any proposed new sources.

2. Modifications to our Waialee water system must be made, including the installation of new sources. All costs for the necessary system improvements shall be borne by the developers before additional water service can be made available for the expansion.

3. The data presented on Page 23 of the assessment should be consistent with the approved water master plan for the development.

If you have any questions, please call Lawrence Whang at 527-6138.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

cc: Department of Land Utilization

Kazuhiro Hayashida AIA Inc
Francis S. Oda AIA Inc
Roland K. Wong AIA Inc
Norman G. Hong AIA Inc
Sheryll Seaman AIA Inc

20 February 1985

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

Dear Mr. Hayashida:

Subject: Kuilima Resort Expansion EIS Notice of Preparation (NOP)

Thank you for your letter dated 27 November 1984. We have reviewed your comments and offer the following responses:

1. A map showing the water system improvements required to serve the resort expansion will be included in the EIS.

2. The EIS will state that modifications to the BWS Waialee water system will be made. In addition, the EIS will also state that all costs for the necessary system improvements shall be borne by the applicant/developers before additional water service can be made available for the expansion.

3. The information presented on page 23 of the EIS NOP on projected water demand reflects a change in unit counts since the approval of the project's water master plan. The latest master plan has 15 additional hotel units and 10 less apartment units than the version that was submitted to your department in August 1984. Please note that the average-day demand only increases by 0.001 MGD, with no change to projected maximum-day demand.

Very truly yours,

GROUP 70

Francis S. Oda, AIA

cc: Mr. John Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

6772A/vs

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

HONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

RECEIVED
SEP 25 1985
GROUP 70

FRANK F. FASI
MAYOR

JOHN E. HIRTEN
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TE8/85-3580
PL 1.0058

September 23, 1985

MEMORANDUM

TO: JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: JOHN E. HIRTEN, DIRECTOR

SUBJECT: KUILIMA RESORT EXPANSION
DRAFT ENVIRONMENTAL IMPACT STATEMENT
TMK: 5-6-03, 5-7-01, 3 & 8

In response to the Office of Environmental Quality Control's letter of August 6, 1985, we have reviewed the Draft EIS for the subject project and offer the following comments:

1. Ownership/jurisdiction of the internal roadways within the project area should be stated;

2. The methodology used to determine the trip generation rates and level of services should be included in the report;

3. Installation of traffic signals should meet the required warrants prior to implementation along the resort roadways intersecting Kamehameha Highway;

Francis S Oda AIA, Inc
Robert K L Wong AIA, Inc
Norman G Y Hong AIA, Inc
Sheri E Seaman AIA, Inc

4 October 1985

Mr. Russell L. Smith, Jr.
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Smith:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for the copy of your memorandum of 12 September 1985 to John Whalen, Director of the Department of Land Utilization. In response to your question regarding the status of the sewerage system, please be informed that it will be dedicated to the County along with the wastewater treatment plant. This will be noted in the Revised EIS. Please note that your letter and this response will be appended to the revised EIS.

Sincerely,

GROUP 70

Francis Oda

Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Mr. Paul Low, EDP Hawaii, Inc.
Ms. Jan Sullivan

7765A/vs

GROUP 70 • Architects • Planners • Interior Designers • 924 Bethel Street • Honolulu, HI 96813 • Phone: 531-1308

EPARTMENT OF PUBLIC WORKS

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

RECEIVED
SEP 17 1985
RUSSELL L. SMITH, JR.
DIRECTOR AND CHIEF ENGINEER

ENV 85-236

GROUP 70

September 12, 1985

MEMORANDUM

TO: MR. JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: RUSSELL L. SMITH, JR., DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

SUBJECT: DRAFT EIS FOR KUILIMA RESORT EXPANSION
(TMK: 5-6-03; 5-7-01, 03 and 06

The subject Draft EIS was reviewed and we have the following comments.

1. The drainage master plan for the proposed development has been approved.

2. The dedication of the wastewater treatment plant to the County for operation and maintenance is stated. The status of the sewerage system (lift station, pump station and collection sewers) should be clarified.

RUSSELL L. SMITH, JR.
Director and Chief Engineer

cc: Francis S. Oda, Group 70

Francis S Oda AIA Inc
Robert K L Wong AIA Inc
Norman G Y Hong AIA Inc
Sheri B Seaman A A Inc

4 October 1985

Mr. Douglas G. Gibb
Chief of Police
Police Department
City and County of Honolulu
1455 South Beretania Street
Honolulu, HI 96814

Dear Mr. Gibb:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for the copy of your memorandum of 15 August 1985 to John Whalen, Director of the Department of Land Utilization. Apparently your concerns have been addressed in the subject document. Please note that your letter and this response will be appended to the revised EIS.

Sincerely,

GROUP 70

Francis Oda

Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Ms. Jan Sullivan
Mr. Randall Okaneku, Austin, Tsutsumi and Associates, Inc.

7743A/vs

The department would like to acknowledge the paragraph on page 119 of the subject document which states that the applicant will be taking measures to provide on-site security and that buildings and facilities will be designed with attention to environmental security.

Thank you for the opportunity to review and respond to this draft Environmental Impact Statement.

DOUGLAS G. GIBB
Chief of Police

cc: Mr. Francis S. Oda
Group 70
924 Bethel Street
Honolulu, Hawaii 96813

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
1455 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96814 - AREA CODE (808) 943-3111

FRANK F. FASI
MAYOR

DOUGLAS G. GIBB
CHIEF

RANDY FERREIRA
DEPUTY CHIEF

OUR REFERENCE CS-JS

August 15, 1985

TO: JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: DOUGLAS G. GIBB, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR KUILIMA RESORT EXPANSION

As requested, we have reviewed the Draft Environmental Impact Statement for Kuilima Resort Expansion in the Koolauloa district.

During the construction phase of the proposed project, we will be anticipating an increase in calls for service because of problems inherently associated with projects of this magnitude.

This department supports the recommendations listed on page 101 of the subject document relative to traffic:

1. Left-turn lane on Kamehameha Highway at Kuilima Drive.

2. Fully channelized intersections on Kamehameha Highway and separate right- and left-turn lanes on the side road at Kahuku Airport Road and the proposed West Kuilima Drive.

3. Traffic signals on Kamehameha Highway at the intersections of Kuilima Drive, Kahuku Airport Road and the proposed West Kuilima Drive.

4. Shuttle service between Honolulu International Airport and the Kuilima Resort.

5. Local shuttle service to accommodate trips to and from the Polynesian Cultural Center and Haleiwa.

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

FRANK F. FASI
MAYOR

TOM T. NEKOTA
DIRECTOR

August 19, 1985

1985 AUG 20 PM 1:21
DEPT. OF LAND UTILIZATION
CITY & COUNTY OF HONOLULU

TO: JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: TOM T. NEKOTA

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT
KUILIMA RESORT EXPANSION
TMK: 5-6-03, 5-7-01, 5-7-03 AND 5-7-06

We have determined that the Draft Environmental Impact Statement for the Kuilima Resort Expansion is acceptable.

We have no additional comments to offer since the recreational needs for the proposed resort expansion have been adequately addressed.

Thank you for the opportunity to comment on the draft EIS.

Tom Nekota

TOM T. NEKOTA, Director

TTN:ct

The competition for stalls dedicated for public beach accessways will be mitigated by implementing the following measures: clearly marking and delineating the stalls for public access use only; directing the private security service(s) of the resort to ensure that the stalls are not used for employee parking.

If there any further questions, please feel free to contact me at 533-4445.

Sincerely,

GROUP 70

Francis Oda

Francis S. Oda, AIA

cc: Mr. Norman Quon, Kuilima Development Company
Ms. Jan Sullivan

7806A/vs

DEPARTMENT OF GENERAL PLANNI
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU HAWAII 96813

FRANK F. FASI
MAYOR

DONALD A. CLEGG
CHIEF PLANNING OFFICER

GENE CONNELL
DEPUTY CHIEF PLANNING OFFICER

KK/DGP 8/85-3055

September 20, 1985

MEMORANDUM

TO: JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: DONALD A. CLEGG, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT FOR THE KUILIMA RESORT EXPANSION, KOOLAULOA, OAHU; TAX MAP KEYS 5-6-03; 5-7-01; 5-7-03; 5-7-06

We have reviewed the subject Environmental Impact Statement and find that the major issues and impacts have been identified and addressed.

Thank you for the opportunity to offer our comments.

Donald Clegg

DONALD A. CLEGG
Chief Planning Officer

cc: Mr. Francis S. Oda, Group 70

4 October 1985

Mr. Lionel E. Camara
Acting Fire Chief
Fire Department
City and County of Honolulu
1455 South Beretania Street, Room 305
Honolulu, HI 96814

Dear Mr. Camara:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for the copy of your letter of 16 September 1985 to John Whalen, Director of the Department of Land Utilization. We appreciate the information provided and will incorporate it into the subject document. Please note that your letter and this response will be appended to the revised EIS.

Sincerely,

GROUP 70

Francis Oda

Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Ms. Jan Sullivan

7745A/vs

blocked by sand, not unlike the Ulehawa Stream drainage outlet at Ulehawa Beach in Nanakuli. According to Mike Honma of the Turtle Bay Golf Course, the beach at the existing East Main Drain outlet returns within 24 hours after storm flow ceases. According to Beach Changes on Oahu as Revealed by Aerial Photographs (Hwang, 1981), the beach fronting the existing East Main Drain outlet is approximately 100 feet wide. In addition, the outlet is surrounded by proposed park P-4. In the event of wet weather conditions, the public will be able to walk through the park to the internal roadway bridge over the East Main Drain. The bridge will include a 10-foot wide pavement on the makai side for pedestrian access.

It is expected that the widening of the outlets of the West and East Main Drains will improve these view corridors to the ocean.

This information will be incorporated into the appropriate sections of the Revised EIS.

2. We appreciate the information provided on Shoreline Certification. This discussion will be corrected in the Revised EIS.

3. We concur that potential recreational conflicts may arise from the expansion of the resort facilities. As per our discussions with Robin Foster and Earl Matsukawa of your department, the applicant will draw up general recreation guidelines for future recreational activities on the project site. These guidelines will be presented as part of the Special Management Area Use Permit application.

4. The objectives for the provision of parking within the resort will be guided by the off-street parking requirements of the CZC (and, when approved, the LUO). This will be noted in the Revised EIS. The use of cars and the demand for parking within the resort can be reduced by implementing the following mitigation measures provided by the consulting traffic engineers, Austin, Tsutsumi & Associates, Inc.: the establishment of shuttle service between Honolulu International Airport and the Kuilima Resort by resort operators; the establishment of local shuttle service or expanded MTL operation to accommodate resort visitor trips to and from the Polynesian Cultural Center and Haleiwa; and the establishment of a jitney service within the resort itself (as stated on pages 101 and 105 of the Draft EIS).

Francis S Oda AIA Inc
Robert K L Wong AIA Inc
Norman G Y Hong AIA Inc
Sheryl B Seaman AIA Inc

4 October 1985

Mr. John P. Whalen
Director of Land Utilization
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Whalen:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for your letter of 23 September 1985. We have reviewed your comments and offer the following responses:

1. As suggested, the proposed drainage improvements in the vicinity of the shoreline will be described and assessed with respect to potential impacts on public access to and along the shoreline and public coastal views.

   Proposed Action - Improvements proposed for the West Main Drain at the shoreline are as follows: the removal of the two 48-inch culverts at the terminus of the West Main Drain; the existing West Main Drain will be widened to a trapezoidal channel with a base of 75 feet with side slopes of 3 to 1; and the provision of a footbridge or similar structure will be provided across the West Main Drain.

   The channel of the East Main Drain will be widened from a base of 30 feet to a base of 100 feet and the slopes will be made more steep, from 0.002 to 0.0032. Also, the four 72-inch culverts including the headwalls at the terminus of the drain will be removed and the channel will be left unlined. No footbridge or similar structure is proposed at the mouth of the East Main Drain.

   Anticipated Impacts and Mitigating Measures - No impacts to public access along the shoreline in the vicinity of the West Main Drain are expected. (Although a similar structure is not proposed at the mouth of the East Main Drain, it is anticipated that the drainage outlet of the East Main Drain will not disrupt lateral access along the shoreline.) It is expected that during normal conditions, the outlet will be

4. Reference: Page 95, IV. P. Infrastructure and Public Services.

Comment: Objectives for the provision of parking within the resort complex should be described in terms of ratios to hotel/ residential units, convention facilities and number of employees. Measures to mitigate competition for parking space should be discussed, particularly for stalls dedicated to public beach accessways.

If there are any questions, please contact Earl Matsukawa of our staff at 527-5038.

Very truly yours,

JOHN P. WHALEN
Director of Land Utilization

JPW:sl

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 523-4432

FRANK F. FASI
MAYOR

JOHN P. WHALEN
DIRECTOR

(EM)

September 23, 1985

Mr. Francis S. Oda, AIA
Group 70
924 Bethel Street
Honolulu, Hawaii 96813

Dear Mr. Oda:

Draft Environmental Impact Statement (EIS)
For the Proposed Kuilima Resort Expansion
Kahuku, Koolauloa, Oahu
Tax Map Keys: 5-6-3, 5-7-3, 5-7-1, 5-7-6

We have reviewed the subject Draft EIS and have the following comments:

1. Reference: Page 23, IV. A. Topography and Drainage.

   Comment: The proposed drainage improvements in the vicinity of the shoreline should be described in detail and assessed with respect to potential impacts on public access to and along the shoreline and public coastal views.

2. Reference: Page 168, XI. List of Necessary Approvals.

   Comment: The City and County of Honolulu does not issue a Shoreline Certification. Shoreline surveys, however, are certified by the State Surveyor in conjunction with the City's administration of Shoreline Setback Variances.

3. Reference: Page 110, IV. P. 2. Recreational Resources.

   Comment: Potential recreational conflicts that may arise from recreational opportunities to be offered at the proposed resort development should be discussed. For example, provisions for accommodating and managing concessionnaires renting recreational equipment such as dune buggies, surf boards, jet skis, or those offering dive tours, or various lessons targetting hotel guests should be described and areas of operation identified.

Francis S Oda AIA Inc
Robert K L Wong AIA Inc
Norman G Y Hong AIA Inc
Sheri S Seaman AIA Inc

4 October 1985

Mr. Alvin K.H. Pang, Director
Department of Housing and Community Development
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Pang:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for the copy of your letter of 19 September 1985 to John Whalen, Director of the Department of Land Utilization. We provide the following response to your questions regarding the need for employee housing. The Draft EIS stated that housing pressures from employees desiring to move into the region will be greatly reduced if job training programs succeed in maximizing resort employment for residents already housed in the region (page 83). It is the applicant's intention to fashion such programs, whether through improved coordination of existing programs or creating new ones. For example, the applicant has been one of the major supporters of the North Shore Career Training Program. A plan to ensure that residents of the region can qualify for construction and operating jobs generated by the resort expansion is still being formulated and a report on the applicant's results so far in developing the plan will be appended to the Revised EIS. In addition, the applicant will be providing 95 units of low moderate housing in Kahuku for employee use. Please note that your letter and this response will be appended to the revised EIS.

Sincerely,

GROUP 70

Francis Oda

Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Ms. Jan Sullivan

7766A/vs

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE 523-4161

FRANK F. FASI
MAYOR

ALVIN K.H. PANG
DIRECTOR

September 19, 1985

Mr. John P. Whalen, Director
Department of Land Utilization
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Subject: Draft EIS for Kuilima Resort Expansion
Koolauloa District, Oahu
Tax Map Keys: 5-6-03; 5-7-01; 5-7-03; and 5-7-06
Area: Approximately 803 Acres
Request: Rezoning of subject site to be compatible with Koolauloa Development Plan.
Proposal: To expand facilities of existing Kuilima Resort with hotels, resort condominiums, commercial area, golf course, beach parks and associated infrastructure improvements.

Thank you for the opportunity to review and comment on the proposed resort expansion of the Kuilima project, Kahuku, Oahu.

We note that the creation of additional jobs (3,556) will benefit residents in the Koolauloa District, alleviating the unemployment situation somewhat over the future years. An issue related to new jobs is the need for additional housing for potential employees of the development and the supplemental EIS should indicate how this need will be met. Will the applicant propose the construction of affordable units in Kahuku? No residential units are proposed within the resort expansion.

Sincerely,

ALVIN K. H. PANG

cc: Mr. Francis S. Oda

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
1455 S. BERETANIA STREET ROOM 305
HONOLULU, HAWAII 96814

FRANK F. FASI
MAYOR

FRANK K. KAMOOHANOHANO
FIRE CHIEF

LIONEL E. CAMARA
DEPUTY FIRE CHIEF

September 16, 1985

Mr. John P. Whalen, Director
Department of Land Utilization
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

The Honolulu Fire Department has reviewed the draft Environmental Impact Statement for the proposed Kuilima Resort Expansion and wish to add the following comments:

1. The Kahuku Engine Company is the first arriving unit and is backed up by the Sunset Beach unit.

2. A new fire station is projected for Kawela Bay in our Capital Improvement Program subject to additional future development of the area.

Should you have any questions, please contact Battalion Chief Kenneth Word of our Administrative Services Bureau at 943-3838.

Very truly yours,

Lionel E. Camara

LIONEL E. CAMARA
Acting Fire Chief

LEC:lm/KAW
cc: Francis S. Oda, Group 70

September 9, 1985

MEMO TO: MR. JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: HERBERT K. MURAOKA
DIRECTOR AND BUILDING SUPERINTENDENT

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT
PROPOSED KUILIMA RESORT EXPANSION

We have reviewed the subject draft Environmental Impact Statement and have no comments.

Thank you for the opportunity to review the draft EIS.

HERBERT K. MURAOKA
Director and Building Superintendent

TH:ft
cc: Francis S. Oda (Group 70) ✓
J. Harada

Francis S Oda AIA Inc
Robert K L Wong AIA Inc
Norman G Y Hong AIA Inc
Sheryl E Seaman AIA Inc

4 October 1985

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

Dear Mr. Hayashida:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for the copy of your memorandum of 29 August 1985 to John Whalen, Director of the Department of Land Utilization. We have reviewed your comment and offer the following response. As per our conversations with Mr. Lawrence Whang of your agency on 12 September 1985, the applicant will pay and install the necessary modifications to make the Waialee and Kawela Systems compatible. This will be noted in the appropriate section of the Revised EIS. Your letter and this response will be appended to the Revised EIS.

Sincerely,

GROUP 70

Francis Oda

Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Mr. Paul Low, EDP Hawaii, Inc.
Ms. Jan Sullivan

7744A/vs

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU

COPY

FO -
CC ✓
VC —

August 29, 1985

TO: JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: KAZU HAYASHIDA, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: YOUR LETTER OF AUGUST 6, 1985 ON THE DRAFT EIS FOR KUILIMA RESORT EXPANSION

We have the following comments on the environmental document:

1. The document should mention the system modifications required at our existing Waialee Wells to make it compatible with the Kawela 228 Reservoir.

2. The developer will be required to install all the necessary water system improvements.

If you have any questions, please contact Lawrence Whang at 527-6138.

KAZU HAYASHIDA
Manager and Chief Engineer

cc: Francis S. Oda

E. COMMUNITY ORGANIZATIONS (continued)

** Gordon Fowler
** James Hoffman
Honolulu Advertiser
Honolulu Star-Bulletin
Kahuku Community Association
** Koolauloa Neighborhood Board No. 28
** James Lam
** Eloise A. McIntosh
North Shore Career Training Corporation
** North Shore Neighborhood Board No. 27
Punaluu Community Association
** Sierra Club
Sun Press
Waimea Falls Park
** Terry Walker
Phyllis Zerbe

B. STATE (continued)

** Department of Education
- Main Library
- Hilo Regional Library
- Kahuku Community-School Library
- Kaimuki Regional Library
- Kaneohe Regional Library
- Lihue Regional Library
- Pearl City Regional Library
- Wailuku Regional Library

** Department of Health
** Department of Land and Natural Resources
- Chair of the Board of Land and Natural Resources
- State Historic Preservation Officer
- Division of State Parks, Outdoor Recreation and Historic Sites

Legislature
- Legislative Reference Bureau

** Office of Environmental Quality Control
** Department of Planning & Economic Development
- Energy Office
- Library

Department of Social Services and Housing
** Department of Transportation
Office of Hawaiian Affairs
State Archives
University of Hawaii
** - Department of Civil Engineering
** - Environmental Center
- Hamilton Library
- Marine Options Program
** - Water Resources Research Center

C. FEDERAL

** Department of Agriculture, Soil Conservation Service
Air Force, 15th ABW/DEE, Hickam
** Army Corps of Engineers
Army - DAFE (Facilities Eng. - USACH)
Coast Guard
** Department of Interior, Fish & Wildlife Service
Environmental Protection Agency
** Geological Survey
** Navy

D. COMMUNITY ORGANIZATIONS

Laura Adolpho
American Lung Association of Hawaii
Campbell Estate
* Hawaiian Electric Co.

PART XIII:
AGENCIES, ORGANIZATIONS AND PERSONS WHO WERE SENT A COPY OF THE DEIS; WRITTEN COMMENTS RECEIVED DURING THE PUBLIC REVIEW PERIOD; AND RESPONSES

The Draft EIS (DEIS) was officially filed with the Office of Environmental Quality Control (OEQC) on 5 August 1985 and was published in the OEQC Bulletin on 8 August 1985. The following agencies, organizations and persons received a copy(ies) of the DEIS. As of 26 September 1985, a total of 36 letters were received; of this total, 30 provided substantive comments. Starred (*) individuals sent letters regarding the DEIS, but did not provide substantive comments. Double starred (**) respondants provided comments on the DEIS. Their letters and our replies are reproduced in this section.

A. CITY AND COUNTY OF HONOLULU

Mayor
** Board of Water Supply
* Building Department
City Council
George Akahane
Marilyn Bornhorst
Leigh-Wai Doo
Welcome Fawcett
David Kahanu
Toraki Matsumoto
Patsy Mink
Tony Narvaes
Rudy Pacarro
Office of Council Services
** Fire Department
* Department of General Planning
** Department of Housing & Community Development
** Department of Land Utilization
Municipal Records and Reference Center
* Department of Parks & Recreation
** Police Department
** Department of Public Works
** Department of Transportation Services

B. STATE

* Department of Accounting & General Services
** Department of Agriculture
* Department of Defense

applicant. It is proposed that water and sewage systems be dedicated to the City and County of Honolulu, and the resort's share of use of these systems will be paid for through user's fees. The drainage system will be maintained by the golf course operator.

3. The topics requested for discussion in item 3 of your letter will be identified in the EIS, but cannot be discussed in a quantitative manner.

4. The impact of potable water requirements of the proposed resort expansion on regional resources will be described in the EIS. The Water Master Plan for the Kuilima Resort was approved by the City and County of Honolulu Board of Water Supply, an agency that is responsible for management of island-wide needs (including planned development areas such as in Ewa).

5. The impact of surface runoff from the project site on Punahoolapa Marsh and nearshore waters will be described in the EIS.

Very truly yours,

GROUP 70

Francis S. Oda, AIA

cc: Mr. John Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

6777A/ve

PUNALUU COMMUNITY ASSOCIATION
Post Office Box 239 Hauula, Hawaii 96717

GROUP 70
Attn: Francis S. Oda, AIA
924 Bethel Street
Honolulu, Hawaii 96813

RECEIVED
DEC 10 1984
GROUP 70

SUBJECT: Eis Preparation Notice for the Proposed Kuilima Dev.

The Punalau Community Association would appreciated a full discussion of the following areas of concern:

1. The cost to tax payers of highway improvements needed to handle the increased traffic which will be generated by the expanded development (tourists, hotel guests, golfers, commuting employees ..estimated 5,000.., and increased population).

2. The cost to tax payers of other public services such as police, public sewage systems, expansion of schools, etc. to support increased population.

3. Probable increase of property taxes due to expanded resort and increase demand for homes and businesses.

4. Water resources: Resort development needs vs. Island Wide needs; planned development area (has) needs; needs of agriculture vs. resort development needs; demand for water for increased population to support labor needs of resort.

5. Environmental impact of surface runoff from planned development hotel buildings, commercial areas, roadways, parking areas that will empty into the East and West Main Dunes which are designed to flow directly into the ocean and possibly into the Marsh area as well.

Thank you for allowing us to comment on the EIS Preparation Notice.

Sincerely,

PUNALUU COMMUNITY ASSOCIATION, INC.

Creighton U. Mattoon
President

CM/c ja

cc: Department of Land Utilization
Neighborhood Board #28, Koolauloa

Katsuhiro Iwata AIA Inc
Francis S Oda AIA Inc
Robert K L Wong AIA Inc
Norman G Y Hong AIA Inc
Sheryl B Seaman AIA Inc

20 February 1985

Mr. Creighton U. Mattoon
President
Punaluu Community Association
P.O. Box 239
Hauula, Hawaii 96717

Dear Mr. Mattoon:

Subject: Kuilima Resort Expansion EIS Notice of Preparation (NOP)

Thank you for your letter recieved on 10 December 1984. We have reviewed your comments and offer the following responses:

1. Improvements at the three entrances (existing Kuilima Drive and two additional entrances) to the proposed Kuilima Resort expansion will be paid for by the petitioner. While traffic from the proposed resort expansion will place an additional burden on the capacity of Kamehameha Highway at Haleiwa and Waimea Bay, previous studies (Haleiwa Bypass, Final Environmental Impact Statement, Proposed Expansion of the Kuilima Resort Community Environmental Impact Statement, Report on the Kamehameha Highway Traffic Improvement Study for the Kuilima Resort Community, and Tourist Travel Study in Honolulu - Final Report) have recognized the highway alignment problems at Haleiwa and Waimea Bay and the need for upgrading Kamehameha Highway, even without the implementation of the proposed project. While the applicant will be implementing site-specific roadway improvements on Kamehameha Highway, regional improvements are a governmental responsibility and not that of any single developer. The cost to taxpayers is difficult to estimate, however, it should be noted that the Federal, State and County governments will collect revenues from the resort in the form of taxes, and these revenues will be used to pay for roadway improvements and other public services.

2. The cost of public services such fire, police and schools is again difficult to estimate, but as noted in the previous paragraph, taxes collected from the project will be used to pay for public services. Infrastructure improvements needed to service the project such as water transmission, sewage collection and disposal, and drainage collection will be paid for by the

$1.00 for each additional half hour to park in the area. This is outrageous for someone who just wants to go for a swim or do a little fishing. Once the proposed development is completed most likely this practice will be extended to affect the new area as well.

9. Some people, like those in Laie, favor development, as they feel it will provide jobs for their people. Many of these people were brought over to Hawaii from the South Pacific islands to help build the very lucrative Polynesian Cultural Center as well as Brigham Young University. Those responsible for this situation should build their own hotels on their vast properties if they think hotels will provide jobs for their people. They caused the need, they should satisfy the need.

10. Kawela Bay is in a tsunami area, and tsunamis have hit the area in the past. It has also suffered from high seas and flood damage through the years.

11. Many local people have felt that by living in the country (a lifestyle they particularly enjoy) they could find an affordable place in which to live. Once development takes place, property values will rise way out of their reach. Their treasured country will become a place no longer available to them. Another place will be lost to them forever. No reasoning can explain away this injustice.

The above are just a few of many, many other very good reasons why the development should not be allowed. We can't correct the mistake of Kuilima-Turtle Bay by building more of the same. We cannot allow any more development in this area. Ewa should be the last tourist resort development. Isn't it obvious that our people, for their physical and mental health, must have a place to go to that is still country, that is still natural? Don't we owe something to the future generations of our island? Shouldn't they be able to see a little of what Oahu used to be like?

I am not concerned that a hodgepodge of development would happen if the proposed development is not realized. We have zoning restrictions, etc. to prevent this from happening. I have faith in our elected officials and their intelligence.

Thank you very much for giving me the opportunity to comment on the proposal.

Very truly yours,

Eloise McIntosh

Kazuo Ishihara AIA, Inc
Francis S Oda AIA, Inc
Robert K L Wong AIA Inc
Norman G Y Hong AIA, Inc
Sheryl B Seaman AIA, Inc

20 February 1985

Mrs. Eloise McIntosh
2222 Manoa Road
Honolulu, Hawaii 96822

Dear Mrs. McIntosh:

Subject: Kuilima Resort Expansion EIS Notice of Preparation (NOP)

Thank you for your letter recieved on 10 December 1984. We appreciate your comments on the proposed project. Many of your concerns will be addressed in the EIS. Please note that your letter will be reproduced in its entirety in the EIS.

Very truly yours,

GROUP 70

Francis S. Oda, AIA

cc: Mr. John Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

6782A/ve

2222 Manoa Road
Honolulu, Hawaii 96822

December 7, 1984

RECEIVED
DEC 10 1984
GROUP 70

Group 70
Attention Mr. Francis S. Oda, AIA
924 Bethel Street
Honolulu, Hawaii 96813

Gentlemen:

Thank you for sending me the EIS Notice of Preparation on the proposed development of the Kahuku-Kuilima-Kawela Bay area for my review and comment.

I know that a great deal of time, effort and money have gone into the preparation of the proposal. However, I am very strongly opposed to any more development on the north shore of Oahu.

It is unfortunate that Kuilima was ever built, but to have to build more hotels, condominiums and commercial areas to make Kuilima-Turtle Bay feasible is ridiculous. Trying to correct a big mistake by making an even bigger mistake is absurd. The chances of it becoming a popular tourist destination is questionable. Tourist who come to Oahu want to see and stay in famous Waikiki--maybe take a quick trip around the island--then fly to Maui, Kauai, Hawaii, etc. for the balance of their visit. They don't want to go to another resort on the same island.

The following are just a few of many reasons why the proposed development is unacceptable:

1. The northern area of the island of Oahu should be development free, as the residents of Oahu need a natural country-type area to escape to and refresh themselves. It must be free of hotels and condos--unlike the areas in which they have to reside.

2. Oahu is actually a small island which has rapidly become much too crowded and developed already. I quote former State House Speaker Elmer Cravalho in a recent news interview:

> "I'm not optimistic when I look at the planning process going on now. We cannot accept the philosophy that is prevalent on the mainland--if things are overcrowded move to the next state. We have self-made restriction. We live on an island.

3. The local people are gradually being forced away from the beaches by overdevelopment.

4. Oahu is fast becoming overpopulated. Every day more people come here to live. Do we continue to develop more resorts to provide jobs for them? As it is, we are forced to use more land to provide housing for these people. We are already suffering shortages. Water is just one example. Traffic now is intolerable. What will it be like when a new resort is created on the north shore?

5. In order to pay the expenses involved in maintaining some of the cottages at the present resort complex, they are being rented out to undesirable tenants. More of the same can be expected in the proposed development. Crime problems will increase and further endanger the lives of those on the north shore.

6. The proposed park in Kawela Bay is in a very unsuitable location. As you know, 4.8 acres is not a big area for a park, especially when one consideres that the park is divided by a busy main highway and is in the bend in that busy road which will become even busier if the area is developed. Furthermore, the plan states that the cars will park off the road and in the park. What space will be left for the people to enjoy? There will not be much, if any, space for picnic tables or for sports, i.e. volleyball, etc.

7. Kawela Bay is such a small area. At present, a number of private homes are on fee simple land in about one-third of the Bay. The conglomeration of private homes, hotels, condos and a public park all in this small, fragile area is a "sure-sp-ll" one. The Bay would be virtually swamped in more ways than one with private, public and tourist water activities. There is no way that this very lovely area can escape complete ruin! It would be devastating to this very unique and beautiful place!

8. Mention was made that should the development take place island people would be able to reach the beaches they can't reach now. This is very confusing, as before Campbell Estate sold this property to Del Webb there were right-of-ways to Kawela Bay beach for the public's use. After Del Webb purchased this area the "Private Property - No Trespassing" signs were erected. At present, it is not practicable for the public to use the beaches in front of Kuilima-Turtle Bay as they cannot enter the area without paying $1.00 for the first half hour and

15 July 1985

Mr. Creighton U. Mattoon
Chairman
Koolauloa Neighborhood Board No. 28
c/o Hauula Satellite City Hall
54-010 Kukuna Road
Hauula, Hawaii 96717

Dear Mr. Mattoon:

Subject: Kuilima Resort Expansion EIS Notice of Preparation (NOP)

Thank you for your letter dated on 28 December 1984. We have reviewed your comments and offer the following responses:

TRAFFIC: The impact of traffic generated from the resort on Kamehameha Highway and the turning movements of the three proposed access roads to the Kuilima Resort has been studied by Austin, Tsutsumi & Associates, Inc. (ATA). ATA also developed traffic projections for Hauula, Kawailoa and Kahuku based on projections of traffic generated by the Kuilima Resort expansion and on the larger increase in traffic as a result of the increase in the de facto population of Oahu. The quantitative data requested on hotel guest trips to the Polynesian Cultural Center, Waimea Falls Park, State and City parks, and surfing areas, and increase of traffic flow from Kuilima to Honolulu via Kaneohe will not be provided, but the impact can be inferred from the traffic projections for Hauula, Kawailoa and Kahuku (which includes traffic from de facto population growth). These projections are in aggregate form which includes guest trips, employee trips, delivery/service trips, and non-guest patrons of the resort facilities and does not isolate guest travel for single day activities such as golf and tennis and employee travel.

Proposed improvements to Kamehameha Highway by government and Prudential will be summarized in the EIS.

WATER: The EIS will discuss the expected demand for water as a result of implementing the project and the estimated sustainable yield of brackish water sources that will be used for golf course irrigation.

SEWAGE TREATMENT FACILITY: The questions you raised regarding wastewater disposal will be addressed in the EIS.

DRAINAGE: Existing drainage patterns, proposed drainage improvements and the anticipated changes in runoff as a result of the project will be discussed in the EIS.

OFF-SITE HOUSING: Due to the preliminary nature of plans for the off-site, low moderate housing, details such as expected financing for this housing, cannot be described at this time.

It is the opinion of the socio-economic consultants, Community Resources, Inc., and A. Lono Lyman, Inc. that there is sufficient labor pool in the region so that the housing demand for new in-migrants into the region will be minimal or will be met by some other measure. A plan to ensure that residents of the Region can qualify for construction and operating jobs generated by development at the Resort, encompassing training and related mitigation measures, is being formulated. Housing pressures from employees will be greatly reduced, if the proposed job training programs succeed in maximizing resort employment for residents already housed in the region.

The data on expected property tax increases, rental rates and property values requested cannot be discussed in a quantitative manner. For instance, an increase in property taxes is expected for residents of oceanfront properties, however, the amount of increase cannot be estimated at this time.

ECONOMIC/SOCIAL IMPACTS: Nearly all of the issues of interest mentioned in your letter will be discussed in the EIS except for the following: data on the resident population's job skills (not available); actual job descriptions and salaries of future jobs (unavailable at this time, however, the economic consultant has projected the occupational distribution of resort jobs that will be generated); and a survey of students of Kahuku and Waialua high schools in order to determine their future plans.

SOCIAL: The impacts of the project on the lifestyle of area residents and on near shore food-gathering activities will be discussed in the EIS. The characteristics of resident-visitor interactions was described by the socio-economic consultants and will be summarized in the EIS.

ENVIRONMENT: The impact of surface runoff from the proposed Kuilima Resort expansion on Punahoolapa Marsh and on the water quality of near shore waters will be discussed in the EIS.

RECREATION: As previously noted, traffic projections produced by Austin, Tsutsumi & Associates, Inc. are in aggregate form and do not isolate future traffic attributable to the proposed second 18-hole golf course and improved recreational facilities on site.

PUBLIC SERVICES: The estimated cost of the proposed project's fair share of regional capital improvements and of operations and maintenance expenditures needed to service the growth supported by the activities within the resort will be presented in the EIS. It should be noted that the Federal, State and County governments will collect revenues from the resort in the form of taxes, and these revenues will be used to pay for roadway improvements and other public services such as fire, police and schools. Infrastructure improvements needed to service the project such as water transmission, sewage collection and disposal, and drainage collection will be paid for by the applicant. It is proposed that water and sewage systems be dedicated to the City and County of Honolulu, and the resort's share of use of these systems will be paid for through user's fees. The drainage system will be maintained by the golf course operator.

ALTERNATIVES: As suggested, the applicant has reassessed the feasibility of the existing golf course as a free-standing amenity and determined that it will be able to continue operations without additional development. This will be indicated in the EIS.

A market study undertaken by the Hallstrom Appraisal Group, Inc. indicates that there is expected to be a conservative demand for 5,000 to 6,200 units at the resort. The EIS will summarize other findings of the market study.

The applicant may sell its interest in the property, if the necessary governmental approvals are not granted.

The EIS will include the approximate phasing of development for the resort. It should be noted that all dates for the start of construction/dedication are approximate and are dependent on recieving the necessary governmental approvals.

Kuilima Development Company does not intend to dilute its interest in the property during the first phase of the project. Portions of subsequent phases may be developed by KDC, joint venture, or other development firms, under covenant, codes and restrictions established by KDC.

Because of the large number of governmental approvals required for the project (Development Plan amendment, zoning, SMA permit, subdivision, State Land Use District Boundary amendment, etc.), the applicant is forced to seek approvals in increments. Proposed plans for drainage, water distribution, sanitary wastewater disposal, and access roads require review by a number of governmental agencies, this will ensure that the project will not be adversely affecting nearby residents.

Very truly yours,

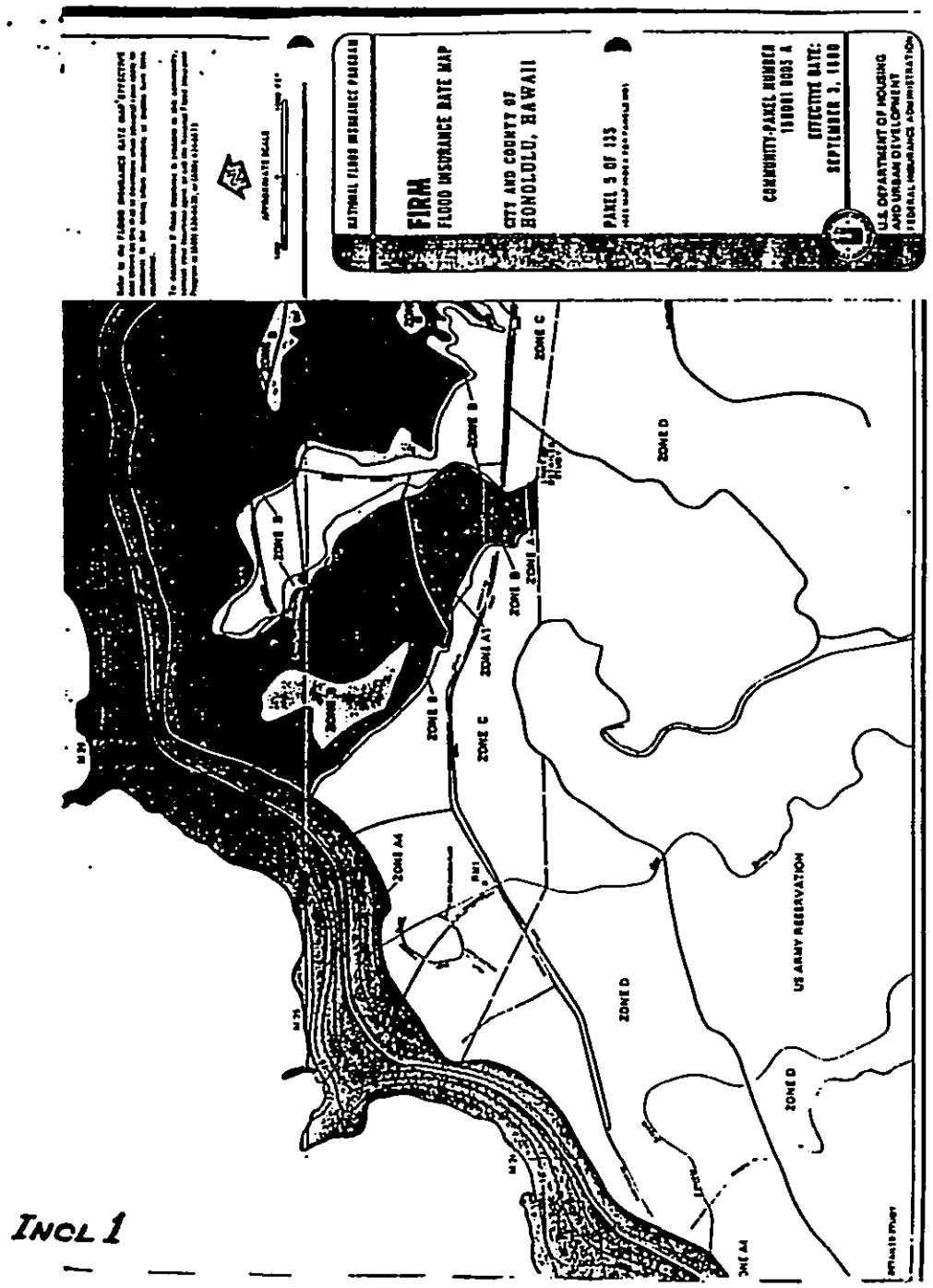
GROUP 70

Francis S. Oda

Francis S. Oda, AIA

6815A/ve

cc: Mr. John Whalen, Director
Department of Land Utilization (no encl.)
Mr. Norman Quon, Kuilima Development Company (no encl.)



INCL 1

20 February 1985

Mr. Thomas Ushijima
Acting Chief, Engineering Division
Department of the Army
Pacific Ocean Division, Corps of Engineers
Ft Shafter, Hawaii 96858-5440

Dear Mr. Ushijima:

Subject: Kuilima Resort Expansion EIS Notice of Preparation

Thank you for your letter dated 27 November 1984. We appreciate the information provided and will incorporate it into the Draft EIS.

Very truly yours,

GROUP 70

Francis S. Oda, AIA

cc: Mr. John Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

6769A/ve

US Department of Transportation
United States Coast Guard

Commander (dp)
Fourteenth Coast Guard District

Prince Kalanianaole Federal Building
300 Ala Moana Blvd
Honolulu, Hawaii 96850
Phone 546-2861

RECEIVED
NOV 26 1984
GROUP 70

4880
November 20, 1984

Group 70
Attn: Francis S. Oda, AIA
924 Bethel Street
Honolulu, HI 96813

Dear Mr. Oda:

Thank you for the opportunity to review your Notice of EIS preparation for Kuilima Resort Expansion. The Coast Guard does not have any direct involvement in the project as described in the Notice. However, should your plans change to include marina construction or establishment of aids to navigation, which could affect Search and Rescue requirements in the area or Aids to Navigation responsibilities, we could welcome the opportunity for further comment.

Sincerely,

J. F. MILBRAND
Commander, U.S. Coast Guard
Planning Officer
By direction of the Commander

United States Department of the Interior

FISH AND WILDLIFE SERVICE
300 ALA MOANA BOULEVARD
P O BOX 50167
HONOLULU, HAWAII 96850

RECEIVED
NOV 30 1984
GROUP 70

ES
Room 6307
NOV 28 1984

Mr. Francis S. Oda, AIA
Group 70
924 Bethel Street
Honolulu, Hawaii 96813

Dear Mr. Oda:

The Service has reviewed the Notice of Intent to Prepare an Environmental Impact Statement (NOI) for the proposed Kuilima Resort expansion project, Oahu. The NOI adequately covers the range of issues within our jurisdiction which need to be addressed in the impact statement.

We are particularly pleased to note the improvements planned for Punahoolapa Marsh. Completion of these enhancement measures coupled with perpetual management to protect the native ecosystem character of the marshlands will provide significant benefits to both endangered Hawaiian waterbirds and to migratory waterfowl. We look forward with excitement to implementation of the proposed plans for the marsh. Please contact Mr. James Krakowski, Refuge Manager for Wetlands (phone 546-5608) or Mr. John Ford, Fishery Biologist (phone 546-7530) to arrange for further meetings with your staff. I assure you that my staff will contribute maximum effort to assist you.

Thank you for providing us with this opportunity to comment.

Sincerely,

Allan Marmelstein
Pacific Islands Administrator

cc: RD, FWS, Portland, OR (AHR/AWR)
NMFS-WPPO
PODCO-O, Honolulu
PODED-PV, Honolulu
EPA, San Francisco
DLU, Honolulu

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!

HEADQUARTERS
NAVAL BASE PEARL HARBOR
BOX 110
PEARL HARBOR, HAWAII 96860

IN REPLY REFER TO:
9510
Ser 0028/2240
7 NOV 1984

RECEIVED
NOV 8 1984
GROUP 70

Group 70
Attn: Francis S. Oda, AIA
924 Bethel Street
Honolulu, Hawaii 96813

Gentlemen:

EIS NOTICE OF PREPARATION FOR THE PROPOSED
KUILIMA RESORT EXPANSION

The EIS Notice of Preparation for the Proposed Kuilima Resort Expansion has been reviewed and the Navy has no comments to offer.

Thank you for the opportunity to review the EIS.

Sincerely,

H. J. RINNERT
CAPTAIN, CEC, U. S. NAVY
FACILITIES ENGINEER
BY DIRECTION OF THE COMMANDER

Copy to:
Department of Land Utilization
Attn: Michael McElroy, Director
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

HAWAIIAN ELECTRIC COMPANY · PO BOX 2750 · HONOLULU, HAWAII 96840

ENV 2-1
NV/G

December 13, 1984

GROUP 70

Mr. Francis S. Oda, AIA
Group 70
924 Bethel Street
Honolulu, Hawaii 96813

Dear Mr. Oda:

Subject: EIS Notice of Preparation for the Proposed Kuilima Resort Expansion

We have reviewed the Notice of Preparation for the subject project and have the following comments:

1. There is no mention on the electrical requirements necessary for such a large development.

2. This development may affect the future development for wind generated power in the Kahuku area.

Thank you for the opportunity to comment on this Notice of Preparation.

Sincerely,

Brenner Munger

Brenner Munger, Ph.D., P.E.
Manager, Environmental Department

SLC:cal

cc: Mr. Michael McElroy, Director
Dept of Land Utilization

An Hawaiian Electric Company

Kazuo Nishimura AIA, Inc
Francis S Oda AIA Inc
Robert K L Wong AIA Inc
Norman G Y Hong AIA Inc
Sheryl B Seaman AIA, Inc

20 February 1985

Mr. Brenner Munger, Ph.D., P.E.
Manager, Environmental Department
Hawaii Electric Company, Inc.
P.O. Box 2750
Honolulu, Hawaii 96840

Dear Mr. Munger:

Subject: Kuilima Resort Expansion EIS Notice of Preparation

Thank you for your letter dated 13 December 1984. We have reviewed your comments and offer the following responses:

1. We will describe in a general manner the electrical requirements of the project. We will also refer to a letter, dated 1 November 1984, from Clarence Couvela to Donald Ho (the project's consulting electrical engineer) regarding the adequacy of HECO's resources to service the project.

2. In our conversation with George Okuda of HEI, we learned that your company is concerned about the effect of the noise generated by the proposed wind energy turbines on the Kuilima Resort. We also learned from Steve Coles of HEI that the noise analysis that was to be prepared for the Windfarms Environmental Impact Statement was never completed. When the noise analysis of Windfarms is completed, we would appreciate receiving a copy to review.

Very truly yours,

GROUP 70

Francis S. Oda, AIA

cc: Mr. John Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

6770A/ve

HAWAIIAN TELEPHONE
GTE

December 6, 1984

Russ K Saito
Network Engineering Director

Mr. Francis S. Oda, AIA
Group 70
924 Bethel Street
Honolulu, Hawaii 96813

Dear Mr. Oda:

EIS Notice of Preparation for
the Proposed Kuilima Resort Expansion

Thank you for allowing us to review and comment on the EIS Preparation Notice for the proposed Kuilima Resort Expansion. We have no specific environmental concerns other than those already identified in the EIS notice.

Underground telephone service will be provided throughout the resort development. We have coordinated our requirements with the consultants for this project.

Sincerely,

RK Saito

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

P.O. BOX 2200 • HONOLULU, HAWAII 96841 • TELEPHONE (808) 546-4511 • CABLE: HAWTEL

Kahuku Community Association
General Delivery
P. O. Box 278
Kahuku, Hawaii 96731

RECEIVED
DEC 0 1984
GROUP 70

December 6, 1984

Group 70
Attn: Francis S. Oda, AIA
924 Bethel Street
Honolulu, Hawaii 96813

Gentlemen:

Subject: EIS Notice of Preparation for the Proposed Kuilima Resort Expansion

We have reviewed the subject preparation notice and would like to offer the following comments:

1) Page 18, Sewage Treatment Plant

The proposed STP will be situated on prime agricultural land and may adversely affect future agricultural uses of the area especially large scale agricultural production utilizing the pivot center irrigation system.

2) Page 19, Offsite Housing

The EIS should be more specific in addressing the offsite housing for employees and what effect such a development will have on the Kahuku Villagers effort to convert the village into a fee simple subdivision. The EIS should identify the term "affordable housing" in terms of cost and also address other impacts resulting from such a development.

3) Page 22, Relocation of Lessees

The EIS should address more fully the concerns of the farmer/lessee who will be displaced and what effort is being made to assist in relocating these farmers.

Thank you for the opportunity to comment.

Very truly yours,

Donald Hurlbut, President
Kahuku Community Association

cc: Department of Land Utilization
Attn: Mr. Michael Belles, Director
City and County of Honolulu

Kazuo Ishihara AIA, Inc
Francis S Oda AIA Inc
Robert K L Wong AIA Inc
Norman G Y Hong AIA, Inc
Sheryl B Seaman AIA Inc

20 February 1985

Mr. Donald Hurlbut, President
Kahuku Community Association
General Delivery, P.O. Box 278
Kahuku, Hawaii 96731

Dear Mr. Hurlbut:

Subject: Kuilima Resort Expansion EIS Notice of Preparation

Thank you for your letter dated 6 December 1984. We have reviewed your comments and will address all of the items listed in your letter in the environmental impact statement.

Very truly yours,

GROUP 70

Francis S. Oda, AIA

cc: Mr. John Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

6775A/ve

KOOLAULOA NEIGHBORHOOD BOARD NO. 28
(Kahuku, Laie, Hauula, Punaluu, Kaaawa Kahana)
c/o HAUULA SATELLITE CITY HALL
54-010 Kukuna Road
Hauula, Hawaii 96717

RECEIVED
DEC 6 1990
GROUP 70

Mr. Francis Oda
Group 70
924 Bethel Street
Honolulu, HI 96813

Dear Mr. Oda,

The Koolauloa Board #28 will not be able to respond to your EIS Prep Notice before the deadline which you have set. However, we would still like to comment after our December 13th meeting. We hope this will meet with your satisfaction.

Sincerely,

Creighton Mattoon

Creighton Mattoon
Koolauloa Neighborhood Board

KOOLAULOA NEIGHBORHOOD BOARD NO. 28
(Kahuku, Laie, Hauula, Punaluu, Kaaawa Kahana)
c/o HAUULA SATELLITE CITY HALL
54-010 KUKUNA ROAD
HAUULA, HAWAII 96717

RECEIVED
DEC 1990
GROUP 70

December 28, 1990

GROUP 70
attn: Francis S. Oda, AIA
924 Bethel Street
Honolulu, Hawaii 96813

SUBJECT: EIS Preparation Notice for the Kuilima Resort Expansion

Dear Mr. Oda,

The Koolauloa Neighborhood Board #28 has reviewed the EIS Preparation Notice for the proposed Kuilima Resort Expansion and request that you include the following areas of concern and that they be fully researched and assessed in our Final Environmental Impact Statement.

TRAFFIC: Data on impact of hotel guest travel (including trips to Cultural Center, Waimea Park, State and City parks, sailing areas), Guest travel for single day activities such as golf and tennis, and Employee travel. Present all plans for highway improvement by government and Private and that extensive the impact on Kamehameha Highway. Include data on probable increase of traffic flow from Kuilima to Honolulu via Kaneohe.

WATER: Discuss fully the plans for providing 1 mgd water needed for the project. Present plans for supply needs of increased population taking into consideration 8,000 to 10,000 new jobs and other business activities to support the project. Provide data on the "brackish" water wells referred to as source for golf course irrigation, including in this information controls to prevent over draught and possible effects to other wells.

SEWAGE TREATMENT FACILITY: What plans have been made to handle increased sewage in emergency situations (system breakdown, electrical outages)? What plans have been made by government or developer to handle sewage treatment needs of increased population? Will proposed treatment kill viruses as well as bacteria in the effluent that is used on the golf course?

DRAINAGE: What improvements will be necessary to ensure the West Kahuku Dam will have the capacity to handle additional runoff from Kuilima Streams as well as the roads, parking areas to be created in the proposed commercial and hotel areas. Include in this response the history of drainage problems experienced by the golf course especially such areas adjacent to this drainage outlet. What improvements will be necessary to East and West Kahuku Dams to ensure constant flow will be maintained during Flash Floods and high ocean tides. Present historical data on storm runoff, sources of run off, and accessibility of drainage openings and techniques used to control flooding. Discuss the drainage channel proposed to connect marsh to East Kahuku Dam and possible effects of back flooding into marsh. Include data on anticipated increase of runoff from proposed industrial areas such as parking lots, streets and buildings and its affect on the East Kahuku Dam.

OFF SITE HOUSING: Explain plans to assure these houses (or apartments) will be occupied by employees only and at what income residents' purchase? Describe housing. Present plans for housing of other (8,000 to 10,000) employees by the proposed project and supporting businesses. Provide data on impacts such as property tax increases, rental rates, property values.

ECONOMIC/FISCAL IMPACTS: In discussing the following, provide data as it applies to Kaaluloa (Kaneohe to Kualoa Rd) using available data on this area's population, housing, skills and unemployment. Do the same for the North Shore (Kaaluloa to Haleiwa). When presenting data use numerical indicators as well as percentages. Provide for review information on jobs to be generated by job descriptions, salary and numbers. Review present information available on number of unemployed residents in the area, number of employed residents and number of regular jobs. Survey, if possible, goals of students of Kahuku and Waialua High Schools to determine future plans such as military, continued education, other job training, missions or immediate employment in the tourist industry. Discuss fully the role of the North Shore Career Training Center's role in the proposed project. Is government financing involved? Will there be an overlap in training of entry level employees which is financed by government in on-the-job training programs? Can CETT provide training for career employment positions? Can all unemployed residents be assured they will be employed?

SOCIAL: Discuss increased population as it may impact on life style of residents. Include impact on those who supplement their income or pursue subsistance living through fishing, farming, hunting and limited commercial lobster gathering. Discuss any possible impacts that should be considered when visitors outnumber residents.

ENVIRONMENT: List and explain effects of all chemicals and fertilizers used in golf course maintenance. Explain controls that will prevent contamination of marsh, ocean life and surrounding roads and activity areas. Estimate amounts of chemicals that percolate to water table below the surface and effect on water sources in the area. Chemical effects during floods. Oxidative effects.

RECREATION: Sports and Recreation involves the use only which indicate travel on the highway from other areas such as Waikiki. Using current data available from golf, tennis and beach activities project impact of second 18 hole golf course and improved and expanded sports activities.

PUBLIC SERVICES: Provide data in 1985 dollars for Public Services needed to support population anticipated. Discuss fully the plans of government and developer to meet these demands.

ALTERNATIVES: Reconsider statement that existing golf course "may be forced to close" without additional development. This is an erroneous statement. Discuss fully why the "magic number" for viable functioning of this development has gone from 2,000 units to 3,000 and now 4,000 as presented in each Development Plan Annual Review. Can the reviewer assume from the statements contained in this section that Prudential will sell its interest in this development if the entire project is not approved? Should the total plan be approved, will Prudential be legally responsible to complete the project to its fullest or matter what occurs in the future? After the plan is approved is it possible for Prudential to sell its interest? Considering the fact that this project has been planned in phases, discuss the possibility of incremental approvals of the developer's plans to assure public facilities and services are meeting the demands of the affected communities. If the project researchers are certain of their facts there should be little concern that future approvals will not be forthcoming, and committee will feel confident that all impacts will be mitigated in a timely fashion.

Thank you for having allowed us the additional time to comment on this Environmental Impact Statement Preparation Notice. We look forward to reviewing your Final Report.

Sincerely,

Creighton H. Hattan, Chairman
Koolauloa Neighborhood Board #29

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 15TH AIR BASE WING (PACAF)
HICKAM AIR FORCE BASE, HAWAII 96853-5000

RECEIVED
NOV 10 1984
GROUP 70

8 NOV 1984

REPLY TO ATTN OF: DEEV (Mr Fujimoto, 449-1831)

SUBJECT: Environmental Impact Statement Notice of Preparation for the Proposed Kuilima Resort Expansion

TO: Group 70
Attn: Francis S. Oda, AIA
924 Bethel Street
Honolulu, Hawaii 96813

1. This office has reviewed the subject EIS notice and has no comment relative to the proposed project.

2. We greatly appreciate your cooperative efforts in keeping the Air Force apprised of your project and thank you for the opportunity to review the document. The EIS notice is returned for your file.

ROBERT M. OBAZAKI
Chief, Engrg & Envmtl Plng Div
Directorate of Civil Engineering

1 Atch
EIS Notice

cc: City & County of Honolulu
Department of Land Utilization
Attn: Michael McElroy, Director
650 South King Street
Honolulu, Hawaii 96813

DEPARTMENT OF THE ARMY
PACIFIC OCEAN DIVISION, CORPS OF ENGINEERS
FT. SHAFTER, HAWAII 96858-5440

REPLY TO ATTENTION OF

November 27, 1984

RECEIVED
DEC 3 1984
GROUP 70

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

Dear Mr. McElroy:

Thank you for the opportunity to review and comment on the EIS Preparation Notice for Proposed Kuilima Resort Expansion. The following comments are offered:

a. Any fills in the wetland and in navigable waters for the drainage improvements will require a Department of the Army permit. We have met with the applicant and their consultant to discuss permit application requirements.

b. Pages 24, 25. In addition to the tsunami flood hazards mentioned in this EIS preparation notice, the east portion of the proposed Kuilima Resort Expansion site is designated Zone AH or area of 100-year shallow flooding where depths are between 1 and 3 feet. For this area, the approximate 100-year flood elevation is 6 feet mean sea level. The 100-year event has a one percent chance of being equalled or exceeded in any given year. See the attached flood hazard map for the North Shore area, prepared as part of the Flood Insurance Study for Oahu by the Federal Insurance Administration (Encl 1).

Sincerely,

Thomas Ushijima
Acting Chief, Engineering Division

Enclosure

Copy furnished: w/encl.

Francis Oda
Group 70
924 Bethel Street
Honolulu, Hawaii 96813

United States Department of Agriculture

Conservation Service

P. O. Box 50006
Honolulu, Hawaii
96850

December 7, 1984

RECEIVED
DEC 8 1984
GROUP 70

Mr. Francis S. Oda, AIA
Group 70
924 Bethel Street
Honolulu, HI 96813

Dear Mr. Oda:

Subject: EIS Notice of Preparation for the Proposed Kuilima Resort Expansion

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

1. Reference should be changed to the "Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii", August 1972 (see page 22).

2. The map you plan to prepare showing the sand dunes should also delineate the soils.

3. According to the ALISH Land Classification System (ALISH - Agricultural Lands of Importance to the State of Hawaii), "Prime Agricultural Land" and "Other Agricultural Land" will be involved and should be quantified or delineated on a map, also (map of Oahu enclosed).

Thank you for the opportunity to review subject document.

Sincerely,

Stratford L. Whiting

STRATFORD L. WHITING
District Conservationist

Enclosure

cc: (w/o ALISH map) Department of Land Utilization, City and County of Honolulu

The Soil Conservation Service is an agency of the United States Department of Agriculture

50

Kazuo Ishihara AIA, Inc
Francis S Oda AIA, Inc
Robert K L Wong AIA, Inc
Norman G Y Hong AIA, Inc
Sheryl D Seaman AIA, Inc

20 February 1985

Mr. Stratford L. Whiting
District Conservationist
United States Department of Agriculture
Soil Conservation Service
P.O. Box 50006
Honolulu, Hawaii 96850

Dear Mr. Whiting:

Subject: Kuilima Resort Expansion EIS Notice of Preparation (NOP)

Thank you for your letter dated 7 December 1984.. We have reviewed your comments and offer the following responses:

1. The correct reference will be made in the EIS.

2. As suggested, we have tried to overlay the sand dune map with a map delineating soil types but found it difficult to read, and therefore, will not be included in the EIS.

3. A figure delineating ALISH land classifications will be included in the EIS.

Very truly yours,

GROUP 70

Francis S. Oda, AIA

cc: Mr. John Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

6774A/vs

University of Hawaii at Manoa

Water Resources Research Center
Holmes Hall 283 • 2540 Dole Street
Honolulu, Hawaii 96822

7 December 1984

Group 70
Attn: Francis S. Oda, AIA
924 Bethel Street
Honolulu, Hawaii 96813

Gentlemen:

SUBJECT: Environmental Impact Statement Preparation Notice for the Proposed Kuilima Resort Expansions - November 1984

We have reviewed the subject EISPN and have no comments to offer at this time. We will be pleased to review the draft EIS when it is released. Thank you for the opportunity to comment. This material was reviewed by WRRC personnel.

Sincerely,

Edwin T. Murabayashi
EIS Coordinator

ETM:jm

cc: Michael McElroy, DLNR

GEORGE R. ARIYOSHI
Governor

WAYNE J. YAMASAKI
Director

Deputy Directors
JONATHAN K. SHIMADA, P.E.
WALTER M. HO
CLIFFORD N. UEOKA
ALVARD VINCENT

IN REPLY REFER TO
STP 8.10306

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

November 15, 1984

RECEIVED
NOV 19 1984
GROUP 70

Group 70
924 Bethel Street
Honolulu, Hawaii 96813

Attn: Mr. Francis S. Oda, AIA

Dear Mr. Oda:

Kuilima Resort Expansion
Koolauloa, Oahu
TMK: 5-6-03, 5-7-01, 5-7-03, 5-7-06

We have reviewed the environmental impact statement preparation notice and concur in the need for a traffic impact study.

You may submit this report and the proposals for Kamehameha Highway for our review and approval at your earliest convenience.

Very truly yours,

Wayne J. Yamasaki
Director of Transportation

23 November 1984

Mr. Wayne J. Yamasaki
Director of Transportation
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Yamasaki:

Subject: Kuilima Resort Expansion EIS Notice of Preparation

Thank you for your letter of 15 November 1984. As suggested, we will submit a copy of the traffic impact study and any proposals for Kamehameha Highway for your review and approval as soon as they are completed.

Very truly yours,

GROUP 70

Francis S. Oda

Francis S. Oda, AIA

cc: Mr. Michael McElroy, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

6670A/vs

26 November 1984

Mr. Ralston H. Nagata
State Parks Administrator
State of Hawaii
Department of Land and Natural Resources
Division of State Parks
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Nagata:

Subject: Kuilima Resort Expansion EIS Notice of Preparation

Thank you for your letter of 16 November 1984. As recommended, we have attached a copy of the pre-final draft report of the Subsurface Archaeological Reconnaissance Survey Kuilima Resort Expansion Project for your review. Due to the lengthly nature of the EIS process, we would appreciate your comments by December 7. Please feel free to contact us if there is anything we can do facilitate your on-site inspection of the sites within the project area.

We appreciate your comments on the Notice of Preparation.

Very truly yours,

GROUP 70

Francis S. Oda

Francis S. Oda, AIA

cc: Mr. Michael McElroy, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

Encl: Subsurface Archaeological Reconnaissance Survey Kuilima Resort Expansion Project, 1984

6672A/vs

DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

GEORGE R. ARIYOSHI
Governor
KENT M. KEITH
Director
MURRAY E. TOWILL
Deputy Director
LINDA KAPUNAI ROSEHILL
Deputy Director

DIVISIONS
Business Assistance and Economic Development
Energy
Land Use
Planning
Statewide Planning
Technical Analysis
Transportation Planning
Research and Economic Analysis

OFFICES
Director's Office
Administrative Services Office
Personnel Office

Ref. No. P-753

December 14, 1984

Mr. Francis S. Oda, AIA
Group 70
924 Bethel Street
Honolulu, Hawaii 96813

Dear Mr. Oda:

Subject: EIS Preparation Notice for Kuilima Resort Expansion, Koolauloa District, Oahu

We have reviewed the subject preparation notice and recommend that the environmental impact statement include the following items:

-- an identification of the various permit approvals that will be required for the development;

-- the proposed time frame for the development of the project; with a breakdown by phases, if appropriate;

-- a discussion of the need for the proposed resort development on Oahu relative to the projected future tourism growth, need for additional hotel/resort condominium units, and the existing and proposed supply of units;

-- a discussion of how the proposed development meets appropriate objectives, policies and Priority Guidelines of The State Plan;

-- a discussion of how the proposed development meets appropriate policies and implementing actions of the applicable Functional Plans;

-- a discussion of how the proposed development addresses Coastal Zone Management objectives and policies.

Thank you for the opportunity to comment on the subject document.

Very truly yours,

Kent M. Keith

cc: Dept. of Land Utilization,
City & County of Honolulu

Kazuo Hirota AIA, Inc
Francis S Oda AIA, Inc
Robert K L Wong AIA Inc
Norman G Y Hong AIA Inc
Sheryl R Seaman AIA Inc

20 February 1985

Mr. Kent M. Keith, Director
State of Hawaii
Department of Planning and Economic Development
P.O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Keith:

Subject: Kuilima Resort Expansion EIS Notice of Preparation

Thank you for your letter dated 14 December 1984. We have reviewed your comments and will address all of the items listed in your letter in the environmental impact statement.

Very truly yours,

GROUP 70

Francis S. Oda, AIA

cc: Mr. John Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

6771A/vs

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

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

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

January 8, 1985

Francis S. Oda, AIA
GROUP 70
926 Bethel Street
Honolulu, HI 96813

JAN 17 ...

GROUP 70

Dear Mr. Oda:

SUBJECT: EIS Preparation Notice, Proposed Kuilima Resort Expansion, Kahuku, Oahu, TMK: 5-6-3, 5-7-1, 5-7-3, and 5-7-6

Thank you for sending our office a preliminary copy of the archaeological reconnaissance survey report being prepared by Paul Rosendahl. Based on a review of the report and others pertaining to the project area, it is our opinion that the project area contains significant archaeological resources that are likely to be adversely affected by the proposed undertaking.

Whenever possible, significant sites should be avoided and preserved in place. Where this is not possible, further study should be done to mitigate the loss of data that will result from the proposed development project. We concur with the preliminary recommendations contained in the Rosendahl survey report.

Immediate protection measures should be taken to avoid further disturbance at Sites F4-14 and T-1. Further survey and testing at both sites is recommended; as well as preservation of the sites, if possible. Survey testing, and salvage excavations are recommended at Site T-6, if it is to be destroyed by construction. Additional testing is warranted at Site T-7. Further research is recommended at Site F4-15, and other areas around the marsh, if the sites are going to be affected by the proposed development. No further work is required at Sites T-2, T-5, T-3, and T-4.

An archaeologist should monitor construction activities to provide a supplementary assessment of the subsurface testing done for the reconnaissance and survey report. When previously unrecorded archaeological sites, including human bones, are discovered during construction, our office should be contacted at 548-7460. This condition should be stipulated in all consultant contracts and project work specifications. We will make arrangements with your office to make a field trip to the project area as soon as possible. We also look forward to receiving the complete reconnaissance report, including the historical section. We recommend that a historical map or maps be prepared which summarize the historical information pertinent to the interpretation of the archaeological remains at Kahuku.

Sincerely yours,

SUSUMU ONO
Chairperson and State Historic Preservation Officer

[illegible] AIA Inc
[illegible] AIA Inc
[illegible] AIA Inc
[illegible] AIA Inc
[illegible] AIA Inc

20 February 1985

Mr. Susumu Ono
Chairperson and State Historic Preservation Officer
State of Hawaii
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ono:

Subject: Kuilima Resort Expansion EIS Notice of Preparation

Thank you for your letter dated 8 January 1985. The applicant intends to implement the preliminary recommendations contained in the subsurface archaeological reconnaissance survey report prepared by Paul H. Rosendahl, Ph.D., Inc. (PHRI). Wherever possible, significant sites will be avoided and preserved in place. Where this is not possible, the applicant will conduct further studies to mitigate the loss of data that will result from implementing the proposed project. In addition, an archaeologist will be retained to monitor construction activities in order to provide a supplementary assessment of the subsurface testing conducted for the reconnaissance survey. Your office will be contacted when previously unrecorded archaeological sites, including human bones, are discovered during construction; this will be stipulated in all consultant contracts and project work specifications. Also as recommended, a map summarizing the historical information collected (from tax maps and maps on file at the State Survey Division) was prepared by the archaeological consultant and included in his survey report.

Very truly yours,

GROUP 70

Francis S. Oda, AIA

cc: Mr. John Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

6801A/ve

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAGAMI
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

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

November 14, 1984

Francis S. Oda, AIA
Group 70
924 Bethel Street
Honolulu, HI 96813

Dear Mr. Oda:

SUBJECT: EIS Preparation Notice, Proposed Kuilima Resort Expansion, Kahuku, Oahu
TMK: 5-6-03
5-7-01
5-7-03
5-7-06

Thank you for giving our office the opportunity to review the proposed undertaking. We concur with the plans for preliminary archaeological survey and testing contained in the EIS Preparation Notice, as follows:

An archaeological consulting firm has been contracted to conduct a literature and reconnaissance survey of the subject property. The reconnaissance survey field work will consist of various surface and subsurface tasks, including the testing recommended on the basis of earlier limited reconnaissance work conducted in 1977. The following specific field work tasks will be conducted:

a. Inspection of all existing subsurface exposures for presence of buried cultural deposits or features (especially burial features with skeletal remains);

b. subsurface testing of proposed drainage and stream alignments/realignments passing through both the Kuilima Resort and the adjacent shoreline area;

c. subsurface testing of previously identified "possible site" (Bishop Museum) to determine if exposed grey deposit is cultural in nature;

d. subsurface testing of Site F4-15 (Bishop Museum) to determine if exposed black layer represents evidence of prehistoric wetland agriculture;

e. subsurface testing of Site F4-14 (Bishop Museum) to clarify the nature, age, and historical extent of previously identified cultural deposits; and

f. general subsurface reconnaissance testing to sample remaining areas within the expansion project area.

The reconnaissance survey will determine the presence or absence of archaeological resources and will indicate both the general nature and variety of archaeological remains present and the general distribution and density of such remains. PHRI's final report will consist of: A full description of project findings; interpretation and evaluation of these findings; preliminary conclusions and evaluations of findings and, tentative recommendations for the scope and scale of such further work as might be necessary or appropriate. This final report will be appended to the EIS and a summary description of the report will be included in the EIS.

We recommend that our office review a draft of the final report, including an on-site inspection of the sites in the project area, prior to making recommendations for studying or preserving archaeological sites in the development area.

Sincerely yours,

RALSTON H. NAGATA
State Parks Administrator

cc: Department Land Utilization
Michael McElroy, Director

GEORGE R. ARIYOSHI
Governor of Hawaii

SUSUMU ONO, CHAIRMAN
Board of Land & Natural Resources

EDGAR A. HARASU
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

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

March 4, 1985

Mr. Francis S. Oda
Group 70
924 Bethel Street
Honolulu, Hawaii 96813

Group 70

Subject: Kuilima Resort Expansion EIS Notice of Preparation, Your Response Letter of February 20, 1985

Dear Mr. Oda:

We have reviewed your reasoning for not including a thorough examination of the aquaculture potentials that are lost due to the proposed development and must disagree. You make two points: one, that limitations on the future availability of fresh water will limit major freshwater aquaculture developments in the area and two, aquaculture industries are not as labor-intensive as resort use. For these reasons, you state aquaculture potentials need not be considered.

Regarding your first point, aquaculture includes production farms which utilize brackish and full-strength seawater. Several excellent examples exist in the immediate vicinity of the project and several more are in the planning stages. Marine Culture Enterprises is perhaps the most visible example of large-scale, technology-intensive saltwater aquaculture. This company is currently investing over $10 million in their Phase I project and will invest another $14 million in full-scale expansion, if Phase I reaches an acceptable level of profitability. There are other examples of higher technology, capital-intensive aquaculture at Keaohole Point on the Big Island. The resort development would remove many acres of prime mariculture (marine aquaculture) lands from commercial availability and considering the rural/agrarian nature of the community on the North Shore, we feel this loss should be assessed.

Your second point concerns the employment generated by aquaculture in comparison to that generated by resort use. Pond production systems generate about one direct job per 10 acres of land use; however, higher technology aquaculture (e.g., Marine Culture Enterprises) generates about one to three direct jobs per acre of land use (much greater than diversified agriculture which is being considered by the EIS). It is our understanding (DPED statistics) that intensive resort use generates about 30 direct jobs per acre of land use. For the Kuilima

Resort, with its large amounts of open space and low-density residential use, it is doubtful if the job generation would approach those amounts. Of course, both resort and aquaculture use would generate indirect jobs (e.g., service jobs) in the surrounding community. Therefore, we conclude that the job generating potential is significant and should be considered in the EIS preparation.

We appreciate your thoughtful response to our recommendations.

Sincerely,

Susumu Ono
Chairperson

Kazuo Kobayashi AIA, Inc
Francis S. Oda AIA Inc
Robert R. Weng AIA, Inc
Norman G.Y. Hong AIA, Inc
Cheryl D. Seu AIA, Inc

22 March 1985

Mr. Susumu Ono, Chairperson
Board of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ono:

Subject: Kuilima Resort Expansion EIS Notice of Preparation (NOP)

Thank you for the letter from your Department dated 4 March 1985. We have reviewed the Department's comments, and offer the following responses:

As you have noted, there are existing examples of aquaculture production farms in the vicinity of the project which utilize brackish and sea water. However, the cost of pumping brackish and sea water increases with distance inland thereby weakening the economic advantage presented by these systems.

In response to your second item, our comparison of employment generated by industry (aquaculture vs. tourism) will be limited to 236± acres of the property presently within the State Agriculture District. We have focussed our analysis to this area for the following reasons. A major factor in determining the feasibility of aquaculture is the cost of land, and the portion of the property designated State Urban District is likely to be unaffordable for any form of agricultural or aquacultural production. In addition, the applicant intends to preserve Punahoolapa Marsh, including the portion of the marsh within the State Agriculture District. At a maximum of 3 jobs per acre for aquaculture use, the 236 acre developable area will generate approximately 708 direct jobs. Al Lyman has estimated that 919 direct jobs will be generated during the operation of the resort; at 236 acres, this is the equivalent of 3.89 jobs per acre. Of course, the developable area for aquaculture using seawater is limited with distance away from the shoreline and the cost of using brackish or fresh water may be prohibitive factor in other systems.

Finally, adjacent resort and aquaculture activities are not incompatible. The presence of a nearby market for aquaculture products (the resort) reduces the cost of shopping, providing greater returns to the producer and making existing aquaculture developments more competitive with outside producers.

Very truly yours,

GROUP 70

Francis S. Oda, AIA

7036A/vs

cc: Mr. John Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

We support and encourage the proposal to irrigate the golf courses with treated effluent generated by the resort.

Sincerely,

SUSUMU ONO
Chairperson

cc: Dept. of Land Utilization
C&C of Honolulu

20 February 1985

Mr. Susumu Ono, Chairman
Board of Land and Natural Resources
State of Hawaii
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ono:

Subject: Kuilima Resort Expansion EIS Notice of Preparation

Thank you for your letter which arrived 20 December 1984. We have reviewed your comments and will address all of the concerns expressed in your letter except for the following issue regarding aquaculture feasibility. Please refer to the attached memorandum which makes reference to a plan for the management of the water resources between Malaekahana to Kaunala has been prepared (EDP Hawaii, Inc. Management Guide to the Water Resources of the Kahuku Water Management Area. Prepared for the Estate of James Campbell, Honolulu, Hawaii, November 1983). The latter report contains a comparison of various land uses including aquaculture, agriculture and resort, according to water use coefficients (million gallons of water used per acre per day). The comparison indicates that the aquaculture industry is by far the largest user of water per acre per day. The expansion of aquaculture activities within the proposed resort expansion area and in the region would place a greater demand on regional water resources, with the possible effect of limiting the expansion or continuation of other land uses. The report goes on to state that "Proper use of the water use coefficients coupled with expected land rentals and employment ratios for different land uses can be used as effective land asset management tools in the Estate's selection of alternatives for Kahuku." Although the exact number of people currently employed by existing aquacultural activities in the area is unknown, it is unlikely that it is comparable to labor intensive industries such as resort use. Based on the analysis briefly described above, we do not feel that a discussion of the aquaculture feasibility of the lands being proposed for resort expansion is necessary for inclusion in the Draft EIS.

Very truly yours,

GROUP 70

Francis S. Oda, AIA

cc: Mr. John Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

6768A/ve

Enclosure: Memorandum dated 7 December 1984 from Paul Low

EDP Hawaii, Inc.

MEMORANDUM

TO: Vince Shigekuni

FROM: Paul Low

DATE: December 7, 1984

SUBJECT: Dr. Willard T. Chow's letter
Conflict in Water Use

As discussed with you, the possibilities for a conflict in water use between the Kuilima Resort and the proposed Kahuku Agricultural Park and other agricultural activities are remote if Campbell Estate manages its water resources as outlined in "Management Guide to the Water Resources of the Kahuku Water Management Area," which was prepared for Campbell Estate in November 1983. As outlined in the guide with proper management of the resources by Campbell Estate, there would be ample water for the resort project and agricultural activities in Kahuku.

Richard Hirakami AIA Inc
Francis S. Oda AIA Inc
Roberta A. Kiaaina AIA Inc
Norman G. Hyland AIA Inc
Sheryl D. Seaman AIA Inc

20 February 1985

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

Dear Mr. Koizumi:

Subject: Kuilima Resort Expansion EIS Notice of Preparation (NOP)

Thank you for your letter dated 5 December 1984. We have reviewed your comments and will address all of the items listed in your letter in the environmental impact statement.

Very truly yours,

GROUP 70

Francis S. Oda, AIA

cc: Mr. John Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

6776A/ve

GEORGE R. ARIYOSHI
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS
825 MILILANI STREET
HONOLULU, HAWAII 96813

JOSHUA C. AGSALUD
DIRECTOR
ROBERT C. GILKEY
DEPUTY DIRECTOR

November 16, 1984

Group 70
Mr. Francis S. Oda, AIA
924 Bethel Street
Honolulu, HI 96813

Dear Mr. Oda,

This is to acknowledge receipt of the Environmental Impact Statement Notice of Preparation for the Proposed Kuilima Resort Expansion.

We have no comment to offer relative to this project.

Sincerely,

David H. Komori
Administrative Assistant

cc: Department of Land Utilization
Mr. Michael McElroy, Director

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

Group 70
Attn: Francis S. Oda
924 Bethel Street
Honolulu, Hawaii 96813

Gentlemen:

Thank you for notifying us that an environmental impact statement (EIS) is being prepared for expansion of the Kuilima resort. We have a number of concerns to express.

Aquaculture

The subject development is located in the vicinity of some of Hawaii's major aquaculture developments, i.e., Amorient Aquafarms ($4 million plus investment), Marine Culture Enterprises ($10 million plus investment), and the Proposed Tropical Aquaculture Center at Waialee (Estimated $18 million investment).

The project will utilize lands designated as primary and secondary sites for aquaculture development. Potential aquaculture projects could utilize fresh, brackish, or salt water.

The EIS should provide a discussion of the impact of the development's fresh water demands on future commercial freshwater aquaculture expansion of Amorient Aquafarms mauka of the Highway and the potential usage by research pond facilities at Waialee. In the same way, the EIS should provide a discussion of the potential impact of maximum freshwater usage by the development on brackish water availability to aquafarms in the area.

The EIS should provide a discussion of the aquaculture feasibility of the lands being utilized by the development, similar to the treatment provided to agriculture land use. The significance of the loss of agricultural-zoned land (which has clear primary and secondary potential for commercial aquaculture) should be thoroughly assessed.

Aquatic Resources

We suggest covering the following impacts, mitigation measures, and project details:

- effects of drawing the potable water which would be needed on flow of local streams and condition of Punahoolapa Marsh;
- disposition of treated wastewaters from the proposed sewage plant;
- provisions for separating suspended sediments from drainage water before release into the ocean;
- detailed description of effects on public access to and along the shoreline, of the five rights-of-way, and of other public recreational facilities which would be provided;
- plans for development of private and commercial beach and aquatic recreational operations (such as docks, jetski rentals, dune bike rentals, etc.); and
- discussion of effects on public recreation in the analysis of social characteristics.

Biota

We suggest that the statement address the following points:

Under the heading of "Drainage," sub-heading "Water Quality of Punahoolapa Marsh" expand the study of possible pollutants entering Punahoolapa to not only run-off drainage from the golf course, but also from other drainages developed by the expansion and from vehicular parking areas and effects or impact these drainages would have on the flora and fauna within Punahoolapa Marsh.

The impact on fauna at Punahoolapa Marsh caused by the increase in human activities, including pets from adjacent condominiums.

The management and maintenance of Punahoolapa Marsh and protecting the integrity of the Marsh for flora and fauna, and access to the Marsh for governmental agencies to monitor flora and fauna of the Marsh.

Water Resources

We understand the water requirement for this extensive development of the proposed Kuilima Resort expansion will be provided by the development of the Opana (Kawela) well field which shall include one production well, plus one standby well unit. The applicant should obtain the necessary drilling permit for these wells from this department, and provide us with the drilling log.

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

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

In reply, please refer to:
EPHSO 55

December 5, 1984

Leslie S. Katsubara
DEC 1984
GROUP 70

Mr. Francis S. Oda, AIA
GROUP 70
924 Bethel St.
Honolulu, Hawaii 96813

Dear Mr. Oda:

Subject: Request for Comments on the Environmental Impact Statement (EIS) Notice of Preparation for the Proposed Kuilima Resort Expansion

Thank you for allowing us to review and comment on the subject proposed EIS. We submit the following comments:

Wastewater

The EIS should include a discussion on the provisions of Chapter 57, "Private Wastewater Treatment Works and Individual Wastewater Systems." Any future expansion of Kuilima beyond the existing capacity of the oxidation pond must take into consideration the viable alternatives permitted by Chapter 57.

Drinking Water

As noted, this project will require substantial commitment of water resources to support the activities. Please be advised that all new water sources developed to serve potable water to a public water system as defined by Chapter 20, Title II, Administrative Rules, must be approved by the Director of Health prior to their use to serve potable water. Such approval is based upon the satisfactory submittal of a preliminary engineering report satisfactorily addressing all concerns as set down by Section 11-20-29 of Chapter 20. This report must be prepared by a registered professional engineer and bear his or her seal upon submittal.

Noise

1. The proposed project must be designed to comply with the provisions of Title II, Administrative Rules Chapter 43, Community Noise Control for Oahu. Noise from equipment, such as air conditioning/ventilation units, exhausts, water pumps and sewage pump stations, must be attenuated to meet the allowable noise levels of the regulations based on zoning districts.

2. The noise from activities associated with the use of recreational facilities, such as parks and stables, can have adverse effects in terms of annoyances on adjacent residents and hotel guests. Areas planned for such usage should be designed to minimize possible noise impacts.

3. Noise associated with commercial and resort activities, including delivery and service, refuse collection and bus traffic may result in some problems in terms of annoyances to residential areas. These concerns should be addressed with some mitigative measures.

4. Construction activities must comply with the provisions of Title II, Administrative Rules Chapter 43, Community Noise Control for Oahu:

   a. The contractor must obtain a noise permit if the noise levels from the construction activities are expected to exceed the allowable levels of the regulations.

   b. Construction equipment and on-site vehicles or devices requiring an exhaust of gas or air must be equipped with mufflers.

   c. The contractor must comply with conditional use of the permit as specified in the regulations and the conditions issued with the permit.

5. Traffic noise from heavy vehicles traveling to and from the construction site must be minimized in residential areas and must be minimized in residential areas and must comply with the provisions of Title II, Administrative Rules Chapter 42, Vehicular Noise Control for Oahu.

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. [illegible]
Deputy Director for
Environmental Health

cc: Mr. Michael McElroy

GEORGE R. ARIYOSHI
GOVERNOR

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

OFFICE OF THE SUPERINTENDENT

Francis M. Hatanaka
Acting Superintendent

November 30, 1984

Mr. Francis S. Oda
Group 70
924 Bethel Street
Honolulu, Hawaii 96813

Dear Mr. Oda:

SUBJECT: EIS Preparation Notice for Kuilima Resort Expansion

Our review of the subject EIS indicates that the following student enrollment may be generated.

SCHOOL	GRADE	APPROXIMATE ENROLLMENT
Kahuku High & Elementary School	K-6	80 - 150
	7-12	50 - 100

Our estimates are based on the proposed development of 90 - 100 affordable housing units, 2,063 apartment units and 1,450 additional hotel rooms.

Kahuku High and Elementary is currently overcrowded and is being remaster planned to provide for future growth. Our ability to provide classrooms to accommodate the projected student increase is subject to the availability of funds to acquire additional land and to construct classrooms.

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

Sincerely,

Francis H. Hatanaka
Acting Superintendent

FMH:jl

cc: V. Honda
K. Takata, Windward District
M. McElroy, CAC

AN EQUAL OPPORTUNITY EMPLOYER

Norman Hatada AIA Inc
Francis S Oda AIA Inc
Robert N L Wong AIA Inc
Norman G Y Hong AIA Inc
Sheryl B Seaman AIA Inc

20 February 1985

Mr. Francis M. Hatanaka
Superintendent
State of Hawaii
Department of Education
P.O. Box 2360
Honolulu, Hawaii 96804

Dear Mr. Hatanaka:

Subject: Kuilima Resort Expansion EIS Notice of Preparation

Thank you for your letter of 30 November 1984. We appreciate the information provided and will incorporate it into the Draft EIS.

Very truly yours,

GROUP 70

Francis S. Oda, AIA

cc: Mr. John Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

6766A/ws

Our primary concern is the identification of any adverse impacts upon the existing agricultural activities in and around the project site and the long-term effect that the project may have on potential agricultural activities in the vicinity of the project. We look forward to reviewing the draft EIS.

Thank you for the opportunity to comment.

Sincerely,

JACK K. SUWA
Chairman, Board of Agriculture

cc: DLU

Francis S. Oda AIA Inc
Daniel E. Whang AIA Inc
Norman Quon AIA Inc

20 February 1985

Mr. Jack K. Suwa, Chairman
Board of Agriculture
State of Hawaii
Department of Agriculture
P.O. Box 22159
Honolulu, Hawaii 96822

Dear Mr. Suwa:

Subject: Kuilima Resort Expansion EIS Notice of Preparation

Thank you for your letter of 4 December 1984. We have reviewed your comments and will provide further discussion of the issues identified in your letter. Please note that since the distribution of the EIS Notice of Preparation, we have learned that there are only four (4) farmers on the east end of the project site and two (2) farmers on the western side, for a total of six located within the entire Kuilima Resort expansion area.

Very truly yours,

GROUP 70

Francis S. Oda, AIA

cc: Mr. John Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

6767A/vs

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL

NOV 29 1984

GROUP 70

HIENG

Group 70
Attn: Mr. Francis S. Oda, AIA
924 Bethel Street
Honolulu, Hawaii 96813

Gentlemen:

EIS Notice of Preparation for the Proposed
Kauilima Resort Expansion

Thank you for providing us the opportunity to review the proposed project, "Kuilima Resort" Environmental Impact Statement Notice of Preparation (NOP).

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

Yours truly,

JERRY M. HATSUDA
Major, HANG
Comdr & Engr Officer

cc: Dept of Land Utilization
(Mr. Michael McElroy, Director)
City and County of Honolulu

...RTMENT OF TRANSPORTATION S ... S

CITY AND COUNTY OF HONOLULU

HONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

EILEEN R. ANDERSON
MAYOR

ANDREW T. CHANG
MANAGING DIRECTOR

WILLIAM A. BONNET
DIRECTOR

DAIL RHEE
DEPUTY DIRECTOR

November 16, 1984 TE11/84-4246

RECEIVED
NOV 19 1984
GROUP 70

Mr. Francis S. Oda, AIA
Group 70
924 Bethel Street
Honolulu, Hawaii 96813

Dear Mr. Oda:

Subject: EIS Notice of Preparation for the Proposed Kuilima Resort Expansion

A traffic study should be conducted for this project. The study should address the following concerns:

1. The amount of traffic to be generated by the project and its impact on the surrounding streets. A capacity analysis for the critical intersections servicing the project is necessary for the morning and afternoon peak hours.

2. The adequacy of the off-street parking spaces that will be provided to support the proposed use.

3. The need for street improvements on the surrounding street system to support the proposed use.

Since the project fronts a State facility, this request should also be transmitted to the State Department of Transportation for their review.

If there are any questions, please contact Kenneth Hirata of our Traffic Engineering staff at 527-5009.

Sincerely,

WILLIAM A. BONNET
Director

...s, AIA Hi
...s, AIA Hi
...AIA Hi
...AIA Hi
...AIA Hi

23 November 1984

Mr. William A. Bonnet, Director
Department of Transportation Services
City and County of Honolulu
Honolulu Municipal Building
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Bonnet:

Subject: Kuilima Resort Expansion EIS Notice of Preparation

Thank you for your letter of 16 November 1984. As suggested, the traffic impact study will address the amount of traffic to be generated by the project and the impact of the increase in traffic on the surrounding streets. A capacity analysis will also be conducted for critical intersections servicing the project. The traffic consultants, Austin, Tsutsumi and Associates, Inc. (ATA), have determined that there is no morning peak hour traffic that can be distinguished, therefore, a capacity analysis for only the afternoon peak hour traffic will be provided. ATA's traffic impact study will also address the possible street improvements on the surrounding street system that will be required to support the proposed resort, such as channelization of West Kuilima Drive and the construction of deceleration/storage lanes at Kuilima and West Kuilima Drives.

Off-street parking that will meet the requirements of the CZC/LUO will be provided on site.

We appreciate your comments on the Notice of Preparation.

Very truly yours,

GROUP 70

Francis S. Oda, AIA

cc: Michael McElroy, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Mr. Randall Okaneku, Austin, Tsutsumi & Associates

6671A/vs

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
DIVISION OF PUBLIC WORKS

LETTER NO. (P)1594.4

Group 70
924 Bethel Street
Honolulu, Hawaii 96813

Attention: Mr. Francis S. Oda, AIA

Dear Mr. Oda:

Subject: EIS Preparation Notice for Kuilima Resort Expansion

We have reviewed the subject document and have no comments to offer.

Very truly yours,

TEIJANE TOMINAGA
Acting State Public Works Engineer

CT:jk
cc: Department of Land Utilization,
City and County of Honolulu

GEORGE R. ARIYOSHI
GOVERNOR

JACK K. SUWA
CHAIRMAN, BOARD OF AGRICULTURE

SUZANNE D. PETERSON
DEPUTY TO THE CHAIRMAN

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 So. King Street
Honolulu, Hawaii 96814

Mailing Address:
P. O. Box 22159
Honolulu, Hawaii 96822

GROUP 70

December 4, 1984

Group 70
924 Bethel Street
Honolulu, Hawaii 96813

Attention: Mr. Francis S. Oda, AIA

Dear Mr. Oda:

Subject: Environmental Impact Statement (EIS)
Notice of Preparation for the Proposed Kuilima
Resort Expansion

The Department of Agriculture has reviewed the subject Preparation Notice and finds that the following topics have been noted for further discussion in the EIS:

(1) Possible use of the Opana (Kawela) Well field for initial and full development water needs (pages 18 and 24). Our concern here is that any potential conflict in regional water usage between the proposed fully-developed project and the irrigation water demands of the planned Kahuku Agricultural Park and other agricultural water users in the vicinity be identified and appropriate mitigative measures be proposed as necessary.

(2) Possible use of treated effluent generated by the resort to irrigate a golf course (page 19).

(3) Evaluation of potential land use changes directly attributable to the development of the resort (page 21).

(4) Relocation of six (6) farmers on the east end of the project site (page 22).

(5) The agricultural feasibility for lands within the project site (page 28).

POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

1455 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96814 AREA CODE (808) 943-3111

EHLERT N. ANDERSON
MAYOR

DOUGLAS G. GIBB
CHIEF

WARREN FUJIMURA
DEPUTY CHIEF

OUR REFERENCE EPS-GF

November 15, 1984

Mr. Francis S. Oda, AIA
Group 70
924 Bethel Street
Honolulu, Hawaii 96813

Dear Mr. Oda:

We have reviewed your environmental impact statement notice of preparation for the proposed Kuilima resort expansion, which was forwarded to us on October 31. We have no specific suggestions to offer for the preparation of the EIS.

However, we have two general concerns that we would like kept in mind as specific plans for the project are developed. First, we would like to ensure that roadways and parking facilities are designed to minimize traffic congestion and potential safety hazards. Second, we would like to ensure that buildings and other facilities are designed with adequate attention to the principles of environmental security to minimize opportunities for criminals.

Sincerely,

DOUGLAS G. GIBB
Chief of Police

By Edwin Ross
EDWIN ROSS
Assistant Chief of Police
Administrative Bureau

cc: Michael McElroy, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

20 February 1985

Mr. Douglas G. Gibb
Chief of Police
Police Department
City and County of Honolulu
1455 South Beretania Street
Honolulu, Hawaii 96814

Dear Mr. Gibb:

Subject: Kuilima Resort Expansion EIS Notice of Preparation (NOP)

Thank you for your letter dated 15 November 1984. We appreciate the concerns expressed (not directly related to the NOP) and have relayed them to the applicant.

Very truly yours,

GROUP 70

Francis S. Oda, AIA

cc: Mr. John Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

6773A/vs

DEPARTMENT OF PUBLIC WOR.
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

GROUP 70

ENV 84-347

November 21, 1984

Mr. Francis S. Oda, AIA
Group 70
924 Bethel Street
Honolulu, Hawaii 96813

Dear Mr. Oda:

Re: EIS Notice of Preparation for the
Proposed Kuilima Resort Expansion

In response to your letter of October 31, 1984, regarding the subject project, we request that the following areas of concern be discussed.

1. Maintenance of the drainage system
2. Erosion control
3. Operation and maintenance of the wastewater collection system, treatment plant, and disposal system.

Me ke aloha pumehana,

for MICHAEL J. CHUN
Director and Chief Engineer

cc: Dept. of Land Utilization

Kaiwo Jenkins AIA Inc
Francis S Oda AIA Inc
Robert A L Wong AIA Inc
Norman G Y Hong AIA Inc
Sheryl B Seaman AIA Inc

20 February 1985

Mr. Russell Smith
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Chun:

Subject: Kuilima Resort Expansion EIS Notice of Preparation (NOP)

Thank you for your letter dated 21 November 1984. As requested, the concerns identified in your letter will be discussed in the EIS.

Very truly yours,

GROUP 70

Francis S. Oda, AIA

cc: Mr. John Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

6783A/ws

DEPARTMENT OF LAND UTILIZAT
CITY A. J COUNTY OF HO..OLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 523-4432

EILEEN R. ANDERSON
MAYOR

GROUP 70

MICHAEL M. MCELROY
DIRECTOR

ROBERT O. JONES
DEPUTY DIRECTOR

(JDN)

December 7, 1984

Mr. Francis S. Oda, AIA
Group 70
924 Bethel Street
Honolulu, Hawaii 96813

Dear Mr. Oda:

Environmental Impact Statement (EIS) Preparation Notice
for the Proposed Kuilima Resort Expansion
Kahuku, Koolauloa, Oahu; Tax Map Keys: 5-6-3, 5-7-3, 5-7-6

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

1. Reference: Page 2, IV. B. Major Geographical Features; Page 3, Figure 1; and Page 4, Figure 2

   Comment: Major geographical features, such as Punahoolapa Marsh and the sand dunes, should be identified on both the Base Map (Fig. 1) and the Aerial Photo (Fig. 2).

2. Reference: Page 6, IV. E. Existing Land Use Classification; Page 7, Figure 3; and Page 29, Public Access

   Comment: Specific zoning districts should be shown on a map as are the Development Plan (D.P.) designations. Also, the 300 foot D.P. designated shoreline setback (established by Ordinance No. 83-9) should be mentioned under Section IV. E. and identified on the Existing D.P. map (Fig. 3).

3. Reference: Page 11, Paragraph 2, V. Historical Background and Objectives and Page 27, VI. C. 1. Soils

   Comment: A "use management plan" should be proposed to protect the "diverse physical features" (i.e. the marsh and sand dunes) and the "scenic natural vegetation."

4. Reference: Page 14, VI. A. Technical

   Comment: Will design and construction controls be employed to ensure consistency and quality throughout all the development areas?

5. Reference: Page 18, Potable Water and Sewage Treatment Plant

   Comment: The water supply and sewage disposal systems should be shown on a site plan map in the EIS.

6. Reference: Page 19, Offsite Housing and Page 22, Relocation of Lessees

   Comment: The purpose and need for providing offsite housing should be explained. Will it be used to relocate the present lessees?

7. Reference: Page 29, Public Access

   Comment: The proposed Development Plan amendment to reduce the present 300-foot shoreline setback building restriction to 100 feet should be evaluated in the EIS with specific regards to shoreline erosion and high wave action. Aerial photos of the area taken in past years should be presented and examined in the EIS. It is recommended that Beach Changes on Oahu as Revealed by Aerial Photographs by Dennis Hwang (July 1981, Technical Supplement No. 22, Coastal Zone Management Project) be consulted.

8. Reference: Page 29, Recreation

   Comment: Proposed recreational uses and activities, other than golf, should be discussed. Activities such as horseback riding and dune buggy/cycle riding will have to be managed in order to protect sensitive areas like the sand dunes. This should be included in a "use management plan" as mentioned under Item No. 3.

If there are any questions, please contact John Nakagawa of our staff at 523-4648.

Very truly yours,

MICHAEL M. McELROY
Director of Land Utilization

MMM:sl

Richard Hibbard AIA Inc
Francis S Oda AIA Inc
Roland A I Wong AIA Inc
Norman G Y Hong AIA Inc
Sheryl B Seaman AIA Inc

25 March 1985

Mr. Alvin Pang, Director
Department of Housing and Community Development
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Pang:

Subject: Kuilima Resort Expansion EIS Notice of Preparation (NOP)

Thank you for the letter from your Department dated 7 December 1984. We have reviewed the Department's comments, and offer the following responses:

1. The impact of the project on public facilities/utilities will be discussed in the EIS.

2. As you noted in your letter, rezoning of the property will be sought, upon approval of the DP amendments, in order to be compatible with the amended DP designations.

3. No residential units are proposed within the resort expansion. However, as noted in the Department's letter, the applicant is proposing the construction of 90 to 100 affordable units in Kahuku.

   The DHCD's objective of capturing some of the economic benefits of the project for the general public is recognized. The major, direct economic benefit to the community as a result of the project, will be the creation of new employment opportunities during construction and operation. The proposed project will also stimulate other economic activities, both inside and outside of the region. The majority of these economic activities are expected to be related to food and beverage, retail trade and transportation services. Well established visitor attractions within the Region, such as the Polynesian Cultural Center and Waimea Valley Park, would be among the most likely to benefit from the increased number of Kuilima visitors. Although the relative distribution of sales is smaller, the visitor industry also would stimulate the agricultural, manufacturing, wholesaling and service sectors. The likelihood of Regional residents attaining a share of the business opportunities will be enhanced

by providing technical and financial assistance. The applicant is also working towards assisting regional residents in capturing a share of the business opportunities by providing technical assistance and financial information.

In summary, the applicant is committed to distributing the economic benefit of the proposed resort expansion by attempting to formulate a plan that will ensure that residents of the Region can qualify for jobs generated by the resort. Greater employment will improve resident economy and benefit existing and future regional businesses.

Very truly yours,

GROUP 70

Francis S. Oda

Francis S. Oda, AIA

6796A/vs

cc: Mr. John Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

ARTMENT OF PARKS AND RECRE

CITY AND COUNTY OF HONOLULU

450 SOUTH KING STREET

December 13, 1984

Group 70
924 Bethel Street
Honolulu, Hawaii 96813

Attention: Mr. Francis S. Oda, AIA

Gentlemen:

Subject: Environmental Impact Statement (EIS) Notice of Preparation
Kuilima Resort Expansion - Kahuku
TMK: 5-6-03, 5-7-01, 5-7-03 and 5-7-06

We have reviewed and determined that the EIS Notice of Preparation for the Kuilima Resort Expansion is acceptable.

The resort and public recreational needs of the proposed resort expansion have been adequately addressed.

Thank you for the opportunity to comment on the EIS.

Sincerely yours,

Emiko I. Kudo

(Mrs.) EMIKO I. KUDO, Director

EIK:vc

cc: DLU

22 February 1985

Mr. John Nakagawa
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Nakagawa:

Subject: Kuilima Resort Expansion EIS Notice of Preparation (NOP)

Thank you for the Department of Land Utilization's letter dated 7 December 1984. We have reviewed your comments, and offer the following responses:

1. A new base map showing major geographical features will be included in the EIS. For graphic clarity, a separate map will be included to show the approximate location of the sand dunes. As recommended, we have tried to identify the major geographical features on the aerial photo, but found it dark and difficult to read after being reproduced, therefore, this suggestion cannot be implemented in the EIS.

2. A figure showing the existing zoning of the project site will be included in the EIS. The County's Development Plan map did not show the 300-foot setback, therefore our figure did not show the setback.

3. While formal "use management plans" for the marsh, sand dunes and vegetation are not being proposed, the EIS will describe: the proposed improvement of the Punahoolapa Marsh as a waterbird habitat; measures to mitigate development on secondary sand dunes; and measures to mitigate the removal of any vegetation on site.

4. Consistency and quality in design and construction will be maintained by the applicant.

5. A figure showing the proposed water distribution system will be included in the EIS. The exact location for the proposed STP is not as yet determined and cannot be shown at this time. In the event that a site is selected for the STP prior to publication of the Revised EIS, it will be indicated on a map and included in the EIS.

6. The proposed offsite housing will offer another housing alternative for future employees of the resort. Existing tenants are paying low rents and have been aware for some years of eventual termination of their leases. It is intended that lessees will have ample time to relocate off-site.

7. As recommended, Beach Changes on Oahu as Revealed by Aerial Photographs by Dennis Hwang (July 1981, Technical Supplement No. 22, Coastal Zone Management Project) was consulted in evaluating the effect of reducing the existing 300-foot setback between Kawela Bay and Kuilima Point (also referred to as Kalaeokamanu Point) to 100 feet. In Hwang's study it was concluded that the vegetation line at Kawela Beach (site of hotels H-1, portion of H-2) remained stable or grew seaward between 1949 and 1978, the years covered by the aerial photographs analyzed. The position of the vegetation line at Turtle Bay remained stable for most of this same period. Although incidents of storms and erosion at these beaches have been documented, the maximum loss of vegetation line at any of the transects taken between Kawela Bay and Kuilima Point was 11 feet. This is well within the proposed 100-foot setback. In addition, please note that the applicant is proposing an amendment to the maximum height limitations set forth in these areas by the existing Development Plan. The proposed addition of 20 feet to the height limitations will allow leaving the space between elevation to 20 feet above mean sea level for tsunami runup. No habitable spaces will be built in this space.

8. Proposed recreational uses and activities, other than golf will be discussed in the EIS. We will especially note those uses which may impact the sand dunes.

Very truly yours,

GROUP 70

Francis S. Oda, AIA

6795A/ve

cc: Mr. John Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

DEPARTMENT OF HEALTH
CITY AND COUNTY OF HONOLULU
1455 S. BERETANIA STREET
HONOLULU, HAWAII 96814

FILEEN N. ANDERSON
MAYOR

NOV 26 1984
GROUP 70

November 21, 1984

Mr. Francis S. Oda, AIA
Group 70
924 Bethel Street
Honolulu, Hawaii 96813

Dear Mr. Oda:

Subject: EIS Notice of Preparation for the Proposed
Kuilima Resort Expansion

Thank you for your communication dated October 31, 1984 regarding the proposed Kuilima Resort expansion. The information you provided is appreciated.

Health issues relating to projected environmental impact would come under the State Department of Health. We have no comment to offer at this time.

Sincerely,

ANNA MARIA BRAULT, M.D.
Director

cc: Mr. Michael McElroy, Director
Department of Land Utilization
City and County of Honolulu

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE 523-4181

JOSEPH K. CONANT
DIRECTOR

CHARLES K. TOMIOKA
DEPUTY DIRECTOR

December 7, 1984

Group 70
924 Bethel Street
Honolulu, Hawaii 96813

Attention: Francis S. Oda, AIA

Gentlemen:

Subject: EIS Notice of Preparation for the Proposed Kuilima Resort Expansion
TMK: 5-6-03; 5-7-01; 5-7-03; 5-7-06
Area: [illegible] Acres

Thank you for the opportunity to review and comment on the proposed Kuilima Resort Expansion.

The proposed expansion would add 1,450 hotel units; 2,063 apartment units, commercial space, golf club, parks, stable and a sewage treatment plant. A development as extensive as this would have a significant impact on public facilities/utilities and should be designed to minimize the negative aspects of this impact as much as possible. The creation of additional jobs will help stimulate job opportunities for residents on Oahu. This should help alleviate the unemployment situation somewhat over the future years. In this regard, the potential employees will require housing and the preparation notice states that "90 to 100 affordable units will be provided offsite, preferably in Kahuku, where adequate infrastructure and commercial services could be provided. The applicant is negotiating with Campbell Estate to provide land for these units."

We also note that the Resort designation at the Kawela Bay area (Figure 3) is designated R-6 residential (70+ acres) in the County's Zoning Map. As you know, a rezoning of the subject parcel is required since an R-6 designation does not permit any hotel units.

The DHCD's policy is to recommend that at least ten (10) percent of all residential units or their equivalent, in this instance 10% of the land, be set aside for low- and moderate-income families. This policy applies

to all zone change, cluster and planned development-housing projects. Establishing such a guideline is a reasonable means of recapturing the economic benefit to be conferred to a development by favorable land use allocation and distributing that benefit for the general public benefit.

Please have the developer contact Mr. James Miyagi of this Department at 523-4264.

We will retain the draft EIS for our files.

Sincerely,

JOSEPH K. CONANT

5. Land Use. The decrease of the shoreline setback to 100 feet from 300 feet is of major concern. The effects of this should be discussed in detail especially as it regards the loss of unique environments in the area. This change in setback may also have an adverse effect upon public access to the shoreline area. A discussion of how beach rights-of-way and free public parking areas are to be provided should be discussed.

6. Public Schools. The Department of Education has indicated that existing facilities are not available but are planned or programmed. Some estimates of the increase in school-age population should be made to anticipate enrollment and to estimate needed facilities.

7. Transportation. We are concerned with the transportation impacts and how highway congestion is to be mitigated, particularly since the State DOT has no immediate plans for highway widening except for the Haleiwa Bypass. Incremental traffic projections should be provided.

8. Alternatives. Market studies for each of the alternatives should be discussed. One alternative, which is to develop to what is currently allowable in the development plan, seems to be excluded. This alternative could be termed the "DP allowable" option which would develop 2000 resort and apartment units with the shoreline setback of 300 feet. A full study of this option should be discussed in greater detail. The EIS should discuss why the developer feels this option is not viable.

Thank you for allowing us the opportunity to comment on your Environmental Impact Statement Notice of

Preparation for the Kuilima Resort Expansion. If there are any questions, you may contact me at 527-6067.

Sincerely,

Bennett W. Mark

BENNETT W. MARK
Planner

APPROVED

W. T. Chow

WILLARD T. CHOW

cc: Department of Land Utilization

22 February 1985

Mr. Bennett W. Mark
Department of General Planning
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Mark:

Subject: Kuilima Resort Expansion EIS Notice of Preparation (NOP)

Thank you for your letter dated 3 December 1984. We have reviewed your comments and questions, and offer the following responses:

1. As recommended, more information regarding the proposed off-site housing will be provided in the EIS.

2. All of the issues described in item 2 of your letter will be addressed in the socio-economic impact study being prepared by Community Resources, Inc., and A. Lono Lyman, Inc.. This study will be appended to the EIS.

3. The impact of the proposed resort expansion on regional potable water resources will be described in the EIS.

   The impact of surface runoff from the project site on Punahoolapa Marsh was studied by Dames & Moore and will be summarized in the EIS. Since nearly all of the eastern portion the project site drains into the Punahoolapa Marsh, runoff from the the proposed project should not have any effect on the Campbell National Wildlife Reserve.

4. The effects of the removal of the existing waste stabilization pond on waterbirds was studied by Dr. Andrew Berger and will be appended to the EIS.

5. A map showing the vegetation on-site, including the shorelines, will be included in the EIS.

   A description of the proposed beach rights-of-way and associated parking will be provided in the EIS.

6. Estimates of student population to be generated by the proposed Resort expansion, based on factors provided by the Department of Education, will be included in the EIS.

7. Traffic impacts are being studied by Austin, Tsutsumi and Associates, Inc., and their report will be appended to the EIS.

8. The alternative suggested, development to current allowances in the Development Plan, is being considered and was referred to as "No action" in the EIS NOP. This alternative and others mentioned in the NOP will be discussed in the EIS.

Very truly yours,

GROUP 70

Francis S. Oda, AIA

6794A/ve

cc: Mr. John Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

A plan to ensure that residents of the Region can qualify for construction and operating jobs generated by development at the Resort, encompassing training and related mitigation measures, is still being formulated. The possible elements of a such a plan include: coordination of training needs with existing publicly funded training programs; provision of job opportunities information and counseling towards appropriate training; coordination of training efforts with anticipated construction period job opportunities; provision of a centralized source of information available to both high school students and residents of the Region concerning the diverse spectrum of hotel and visitor industry job opportunities; and provision of funding of scholarships for local residents to study for middle- and upper-management positions.

Housing pressures from employees desiring to move into the Region will be greatly reduced if the job training programs (described above) succeed in maximizing resort employment for residents already housed in the region. Other potential mitigations, include the proposed construction of 90 to 100 employee housing units in Kahuku, the establishment of an employee housing rental information pool, and the maintenance of rental housing. The purpose of the rental information service would be to assist employees in their search for suitable rental housing located in the Region. Although providing rental housing will be a burden to the applicant and/or resort operators, this may be the only way to meet the housing needs for some employees, especially younger employees. To this end, the applicant may seek assistance from the Kahuku Housing Corporation, or Kahuku Village Association, in making some of their units available for interim rentals for new employees, with preference to returning area residents.

Very truly yours,

GROUP 70

Francis S. Oda, AIA

cc: Mr. John Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

6785A/ve

RTMENT OF GENERAL PLANNI
CITY AND COUNTY OF HONOLULU
[illegible] SOUTH KING STREET

GROUP 70

DGP11/84-4033

December 3, 1984

Group 70
924 Bethel Street
Honolulu, Hawaii 96813

Attention: Francis S. Oda, AIA

Gentlemen:

Kuilima Resort Expansion Environmental Impact Statement Notice of Preparation

In response to your request for review and comment of your Environmental Impact Statement Notice of Preparation, the Department of General Planning has prepared the following comments:

1. Housing. More information is needed regarding the provision of off-site housing. If any arrangement is anticipated to be made with the Hawaii Housing Authority or with the City Department of Housing and Community Development, it should be stated.

   A definition of "affordable housing" should be made. This should specifically address the current definitions of "low income," "moderate income," or "gap group" housing. Whether these affordable houses will be made available on a fee or lease basis should be stated.

   An assessment of the current housing situation in the Koolauloa area would be appropriate. Will the housing provided be only for workers at the hotel? Also, is there enough housing in the area to provide for housing for the workers at the hotel at present and in the future? Or, is there a current housing shortage in the area, and what will the projected housing shortage be?

   Will this housing program have any effect upon the plans for rehabilitation of Kahuku Village? Are there any vacant housing units or lots available for the future employees at the City-sponsored housing in Kahuku?

2. Economic and Social. More detail should be provided on estimates of jobs which will be created and the resultant increase in population. Population increases should be compared with the City Development Plan projections for Koolauloa and the North Shore. Some discussion should also be made regarding the current unemployment situation in the Koolauloa and North Shore areas and whether the proposed development would reduce this unemployment or simply bring in workers from elsewhere. If there are currently unemployed residents in the general area, will there be an attempt to provide jobs to these residents and to create training programs for these residents so that they can develop skills to work at the hotel complex? A discussion of the utilization of community training programs should be made and consideration should be given to the use of such organizations as the North Shore Career Training Corporation.

3. Environmental. The increase of water consumption is of major concern. How does the project's water consumption proposal affect the Board of Water Supply's plans for transporting water from the Koolauloa area to Honolulu? The effects of water usage upon plans for a Kahuku Agriculture Park should also be discussed.

   Drainage is also a concern. The drainage of nutrients and herbicides into the marsh area may be a problem and should be discussed further. The effects upon the Campbell National Wildlife Reserve should also be discussed.

4. Fauna. The waste stabilization pond is now being used as an open water habitat. The effects of this removal should be discussed in detail.

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
NOV 28 1994

RECEIVED
NOV 30 1994
GROUP 70

Mr. Francis S. Oda, AIA
Group 70
924 Bethel Street
Honolulu, Hawaii 96813

Dear Mr. Oda:

The Service has reviewed the Notice of Intent to Prepare an Environmental Impact Statement (NOI) for the proposed Kuilima Resort expansion project, Oahu. The NOI adequately covers the range of issues within our jurisdiction which need to be addressed in the impact statement.

We are particularly pleased to note the improvements planned for Punahoolapa Marsh. Completion of these enhancement measures coupled with perpetual management to protect the native ecosystem character of the marshlands will provide significant benefits to both endangered Hawaiian waterbirds and to migratory waterfowl. We look forward with excitement to implementation of the proposed plans for the marsh. Please contact Mr. James Krakowski, Refuge Manager for Wetlands (phone 546-3608) or Mr. John Ford, Fishery Biologist (phone 546-7530) to arrange for further meetings with your staff. I assure you that my staff will contribute maximum effort to assist you.

Thank you for providing us with this opportunity to comment.

Sincerely,

Allan Marmelstein

Allan Marmelstein
Pacific Islands Administrator

cc: RD, FWS, Portland, OR (AHR/AWR)
NMFS-WPPO
PODCO-O, Honolulu
PODED-PV, Honolulu
EPA, San Francisco
DLO, Honolulu

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CITY COUNCIL

CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII 96813 / TELEPHONE 523-4000

PATSY T. MINK

November 28, 1984

Francis S. Oda, AIA
Group 70
924 Bethel Street
Honolulu, Hawaii 96813

Dear Mr. Oda:

Re: Comments on the EIS Notice of Preparation for the Proposed Kuilima Resort Expansion

Thank you for your letter of October 31, 1984, regarding the subject project.

The expansion plans for the Kuilima resort will creat a substantial need for affordable housing for future employees. The EIS Notice of Preparation, page 19, indicates that 90 to 100 affordable houses will be provided off-site of the project.

It is suggested that every effort be made to increase the number of affordable houses to be built so as to more closely meet the projected employee housing demand.

Very truly yours,

PATSY T. MINK
CHAIR
CITY COUNCIL

cc: Michael McElroy, Director
Department of Land Utilization

PTM:jp

RECEIVED
DEC 03 1984
GROUP 70

Kazunobu Hamada AIA Inc
Francis S Oda AIA Inc
Robert K L Wong AIA Inc
Norman G Y Hong AIA Inc
Sheryl R Seaman AIA Inc

20 February 1985

Ms. Patsy T. Mink, Chair
City Council
City and County of Honolulu
Honolulu, Hawaii 96813

Dear Ms. Mink:

Subject: Kuilima Resort Expansion EIS Notice of Preparation (NOP)

Thank you for your letter dated 28 November 1984. The applicant shares your concern that there should be affordable housing available for future employees of the project. It is the opinion of the socio-economic consultants, Community Resources, Inc., and A. Lono Lyman, Inc. that there is sufficient labor pool in the region so that the housing demand for new in-migrants into the region will be minimal or will be met by some other measure which will be described later. Presently, of the Turtle Bay Hilton's 488 employees, 96.93% are from the Region (Kaaawa, Hauula, Laie, Kahuku, Haleiwa and Waialua). Only 3.07% or 15 employees are from other areas. Upon reopening of the Turtle Bay Hilton in December 1985, 85.97% of the applicants were from the Region (including Punaluu), 91.12%, if Wahiawa applicants were counted as part of the Region.

Provided that appropriate training is available, much of the supply for this on-site (total resort expansion area) labor demand could be met from within the Region itself and/or from nearby Wahiawa. This labor pool would consist of: currently unemployed persons; anticipated increases in labor force participation; future high school graduates; underemployed persons; some commuters switching to jobs nearer homes; and dependents of Wahiawa-based military personnel. Maximizing employment benefits for Region residents will depend on the effectiveness of job training programs in the area. It is the applicant's intent to fashion such programs, whether through improved coordination of existing programs or creating new ones. For example, the applicant has been one of the major financial supporters of the North Shore Career Training Corporation.

define the outer limits of the perennially wet marshlands. Shrub thickets and California grass marshland are cover types within which most of the proposed fill occurs. Both cover types are dominated by exotic species, and form such dense stands that they are not suitable for waterfowl habitat. Species found in these cover types are found elsewhere not only in this marsh but in similar marsh habitats throughout the Hawaiian Islands.

8. P-3 is proposed to be an educational park with facilities focussing on the appreciation of the Punahoolapa Marsh waterbird habitat. The access road to P-3 will be open to the public at all times. P-3 is proposed to be available to school groups and the public.

9. What is the access provided to the Kuleana owner surrounded by A-2? The applicant is negotiating for acquisition of the Kuleana. If such negotiations are not successful, a legal easement will be provided.

Very truly yours,

GROUP 70

Francis S. Oda, AIA

6787A/ve

cc: Mr. John Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

Enclosures: 1. Letter dated 17 September 1984 from Allan Marmelstein
2. Letter dated 28 November 1984 from Allan Marmelstein

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 17 1984

SEP 19

GROUP 70

Group 70
Vincent Shigekuni, Planner
924 Bethel Street
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

Thank you very much for your assistance regarding the proposed Kuilima resort development and the associated modifications of the Punahoolapa wetland. The Service is pleased with the positive attitude and concern the developer and consultants have shown regarding the protection and enhancement of the Punahoolapa wetland. This cooperation is much appreciated.

The following comments on the proposed modifications of the Punahoolapa wetland are the result of discussions with the following staff members: Stewart Pefer, Jim Krakowski, Jerry Leinecke, and David Woodside (Refuges/Wildlife Resources), John Ford and Andy Yuen (Habitat Resources), and Peter Stine (Endangered Species). We have also consulted with Ralph Saito and Tim Burr of the State Division of Forestry and Wildlife.

The resort development proposes to fill approximately 12 acres of the wetland for golf course and building construction. This is clearly a non-water dependent use of a wetland and is inconsistent with specific provisions of the Clean Water Act (40 CFR 230). The Service generally works to prevent loss of these valuable and scarce habitats. However, based upon discussions with the consultants for the project, the Service feels that the implementation of appropriate measures at the site will compensate for the loss of these 12 acres of wetland habitat.

The proposed compensation focuses on improving the wetland as habitat for native Hawaiian waterbirds, other wetland organisms, and providing for the long-term protection and management of this habitat. Specifically, the Service recommends the adoption of the following measures:

1) There has been a precipitous decline of native Hawaiian waterbirds due to loss of wetland habitat over the last 100 years. Recovery of these birds is directly dependent on providing a stable and secure base of quality habitat, distributed throughout their historical range. Maintenance and enhancement of the wetland habitat at Punahoolapa is an important contribution to recovery goals for these birds.

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2) Recovery of these waterbirds is significantly hampered by the effects of predation by feral and domestic mammals, particularly dogs, cats, and mongooses. Recognizing this problem, one of the major goals of our proposed mitigation is to isolate the marsh from these predators. The preferred design is to have the marsh entirely surrounded by a chain link fence, a visual barrier of vegetation, and a moat.

There are several reasons for the moat and chain link fence combination. A moat is probably adequate in keeping out cats and mongooses; however, a dog is capable of swimming across a moat. The primary function of the fence is to keep dogs out of the wetland. The moat could also become an "attractive nuisance" and the fence would be necessary to reduce the liability of the owner and/or manager of the wetland.

The chain link fence should be at least four feet high and its lower edge flushed with the ground. The fence should include a gate for vehicle and personnel access. The owner and/or manager of the wetland would be responsible for the maintenance of the fence. There are several possible fence-visual barrier configurations. For example, the vegetation barrier could be either a band of vegetation between the fence and the moat or a combination of vegetation and fence, i.e., the vegetation would grow around and cover the fence proper. In the latter suggestion, ornamentals could be planted in such a way that the fence would be esthetically pleasing and be virtually unnoticeable.

The moat should be at least 10 feet wide and 4 feet deep in order to function adequately as a barrier and to prevent overgrowth by aquatic vegetation. At the recommended depth and width, the moat should have a relatively long functional life with minimal maintenance costs.

3) The value of the wetland as habitat for endangered native waterbirds will be enhanced by the creation of numerous islands and open waterways within the wetland boundaries. Various wetland habitats and edge habitat (interface between two habitat types) provide the best mix of habitat conditions for nesting, loafing, and feeding requirements. Presently, the majority of open water is concentrated along the southern boundary of the marsh. This open water area supports large numbers of the Federally listed endangered Koloa or Hawaiian Duck. The Service recommends that the proposed construction of channels and islands avoid this site in its present condition. The specific designs for the channels and islands should be coordinated with our Refuges staff. It will be important to know the degree of water surface level fluctuation since this will affect the depth of the channels and height of the islands.

4) The Service has no objection to the elevated walkway across the wetland provided that it includes a fence with a gate and is cut by the moat. The walkway will increase the educational value of the wetland.

5) The development of the wetland should proceed prior to the resort development. The Service believes that it will be more disruptive to the resort if the marsh is developed after the resort superstructure is completed. For example, the dredging of the moat will be noisy and will produce large amounts of mud and organic material that may have an offensive smell. It will also be physically and logistically more difficult to develop the marsh once the surrounding areas are established.

6) If possible, the housing units should be set back from the marsh to reduce the line of sight on the marsh. This will reduce disturbances to the waterbirds, allowing full use of the avalilable habitat.

The Service would be happy to provide technical and siting assistance during the early construction phases of the moats, channels, and islands. Our experiences with other wetland enhancement projects in Hawaii may be of value to the contractor.

Few resorts have the distinction of maintaining such outstanding wildlife habitat within their boundaries; it is a clear statement about the developer and their concern for the environment. The enhancement, protection, and managment of the Punahoolapa wetland will do much for the preservation and recovery of these endangered native waterbirds.

The Punahoolapa wetland is a natural extension of the neighboring James Campbell National Wildlife Refuge. Many of the waterbirds found on this part of Oahu use both areas interchangeably. The Service is very interested in maintaining and managing the Punahoolapa wetland. We are also very interested in establishing a dialogue with the developer and/or owner regarding Service management and maintenance of the wetland.

The Service appreciates this opportunity to be involved in the development of the Punahoolapa wetland. We look forward to a productive relationship with the developer and consultants regarding this project. If we can be of further service, please feel free to contact John Ford of my staff.

Sincerely yours,

Allan Marmelstein
Pacific Islands Administrator

cc: HDF&W, Ralph Saito
HDAR
EPA, San Francisco
CE, John Emmerson
RO, AFA - SE
RO, AHR

CITY COUNCIL

CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII 96813 / TELEPHONE 523 4000

MARILYN BORNHORST

November 26, 1984

Group 70
Attn: Francis S. Oda, AIA
924 Bethel Street
Honolulu, Hawaii 96813

Re: Kuilima Resort Expansion, EIS Notice

Gentlemen:

Thank you for the opportunity to respond to the preparation notice for the Kuilima Resort expansion. Following are my comments and questions.

1. On page 2, Punahoolapa Marsh is identified as inaccessible to most human activity and the only relatively undisturbed habitat for terrestrial vertebrates. Other sections indicate that this habitat would be traversed by a foot path; be surrounded by a golf course that would drain pesticides, herbicides, fungicides and fertilizers into it; be flanked by an apartment area and park; and have major structural changes including a moat, islands and new ponds. Are there not better arrangements that would leave the marsh undisturbed and still have a viable project?

2. Figure 4 indicates that 2,250 apartment units are planned. Since these units will be in a resort development and likely to be very expensive and very far from most employment areas, I would like to know the following:

   - What is the likelihood that these units will be occupied by residents?
   - What enforceable guarantees will go into documentation that the units will not be used for or converted to time sharing or transient use?
   - If the intent is that they be available for vacation "homes" or other transient use, then why not ask for a resort designation?

3. Figure 4 indicates that 1,000 apartment units are planned to go into the area designated agriculture by the State. They will displace several existing farms and abut the marsh. Page 22 indicates the need to relocate these farms. Would the developer consider in the EIS and economic evaluation the following:

   - Allow the farms to stay and move other lessees to this area with long term leases.
   - As part of the lease, provide an agreement to purchase produce and flowers for the resort restaurants, room service, shops and direct tourist purchase.
   - Also provide in conjunction with the resort activities for active and passive tours of the unique Hawaiian produce, orchid or foliage crops. This could enhance the country feeling, provide jobs and reduce transportation and middleman costs.

4. Page 19 mentions 90 to 100 "affordable" houses to be developed off-site. It is not clear if this is meant to be part of a 10% lower income housing agreement. The EIS should discuss how a 10% lower income housing agreement would be met on the 2,550 apartment units and compare the traffic impacts of providing them on-site and off-site if they are intended for employee housing.

5. It appears from figure 5 that beach accesses 1, 2 and 5 are too long and thus tend to block access to the beach. The EIS should discuss this.

6. There does not appear to be any paved access into the P-2 area on figure 5. The EIS should address public vehicular access to this park. It appears that about 20 acres of this park would go into apartment and golf course use. What does the public gain in return?

7. What is the purpose of creating islands and new waterways in the marsh area? A naturalist should explain specific effects this would have as well as the fill of 13 acres of marsh. In scientific, ecological terms, what is meant by "marginal" in referring to marsh land?

8. What guarantee will there be that the public will have access to area P-3?

9. What is the access provided to the Kuleana owner surrounded by A-2?

Sincerely,

Marilyn Bornhorst

MARILYN BORNHORST
Councilmember

mms

22 February 1985

Ms. Marilyn Bornhorst, Councilmember
City Council
City and County of Honolulu
Honolulu, Hawaii 96813

Dear Ms. Bornhorst:

Subject: Kuilima Resort Expansion EIS Notice of Preparation (NOP)

Thank you for your letter dated 26 November 1984. We have reviewed your comments and questions, and offer the following responses:

1. Attached please find two letters recieved from Allan Marmelstein, Pacific Islands Administrator of the U.S. Fish and Wildlife Service.

   We contracted Dames & Moore, an engineering firm, to study the impact of runoff on the marsh. The results of their study will be summarized in the EIS.

2. For clarification purposes, please note that 2,063 resort condominium units are proposed (referred to in your letter as "2,250 apartment units").

   - The portion of the market for the proposed resort condominiums which will be occupied by State residents is being studied by the applicant's market consultant, Hastings, Martin, Conboy, Braig and Associates, Ltd. We expect that this information will be available for inclusion in the Revised EIS.

   - It is the applicant's intention to keep time sharing out of the resort condominiums. As you are aware, time sharing must be approved by the appropriate governmental agencies.

   - The applicant is seeking "Resort" designation for development areas A-1, A-2 and A-7. For sites A-2, A-3, A-4, A-5 and A-6, the applicant is seeking "Low-Density Apartment" designation since, although the units will be marketed as resort condominiums, the proposed densities for these sites are more in keeping with the low-density designation.

3. For clarification purposes, please note that of area in the "Agricultural District", only four farmers lease 138 acres. Dr. Frank Scott estimates that not more than 20 acres of this leased area is in crop production and the remainder is utilized for farm structures, homes, roadways and cattle grazing.

   Allowing existing lessees to remain and leasing the remaining portion of the lands in the Agricultural District to other lessees is physically infeasible, because of the lack of land area. The condo minimum sites are critical to the economic viability of the project as a whole. The option of moving the 1,000 condos to other portions of the site would produce densities of 30-50 units/acre, which are considered too high for this project. Please note that there is available unused agricultural land in the area, including Kahuku Agricultural Park. According to Dr. Frank Scott, the amount of good unused agricultural land available for lease in the area exceeds the amount currently leased in the project area.

4. The number of affordable housing units (90 to 100) to be provided off-site, represents 10% of the resort condominium units to be provided in the Agricultural District. This was agreed upon with the City and County of Honolulu Department of General Planning. Traffic projections provided by Austin, Tsutsumi and Associates, Inc. are in aggregate form and includes employee trips. Therefore, a quantitative comparison of employee trips from on-site and off-site housing cannot be provided. It should be noted, however, that 100% employee commuting is assumed, in the traffic study and represents a worse-case scenario.

5. The approximate lengths of the proposed beach accesses will be noted in the EIS.

6. Access to P-2 is proposed to be via an improved Marconi Road, which is located along the eastern boundary of the project site. This will be stated in the EIS. None of this park will be used for apartment or golf course use.

7. Please refer to the attached letters from Allan Marmelstein, Pacific Islands Administrator of the U.S. Fish and Wildlife Service. The creation of open water areas will open up more feeding and loafing habitat for the waterbirds and the creation of islands in the new open water areas will provide safe nesting habitat for the waterbirds.

   In referring to marsh land, a more descriptive term than "marginal" would have been "transitional zone". According to our botanical consultant, Earthwatch, vegetation in a transitional zone are cover types which are seasonally wet, and which may

Francis S Oda AIA Inc
Robert K L Wong AIA Inc
Norman G Y Hong AIA Inc
Sheryl E Seaman AIA Inc

4 October 1985

Mr. John E. Hirten
Director
Department of Transportation Services
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Hirten:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for the copy of your memorandum of 23 September 1985 to John Whalen, Director of the Department of Land Utilization. We have reviewed your comments and offer the following responses:

1. At the present time, the applicant is planning to retain ownership and jurisdiction of the internal roadways within the project area. This will be stated in the Revised EIS.

2. Chapter V. Trip Generation, Sections A. and B. of the "Traffic Impact Report for the Proposed Turtle Bay Resort", prepared by Austin, Tsutsumi & Associates, Inc. (June 1985), provides a description of the development of the trip generation characteristics used in the analysis. A telephone conversation with Melvin Hirayama of your department on 27 September 1985 indicated that your department's comments were based on the review of pages 95 to 109 of the Draft EIS. Mr. Hirayama indicated that, subsequently, your department has recieved a copy of the "Traffic Impact Report for the Proposed Turtle Bay Resort".

3. We concur that the installation of traffic signals should meet the required warrants. This will be stated in the EIS.

4. Subsurface work for the installation of traffic signals (i.e. conduits, vehicle detectors, etc.) should be installed in conjunction with the proposed improvements to Kamehameha Highway.

If you have any questions, please contact Kenneth Hirata of my staff at local 5007.

(for) JOHN E. HIRTEN

√cc: Mr. Francis S. Oda
Group 70

L 4 1 3596

GEORGE R. ARIYOSHI
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
DIVISION OF PUBLIC WORKS
P. O. BOX 119, HONOLULU, HAWAII 96810

HIDEO MURAKAMI
COMPTROLLER

MIKE N. TOKUNAGA
DEPUTY COMPTROLLER

LETTER NO. (P)1446.5

AUG 19 1985

1985 AUG 20 PM 1:23
DEPT. OF LAND UTILIZATION
CITY & COUNTY OF HONOLULU

Mr. John P. Whalen, Director
Department of Land Utilization
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Subject: Draft EIS for Kuilima Resort Expansion

We have reviewed the subject document and have no comments to offer.

Very truly yours,

TEUANE TOMINAGA
State Public Works Engineer

CT:jk
cc: Mr. Francis S. Oda

4. As noted in your memorandum, the subsurface work for the traffic signal installation will be coordinated with the State Department of Transportation. This information will be provided in the appropriate sections of the Revised EIS.

Please note that your letter and this response will be appended to the revised EIS.

Sincerely,

GROUP 70

Francis Oda

Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Mr. Randall Okaneku, Austin, Tsutsumi and Associates, Inc.
Ms. Jan Sullivan

7792A/vs

GEORGE R. ARIYOSHI
GOVERNOR

JACK K. SUWA
CHAIRMAN, BOARD OF AGRICULTURE

SUZANNE D. PETERSON
DEPUTY TO THE CHAIRMAN

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 So. King Street
Honolulu, Hawaii 96814

Mailing Address:
P. O. Box 22159
Honolulu, Hawaii 96822

September 19, 1985

MEMORANDUM

To: Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu

Subject: Draft Environmental Impact Statement (EIS) for
Kuilima Resort Expansion
TMK: 5-6-03: 37, 41, 42, 44 and por. 40
5-7-01: 1, 13, 16, 17, 20, 22, 29, 30, 31, 33
5-7-03: 1 to 36, 64 to 66, 69, 72 to 75
5-7-06: 1 to 19, 21
Kahuku, Oahu
Acres: 808

The Department of Agriculture has reviewed the subject Draft EIS and offers the following comments.

According to the Draft EIS, the applicant seeks to rezone the subject parcels and conduct activities within the Special Management Area for the purposes of implementing the proposals found in the Kuilima Resort Expansion Master Plan.

We have reviewed and submitted comment on the EIS Preparation Notice for the proposed resort expansion on December 4, 1984.

We have also reviewed and submitted comment on a petition for an amendment to the State Land Use District boundary for 236 acres of the Kuilima Resort Expansion situated within the State Agricultural District. The information found in the Preliminary Planning and Environmental Study (Exhibit I, Volume I, prepared by Group 70; June, 1985) and the various Appendices for the Kuilima Resort Expansion petition largely duplicate what is found in the subject Draft EIS. In general, we believe it would be desirable that an EIS come <u>earlier</u> in the development approval process (at the time of General Plan, Development Plan, or LUC boundary amendments) rather than <u>later</u> (at the time of zoning or SMA permit applications).

While the Draft EIS touches upon the concerns found in our comments on the EIS Preparation Notice, there remain a number of questions which need clarification.

Water resources

The Draft EIS states that "... the possibilities for a conflict in water use between the Kuilima Resort and the proposed Kahuku Agricultural Park and other agricultural activities are remote if Campbell Estate manages its water resources as outlined in 'Management Guide to the Water Resources of the Kahuku Water Management Area'..." (Draft EIS, page 42). Part VII of Appendix D, attachment to Preliminary Planning and Environmental Study (prepared for the land use boundary amendment petition) contains a number of policies and guidelines for the Campbell Estate to consider in managing the water resources of Kahuku. It is suggested that punitive measures be instituted by the Campbell Estate to ensure that water users within the Kahuku Water Management Area do not consume more than their allotted amount. Also proposed is the determination of appropriate conservation and reclamation measures to apply to existing activities such as the aquaculture operations in the area.

It appears that the estimates of total fresh water requirements for all uses within the Water Management Area (approximately 15,000 acres) found in Appendix D would accommodate some expansion of agricultural development in the Kahuku area (Tables VI-A to VI-E). However, it is not clear what acreage increase of agricultural commodities is expected. Furthermore, Tables VI-C and VI-D indicate that the projected total fresh water requirements come within three million gallons per day of the estimated sustainable yield of 23.5 million gallons per day (Appendix D, page VI-1). Table VI-E (Appendix D, page VI-9) shows the projected total fresh water requirements exceeding the estimated sustainable yield. If management of water resources is critical to the availability of sufficient water for all existing and proposed uses, it would be prudent that a water master plan or its equivalent be developed and adopted for the affected area so that punitive water use control measures need not be applied.

The proposal to use treated effluent for irrigation of the golf courses (Draft EIS, page 42) is a possible means to reduce the need for using brackish marsh water. According to the University of Hawaii College of Tropical Agriculture and Human Resources, turf grasses such as that used on golf courses require between 2,700 to 8,100 gallons per acre per day. Effluent water is currently used by several golf courses in the State for irrigation. However, one golf course (Hawaii Kai on Oahu) has been forced to stop using sewage effluent for irrigation because of high coliform counts and reported health

agricultural land to a single criterion. It should be noted that the State Legislature in 1983 passed, and the Governor signed into law, Act 273 which established the State of Hawaii Land Evaluation and Site Assessment Commission (LESAC). The Commission is mandated to identify and recommend for adoption by the Legislature, a system to identify important agricultural lands. The recommendations of the Commission and its approval by the Legislature would carry out the Constitutional mandate to protect important agricultural lands. The Commission has recently completed a draft report which presents an initial or "provisional" inventory of "important agricultural lands" of the State of Hawaii, the methods by which these lands could be designated and classified, and an amending procedure which could serve to further refine or adjust the classification to meet changing community needs, goals and objectives (A Draft Report of the State of Hawaii Land Evaluation and Site Assessment System; prepared by the State of Hawaii Land Evaluation and Site Assessment Commission, Office of the Legislative Reference Bureau, Honolulu, Hawaii; February, 1985; page III-4). The LESA Commission is to continue its functions through 1986 in order to coordinate the testing and evaluation of the LESA system.

From the soils description, approximately one third of the subject parcel possesses some of the qualities that constitute the LESA Commission's working definition of "important agricultural land" or "IAL". These are lands capable of producing high agricultural yields, lands which produce commodities for export and local consumption, lands not currently in production but needed to attain desired projected levels of agricultural activities and income, and land designated by public policies as important agricultural lands resulting from some unique quality, setting or use. By definition, IAL excludes lands deemed inappropriate or economically infeasible for agricultural use, or which have been designated by State or county policy or plans to be of greater benefit to the general public in some current or potential non-agricultural use.

In summary, we believe that a comprehensive approach to identifying "good" or "important" agricultural lands such as that being undertaken by the LESA Commission will produce a more thorough assessment than reliance upon a single indicator.

The Agricultural Feasibility study asserts that there is a surplus of good agricultural lands in more economic acreages elsewhere on the island and in the State. The mere fact that suitable lands elsewhere are not in active cultivation does not

imply that they are actually "available" or affordable for agriculture, given the current scale of agricultural production presently found in the project area. As far as the "continuing decline in acreage devoted to crop production on Oahu," this is due almost entirely to the reduction in sugarcane production rather than in diversified crops such as those grown in the project area. The size and proximity of the Oahu market are strong incentives to retain and expand crop production at Kahuku.

As for the other factors that "weaken" the justification for retaining the 48 acres of good agricultural land in its Ag-1 zoning designation, we are aware of the following:

- Windbreaks to protect crops have been known to work in other windy areas such as Molokai's Hoolehua plain;

- The factor of relatively small acreage has not deterred farmers or farming from continuing operations in Hawaii. The average farm size in Hawaii is less than 10 acres (1982 Census of Agriculture);

- The amount of available water in terms of sustainable yield is sufficient to permit <u>expansion</u> of the agricultural operations within the Kahuku Water Management Area (Appendix D);

- Chapter 165 (Hawaii Right-to-Farm Act) of the Hawaii Revised Statutes protects established farmers operating within environmental, health, and other guidelines from nuisance lawsuits by neighboring property owners.

Of particular concern to us in the termination of leases for the six farmers within the project site (four on the east end and two on the west end). There is no indication that the applicant will offer relocation assistance to the displaced farmers. The Draft EIS (page 88) states that there are alternative lease opportunities in neighboring Campbell Estate land,and Castle and Cooke lands near Mililani Town. The lease rentals are said to be higher but are "long-term" (Draft EIS, page 88). Details of possible arrangements with these landowners and evidence of their willingness to lease lands with water source and distribution facilities were not found in the Draft EIS, the aforementioned Environmental Study nor Appendix J attached thereto ("A Socio-Economic Impact Assessment of Proposed Additional Development at the Kuilima Resort"; prepared for Group 70 by Community Resources, Inc. and A. Lono Lyman,

Inc.; November, 1984). Such information should be included in the EIS.

A possible alternative relocation site for the farmers could be the Kahuku Agricultural Park to the southeast of the project area. Pending approval of subdivision and construction plans by the City and County of Honolulu, the Park will contain 24, 5- to 10-acre lots (550 acres total) for a mix of truck crops, orchards and nurseries. The master lease with the Campbell Estate is for 30 years but is subject to sooner termination upon expiration of the trust estate.

Relationship to State Functional Plans

The EIS (page 135) should be corrected to show that the State Agriculture and Education Functional Plans were adopted by the Thirteenth State Legislature on April 22, 1985. The State Agriculture Functional Plan contains the following implementing action which relates to the subject project:

> "B(5)(c). Until standards and criteria to conserve and protect important agricultural lands are enacted by the Legislature, important agricultural lands should be classified in the State Agricultural District and zoned for agricultural use, except where, by the preponderance of the evidence presented, injustice or inequity will result or overriding public interest exists to provide such lands for other objectives of the Hawaii State Plan."

Thank you for the opportunity to comment.

JACK K. SUWA
Chairman, Board of Agriculture

cc: DPED
OEQC
DGP
✓Group 70

Francis S Oda AIA Inc
Robert K L Wong AIA Inc
Norman G Y Hong AIA Inc
Sheryl B Seaman AIA Inc

4 October 1985

Mr. Jack K. Suwa
Chairman, Board of Agriculture
State of Hawaii
Department of Agriculture
P.O. Box 22159
Honolulu, HI 96822

Dear Mr. Suwa:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for the copy of your memorandum of 19 September 1985 to John Whalen, Director of the Department of Land Utilization. We have reviewed your comments and offer the following responses:

Water Resources

Response to Page 2, Paragraph 2:

Please refer to pages VI-1 through VI-4 of the "Management Guide to the Water Resources of the Kahuku Water Management Area (Malaekahana to Kaunala)" for an explanation of tables VI-A to VI-E. By subtracting the acreage of existing agricultural development, 440 acres (Table VI-A), from the acreage approved for agricultural uses, 1,663 acres (Table VI-B), the acreage increase of agricultural commodities can be determined (1,223 acres).

As explained on pages VI-1 through VI-4 of the "Management Guide to the Water Resources of the Kahuku Water Management Area (Malaekahana to Kaunala)", Tables VI-C, VI-D and VI-E are projections of water use. If these scenarios were realized, then the projected total fresh water requirements would be within three million gallons per day of the estimated sustainable yield (under the scenarios presented by Tables VI-C and VI-D) or exceeded (under the scenario presented by Table VI-E). The "Management Guide to the Water Resources of the Kahuku Water Management Area (Malaekahana to Kaunala)", which was prepared for the Campbell Estate by EDP Hawaii, Inc. (November 1983) to provide a water master plan for the resources in the area. For instance, the "Management Guide" tabulated current water use coefficients of different land uses. Proper use of water use

coefficients, in addition to expected land rentals and employment ratios for different land uses, can be used as effective tools in the assessment and management of land uses and water resources.

Response to Page 2, Paragraph 3:

As you know, effluent water is currently used by several golf courses in the State for irrigation (without accompanying health problems). The civil engineers, EDP Hawaii, Inc., spoke with Steve Chang of the State Department of Health, and was informed that the State has set standards on the quality of water used for irrigation. Mr. Chang indicated that if these standards and other conditions were met, it would be unlikely that health problems will occur. The water quality standards could be met by using sand filters and applying additional chlorination prior to irrigation (in addition to chlorination during treatment). The other conditions include: educating the public on the proposed use of effluent (the Draft EIS fulfills some of this requirement); educating the golf course maintenance personnel on the use of effluent for irrigation; and applying effluent with low volume sprinklers near habitated areas.

Response to Page 3, Paragraph 2:

To date, the actual location of the wastewater treatment plant is not yet known because negotiations with Campbell Estate have not yet concluded. However, it is known that the WWTP will be located in an area east of Oio Stream and a minimum of 300 feet from the bluffs (a requirement of the City and County of Honolulu Department of Public Works). According to a telephone conversation with Sam Keala of Campbell Estate, the approximate area for WWTP was chosen to minimize the loss of agricultural land uses. The area is presently fallow.

Potential land use changes attributable to the proposed development

We are not aware of any other master plans similar to the Ewa Master Plan, for lands within the vicinity of the Kuilima Resort. According to Mr. Keala, Campbell Estate (owners of the land mauka of the resort) appears to be committed to agricultural land uses mauka of the Kamehameha Highway.

Agricultural feasibility and the displacement of existing farmers

Comment starting on Page 4, Last Paragraph: "We believe that it is too restrictive to limit the definition of "good" or "prime" agricultural land to a single criterion."

Response: It should be noted that Dr. Frank S. Scott, Jr.'s evaluations were based on SCS, LSB and ALISH classifications.

Comment on Page 5, Paragraph 2, Line 1: "From the soils descriptions, approximately one-third of the subject parcel possesses some of the qualities that constitute the LESA Commissions working definition of important agricultural lands."

Response: The Soils Conservation Service (SCS) classifies only 48 acres of the 394 acres zoned Ag-1 as Class II or better, with irrigation. All other soils are given capability groupings of III or poorer, with Class III soils defined as soils with severe limitations that reduce the choice of plants, require special conservation practices, or both. On this basis, only 12 percent of the subject parcel appears to meet the LESA definition of important agricultural lands, which exclude lands which are inappropriate or economically infeasible for agricultural uses.

The Land Study Bureau (LSB) classifies 95 acres as B or better, with irrigation, which amounts to 24 percent of the subject parcel. Most of this land is located in the south-mauka corner of the property. As indicated in the EIS report, on site inspection supported SCS classifications in contrast to LSB; thus 12 percent rather than 24 percent of the subject parcel is considered feasible for agriculture.

Response to Page 5, Paragraph 3:

Since LESA LE Ratings are based on SCS and LSB classifications (plus ALISH), this would not seem to reduce the credence of Scott's evaluations, which were based on SCS, LSB and ALISH classifications.

Comment starting on Page 5, Last Paragraph: "The mere fact that suitable lands elsewhere are not in active cultivation does not imply that they are actually 'available' or affordable for agriculture, given the current scale of agricultural production presently found in the project area."

Response: As noted in your memorandum, suitable lands for cultivation are available at the Kahuku Agricultural Park, which is in the vicinity of the project site.

Comment on Page 6, Paragraph 1: "As far as the continuing decline in acreage devoted to crop production on Oahu, this is due almost entirely to the reduction of sugarcane production rather than diversified crops such as those grown in the project area."

Response: Statistics of Hawaiian agriculture support your statement, that the primary decline in acreage in crop production on Oahu has been for sugar (from 34,300 acres in 1975 to 26,400 acres in 1984). However, Scott notes that acreage in other crops also decined. Pineapple acreage declined from 15,500 acres in 1975 to 11,800 acres in 1984. Acreage in miscellaneous crops (including seed corn near the project area) declined from 2,300 acres in 1975 to 1,200 acres in 1984. Acreage in vegetables, melons and fruits (other than pineapple) increased from 1,900 acres in 1975 to 2,200 acres in 1984. The acreage in vegetables increases and decreases erratically, and Scott expects it to begin decreasing again. Production on the outer islands is displacing some of Oahu production.

In summary, the decline in crop production on Oahu for all crops from 1975 to 1984 was 12,400 acres; and further decline, particularly in sugar, is known to be forthcoming. Scott has informed us that recent trends clearly indicate that additional good land (Class I & II or A & B) is becoming available on Oahu, and that diversified crop production has remained essentially static.

Page 6, Paragraph 2, (Comment regarding windbreaks): Scott is aware that windbreaks are utilized to protect watermelons and other crops on Molokai. But Scott notes that the windbreaks require substantial land areas plus irrigation, and are used primarily for large farms. They could be used in the project area, but would take a considerable proportion of the land area on small tracts of land. Shading would also be somewhat of a problem.

Page 6, Paragraph 2, (Comment regarding small farms): Scott's point was that small farms are generally less efficient in production and marketing, not that they are infeasible.

Page 6, Paragraph 2, (Comment regarding the availability of water): The findings of the "Management Guide to the Water Resources of the Kahuku Water Management Area (Malaekahana to Kaunala)" indicate that there is sufficient water for expanded resort and agricultural uses within the Kahuku Water Management Area.

Page 6, Paragraph 2, (Comment regarding Chapter 165, HRS): We appreciate the information provided.

Response to Page 6, Paragraph 3: Please note that we addressed the issue of mitigating the relocation of the farmer/lessee on page 88 of the Draft EIS. Subsequent to the filing of the Draft EIS, we have learned that the applicant has been assisting the farmer/lessee in their search for agricultural lands off-site.

The applicant has met with the farmer/lessees on three occasions. The farmers provided information on the acreage that they are seeking and the crops to be potentially cultivated. The applicant then researched the availability of land in the area (including acreage immediately mauka of the project site), on Oahu, and on the neighboring islands, and the availability of federal grants and provided this information to the farmers. Essentially, the farmers found that their existing leases with the applicant were significantly lower than existing market rates. (When the applicant assumed the fee simple ownership of the lands presently being leased to the farmers, it had decided to allow the tenants to enjoy the use of the lands as long as possible, with no increases in lease rent.)

Coordination between the farmers and Kuilima Development Company are still ongoing. In any event, the applicant will still provide 6 months notice prior to the termination of leases (it should be noted that the lessees have been aware of the eventual termination of their leases since 1978), and will allow the farmers rent-free tenancy during that six month period.

Response to Page 7, Paragraph 2: We appreciate the information provided and will incorporate it into the appropriate sections of the Revised EIS.

Relationship to State Functional Plans

As recommended, the EIS will be corrected to read that all of the State Functional Plans have been adopted. The Revised EIS will also contain the following discussion:

State Agriculture Functional Plan - Land

"B(5)(c). IMPLEMENTING ACTION: Until standards and criteria to conserve and protect important agricultural lands are enacted by the Legislature, important agricultural lands should be classified in the State Agricultural District and zoned for agricultural use, except where, by the preponderance of the evidence presented, injustice or inequity will result or overriding public interest exists to provide such lands for other objectives of the Hawaii State Plan."

Discussion: There appears to be an overriding public interest (PART IV, O., 4. Lifestyle) that the lands of the project site be "provided" for resort expansion. As noted in the discussion of the Hawaii State Plan (A. HAWAII STATE PLAN), implementation

of the proposed action would fulfill an objective for the economy in general: "Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawaii's people."

Please note that your letter and this response will be appended to the Revised EIS.

Sincerely,

GROUP 70

for Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Mr. Paul Low, EDP Hawaii, Inc.
Dr. Frank S. Scott, Jr.
Ms. Jan Sullivan

7822A/vs

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 DIAMOND HEAD ROAD, HONOLULU, HAWAII 95816-4495

HIENG

AUG 15

Mr. John P. Whalen, Director
Department of Land Utilization
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Kuilima Resort Expansion
Koolauloa District, Oahu

Thank you for providing us the opportunity to review the draft environmental impact statement for the above subject project.

We have no comments to offer at this time.

Yours truly,

signed

Jerry M. Matsuda
Major, Hawaii Air
National Guard
Contr & Engr Officer

cc: Mr. Francis S. Oda/Group 70
OEQC w/EIS

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

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

LESLIE S. MATSUBARA
DIRECTOR OF HEALTH

In reply, please refer to:
EPHSD

September 6, 1985

Mr. John P. Whalen, Director
Department of Land Utilization
City & County of Honolulu
650 S. King St.
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Subject: Request for Comments on Draft Environmental Impact Statement (EIS) for Kuilima Resort Expansion, Koolauloa District, Oahu

Thank you for allowing us to review and comment on the subject draft EIS. We wish to provide the following comments:

Wastewater

1. Treated wastewater disposal. The ultimate development shows resort and park development tucked within or alongside the proposed golf course that will be irrigated with the treated wastewater. This will create health and safety concerns if aerosol irrigation application is used. Some type of buffer area should be addressed including wind speed and direction and drip irrigation along the fringe areas of the resort and park areas.

2. Although the City and County may be responsible to meet the wastewater treatment plant (WWTP) effluent limits at the end of pipe of the WWTP, indications are that microorganism regrowth is viable betwen the WWTP end of pipe and the applied effluent. This should be further addressed in the development of the project because it may become a public health and safety concern.

Drinking Water

We would like to emphasize the need for the developer to describe the location and physical configuration of new sources of drinking water to meet the water demand for the proposed resort activities. Such new water source(s) will be subject to Section 11-20-29 of Chapter 20, Administrative Rules, and all plans for the development of new water sources must be reviewed and approved by the Director of Health.

Noise

Potential problems due to noise emitted from stationary equipment such as air conditioners/ventilation units, exhausts, water pumps, and sewage pump stations should be addressed in the Environmental Impact Statement.

We 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
Deputy Director for
Environmental Health

cc: Mr. Francis S. Oda

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

GROUP 70

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

SEP 5 1985

Group 70
924 Bethel Street
Honolulu, Hawaii 96813

Attention: Mr. V. Shigekuni, Jr.

Gentlemen:

We have reviewed the draft environmental impact statement and the appendices for the Turtle Bay Development, and have a few comments to offer:

Aquatic Resources

The following suggestions are proposed as conditions to guarantee reasonable safeguards for aquatic resource values:

1. The developer should be required to monitor coastal resource conditions at "West" and "East Main Drains" during development and subsequent resort/residential operation.

   a. Monitoring should be done at least annually.

   b. Monitoring results should be compared to baseline conditions identified in the present Report.

   c. Analysis of monitoring results should be reported to this Department.

   d. The Department should reserve the right to impose additional conditions to control impacts of drainage discharge as the Department deems necessary in light of actual impacts.

   e. The developer should be allowed to discontinue monitoring after three years beyond completion of development, if the Department determines monitoring has shown impacts to be insufficient to warrant continuation.

2. Dredging in Kawela Bay should be restricted to removal of silt by suction, behind silt curtains (as proposed, EIS p. 45), with spoils dewatered and disposed such that sediments do not reenter the sea.

3. The developer should be required to provide and maintain continuous pathways for public pedestrian passage along the shorelines to either side of the existing "Turtle Bay" resort (as proposed, DEIS p. 149).

4. The developer (and subsequent resort operator) should be held responsible for cleaning up litter on public beach lands not fronted by dedicated public parks (as proposed, EIS p. 46).

5. The developer should be required to install and maintain signs sufficient to inform and caution the beachgoing public (and customers) of hazards in swimming along the coast of developed properties (rip and strong longshore currents, identified on EIS pp. 47-48).

6. The developer should be required to provide free and unrestricted public vehicular access to 15 free public parking spaces at each of the proposed pedestrial rights-of-way to the shore (as proposed, EIS p. 166).

Archaeologic Sites

We recommend that significant archaeologic sites should be avoided and preserved in place. Where this is not possible, further study should be done to mitigate the loss of data that will result from the proposed development project.

Further, immediate protection measures should be taken to avoid further disturbance at sites F4-14 and T-1. Further survey and testing at both sites is recommended; as well as preservation of the sites, if possible. Survey testing and salvage excavations are recommended for site T-6, if it is to be destroyed by construction. Additional testing is warranted at site T-7. further research is recommended at site F4-15, and other areas around the marsh, if the sites are going to be affected by the proposed development. No further work is required at sites T-2 through T-5.

A qualified archaeologist should monitor construction activities to provide a supplementary assessment of the subsurface testing done for the reconnaissance and survey report. When previously unrecorded archaeologic sites, including human bones, are discovered during construction, our historic sites office should be contacted at 548-7460. This condition should be stipulated in all consultant contracts and project work specifications. Our historic sites office will make arrangements with the developer and/or consultant for a field trip to the project area in the near future.

Drainage

There seems to be uncertainty regarding potential rates of drainage flow (figures in the table on DEIS p. 49 differ from those in the Report, p. 34). Furthermore, development is expected to increase the rate at which "HCX"

Francis S Oda AIA Inc
Robert K L Wong AIA Inc
Norman G Y Hong AIA Inc
Sheri S Seaman AIA Inc

4 October 1985

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

Dear Mr. Koizumi:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for the copy of your letter of 6 September 1985 to John Whalen, Director of the Department of Land Utilization. We have reviewed your comments and offer the following responses:

Wastewater

1. As suggested, we will investigate the possibilities of establishing buffer areas between golf course areas and residential areas that are located downwind. The civil engineers, EDP Hawaii, Inc., spoke with Steve Chang of your department, and was informed that the State has set standards on the quality of water used for irrigation. Mr. Chang indicated that if these standards and other conditions were met, it would be unlikely that health problems will occur. The water quality standards could be met by using sand filters and applying additional chlorination prior to irrigation (in addition to chlorination during treatment). The other conditions include: educating the public on the proposed use of effluent (the Draft EIS fulfills some of this requirement); educating the golf course maintenance personnel on the use of effluent for irrigation; and applying effluent with low volume sprinklers near habitated areas.

2. The applicant and the project's consulting civil engineers, EDP Hawaii, Inc., are aware that microorganism regrowth is viable between the wastewater treatment plant end of pipe and the applied effluent. The user(s) of the effluent (most likely the golf course operator[s]) will be advised to chlorinate the effluent before application.

Drinking Water

As noted on page 42 of the Draft EIS, we aware that all new water sources developed to serve potable water to a public water system as defined by Chapter 20, Title 11, Administrative Rules must be approved by the Director of Health prior to their use to serve potable water.

Noise

The Revised EIS will note in the appropriate sections that noise emitted from stationary equipment such as air conditioners/ventilation units, exhausts, water pumps and sewage pumps, will not be limited to daytime hours and will add to ambient noise levels.

Please note that your letter and this response will be appended to the Revised EIS.

Sincerely,

GROUP 70

Francis S. Oda

Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Mr. Paul Low, EDP Hawaii, Inc.
Ms. Jan Sullivan

7811A/vs

GEORGE R ARIYOSHI
GOVERNOR

FRANCIS M HATANAKA
SUPERINTENDENT

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

OFFICE OF THE SUPERINTENDENT

August 20, 1985

Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Subject: Draft EIS for Kuilima Resort Expansion

Our review of the Draft EIS for Kuilima Resort indicates that our earlier response is still current and valid.

Should there be any questions, please contact Mr. Howard Lau at 737-4743.

Sincerely,

Francis M. Hatanaka

FRANCIS M. HATANAKA
Superintendent of Education
FMH:th (HL)

cc Mr. V. Honda
Windward District
Mr. Francis Oda, Group 70
Mr. Edward Matsushige

Francis S Oda AIA
Robert L Wong AIA
Norman G Y Hong AIA
Sheryl B Seaman AIA

4 October 1985

Mr. Francis M. Hatanaka
Superintendent of Education
State of Hawaii
Department of Education
P.O. Box 2360
Honolulu, HI 96804

Dear Mr. Hatanaka:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for the copy of your letter of 20 August 1985 to John Whalen, Director of the Department of Land Utilization. We have reviewed your comment and offer the following response. As discussed with Mr. Howard Lau on 19 September 1985, please note that your comments of 30 November 1984 were incorporated on pages 119 and 120 of the subject document. Your letter and this response will be appended to the revised EIS.

Sincerely,

GROUP 70

Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Ms. Jan Sullivan

7739A/vs

Urban Planners • Architects • Engineers • Interior Designers • 924 Bethel Street • Honolulu, HI 96813 • Phone: (808) 531-1488

(hydrocarbon pesticides, fungicides, fertilizers, etc.) flow through Punahoolapa Marsh (DEIS p. 122); although "HCX" flowing out of the marsh would flow into coastal waters, the Report does not consider the potential for impact from such chemicals. Thus, despite extensive theoretical analysis, there remains some uncertainty as to what impacts on values of coastal aquatic resources (if any) would actually result from drainage developments proposed.

Recreation

The value to the public of whatever resources remaining after development would depend on public access to these resources. The Department has noted that the public parks proposed would improve current conditions of virtually no access; however, we have also pointed out uncertainty of provisions for public parking at the proposed pedestrian rights-of-way, and concerns over guarantees of access have been raised at public hearings.

Such concerns can be addressed by permitting agencies, through conditions: to clarify, amplify, or add to mitigative measures proposed in the EIS; to require additional mitigation; and to make such provisions mandatory.

Water Resources

We understand the water requirement for this extensive development of the proposed Kuilima Resort expansion will be provided by the development of the Opana (Kawela) well field which shall include one production well, plus one standby well unit. The applicant should obtain the necessary drilling permit for these wells from the Department of Land and Natural Resources (DLNR), and provide the drilling log for DLNR.

We support and encourage the proposal of the subject development to irrigate the golf courses with treated effluent generated by the resort.

Sincerely,

SUSUMU ONO
Chairperson
and
State Historic Preservation Officer

cc: OEQC

Francis S Oda AIA Inc
Robert K L Wong AIA Inc
Norman G Y Hong AIA Inc
Sherl S Seaman AIA Inc

4 October 1985

Mr. Susumu Ono
Chairperson and State Historic Preservation Officer
State of Hawaii
Department of Land and Natural Resources
P.O. Box 621
Honolulu, HI 96809

Dear Mr. Ono:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for the copy of your letter of 5 September 1985 to John Whalen, Director of the Department of Land Utilization. We have reviewed your comments and offer the following responses:

Aquatic Resources

1. The applicant has agreed to monitor coastal resource conditions at the West and East Main Drains during development and operation as per the conditions recommended in your letter. This will be noted in the appropriate sections of the Revised EIS.

2. As outlined in your letter, removal of silt from the southeastern portion of Kawela Bay will be by suction dredge within an area enclosed by silt curtains. The spoils will be dewatered and disposed such that sediments do not reenter the ocean.

3. As specified in the Development Plan for Koolauloa, "The shoreline areas along the development shall be linked by a public walkway which shall be constructed and maintained by the owners. The walkway shall be within the 100-foot setback area from the shoreline and shall be linked to the public accessways."

4. Resort operator(s) will be responsible for providing adequate litter recepticles on beach lands fronting the project site (except on beaches fronted by dedicated public beach parks) and disposing of the refuse regularly.

5. We concur that signs informing and cautioning the beachgoing public of ocean conditions and hazards should be installed. However, the applicant feels that since the beaches and the

ocean are under the jurisdiction of the State (with accompanying liability), it would be in the State's best interest to install and maintain these signs.

6. As specified in the Development Plan for Koolauloa, "Five pedestrian access-ways to the shoreline, as designated on the Koolauloa Development Plan Map, and five adjacent public parking areas, each containing a minimum of 15 stalls shall be provided."

Archaeologic Sites

As described in your letter, all of the recommendations regarding this matter will be implemented.

Drainage

Regarding the potential for impact on coastal waters of HCX flowing out of the marsh, OI Consultants, Inc. presents the following information for HCX after drainage modifications (data from Dames and Moore report):

Mean HCX loading	=	0.456 pounds per month	(Table 5)
Mean flow into marsh	=	17,529,284 gallons per month	(Table 3)
Percent active ingredient	=	10%	(Table 4)
Mean Concentration	=	mean loading/mean flow	
	=	2.6×10^{-8} pounds/gallon	
	=	3.1×10^{-6} grams/liter	
	=	3.1 parts per billion (ppb)	

This concentration could vary due to changes in drainage flow. Maximum flow is approximately 195,500,000 gallons per month and minimum flow is approximately 530,000 gallons per month (Table 3); these flows result in concentrations of 0.3 ppb under maximum flow and 100 ppb under minimum flow. Several processes occur in the marsh and nearshore environment which serve to decrease these concentrations. Suspended sediments carried with the drainage flow absorb some of the HCX onto the particle surfaces; some percentage of these particles settle to the bottom of the marsh, thus decreasing the concentration of HCX in the water. Note that the settling process is most effective under low flow, the time of highest HCX concentration. Under high flow, the concentration of HCX decreases due to dilution. Once the drainage water reaches the ocean, the flow is rapidly mixed with ocean water and diluted, and carried off-shore by prevailing currents.

According to OI Consultants, Inc., the low initial concentrations of HCX in the drainage water and the processes acting to decrease these concentrations still further imply that the potential for harmful impact of HCX on the nearshore ocean environment is minimal.

Recreation

As noted earlier in this letter, the Development Plan for Koolauloa does make mandatory the provisions for public parking at the proposed pedestrian rights-of-way and shoreline access. The Development Plan for Koolauloa also specifies that "A total of four park sites, as designated on the Koolauloa Development Plan Map, shall be provided and shall be open to the general public. The land for two of these parks shall be dedicated to the City. The remaining two parks shall be privately owned and maintained."

Water Resources

The applicant will obtain the necessary drilling permit for the proposed wells from the Department of Land and Natural Resources, and provide the drilling log for DLNR. This will be noted in the appropriate sections of the Draft EIS.

Please note that your letter and this response will be appended to the revised EIS.

Sincerely,

GROUP 70

Vincent Shigekuni

for Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Mr. Paul Low, EDP Hawaii, Inc.
Dr. Paul Rosendahl, Ph.D., PHRI
Ms. Jan Sullivan
Dr. David Ziemann, OI Consultants, Inc.

7740A/ve

GEORGE R. ARIYOSHI
GOVERNOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
550 HALEKAUWILA STREET
ROOM 301
HONOLULU, HAWAII 96813

LETITIA N. UYEHARA
DIRECTOR

TELEPHONE NO.
548-6915

September 16, 1985

Mr. John P. Whalen, Director
Department of land Utilization
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Subject: Draft EIS for Kuilima Resort Expansion

We have reviewed the subject document and offer the following comments for consideration.

1. Page 69 states that three sites in the project area are being considered for inclusion in the National Register of Historic Places. Of the three, site T-1 and the Punahoolapa Marsh will be turned into park areas; however, site T-6 which is located along Kawela Bay is designated to be developed. Because of the large number of cultural deposits and burials, this site should not be disturbed.

2. Page 158 states that there will be two public beach parks and five right-of-ways with free public parking. It seems, however, the public parking areas will be in the parks at the extremes of Kuilima. If this is so, the five right-of-ways will be of little use to the public.

Thank you for providing us the opportunity to review this draft EIS.

Sincerely,

Letitia N. Uyehara

Letitia N. Uyehara
Director

cc: Group 70

Francis S Oda AIA Inc
Robert K L Wong AIA Inc
Norman G Y Hong AIA Inc
Sheryl B Seaman AIA Inc

4 October 1985

Ms. Letitia N. Uyehara
Director
State of Hawaii
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, HI 96813

Dear Ms. Uyehara:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for the copy of your letter of 16 September 1985 to John Whalen, Director of the Department of Land Utilization. We have reviewed your comments and offer the following responses:

1. Please note that significant archaeologic sites will be avoided and preserved in place where possible. However, where this is not possible, the applicant will conduct further studies, under the guidelines of the State Historic Preservation Officer, to mitigate any loss of data that will result from the proposed resort expansion.

2. As noted on pages 23 and 24 of the Draft EIS, 15 parking stalls will be provided at each of the right-of-ways. Also, please note that the Development Plan for Koolauloa specifies that, "Five pedestrian access-ways to the shoreline, as designated on the Koolauloa Development Plan Map, and five adjacent public parking areas, each containing a minimum of 15 stalls shall be provided." (Page 19 of the Draft EIS).

Sincerely,

GROUP 70

Francis Oda

Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Dr. Paul Rosendahl, PHRI
Ms. Jan Sullivan

7763A/vs

DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT
KAMAMALU BUILDING, 250 SOUTH KING ST, HONOLULU, HAWAII
MAILING ADDRESS: P.O. BOX 2359, HONOLULU, HAWAII 96804 • TELEX 7430250 HIDPED

GEORGE R. ARIYOSHI
GOVERNOR
KENT M. KEITH
DIRECTOR
MURRAY E. TOWILL
DEPUTY DIRECTOR
LINDA KAPUNIAI ROSEHILL
DEPUTY DIRECTOR

DIVISIONS
BUSINESS AND INDUSTRY DEVELOPMENT DIVISION
ENERGY DIVISION
FOREIGN-TRADE ZONE DIVISION
LAND USE DIVISION
PLANNING DIVISION
RESEARCH AND ECONOMIC ANALYSIS DIVISION
OFFICES
ADMINISTRATIVE SERVICES OFFICE
INFORMATION OFFICE

Ref. No. P-2701

September 19, 1985

RECEIVED
SEP 21 1985
GROUP 70

The Honorable John P. Whalen
Director
Department of Land Utilization
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Subject: Draft EIS for Kuilima Resort Expansion, Oahu

We have reviewed the subject draft environmental impact statement (DEIS) and have the following comments.

One of the major benefits the development proposes for the community is increased employment opportunities to counter the high unemployment in the area. Employing residents will also lessen in-migration. This is an important aspect because the Development Plan population levels are already exceeded and in-migration of new employees would increase the population and place a greater strain on housing needs. Development of strategies to ensure that current residents are able to qualify for jobs is necessary. The plans mentioned in the DEIS should be fully explained in the final EIS.

The Socio-economic Impact Assessment in Volume II states that the development at the Resort is expected to add to an already existed pent-up demand for residential housing in the region. The additional demand that may be attributable to development at the Resort will be demand from employees requiring housing. One measure proposed by the developer is the construction of 90 to 100 affordable housing units located in Kahuku or elsewhere off the Resort to help mitigate housing needs. According to Volume I of the DEIS, this is considered only a "potential" mitigation measure. Considering the above statements, the intent to provide affordable housing should be fully defined in the Final EIS.

One of the beach parks to be dedicated and two privately maintained parks will be within the project boundaries as will public rights-of-way. Current policy requires parking fees to enter the Turtle Bay facility. The DEIS mentions free public parking in relation to rights-of-way. Will this also be true for users of public and privately owned parks? The utility of recreation facilities to the community would be greatly reduced if access is hampered by fees or inconvenient parking arrangements. The final EIS should

disclose the plans for providing free access and parking for rights-of-way and parks.

The proposed widening of the two existing drainage channels and the realignment of Kawela Stream will require construction of open channels with lined outlets at the shoreline. (This information was provided by Mr. Paul Low, Project Engineer.) These lined channels would be within the shoreline setback, and as described, would disrupt continuous lateral shoreline access referenced on page 110 of the DEIS. It is our understanding that the applicant does not propose to construct pedestrian access over the drainage structures.

The applicant also proposes the realignment of Kawela Stream and the diversion of "silt ladened storm run-off" from Kawela to Turtle Bay. DEIS indicates that the storm run-off will not pose a negative impact on Turtle Bay since strong currents will carry run-off to deep off-shore waters. We are concerned that, in the absence of a bathymetric survey in support of this position, the Turtle Bay ecosystem would be negatively impacted.

Our staff toured the site on September 19, accompanied by project proponants. In addition we have issued a conditioned Federal consistency determination which requires that the applicant address the last two stated concerns.

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

Very truly yours,

Kent M. Keith

cc: Office of Environmental Quality Control
Kuilima Development Company
Group 70

Francis S C Hsu A.I.A.
Robert L Wong A.I.A.
Norman G Hong A.I.A.
Sheryl E Seaman A.I.A.

4 October 1985

Mr. Kent M. Keith
Director
State of Hawaii
Department of Planning and Economic Development
P.O. Box 2359
Honolulu, HI 96804

Dear Mr. Keith:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for the copy of your letter of 19 September 1985 to John Whalen, Director of the Department of Land Utilization. We have reviewed your comments and offer the following responses:

1. In response to your comments regarding the proposed job training program, the applicant has recently sent you a copy of the applicant's Preliminary Action Plan for the Turtle Bay Resort Employment Resource Center. Although the Action Plan is still being modified, it shows that substantial effort has been committed to the Action Plan. Regular monthly meetings with the Kuilima North Shore Stategy Plan Community Advisory Committee on the Action Plan is an indication that there is sufficient interest in the region to see that the Action Plan is completed and implemented. Due to your interest in the Action Plan, we will append the above document to the Revised EIS.

2. The applicant is committed to the development of 95, low moderate housing units for employee use. The EIS will be revised to describe it as a mitigation measure ("potential" will be dropped).

3. As stated in the Development Plan for Koolauloa: "A total of four park sites, as designated on the Koolauloa Development Plan Map, shall be provided and shall be open to the general public [emphasis added]. The land for two of these parks shall be dedicated to the City. The remaining two parks shall be privately owned and maintained." Free public parking will be available at the proposed parks. As recommended, the Revised EIS will emphasize that the parking at the rights-of-way and parks P-1, P-2 and P-3 will be free to the public.

4. Pedestrian Access Over Drainage Structures: KDC proposes to build a pedestrian access over the West Main Drain within the 100-foot setback shoreline area. In addition, KDC further proposes to provide access through the park, P-4, and the roadway over the East Main Drain. Access across the East Main Drain would then be provided by two means: (1) via the roadway system, or (2) the beach fronting the East Main Drain outlet. Sand is expected to build up over the outlet.

5. Effects on Turtle Bay from Realignment of Kawela Stream: Two studies have been submitted to DPED: (1) "Impacts of Terrestrial Storm Runoff on the Nearshore Marine Environment off Kuilima and Kahuku, Oahu, Hawaii" by OI Consultants, Inc.,: and (2) "Study of Coastal Currents to Determine Suitability of Drainage Channel Relocation Site for Kahuku Land Development" by Sunn, Low, Tom & Hara. The OI Consultants report concludes that the bethnic communities at the area of discharge are not likely to be affected by the storm discharge due to the realignment of Kawela Stream. The purpose of the Sunn, Low, Tom & Hara study was to determine the diffusion processes in Turtle Bay assuming the diversion of Kawela Stream. The results of the dye test conducted for the study showed that stream discharge into Turtle Bay will carry along the coast to the west and outside the mouth of Kawela Bay. Dye concentration in Turtle Bay tended to disperse immediately. For more detailed information please refer to the report.

Please note that your letter and this response will be appended to the revised EIS.

Sincerely,

GROUP 70

Francis S Oda

Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Mr. Paul Low, EDP Hawaii, Inc.
Ms. Jan Sullivan

7794A/vs

1587
STP 8.10842

September 20, 1985

Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Draft EIS for Kuilima Resort Expansion

Thank you for this opportunity to provide comments on the subject draft EIS.

The total of seventy-five parking stalls for the five public rights-of-way for pedestrian access to the beach appears to be minimal and may not be sufficient to accommodate the projected growth of the area (Page III-5th Paragraph). Although it will represent a significant improvement over existing conditions, we wish to avoid future complaints similar to those voiced at past CZM Advisory Committee public meetings on Maui and Kauai about the lack of nearby seaside parking spaces. Concern was also expressed regarding the long distances between parking facilities and the shoreline. We would like to suggest, therefore, that the developer reevaluate the adequacy of the parking capacity at each proposed pedestrian right-of-way access point before the detailed design of the parking plans is finalized.

Since the applicant intends to implement the mitigation measures described on Page 101 and install utility lines, he should be aware that any work to be performed within the State highway right-of-way will require an approved permit from our Highways Division. Early coordination with them is recommended.

For your information, we are enclosing a copy of our earlier memorandum to DPED responding to their request for comments on the petition for a district boundary change for this same expansion project. Your review of these comments for their applicability would be appreciated.

Please contact us if you have any questions.

Very truly yours,

Wayne J. Yamasaki
Director of Transportation

DT:ko

Enclosure

cc: Francis Oda, Group 70
HWY
HAR

1313

DIR 1212
DIR 1254

STP 8.10783

August 15, 1985

MEMORANDUM

TO: The Honorable Kent M. Keith, Director
Department of Planning & Economic Development

FROM: Director of Transportation

SUBJECT: DISTRICT BOUNDARY CHANGE
KUILIMA RESORT EXPANSION, KAHUKU, OAHU
TMK: 5-6-03 (POR.) AND 5-7-01 (POR.)

We have been coordinating this project with the petitioner and appreciate the opportunity to comment on this petition. Our concerns follow:

1. Table 2 of the TIAR indicates that the capacity of Kamehameha Highway in Kahuku will be exceeded during the weekend. This point should be emphasized in the discussions of impacts.

2. It is unclear what roadway geometrics were assumed in the Level of Service calculations. Please provide these to us.

3. Although the TIAR recommends a widening of Kamehameha Highway to four lanes, there are no plans to widen Kamehameha Highway between Haleiva and Kahaluu in the near future. Spot improvements in the immediate vicinity of Kuilima are necessary with the development's expansion and should be made a condition of approval. As a minimum, these should include fully channelized intersections at Maroona Road, Kuilima Drive and West Kuilima Drive. Traffic signals may be installed provided they meet our warrants and criteria for installation. All plans for improvements within the highway rights-of-way must be submitted for our review and approval.

We note the developer's willingness to fund these improvements.

4. At such time that Kamehameha Highway is widened, an additional 50 feet (approximately) of rights-of-way will be required. Provisions should be made now to insure that this land will be available when needed.

Thank you for the opportunity to comment on this petition. Please keep us informed about further developments on this project.

Wayne J. Yamasaki

KYA:gm

cc: HWY-PA
STP (KYA)
City Department of General Planning

4 October 1985

Mr. Wayne J. Yamasaki
Director of Transportation
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Yamasaki:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for the copies of your letter of 20 September 1985 to John Whalen, Director of the Department of Land Utilization and your memorandum of 15 August 1985 to Kent Keith, Director of the Department of Planning and Economic Development. We have reviewed your comments and offer the following responses:

Responses to comments contained in 20 September 1985 letter to John Whalen, Director of the Department of Land Utilization:

1. Presently, the City and County of Honolulu does not provide any guidelines for the number of parking stalls per right-of-way to the shoreline. After consulting with City and County of Honolulu Department of Parks and Recreation, and recieving input from the Kuilima North Shore Strategy Plan Community Advisory Committee (refer to description of membership on pages 27 and 28 of the Draft EIS), it was decided that the applicant should provide 15 parking stalls per right-of-way. We anticipate that the shoreline areas that will be the most attractive to the public will be Kawela Bay (safest swimming area fronting the project site) and Kahuku Point (most attractive camping and picnicking site on the property). The applicant is donating these areas (equalling 41.8 acres) to the County for the development of public parks, with the anticipation that parking for 30 to 50 cars be provided at each park.

   The competition for stalls dedicated for public beach accessways will be mitigated by implementing the following measures: clearly marking and delineating the stalls for public access use only; and directing the private security service(s) of the resort to ensure that the stalls are not used for employee park-

ing. In addition, the demand for the rights-of-way parking stalls by visitors within the resort will be mitigated by the establishment of a jitney service within the resort.

2. We appreciate the information provided regarding the permit requirements for the installation of utility lines within the State Highway right-of-way. We will pass this information on to the consulting civil engineering firm, EDP Hawaii, Inc., and include this information in the Revised EIS.

Responses to comments contained in memorandum of 15 August 1985 to Kent Keith, Director of the Department of Planning and Economic Development:

1. Table 2 of the "Traffic Impact Report for the Proposed Turtle Bay Resort", dated June 1985 (Appendix L of Exhibit 1, Volume 2, Technical Appendix for Kuilima Resort Expansion), projects the Saturday peak hour traffic at 1,241 vehicles per hour (vph), total for both directions in the Year 2000. As shown on Exhibit 15 of the same report, the capacity of Kamehameha Highway at Kahuku is estimated at 1,450 vph, total for both directions, which is in excess of the projected demand.

2. The road geometrics assumed for the capacity analysis of the projected conditions include left turn lanes on Kamehameha Highway and separate left and right turn lanes on the side streets. This was clarified with Kenneth Au of your department, per telephone conversation on 28 August 1985.

3. In the "Traffic Impact Report for the Proposed Turtle Bay Resort", recommendations for Kamehameha Highway were provided in Chapter VIII., Section C. Regional Improvements, and included the following: full 24-foot wide traveled way, paved shoulders, bus turnouts, and left turn lanes and traffic signals at key intersections, The four lane widening proposed by earlier studies (Belt, Collins & Associates, Inc., 1979; Parsons, Brinkerhoff, Quade and Douglas, 1979), is not required under the present Kuilima Resort Expansion Master Plan to the Year 2000.

We concur that spot improvements in the immediate vicinity of Kuilima are necessary. Please note the fully channelized intersections at Marconi Road, Kuilima Drive and West Kuilima Drive, among other improvements, are proposed as part of the infrastructure improvements required for the resort expansion and will be paid for by the applicant.

4. Since four lane widening is not required under the present Kuilima Resort Expansion Master Plan, no immediate provisions are being made to accommodate the additional rights-of-way. However, Campbell Estate has been aware of previous proposals to widen the highway through their properties and have tried to plan accordingly.

Please note that your letter and this response will be appended to the revised EIS.

Sincerely,

GROUP 70

Francis Oda

Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Mr. Randall Okaneku, Austin, Tsutsumi and Associates, Inc.
Ms. Jan Sullivan

7791A/vs

University of Hawaii at Manoa

Department of Civil Engineering
Holmes Hall 383 • 2540 Dole Street
Honolulu, Hawaii 96822

23 September 1985

Mr. John Whalen, Director
Department of Land Utilization
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen :

This letter concerns the Draft Environmental Impact Statement for the Kuilima Resort Expansion at Kahuku, Oahu. I submitted a considerable amount of material to the U.H. Environmental Center on this matter. The points I make below in this communication are only those that the Environmental Center decided not to include in its review.

Diversion of Kawela Stream — I believe that the prediction of silt input decreases to the Bay through the use of hydrological events that supposedly occur, on the average, once in 10 or 50 years, plus a probable maximum precipitation event, demonstrates little. See pages I-45 and I-46. Short-term, rare events in hydrology are characteristically different from the run-of-the-mill daily flows and silt concentrations that integrate out over the long term into such important contributions. To assess overall changes, one must look at the continuous run of events rather than a statistical oddity. (It is clear that the applicant has no flow records for Kawela Stream.)

Kawela Bay Water Quality — The silt vacuuming idea can be regarded as a veiled attempt to alter the uneven and spasmodically rocky southeast portion of the Bay, adjacent to the two planned hotels, so that Mainland and foreign swimmers will enjoy a more cushioned wading experience. There is no defense for the whole silt vacuuming concept.

The applicant has identified anaerobic sediments in the southeast part of the Bay (page I-44). These may be the result of cesspool (pages I-112 and II-C-56) seepage. What will happen when these sediments are cut into, agitated, and resuspended by the dredge ? What will be the adverse impacts on the local biota ? How will the water quality of the whole Bay be altered by the introduction to the water column of these materials ? To suggest that a suction dredge can simply skim off a surface silt layer and leave intact a contacting non-rock underlayer would be technical irresponsibility.

Since Kawela Stream flows do not directly enter the Bay (or haven't for years), the saltwater/freshwater situation in the Bay cannot then be altered by Kawela Stream diversions but only by cutting off the freshwater seeps (page II-C-56). Since that seems extremely difficult to achieve, if not impossible, the salinity of certain portions of the Bay will remain depressed, preventing coral attachment and subsequent growth regardless of the statements made on page II-C-43.

position of less than 50 percent (e.g., 25 percent, The Oceans, Sverdrup, Johnson and Fleming). Therefore, it is highly unlikely that wet season underground seeps introduce significant amounts of eroded upland silt.

LIVING RESOURCES OF KAWELA BAY

It is our understanding that studies conducted by the National Marine Fisheries of Green Sea Turtles at Kawela Bay are not yet completed. According to conversations with residents of Kawela Bay, Green Sea Turtles are generally found in the western half of the bay. Oceanit Laboratories, Inc. found that the northwestern portion of the bay contained abundant growths of algae that are known to be important diet items of Chelonia mydas: Ulva reticulata, U. fasciata, and Codium arabacum.

Please note the site of the proposed desilting operation is located across the bay in the southeastern corner of the bay. As noted in the Draft EIS, the desilting operation is expected to have little effect on the surrounding more productive areas of the bay because a silt curtain would be utilized to isolate the desilted area.

As noted earlier, it is highly unlikely that the de-siltation process would impact any reproductive and/or feeding grounds.

WATER USE

It is EDP Hawaii, Inc.'c opinion that there is an adequate source of water at the Opana (Kawela) Well field. New wells in the Opana (Kawela) Well field have been considered for a number of years. Results of the tests conducted by the BWS in 1969, indicated a static water level at about 8 feet elevation. Drawdowns measured during pumping tests indicated a drawdown of about 4.5 feet at a pumping rate of 800 gpm, which increased to about 21.6 feet at 1780 gpm pumping. Chloride concentrations remained constant at 31 ppm at all pumping rates up to 1780 gpm. Recovery time from 1780 gpm pumping was about 10 minutes. Overall results of the five-hour tests seem to indicate the potential availability of a good source of groundwater for potable use.

Takasaki and Valencia, in their report titled "Water in the Kahuku Area, Oahu, Hawaii", (1969), also discusses potential groundwater sources within the Waimea-Kawela area. Based on the report, the proposed Opana Wells site is situated within a dike water zone which generally extends along the Koolaus and to the ocean in the vicinity of Kawela Bay. According to Takasaki and Valencia, this dike water source is the major source of water in the Waimea-Kawela area and the most promising for additional groundwater development in the area. Takasaki and Valencia estimated an unused groundwater flow of

24 mgd for the entire Waimea-Kawela area. Moreover, they estimated a 10:1 ratio of groundwater flow to draft per coastline mile within the dike water zone, which indicates the availability of groundwater within the area. Additional pump tests will be conducted by the end of this year.

Please note that the Water Master Plan for the Kuilima Resort was approved by the City and County of Honolulu Board of Water Supply, an agency that is responsible for management of island-wide needs.

WASTEWATER TREATMENT AND DISPOSAL

Please note that the applicant is proposing the replacement of the existing waste stabilization pond with a wastewater treatment plant (WWTP) built off-site, partly to avoid potential odor problems. Although the final location has not been established, a WWTP shall be constructed mauka of Kamehameha Highway, east of Oio Stream, near the bluffs. This location is downwind of the project site.

As you know, effluent water is currently used by several golf courses in the State for irrigation (without accompanying health problems). The civil engineers, EDP Hawaii, Inc., spoke with Steve Chang of the State Department of Health, and was informed that the State has set standards on the quality of water used for irrigation. Mr. Chang indicated that if these standards and other conditions were met, it would be unlikely that health problems will occur. The water quality standards could be met by using sand filters and applying additional chlorination prior to irrigation (in addition to chlorination during treatment). The other conditions include: educating the public on the proposed use of effluent (the Draft EIS fulfills some of this requirement); educating the golf course maintenance personnel on the use of effluent for irrigation; and applying effluent with low volume sprinklers near habitated areas.

Please be assured that EDP Hawaii, Inc. is familiar with the problems that occurred at Punaluu. In the event of a power shortage or a failure with the main generator, a standby generator will be provided. If the standby generator were to fail, then the wastewater would be stored in the lagoons. If the lagoons were near capacity, then the effluent would be discharged via injection wells. Therefore, it is highly unlikely that the scenario you described would occur. As noted in the Draft EIS, review of the Wastewater Master Plan (EDP Hawaii, Inc., 1984) for the proposed Kuilima Resort expansion project, by the State Department of Health, the BWS, and DPW Division of Wastewater Management, has been completed with no major objections.

We concur that aerated lagoons require considerable electricity, however, please note that the Hawaiian Electric Company has written to ECS, Inc., the project's consulting electrical engineers, indicating that HECO has adequate resources to service the project.

TSUNAMIS

The applicant, Kuilima Development Company, is aware of the potential damage which tsunamis can cause. In 1967, Kuilima Development Company, then known as INSCON, retained the services of two ocean engineers, Drs. Adams and Bretschneider. It was their assignment to forecast a tsunami design wave height upon which the first floor of the Kuilima Hotel (now known as the Turtle Bay Hilton) would be designed and built.

Subsequent to 1967, two Federal Flood Insurance laws were passed, the National Flood Insurance of 1968 (P. 1. 90-448 and 91-152) and the Flood Disaster Protection Act of 1973 (P.L. 93-234) and their amendments. Recognizing that suitable land could be limited and that people would inhabit flood areas, Congress made it a stipulation that if a county or municipality were to receive Federal or Federally-assisted related financial assistance, it would be necessary for the county or municipality to adopt flood control regulations as prescribed by these laws.

One of these regulations is that the first habitable floor of new structures be equal to or above the regulator flood elevation established by the U.S. Federal Insurance Administration. These regulatory flood elevations have been delineated on the Flood Insurance Rate Maps (FIRM) on file with the Department of Land Utilization of the City and County of Honolulu (DLU).

In addition to the above regulations other regulations covering design criteria for foundations, uplift forces and flood damages have been adopted by DLU.

In summary, the applicant is aware of the hazards presented by tsunamis as evidenced by its past performance and it will continue to take the precautions to safeguard the people and to minimize the effects of tsunamis on its development. Consequently, the structures that the applicant will build at Kawela Bay, as well as the structures to be erected throughout the project site, will be designed and constructed in compliance with all the appropriate county, state and federal regulations that have been enacted to address and mitigate the effects of the tsunami hazard on the Kuilima Resort Development. Compliance with the flood regulations and careful planning of the resort will allow the proposed development, to be implemented in a safe and orderly manner.

DISPLACEMENT OF KAWELA BAY RESIDENTIAL LESSEES

According to the property management company administering the East Kawela rentals for the Kuilima Development Company, 39 parcels were being leased on a month-to-month basis. Of these, only one-half (19) were in full-time residential use; 5 were occasionally but frequently occupied; 10 were occasionally but infrequently occupied; and 5 were unoccupied.

Tenants have been informed of the applicant's plans for eventual termination of their leases. In Section 1(d) of the most recently executed rental agreement, dated January 1 of 1978, each tenant warrants and acknowledges that:

> Landlord and its predecessors-in-interest have planned for at least the last ten (10) years to use the property and certain adjacent lands, the property and such other adjacent lands being hereinafter collectively called the "larger parcel", for the development of a resort development, and it is the Landlord's present intent to commence such development at the earliest possible time, or otherwise use or dispose of the property to third persons, and Landlord shall have the right hereunder to allow the six-month tenancy created hereby to expire at any time without any extension, in the sole and absolute discretion of Landlord, in which event Tenant shall immediately vacate and surrender the property to Landlord, and neither the Landlord nor any of its officers, employees or agents have made any representations to Tenant as to how long the six-month tenancy created hereby might continue.

In an extension letter to the 1978 lease (dated 19 March 1980), the rental agreement was amended to a "month-to-month tenancy," in which this term was defined as:

> The tenancy will continue from month-to-month until terminated by either party at any time, with or without cause, by giving thirty days' prior written notice thereof to the other party.

The effect of the termination of the leases will be mitigated by providing ample notice before termination. Since the lessees have been aware of the eventual termination of their leases since 1978, there appears to be an adequate amount of time (approximately 7 years) for preparing for relocation.

Termination of the leases is likely whether or not the requested governmental land use approvals are requested, since it would be difficult either to sell the land or to develop it (even under

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Finally, referring to page II-C-3, the Bay water is cloudy in the winter because of two causes : resuspension of formerly-introduced sediments due to increased wave action ; the abundant introduction of eroded upland silt due to increased wet season groundwater seeps.

Living Resources of Kawela Bay — Whereas Section C of Volume II describes some of the fish and coral resources of the Bay, the presentation is incomplete since it does not deal at all with either the turtles that enter the Bay from time to time or the swarms of tiny fish that frequent the close inshore of the Bay, particularly in the southeastern corner.

Studies of the turtles were carried out by George Balazs in the spring of this year. The Final EIS must not only present figures on their current numbers and movements but also describe how the planned resort expansion will affect these creatures.

Since no mention was even made of the small schooling fishes using Kawela Bay as a nursery, foraging, and protective environment, no mention had to be made of the effects on them of any of the proposed changes to the Bay, such as the vacuuming of silt. It may be that the habitat provided by the silt on the bottom and in suspension is exactly what the young fish require. The species of these creatures must be established, to see if they are important as juveniles or adults, whether as nourishment for man's food fishes or as food fish themselves. Then the effects on them of changes such as dredging must be outlined.

Water Use — The matter of potential saltwater intrusion into the water well was brought up on page I-122. It is stated that "appropriate action (such as reducing or halting pumping) can be taken should this situation arise". Not addressed is the question of how the resort would then find its needed water. An obvious question concerns whether demands would then be placed on the scarce water resources of other parts of the island, with water transported to Kuilima through pipes placed at taxpayer expense.

Wastewater Treatment and Disposal — The discussion of this matter on pages I-25 and I-114 is insufficient for a complete understanding of the impacts. The intended level of treatment is clearly secondary, which will basically consist of aerated lagoons with provisions for chlorination. It is also apparent that some of the effluent will be used for golf course irrigation. Should system breakdowns or electrical outages occur, it is also clear that industrial wells are intended for emergency use.

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Consider the following. There is no mention of odor control. Since the wastewater treatment plant will be definitely upwind of the resort, this is a potential problem. There is no discussion of public health hazards associated with spraying of a reclaimed wastewater. In the strong wind environment of the resort area, wind-spread water droplets would definitely pose a health threat.

Small-capacity wastewater treatment plants, such as the one proposed, are notorious for their breakdowns as well as their inabilities to render an effluent conforming to design specifications. Consider Punaluu. Thus it is considered very likely that the injection well system will have to be used from time to time. However, numerous studies on Oahu and Maui have shown that an injection well is a very temperamental facility, losing its capacity, clogging readily - especially if used only intermittently. It is easy to imagine a situation in which breakdowns of both the basic and backup systems would involve untreated sewage running over Kamehemeha Highway. What measures can be taken to assure that this does not happen ?

Aerated lagoons involve considerable energy expenditure. The annual drain on Oahu's electrical power supply must be estimated .

Tsunamis The very cursory treatment of this matter on pages I-42 through I-44 is insufficient for an understanding of the impacts of resort expansion. It is clear that increased numbers of people will be moved into a more vulnerable position vis-à-vis an angry ocean. Whether or not first floors are 13 feet above mean sea level, no assurance can be given that persons will remain at that level while tsunami waves roar in and recede, and of course there is no assurance that the predicted 100-year tsunami height may not be exceded, bringing fast-moving water into contact with the first floor.

The section of tsunamis must be expanded to outline the design of piles as well as lower walls and floors. Island and immediate warnings should be described. The evacuation of resort guests and personnel must be thought out and put on paper. Uncertainties should be catalogued and discussed. The potential risks to human life of using an encroaching 100-foot building setback (page I-2) in a region known historically for devastating tsunami must be explored.

Displacement of Kawela Bay Residential Lessees Although the eviction of the thirty-seven households in this category is mentioned at various places in the Draft EIS, there is insufficient effort expended towards evaluating exactly how many persons are affected. Several households concerned (e.g. Holt) have extended families such that literally dozens of people may use the houses on weekends and during longer periods over the summer months.

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There is a statement on page II-J-17 that requires clarification, as it has an unnecessarily ominous ring. "However, it is highly probable that these individuals will be displaced whether or not the currently requested land use approvals are granted."

Yours very truly,

Robert A. Grace
Professor

Francis S Oda AIA Inc
Robert K L Wong AIA Inc
Norman G Y Hong AIA Inc
Sherry B Seaman AIA Inc

4 October 1985

Dr. Gordon Dugan
Professor and Chairman
University of Hawaii
Department of Civil Engineering
Holmes Hall 383
2540 Dole Street
Honolulu, HI 96822

Dear Dr. Dugan:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for the copy of your department's letter of 23 September 1985 to John Whalen, Director of the Department of Land Utilization. We have reviewed your comments and offer the following responses:

DIVERSION OF KAWELA STREAM

As you note in your letter, Kawela Stream apparently has not discharged directly into Kawela Bay in a number of years. However, Kawela Stream has been known to discharge during storm runoff conditions into Kawela Bay, temporarily causing environmental stress. It is to avoid this type of occurrence, and accompanying environmental and aesthetic effects, that the realignment of Kawela Stream is proposed.

KAWELA BAY WATER QUALITY

Response to Page 1, Paragraph 3:

The area in the southeastern portion of Kawela Bay that was identified as needing desilting is characterized mainly by a flat, sandy or silty bottom, with occasional rubble, limestone outcrops, and less frequently, with live heads of Porites spp. Oceanit Laboratories, Inc. (hereinafter referred to as OLI) found that this area contains fine sediments of approximately 25 percent silt and clay size with less than 1 percent larger than 4 millimeters in diameter. This area needs desilting because a "cushioned wading" environment already exists, for those who prefer it. In general, experience has shown that anaerobic sediments are unpleasant to stand in.

Response to Page 1, Paragraph 4:

OLI measured various water quality parameters during the course of their study of Kawela Bay. One of these parameters was fecal coliforms, also found in the intestines of and feces of animals. If these bacteria are present in appreciable numbers in water, the water is considered to have disease-producing potential. Although fecal coliform measurements are peripheral and do not totally measure the public health risk from pathogenic bacteria, they are generally accepted as an indicator of public health risk. OLI's measurements of fecal coliforms indicated that there was no reason or need to be concerned for public health.

The desilting method proposed will resuspend these bacteria, if they exist. However, the death rate of these bacteria generally varies exponentially with time, resulting in the rapid disappearance of the bacteria.

The suction dredge proposed for the desilting procedure would suck most of the sediments into a pipeline to be placed in an adjacent containment pond. The containment pond has been designed so that particles of approximately 0.010mm will settle-out and will not be reintroduced into the bay. Furthermore, the circulation in the southeastern portion of the bay is not of sufficient strength to cause rapid dispersion of silty water resulting from the desilting operation. Nevertheless, a silt curtain will be employed to help contain the materials that are resuspended during the dredging operation.

It is highly unlikely that the de-siltation process would impact any reproductive and/or feeding grounds. All of the fish observed in Kawela Bay reproduce either by broadcasting their eggs into the water to be carried about by the prevailing currents or by attaching their eggs to hard substrate; no fish use the fine sediment to lay or hatch their eggs. This sediment area is also devoid of macroalgal or other growth, and thus does not constitute a site of feeding for resident populations. OI Consultants, Inc. did not find any evidence that Kawela Bay serves as a significant spawning ground for any commercially important fish.

The turbid waters of the southeastern part of the bay may be used by schools of small fishes as a refuge from larger predators. None of the biological surveys of the area have mentioned such schools, but their presence is possible. The fish in such schools are typically rapid swimmers which remain near the surface; the actual dredging operation, being confined to a small area and near the bottom, is unlikely to directly impact these fishes.

The water quality in the rest of Kawela Bay should be relatively uneffected during the dredging operation. The silt curtain should contain the suspended sediments in the area to be desilted and keep them from mixing with the rest of the bay. In fact, after the dredging operation, the water quality in the whole bay will improve because the small amount of mixing that does occur with water from the southeastern portion of the bay will have less suspended material than previously.

The desilting device proposed for desilting Kawela Bay uses jack-up legs that allow it to be firmly planted on the floor of the bay, decoupled from the free surface. This affords the operator good control over the depth of desilting. Furthermore, substratum under the material to be desilted have different physical characteristics than the silty material to be removed, i.e., coarse rubble and coral.

Response to Page 1, Paragraph 5:

We concur that diverting Kawela Stream will not significantly effect the amount of fresh water that enters Kawela Bay. However, Kawela Stream has been known to discharge during storm runoff conditions into Kawela Bay, temporarily causing environmental stress. By moving Kawela Stream it is believed that periodic storm discharge can be avoided; thus, alleviating the bay from high stress conditions caused from storm runoff.

Response to Page 2, Paragraph 1:

It is true that wave action caused the resuspension of formerly-introduced sediments. OLI found that during periods of high tide, wave energy is introduced into this area and causes the silty material to become suspended. It may take several minutes to several hours for the material to resettle; however, because the time required for resettling is small, with respect to the residence time of these sediments in the water column, resettling occurs before the water is removed. Thus, the natural hydrodynamics of the bay form a sediment trap. At low tide, the wave energy allowed into this area decreases and sediments further resettle. As the tide rises, the sediments are resuspended and the cycle reoccurs.

OLI also determined that the silty material found in the highly silted southeast portion of Kawela Bay is composed of greater than 90 percent calcium carbonate, believed to be ocean derived, and not of terrestrial origin. Upland silt typically is composed of silicas, feldspars and micas. If these sediments were terrigenous, we would expect to find a calcium carbonate com-

current approvals) with residential tenants on the property. When the applicant assumed the fee simple ownership of the lands presently being leased to the tenants on the east side of Kawela Bay, it had decided to allow the tenants to enjoy the use of the lands as long as possible, with no increases in lease rent.

Please note that your letter and this response will be appended to the revised EIS.

Sincerely,

GROUP 70

for Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Mr. Paul Low, EDP Hawaii, Inc.
Mr. Pat Sullivan, Oceanit Laboratories, Inc.
Ms. Jan Sullivan

7839A/vs

University of Hawaii at Manoa

Environmental Center
Crawford 317 • 2550 Campus Road
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Telephone (808) 948-7361

September 23, 1985

RE:0425

Mr. John Whalen, Director
Department of Land Utilization
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Draft Environmental Impact Statement
Kuilima Resort Expansion
Kahuku, Oahu

The project for which the above cited document has been prepared, proposes the rezoning of approximately 808 acres at the extreme northern point of Oahu to facilitate expansion of the existing Kuilima resort. The primary issues of concern include the effects of the project on the flora and fauna of Kawela Bay, the Punahoolapa marsh-water bird habitat and tsunami inundation.

The Environmental Center review has been prepared with the assistance of Doak Cox, Emeritus Geophysicist; Paul Ekern, Agronomy and Soils; Robert Grace, Civil Engineering; James Parrish, Hawaii Cooperative Fisheries Research Unit; Matthew Spriggs, Archaeology; Julianne Mansur, Sea Grant; Eileen Anthony and Martha Diaz, Environmental Center. We offer the following comments for your consideration:

Water Resources and Water Usage

Pages 40-42 and Appendix A. Appendix A —page 17, of the DEIS states that current vegetable crop production in the project area requires 4,000 gal/acre/day (gad). We believe this figure to be in error.

Pan evaporation records from pump 4, station 808, at Kahuku, Oahu, indicate yearly rates in the order of approximately 80". This translates to an average of 6,000 gad with peak values in midsummer on the average of 8,000/gad. This indicates a higher average demand of water in the order of 2,000---4,000 gad than was previously cited.

Studies cited by our reviewers indicate that grass sod will require 6,900 gad (Ekern), while Chinese cabbage has been reported to use 6,000 gad. Other vegetable crops have been reported to require 4,800 gad. These values are small as compared to the estimated demand cited in Appendix B — page 2, nevertheless, the Final EIS should reflect the corrected values when referencing water availability and demand for future proposed use.

Tsunami/Flood Hazard

Pages 42-44. The treatment of tsunami hazard and its mitigation is cursory. Although the runup height and extent of inundation of the 100-year tsunami as estimated in the National Flood Insurance program are indicated, there is no recognition that Kawela Bay is one of the few places where a historic tsunami (that of 1946) was converted to a bore, or of the implications of such conversion in the design of flood-resistant structures. Elevation of the lowest habitable floors of structures in the tsunami-prone area to heights above the 100-year tsunami runup height will not assure tsunami resistance unless the lower parts of the structure are designed to withstand bore attack.

No reference is made in the Draft EIS to the Civil Defense tsunami evacuation area that is much larger than the 100-year tsunami area. It is not indicated whether, with a tsunami warning, evacuation of persons in the evacuation area will be horizontal to inland areas or vertical to the upper floors of high-rise structures in the evacuation area. There is no discussion of the adequacy of horizontal evacuation routes, i.e. the ability of the existing roads to carry the required traffic, or the heights to which vertical evacuation might be required, or of the safety of the upper floors of high-rise structures considering possible bore effects.

These issues should be addressed in the Final EIS.

Coastal Water Quality

Page 44-45. The Draft Environmental Impact Statement (EIS) states that the water quality of Kawela Bay is acceptable for recreational uses but that water visibility is poor in the southeast portion of the bay due to sediments carried in by Kawela Stream. During periods of high tide and wave action, these sediments are re-suspended causing turbidity of the water. To mitigate this problem the developer proposes to divert a major portion of Kawela Stream to Turtle Bay and to suction dredge the southeast section of the bay after installing silt curtains. Our reviewers have questioned both the efficacy of the proposed methods to enhance the recreational use of the southeastern portion of the bay and the potential impacts of the dredging operations on the bay biota.

It is our understanding that the sand barrier isolating Kawela Stream from Kawela Bay has not been breached for several years, thus the conclusion that Kawela Stream is the major contributor of fine grained sediments to the southeastern section of Kawela Bay may not be supported. The frequency with which the sand plug is breached, the flow characteristics of Kawela Stream, the mineralogy of the sediments in the southeasern section of Kawela Bay, and the direction and magnitude of the currents in the bay under varying oceanic and meterological condtions, should be provided. One of our reviewers has called attention to the frequent presence of patches of discolored water in Kawela Bay, regardless of tides or seasons. Further examination of these patches shows them to be sites of cold, fresh water intrusion. During periods of high rainfall it is likely that these fresh water seeps provide a source of nutrient-enriched fresh water and some sediment inflow to the bay.

The proposed use of a suction dredge to remove the silt in the southeastern section of Kawela Bay is unlikely to be very effective. Silt is suspended in the sediment water

mixture and generally discharged with the excess water over the side of the spoil barge during dredging operations. In general, silt curtains are only minimally effective and silt plumes are widely dispersed both horizontally and vertically. However, on the more positive side, if the currents are sufficiently strong in the other areas of the bay, fine sediments, put into suspension during the dredging process, may be removed by natural flushing before they can cause significant harm to the benthic communitiies.

The Final EIS should provide more substantive information on the dredging methods that will be employed, the impacts associated with tug and barge operations, suction pipe placement, soil disposal, silt curtain design, including flotation and anchoring systems as well as their specific siting and the areas of the bay that are to be dredged. We assume that all of this information, will also be requested by the Corps of Engineers prior to their issuance of the required permit.

According to the Hawaii Coral Reef Inventory for Oahu and Appendix C of the Draft EIS many species of fish are found in Kawela Bay. We assume that because of its remote location the bay may also serve as a nursery ground for certain of these species. Since Kawela Bay is being considered for designation as a Marine Life Conservation District, it is important to know if the silt areas provide any critical food or habitat for the present marine populations. This issue should be discussed in the Final EIS.

Vegetation

Pages 49-56. The Draft EIS discusses (page 21) filling of approximately 13 acres of "marginal wetland along the perimeter of the marsh and adding 6.2 acres of buffer area to the marsh boundary." We assume that the net loss in marsh acreage is therefore 6.8 acres. Since the marsh provides critical habitat for threatened and endangered avifauna, it would be helpful to know the basis for deciding "marginal" habitat, the quality of the 6.2 acres to be added in terms of the needs of the bird population, and the potential impacts associated with the loss of 6.8 acres of critical habitat.

It is unclear if the botanical survey covered the entire area of the proposed development or just the Punahoolapa marsh and dune areas. If possible, the Final EIS should provide a checklist of species related to project location.

The use of pesticides and herbicides on the golf course may have significant impacts on the flora and fauna of the marsh and adjacent receiving waters. Polychlorinated hydrocarbons (HCX) have been generally recognized as posing significant threats to the survival of some avifauna. Whether or not the concentrations of HCX in the Punahoolapa marsh will create significant impacts is not clear from the information provided. The Final EIS should provide estimates of both long term and short term expected concentrations of HCX's in the marsh and near shore waters of Kawela Bay. In the later case,. water quality measurements in areas subject to fresh water outflows should be sampled. The concentrations should then be evaluated for their effects on the species that will be exposed.

The concentrations and effects, if any, of herbicides and pesticides from current uses should be presented for comparison with estimated future concentrations. Perhaps the current levels of concentrations are below chronic levels, however, this does not preclude possible cummulative impacts from increased uses nor inclusion of a discussion

of the potential impacts in the Final EIS.

Sand Dunes

Pages 57-58. Sand dunes are important for a number of reasons. They may contain rare endangered flora, significant archaeological materials, and provide protection from the ocean waves to the land areas behind them. The most serious problem our reviewers have noted is the impact to the dunes by the off-road vehicles. The off-road vehicles impact all critical environmental aspects of the dunes; the flora, archaeological sites and physical stability. The recommendations proposed both in this section of the DEIS and under the Historical and Archaeological Resources section should provide sufficient protection of the three unique environmental characteristics of the sand dunes.

Terrestrial Vertebrates

Pages 59-64. The most serious concern to the terrestrial vertebrates is that of the effects of the polychlorinated hydrocarbons (HCX) on the avifauna of Punahoolapa Marsh. The DEIS should provide substantive figures as to what levels of HCX are tolerable by the various species of avifauna that will be exposed to these "substantially" increased levels.

It should be noted that marine turtles have been observed in Kawela Bay and along this shoreline. They should be added to the list of vertebrates (marine species) to be protected particularly in light of their threatened status.

Historical and Archaeological Resources

Pages 64-69. Our reviewers have found the archaeology section to be comprehensive in its address of the concerns and the recommendations for investigating environmental impacts to be appropriate. The major concern expressed was for immediate control of the off-road vehicles which so frequently destroy archaeological sites.

Socio-Economic Characteristics

Pages 79-93. Resort development-expansion into largely agricultural or rural land use areas represents a significant change in the socio-economic characteristics and community structure of a neighborhood. While it is our understanding that the majority of employees at the existing Kuilima hotel are "local" people, it would be helpful in evaluating the social impacts of the project to see the actual numbers of the labor force of the current hotel that are from the Kahuku area.

It is stated in Appendix J, page 8 that "while greater priority should be given to non-management jobs, efforts should also be directed towards middle and upper management positions." It would be helpful to include in the FEIS information on how the middle and upper management positions will be filled. What is the rationale for assuming that greater priority should be given to non-management jobs instead of training and employing local residents at the management level in the organization?

Infrastructure and Public Services

Pages 95-120. The discussion of the traffic flows and other related infrastructure and public service needs appears to have been adequately addressed.

We appreciate the opportunity to comment on this DEIS.

Yours truly,

Jacquelin N. Miller
Acting Associate Director

OEQC

cc: Patrick Takahashi, Act. Dir., Env. Ctr.
Paul Ekern
Robert Grace
James Parrish
Matthew Spriggs
Martha Diaz
Eileen Anthony
Julianne Mansur
John P. Whalen
Francis S. Oda

Francis S Oda A A Inc
Robert K L Wong AIA Inc
Norman G Y Hong AIA Inc
Sheri E Seamans A A Inc

4 October 1985

Ms. Jacquelin N. Miller
Acting Associate Director
University of Hawaii at Manoa
Environmental Center
Crawford 317
2550 Campus Road
Honolulu, HI 96822

Dear Ms. Miller:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for the copy of your letter of 23 August 1985 to John Whalen, Director of the Department of Land Utilization. We have reviewed your letter and offer the following responses to your comments:

Water Resources and Water Usage

Dr. Frank S. Scott, Jr. verified his irrigation requirement figure with Dr. I-Pai Wu, Professor of Agricultural Engineering at the University of Hawaii at Manoa. Dr. Scott stated that the 4,000 gad figure represents the water demand of the crops, including losses due to evaporation. Dr. Scott believes that the difference in irrigation demand between his figures and your reviewer's may lie in losses during delivery.

Tsunami/Flood Hazard

We appreciate the information provided. The EIS will be revised to include the following information:

> Existing Conditions - Two Federal Flood Insurance laws have been passed, the National Flood Insurance of 1968 (P. 1. 90-448 and 91-152) and the Flood Disaster Protection Act of 1973 (P.L. 93-234) and their amendments. Recognizing that suitable land could be limited and that people would inhabit flood areas, Congress made it a stipulation that if a county or municipality were to receive Federal or Federally-assisted related financial assistance, it would be necessary for the county or municipality to adopt flood control regulations as prescribed by these laws.

One of these regulations is that the first habitable floor of new structures be equal to or above the regulator flood elevation established by the U.S. Federal Insurance Administration. These regulatory flood elevations have been delineated on the Flood Insurance Rate Maps (FIRM) on file with the Department of Land Utilization of the City and County of Honolulu (DLU).

In addition to the above regulations other regulations covering design criteria for foundations, uplift forces and flood damages have been adopted by DLU.

Areas of the subject parcel prone to the 100-year tsunami inundation are shown on Figure 12 (from information, obtained from the Federal Insurance Administration Flood Insurance Rate Map). The makai-most portion of the project site is subject to 100-year tsunami inundation and the approximate maximum 100-year tsunami elevations range from 6 to 18 feet. In addition, Kawela Bay is one of the few places where a historic tsunami (that of 1946) was converted to a bore (Miller, 1985). The Civil Defense Tsunami Inundation Maps indicate that the coastline in the vicinity of Kawela Bay could be inundated to approximately $^{1}/_{2}$ mile inland.

Figure 12 also indicates that portions of the project site are also designated Zones AH, B and C. Zone AH indicates areas of 100-year shallow flooding where depths are between 1 and 3 feet. For this area, the approximate 100-year flood elevation is 6 feet mean sea level. The 100-year event has a one percent chance of being equalled or exceeded in any given year.

Zone B indicates areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood.

Zone C indicates areas of minimal flooding.

Proposed Action - Under both County flood hazard ordinances and requirements of the National Flood Insurance Program, proposed structures in regulatory floodplain areas must be elevated or floodproofed to or above the 100-year flood levels established by the Federal Insurance Administration Flood Insurance Rate Map. No habitable spaces will be built below the identified maximum 100-year tsunami/flood elevations and the lower parts of the structure will be designed to withstand bore attack.

Anticipated Impacts and Mitigative Measures - The applicant will mitigate the impact of proposed development within the regulatory floodplain areas by observing both County flood hazard ordinances and requirements of the National Flood Insurance Program. In the event of a tsunami warning, persons in the potential tsunami inundation area will be evacuated to the upper floors of the higher structures in the area.

In summary, the applicant is aware of the hazards presented by tsunamis as evidenced by retaining, in 1967, the services of two ocean engineers, Drs. Adams and Bretschneider. It was their assignment to forecast a tsunami design wave height upon which the first floor of the Kuilima Hotel (now known as the Turtle Bay Hilton) would be designed and built. The applicant will continue to take the precautions to safeguard the people and to minimize the effects of tsunamis on its development. Consequently, the structures that the applicant will build at Kawela Bay, as well as the structures to be erected throughout the project site, will be designed and constructed in compliance with all the appropriate county, state and federal regulations that have been enacted to address and mitigate the effects of the tsunami hazard on the Kuilima Resort. Compliance with the flood regulations and careful planning of the resort will allow the proposed development, to be implemented in a safe and orderly manner.

Coastal Water Quality

Response to page 2, paragraph 4:

Please note that the Draft EIS stated that: "The major source of fine terrestrial sediments in the bay is believed to be from Kawela Stream". But the statement which follows will be revised to read: "However, fine calcium carbonate sediments of oceanic origin are the major contributors to the turbidity problem".

Oceanit Laboratories, Inc. (hereinafter OLI) identified two areas of aesthetic concern in Kawela Bay; these are: anaerobic sediments in the southeastern corner of the bay; and high turbidity in the southeastern corner of the bay. Since the anaerobic sediments are aesthetically unpleasant to stand in, the applicant proposes to alter this condition by removing this layer of sediments, i.e., 2 to 6 inches, from the southeastern portion of Kawela Bay.

The high turbidity in the southeastern portion of the bay will improve from the desilting operation, because some of the silt and clay sized particles that are available for suspension will become unavailable as a result of the proposed operation. While the degree of improvement will be small and the water in the bay

will never be as clear as water found in the open ocean (as is the condition of most embayments), a small improvement will be realized. This will also contribute to the recreational enjoyability of the bay, thus enhancing its recreational use.

The water quality in the rest of Kawela Bay should be relatively uneffected during the dredging operation. The silt curtain should contain the suspended sediments in the area to be desilted and keep them from mixing with the rest of the bay. In fact, after the dredging operation, the water quality in the whole bay will improve because the small amount of mixing that does occur with water from the southeastern portion of the bay will have less suspended material than previously.

OI Consultants, Inc. have determined that it is highly unlikely that the de-siltation process would impact any reproductive and/or feeding grounds. All of the fish observed in Kawela Bay reproduce either by broadcasting their eggs into the water to be carried about by the prevailing currents or by attaching their eggs to hard substrate; no fish use the fine sediment to lay or hatch their eggs. This sediment area is also devoid of macroalgal or other growth, and thus does not constitute a site of feeding for resident populations. OI Consultants, Inc. did not find any evidence that Kawela Bay serves as a significant spawning ground for any commercially important fish.

The turbid waters of the southeastern part of the bay may be used by schools of small fishes as a refuge from larger predators. None of the biological surveys of the area have mentioned such schools, but their presence is possible. The fish in such schools are typically rapid swimmers which remain near the surface; the actual dredging operation, being confined to a small area and near the bottom, is unlikely to directly impact these fishes.

<u>Response to page 2, paragraph 5:</u>

As previously noted, Kawela Stream is in fact not the major contributor to silt and clay sized particles found in the southeastern portion of Kawela Bay. OLI found that most of the turbidity results from fine particles, silt and clay size, of calcium carbonate. These particles are ocean derived and are not from Kawela Stream. Sufficient analysis was done on several sediment samples to determine that the silt and clay sized particles found in the southeastern portion of Kawela Bay have a lower calcium carbonate content, approximately 90 percent, and a larger organic content, approximately 6 percent, than sediments found in the rest of the bay that contain approximately 97 percent calcium carbonate and 2.5 percent organics.

OLI took measurements of currents in Kawela Bay during a few of many possible oceanic and meterological conditions. Current measurements, as well as physical-chemical measurements were used to describe the circulation in the bay at the time of the measurement. Results indicate that the contained presence of silt and anaerobic sediments even after winter storms and/or long periods of no stream discharge, indicates that the problem in Kawela Bay stems from poor circulation. The natural hydrodynamics of the bay form a sediment trap.

OLI found that measurements of salinity throughout the bay varied from 29.3 to 34.9 parts per thousand, indicating a significant amount of fresh water intrusion into the bay from underground sources. These underground sources probably provide a source of nutrient-enriched fresh water that could result in biological blooms, thus resulting in an increased cloudyness in the vicinity of the fresh water source. However, it is highly unlikely that significant amounts of sediments are introduced into the bay from these seeps.

Response to comment starting on page 2, last paragraph:

The effectiveness of the proposed dredging operation will be determined by how well it addresses the aesthetic issues identified above., i.e., anaerobic sediments and turbidity. The preliminary design of the desilting operation calls for the isolation of the southeastern portion of the bay with a silt curtain and the construction of an adjacent containment pond.

The containment pond is designed so that particles of 0.010 mm and larger can settle before the water is recirculated back into the sectioned-off corner of the bay. The design of the desilting system provides a high probability for sucessfully addressing the anaerobic sediments and turbidity problems. Therefore, it is very likely that the desilting operation will have a high degree of effectiveness.

The impacts from the proposed operation on the bay are estimated to be negligible because of adequate circulation in the rest of the bay and the use of the silt curtain to isolate the area to be desilted.

Response to page 3, paragraph 2:

The desilting device will consist of a shore-launched floating platform with jack-up legs. The desilting device will be connected via a 0.5 feet diamenter pipeline to an adjacent containment pond. Dredged spoils will be used as construction material at another location on the property.

Response to page 3, paragraph 3:

Please refer to Appendix C of the EIS for the results of the benthic surveys conducted by OI Consultants, Inc. As noted earlier, OI Consultants, Inc. determined that it is highly unlikely that the de-siltation process would impact any reproductive and/or feeding grounds.

Vegetation

Response to page 3, paragraph 4:

In referring to marsh land, a more descriptive term than "marginal" would have been "transitional zone". According to our botanical consultants, Earthwatch, vegetation in a transitional zone are cover types which are seasonally wet, and which may define the outer limits of the perennially wet marshlands. Shrub thickets and California grass marshland are cover types within which most of the proposed fill occurs. Both cover types are dominated by exotic species, and form such dense stands that they are not suitable for waterfowl habitat. Species found in these cover types are found elsewhere not only in this marsh but in similar marsh habitats throughout the Hawaiian Islands. This EIS will be revised accordingly.

The 6.2 acres of buffer area is likely to be also transitional zone vegetation. Its prime purpose is to provide some form of visual screening and physical buffer from the areas surrounding the marsh.

It is felt that the loss of 6.8 acres of transitional zone vegetation will be more than offset by the benefits gained when the waterbird habitat improvements are implemented.

Response to page 3, paragraph 5:

Earthwatch provided a reconnaissance-level vegetation survey of the entire project site in 1978 and specific surveys of the dunelands and marshlands in 1984 and 1985. As requested, a checklist of species compiled by Earthwatch will be included in the Revised EIS.

Response to page 3, paragraph 6 and comment starting on the last paragraph of the page:

The consultants, Dames & Moore, provided estimated loadings of HCX into the marsh (see Appendix G). However, concentrations of HCX in the marsh waters cannot be determined at this time because the hydrologic characteristics of the marsh are

unknown. Therefore, HCX concentrations that avifauna will be exposed to are also unknown. A draft of the "Letter Report Drainage Impacts on Punahoolapa Marsh, Proposed Kuilima Resort Expansion, Kahuku, Oahu, Hawaii" (Dames & Moore, 1985) was submitted to the U.S. Fish and Wildlife Service. They provided review comments and the revised version of the report was appended to the Draft EIS (Appendix G). Their main concern was the reported use of the pesticide Dursban. As recommended by the Service, the applicant will ask the existing golf course operator to seek a less toxic alternative.

Regarding the potential for impact on coastal waters of HCX flowing out of the marsh, OI Consultants, Inc. presents the following information for HCX after drainage modifications (data from Dames and Moore report):

Mean HCX loading	=	0.456 pounds per month	(Table 5)
Mean flow into marsh	=	17,529,284 gallons per month	(Table 3)
Percent active ingredient	=	10%	(Table 4)
Mean Concentration	=	mean loading/mean flow	
	=	2.6×10^{-8} pounds/gallon	
	=	3.1×10^{-6} grams/liter	
	=	3.1 parts per billion (ppb)	

This concentration could vary due to changes in drainage flow. Maximum flow is approximately 195,500,000 gallons per month and minimum flow is approximately 530,000 gallons per month (Table 3); these flows result in concentrations of 0.3 ppb under maximum flow and 100 ppb under minimum flow. Several processes occur in the marsh and nearshore environment which serve to decrease these concentrations. Suspended sediments carried with the drainage flow absorb some of the HCX onto the particle surfaces; some percentage of these particles settle to the bottom of the marsh, thus decreasing the concentration of HCX in the water. Note that the settling process is most effective under low flow, the time of highest HCX concentration. Under high flow, the concentration of HCX decreases due to dilution. Once the drainage water reaches the ocean, the flow is rapidly mixed with ocean water and diluted, and carried off-shore by prevailing currents.

According to OI Consultants, Inc., the low initial concentrations of HCX in the drainage water and the processes acting to decrease these concentrations still further imply that the potential for harmful impact of HCX on the nearshore ocean environment is minimal.

During the public review period the State Department of Land and Natural Resources (DLNR) requested that the applicant provide monitoring of the near shore water quality at the outlets of West and East Main Drains. The applicant has agreed to annual monitoring during development and operation of the resort, with termination after three years after completion of the resort if results show impacts are insufficient to warrant continuation (Ono, 1985).

Sand Dunes

As stated in your letter, we feel that the dedication of the P-2 area to the City and County of Honolulu for the establishment of a public park will provide sufficient protection of the sand dunes.

Terrestrial Vertebrates

As previously noted, review of a draft of the "Letter Report Drainage Impacts on Punahoolapa Marsh, Proposed Kuilima Resort Expansion, Kahuku, Oahu, Hawaii" (Dames & Moore, 1985) by the U.S. Fish and Wildlife Service indicated that the main concern was the reported use of the pesticide Dursban. As recommended by the Service, the applicant will ask the existing golf course operator to seek a less toxic alternative.

It is our understanding that studies conducted by the National Marine Fisheries of Green Sea Turtles at Kawela Bay are not yet completed. According to conversations with residents of Kawela Bay, Green Sea Turtles are generally found in the western half of the bay. Oceanit Laboratories, Inc. found that the northwestern portion of the bay contained abundant growths of algae that are known to be important diet items of Chelonia mydas: Ulva reticulata, U. fasciata, and Codium arabacum. This information will be provided in the appropriate section of the Revised EIS.

Historical and Archaeological Resources

We appreciate your reviewers comments regarding the work conducted by Paul H. Rosendahl, Ph.D., Inc. (PHRI). Since concern has been expressed regarding the off-road vehicles concessions and the use of their vehicles near Kahuku Point, the applicant has retained PHRI to stake off areas that are of archaeological significance and that should be avoided.

Socio-Economic Characteristics

Response to page 4, paragraph 6:

Please note that as stated in the EIS, the impacted region is considered to extend from Kaaawa to Haleiwa, i.e., all of Koolauloa and the North Shore, not just the "the Kahuku area."

There are at least two ways to interpret the question about numbers of current workers "from" the region: (1) numbers of people who currently live there, and/or (2) numbers of people who are, according to place of birth or other indicators, "long-time residents" of the region, or even of Hawaii as a whole. The second is perhaps the more significant socioeconomically, but also the more difficult to assess.

The attached table provides a breakdown of then-current places of residence for the original 2,154 job applicants when the new Turtle Bay Hilton began hiring in late 1983, as well as the residences of the hotel's 488 employees as of December 1984. As may be seen, 86 percent of the original applicants then lived in the region (Koolauloa and North Shore), and 97 percent were region residents in December 1984.

Additionally, the applicant is currently funding an analysis of yet-unhired job applicants since the Turtle Bay Hilton began taking applications in late 1983. While these data are at present still being fed into the computer, one available preliminary statistic is that 2,736 of a total 3,170 applications received were from people living in the Koolauloa/North Shore region or nearby Wahiawa, or 86 percent.

Response to page 4, last paragraph:

There are a great many more jobs at the non-management level, and there are a great many more unemployed or underemployed Koolauloa/North Shore residents who could potentially qualify for these jobs than for management jobs. Additionally, most hotel organizations have some form of in-service upgrade training program to help promising employees climb the career ladder to supervisory or management positions. However, few if any hotels have extensive programs for assisting disadvantaged applicants to gain minimum qualifications for entry-level jobs. Thus, the proposed jobs training program would provide some supplementary assistance to management training expected to be available anyway, but more of the program's resources would be devoted to (1) the types of jobs which are most plentiful in resorts and (2) the types of training (e.g., basic skills) which may not be otherwise available.

At the same time, Appendix J does discuss the social problems which can occur when the very top hotel management positions are consistently filled by people recently arrived in Hawaii. This discussion (Community Resources and Lyman, p. 199) notes that a major reason why this occurs is that most national and international hotel organizations routinely rotate managers to varous hotels throughout the chain. Thus, extensive programs to interest North Shore residents in travel industry management training could ultimately result in more Hawaii-born people in top management positions, not in Hawaii itself

but throughout the world. This would not be a bad thing, but more immediately useful objectives would include (1) some facilitation of in-service upgrade training programs to help residents to advance to mid-level supervisory positions (at Kuilima itself, as opposed to other locations throughout the world), combined with (2) efforts to educate newly-arrived out-of-state top managers about unique cultural aspects of the North Shore/Koolauloa workforce. Having more "local" top managers remains a long-term goal, but must focus on all kamaainas and not just people from the immediate Kuilima area (Knox, 1985).

Infrastructure and Public Services

Please note that we are incorporating additional information in this section on the basis of comments received during the public review period.

Please note that your letter and this response will be appended to the Revised EIS.

Sincerely,

GROUP 70

for Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Ms. Jennifer Kleveno, Dames & Moore
Dr. John Knox, Community Resources, Inc.
Dr. Paul H. Rosendahl, PHRI
Dr. Frank S. Scott, Jr.
Dr. Pat Sullivan, Oceanit Laboratories, Inc.
Dr. David Ziemann, OI Consultants, Inc.
Ms. Jan Sullivan

7842A/vs

Enclosure:

12/18/84

Geographical information on Turtle Bay Hilton's current 488 employees:

Area	Total	Percent of Total	
Kaaawa	17	3.48%	
Hauula	46	9.43%	
Laie	45	9.22%	96.93%
Kahuku	133	27.26%	
Haleiwa	165	33.81%	
Waialua	67	13.73%	
Other	15	3.07%	
TOTAL	488	100.00%	

Geographical information on applications received upon reopening of Turtle Bay Hilton in December 1983:

Area	Total	Percent of Total	
Kaaawa	49	2.27%	
Punaluu	25	1.16%	
Hauula	287	13.32%	
Laie	255	11.84%	85.97%
Kahuku	414	19.22%	
Haleiwa	524	24.33%	
Waialua	298	13.83%	91.12%
Wahiawa	111	5.15%	
Other	191	8.88%	
TOTAL	2,154	100.00%	

University of Hawaii at Manoa

Water Resources Research Center
Holmes Hall 283 • 2540 Dole Street
Honolulu, Hawaii 96822

23 September 1985

Mr. John P. Whalen, Director
Dept. of Land Utilization
City & County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Whalen:

SUBJECT: Draft Environmental Impact Statement, Kuilima Resort Expansion, Koolauloa District, Oahu, Hawaii, August 1985

We have reviewed the subject DEIS and offer the following comments:

1. P. 4, Fig. 1. There is no legend to indicate what's there.

2. P. 5, Fig. 2; and P. 6, Fig. 3. Delineation of the expansion project area would be helpful.

3. Please address coastal zone management development rules as a single entity.

4. Please provide complete reference list. Fir example, where is the Hawaii State Plan?

Thank you for the opportunity to comment. This material was reviewed by WRRC personnel.

Sincerely,

Edwin T. Murabayashi
EIS Coordinator

EIM:jm

cc: F.S. Oda, Group 70

Francis S Oda A.A. Inc
Robert K L Wong AIA Inc
Norman G. Hong AIA Inc
Sheryl B Seaman A.A. Inc

4 October 1985

Mr. Edwin T. Murabayashi
EIS Coordinator
University of Hawaii at Manoa
Water Resources Research Center
Holmes Hall 283
2540 Dole Street
Honolulu, HI 96822

Dear Mr. Murabayashi:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for the copy of your letter of 23 August 1985 to John Whalen, Director of the Department of Land Utilization. We have reviewed your comments and offer the following responses:

1. Since the function of this figure is to merely indicate the approximate location of the project site in relation to Oahu and more specifically, the north shore region of the island, we do not feel a legend is necessary.

2. As suggested, the project site will be delineated on figures 2 and 3.

3. Please note that the objectives of the Hawaii Coastal Zone Management Program and an assessment of how the proposed project relates to them was discussed on pages 158 to 162 of the Draft EIS. Also, the applicant is presently in the process of obtaining a CZM Federal Consistency Determination from the State of Hawaii Department of Planning and Economic Development.

4. According to our knowledge, the references provided on page 174 of the Draft EIS are essentially complete. The criteria that we used for inclusion of items as references cited were: it was a major source of research; it provided a basis for a judgement of environmental assessment; and it was not a reference commonly known to the public. As suggested, the Hawaii State Plan will be listed as a reference.

Please note that your letter and this response will be appended to the Revised EIS.

Sincerely,

GROUP 70

Francis S. Oda

Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Ms. Jan Sullivan

7810A/vs

UNITED STATES
DEPARTMENT OF
AGRICULTURE

SOIL
CONSERVATION
SERVICE

P. O. BOX 50004
HONOLULU, HAWAII
96850

August 30, 1985

Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 98613

Dear Mr. Whalen:

Subject: Draft EIS for Kuilima Resort Expansion, Koolauloa District, Oahu

We reviewed the subject draft environmental impact statement as requested. We sent the following comments dated July 8, 1985, to Mr. Kent M. Keith, Director, Department of Planning and Economic Development, in response to the land use zoning change proposal (Petition A85-595).

> "The Soil Conservation Service advocates the preservation of prime agricultural land. As stated in the petitioner's report, the proposed Kuilima Resort expansion will consume 48 acres of prime agricultural land. In this case, however, we feel the conversion of prime agricultural land at the southeastern corner, boardered by Kamehameha Highway, will provide for an orderly and logical expansion.
>
> "If the goal of the petitioner is to 'achieve a "neighbor island-like" character,' as stated on page 17, they may want to keep the proposed stable area in crops such as guava, papaya, watermelon, corn and other adapted crops. Tourists will be especially interested in seeing tropical crops growing there."

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

Sincerely,

FRANCIS C.H. LUM
State Conservationist

cc:
Mr. Francis S. Oda
Group 70
924 Bethel Street
Honolulu, HI 96813

Francis S Oda AIA Inc
Robert K Wong AIA Inc
Norman G Y Hong AIA Inc
Sherwin B Seamer AIA Inc

4 October 1985

Mr. Francis C.H. Lum
State Conservationist
U.S. Department of Agriculture
Soil Conservation Service
P.O. Box 50004
Honolulu, HI 96850

Dear Mr. Lum:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for the copy of your letter of 30 August 1985 to John Whalen, Director of the Department of Land Utilization. We have reviewed your comments and offer the following responses. We concur with your first comment that the conversion of prime agricultural land at the southeastern corner of the site will provide for orderly and logical expansion of the Kuilima Resort. It is for that reason that we also feel that your recommendation that the applicant keep the proposed stable area in crops is an interesting idea, but may not be necessary. There are nearby lands where the crops described are being successfully cultivated. In going to and from the resort, the visitor must pass productive agricultural fields.

Thank you for your response. Please note that your letter and this response will be appended to the revised EIS.

Sincerely,

GROUP 70

Francis Oda

Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Mr. Frank Scott, Jr.
Ms. Jan Sullivan

7761A/vs

[illegible] • [illegible] • [illegible] • [illegible] • 9[illegible] Street • [illegible] 96[illegible] • [illegible]

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

September 16, 1985

1985 SEP 19 PM 2:40
DEPT. OF LAND UTILIZATION
CITY & COUNTY OF HONOLULU

Mr. John P. Whalen, Director
Department of Land Utilization
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Thank you for the opportunity to review and comment on the Kuilima Resort Expansion Draft EIS and the Request for Zone Change - Proposed Turtle Bay Resort Expansion which involves the same project area. The following comments are offered:

a. We are currently processing a Department of the Army permit (PODCO-O 1857-S) for that portion of the project which involves the dredging and filling of Punahoolapa Marsh, construction of two drainage channels, and dredging a portion of Kawela Bay. Both documents acknowledge that this process is underway.

b. Flood hazards have been addressed in the Draft EIS based upon our initial comments of November 27, 1984. In addition, the proposing party also recognizes the mandatory county ordinance restrictions which would apply to structural developments in Zone V24 (coastal high hazard area) and Zone A4 (inland tsunami inundation limit).

c. Draft EIS, Part IV J: Historic/Archaeological Resources

1. Page 67. The one mention, without comment, of the radiocarbon date 165B.C. - A.D. 210 for site 50-09-F4-14 is inadequate. This represents the earliest cultural date yet derived for any Hawaiian site on any Hawaiian island. The Draft EIS should reflect this finding of significance and address the archaeological contractor's recommendation for further testing and survey to establish the extent of this important site. In addition, a Determination of Eligibility should be requested for this site through the State Historic Preservation Office.

2. Page 69. The Proposed Action section omits descriptions and recommendations for sites 50-09-F4-14, T-7 and Survey Areas 8, 11 and 13, as submitted by the archaeological contractor and referenced as Appendix H, Volume II of the Draft EIS. These findings and recommendations should be included in the appropriate sections.

3. Page 69. Before and during proposed construction in the project area takes place, a qualified archaeologist should be encumbered to monitor ground disturbing activities and to provide liaison with the State Historic Preservation Office, rather than leaving it to the construction contractor.

d. Zone Change Application: Proposed Turtle Bay Resort Expansion. There is no statement at all regarding historic/archaeological resources that will/won't be affected by re-zoning changes. A statement addressing the benefits and/or adverse impacts of re-zoning should be inserted in an appropriate section of this document based on information available in the Draft EIS.

Sincerely,

Kisuk Cheung
Chief, Engineering Division

Francis S Oda AIA Inc
Robert K L Wong A A Inc
Norman G Y Hong AIA Inc
Sherry B Seaman A - Inc

4 October 1985

Mr. Kisuk Cheung
Chief, Engineering Division
Department of the Army
U.S. Army Engineer District, Honolulu
Ft. Shafter, HI 96858

Dear Mr. Cheung:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for the copy of your letter of 16 September 1985 to John Whalen, Director of the Department of Land Utilization. We have reviewed your comments regarding the Draft EIS and offer the following responses:

Draft EIS, PART IV, J. HISTORICAL AND ARCHAEOLOGICAL RESOURCES

1. While it is correct that the radiocarbon date 165 B.C. - A.D. 210 is the earliest radiocarbon date yet obtained from a definite cultural deposit in Hawaii, it does not necessarily represent "the earliest cultural date yet derived for any Hawaiian site [emphasis added] on any Hawaiian Island". The sample submitted for dating was a bulk sample collected from an entire excavation layer rather than a discrete subsurface feature (i.e., fire pit or hearth). Thus, what it specifically dates is not certain, it is entirely possible that the date may be from pre-human (natural) organic materials which became mixed with the cultural deposit. The fact that no diagonistic early artifacts were associated with the dated layer further indicates the need for extreme caution in interpreting the potential significance of the date. Also, the other age determination from the site* yielded a late 15th century to present date for a subsurface feature. *(As noted on page 49 of the "Subsurface Archaeological Reconnaissance Survey Kuilima Resort Expansion Project" (PHRI, 1984), Site T-1 is quite likely an eastward portion of Site 50-0a-F4-14, as the two cultural layers found at T-1 are very similar to Layers III and IV on the other side of Kahuku Point.) The similarity of stratigraphy noted in F4-14 on the west side of Kahuku Point and T-1 on the east side of Kahuku Point also raises a very important question. If the observed similarity of the stratigraphi layers actually represents equivalence, then there is a wide disparity in age which needs

clarification. The later date is more than 500 years later than the former, and this fact combined with the absence of a deposit of sufficient depth to represent over 1500 years of cultural deposition should also be a strong indication that the earlier date must be interpreted with great caution. The early date, therefore, indicates a need for further testing and dating, as recommended by Paul H. Rosendahl, Ph.D. Inc.

A Determination of Eligibility was requested by Mr. Flanders, Chief, Construction Operations Division, Corps of Engineers, on 6 June 1985. On 13 August 1985, the State Historic Preservation Office provided a formal determination that three sites in the project area, including the site at Kahuku Point, meet the criteria of eligibility for the National Register of Historic Places. The Corps of Engineers will begin preparing a Memorandum of Agreement. This agreement will address further survey and testing of all three sites, which will determine the extent of the sites, their significance, and the need for any mitigation measures.

2. As requested, descriptions and recommendations for Survey Areas 8, 11 and 13 will be included in the appropriate sections of the Revised EIS. Please note the description and recommendations for site 50-09-F4-14 was provided on page 67, and a description of site T-7 was also provided on page 67. Recommendations for the latter site will be included in the appropriate sections of the Revised EIS.

3. It is expected that the Memorandum of Agreement will include a stipulation that before and during proposed construction in the project area takes place, an archaeologist will be contracted to monitor ground disturbing activities and to provide a liaison function with the State Historic Preservation Office.

Please note that your letter and this response will be appended to the revised EIS.

Sincerely,

GROUP 70

for Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Mr. Paul Low, EDP Hawaii, Inc.
Mr. Paul Rosendahl, PHRI
Ms. Jan Sullivan

7784A/vs

United States Department of the Interior

FISH AND WILDLIFE SERVICE
300 ALA MOANA BOULEVARD
P O BOX 50167
HONOLULU, HAWAII 96850

RECEIVED
SEP 23 1985
ES GROUP
Room 6307

SEP 2 3 1985

Mr. John P. Whalen, Director
Department of Land Utilization
650 South King Street
Honolulu, Hawaii 96813

Re: Draft Environmental Impact Statement (EIS), Kuilima Resort Expansion, Koolauloa District, Oahu

Dear Mr. Whalen:

The U.S. Fish and Wildlife Service has reviewed the referenced document and offers the following comments for your consideration.

General Comments

The Service has worked closely with the consultants for this project on developing appropriate compensation for the proposed filling of approximately 13-acres of wetland around the perimeter of Punahoolapa marsh. Based on our discussions to date, the Service believes that an equitable compromise that fulfills both the developer's needs and the Service's concerns can be met. The following specific comments are provided to improve the Final EIS.

Specific Comments

Page 20-21. Wildlife Preserve. We agree with the statement that the value of Punahoolapa Marsh as endangered waterbird habitat would be enhanced if the improvements listed on Page 21 were implemented. We suggest that drawings showing the open waterways, moat, fencing, and islands be included in the Final EIS. Our office has provided a layout of these improvements to the agents for their planning use (Enclosure 1).

The Final EIS should also include a discussion on how the Punahoolapa wetland will be managed. As discussed in a previous letter to the agent, this wetland is part of a system of wetlands at Kahuku that includes the neighboring James Campbell National Wildlife Refuge (NWR). The Service believes that Punahoolapa Marsh should be managed as a part of this complex and preferably as part of the James Campbell NWR system.

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!

1

Page 41-42. Water Resources and Water Usage. During the initial phase of the project, approximately 1 million gallons per day (mgd) of brackish water will be supplied from caprock sources within the "resort expansion area (Punahoolapa Marsh)." The caprock sources will be replaced with treated wastewater generated by the hotels and condominiums as these units become operational.

The Final EIS should discuss potential impacts to water levels and marsh vegetation within the wetland from the proposed pumping of approximately 1 mgd from Punahoolapa Marsh. The Service is concerned that excessive withdrawal of water may temporarily reduce the suitability of the wetland as waterbird habitat.

Page 44-46. Coastal Water Quality. This section should include a description of the benthic communities and fishery resources found in Kawela Bay, Turtle Bay, and Kuilima Bay. In particular, the Final EIS should discuss the potential impacts of dredging, increased human activities, and lighting on the Federally endangered green sea turtle (Chelonia mydas). A turtle foraging study conducted by the National Marine Fisheries Service suggests that Kawela Bay is an important foraging habitat for the green sea turtle.

The Draft EIS claims that the bottom sediments in a southeastern portion of Kawela Bay are anaerobic and are of a gelatinous texture. The Draft EIS also states that Kawela Stream is the primary source of terrestrial sediments in Kawela Bay. The Service suggests that this area in the southeastern portion of Kawela Bay be identified on a map. An inter-agency survey of Kawela Bay did not find an area dominated by anaerobic and terrigenous sediments. The Final EIS should also include information on the frequency that Kawela Stream breaches the large beach bar and discharges into the Kawela Bay.

Page 55-56. F. Vegetation. The small wetland near Kawela Bay was unknown to the Service prior to the Draft EIS. As described in the Draft EIS, there is a small open water area with emergent vegetation like taro (Colocasia esculanta), water hyacinth (Eichornia crassipes), and bulrush (Scirpus sp.). A single aukuu (Nycticorax nycticorax hoactli) was observed during a Service inspection of this wetland. According to a knowledgeable Kawela Bay resident, endangered waterbirds used this wetland, but overgrowth by Indian pluchea (Pluchea indica) and koa haole (Leucaena leucocephala) have reduced its waterbird habitat value. The Service agrees with the recommendation on Page 56 that this wetland be preserved and enhanced by the removal of pluchea and water hyacinth.

Page 122. Marsh Drainage Input. The Service is concerned that the predicted increased amounts of pesticides and other chlorinated hydrocarbons introduced into Punahoolapa Marsh may have an adverse impact on endangered waterbirds. Based on information supplied to this office by Dames and Moore, the pesticide Dursban is currently used on the existing Kuilima golf course. There are documented cases of goose poisoning from grazing on golf courses on the mainland treated with this pesticide; the Service is concerned that endangered waterbirds may suffer Dursban poisoning from runoff from the proposed golf course that encircles the marsh or from feeding on the golf course grounds. We recommend that the developers explore less toxic alternatives to replace Dursban.

Summary Comments

The Service believes that the improvements to Punahoolapa Marsh and the renovation of the wetland near Kawela Bay will substantially increase the waterbird value of these wetlands. The increased value of these wetlands will compensate for the loss of approximately 13 acres of wetland along the margin of Punahoolapa Marsh. The ultimate management authority for Punahoolapa Marsh remains to be resolved.

At this time, the Service believes that insufficient information is available to biologically justify dredging in Kawela Bay or to re-route Kawela Stream. The Service is concerned that the dredging and the modification of groundwater flow from re-routing the stream may reduce the value of Kawela Bay as important turtle foraging grounds and as a nursery area for various fish species.

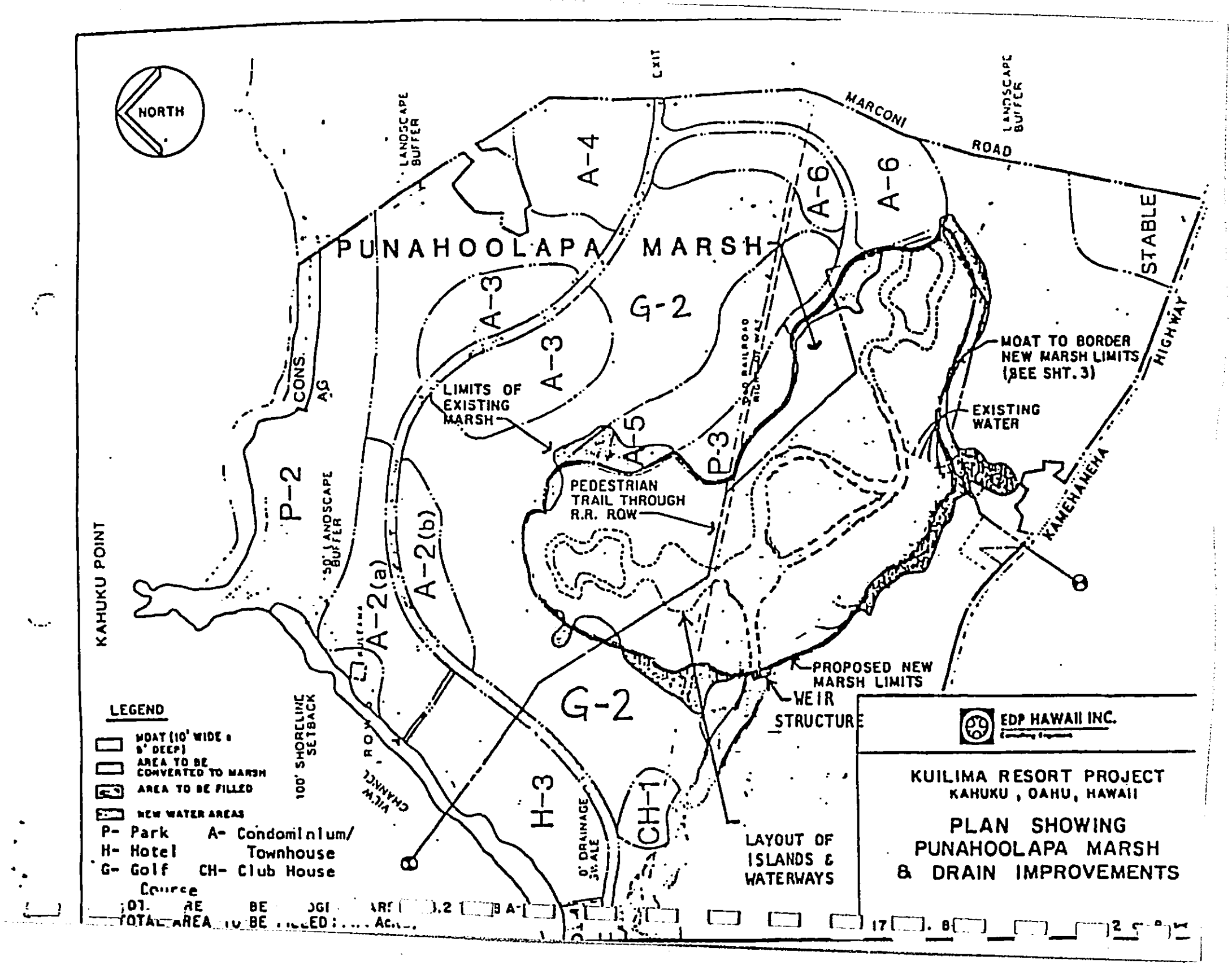
We appreciate the opportunity to comment.

Sincerely yours,

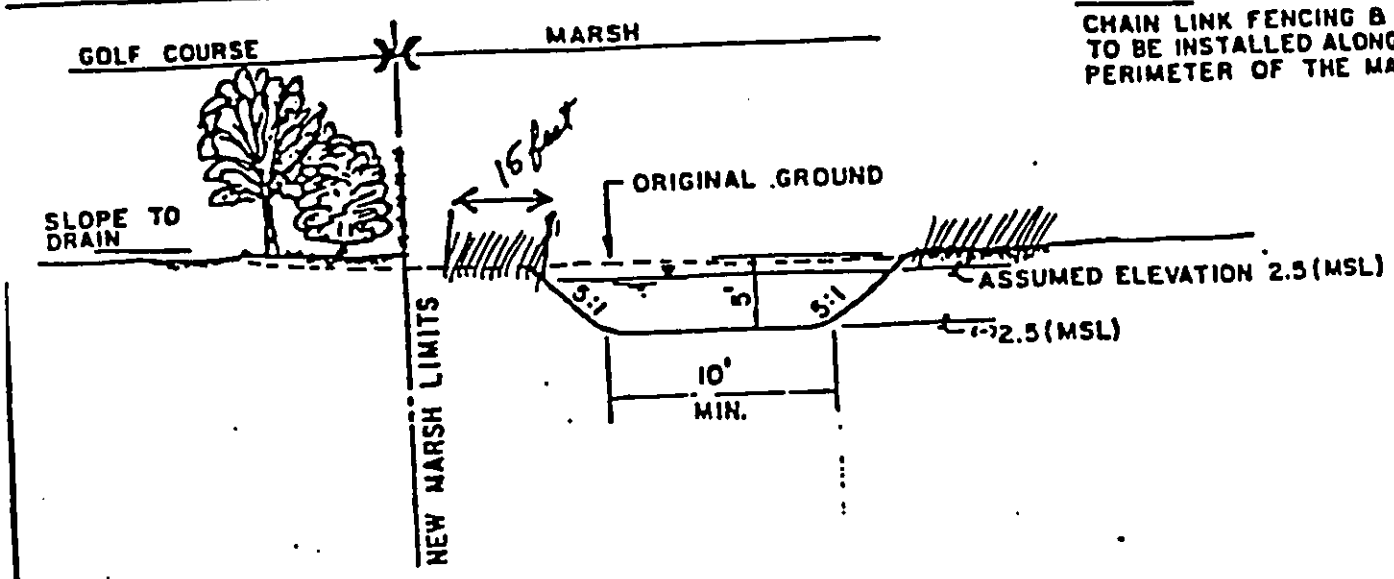
Ernest Kosaka
Project Leader
Office of Environmental Services

Enclosure

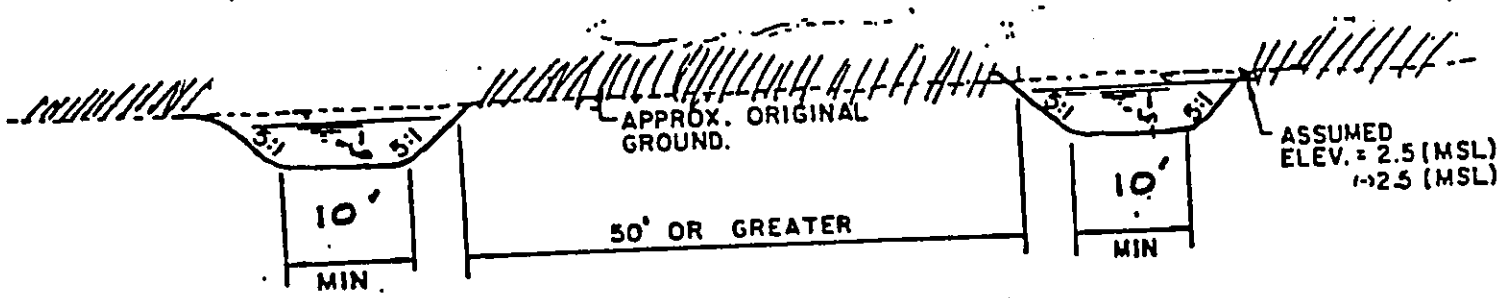
cc: RD, FWS, Portland, OR (AHR)
CE, Permits Branch
CE, Planning Branch
NMFS - WPPO
EPA, San Francisco
OEQC
Group 70
DLNR


NORTH
LANDSCAPE BUFFER
EXIT
MARCONI ROAD
LANDSCAPE BUFFER
PUNAHOOLAPA MARSH
A-4
A-6
A-6
A-3
A-3
G-2
LIMITS OF EXISTING MARSH
A-5
P-3
P-2
50' LANDSCAPE BUFFER
A-2(b)
A-2(a)
PEDESTRIAN TRAIL THROUGH R.R. ROW
MOAT TO BORDER NEW MARSH LIMITS (SEE SHT. 3)
EXISTING WATER
STABLE
HIGHWAY
KAMEHAMEHA
KAHUKU POINT
PROPOSED NEW MARSH LIMITS
WEIR STRUCTURE
G-2
H-3
CH-1
100' SHORELINE SETBACK
VILLA CHANNEL
8' DRAINAGE EASEMENT
LAYOUT OF ISLANDS & WATERWAYS
LEGEND
MOAT (10' WIDE & 8' DEEP)
AREA TO BE CONVERTED TO MARSH
AREA TO BE FILLED
NEW WATER AREAS
P- Park
H- Hotel
G- Golf Course
A- Condominium/ Townhouse
CH- Club House
EDP HAWAII INC.
KUILIMA RESORT PROJECT
KAHUKU, OAHU, HAWAII
PLAN SHOWING PUNAHOOLAPA MARSH & DRAIN IMPROVEMENTS

NOTE:
CHAIN LINK FENCING & LANDSCAPING TO BE INSTALLED ALONG THE PERIMETER OF THE MARSH.



TYPICAL MOAT IMPROVEMENT SECTION
NO SCALE



TYPICAL OPEN WATER & ISLAND SECTION
NO SCALE

NOTE:
DREDGE MATERIAL FROM THE CREATION OF THE MOATS AND OPEN WATER WILL BE USED TO CREATE ISLANDS.

EDP HAWAII INC.

KUILIMA RESORT PROJECT
KAHUKU, OAHU, HAWAII

SECTIONS SHOWING MOAT WATERWAYS & ISLAND IMPROVEMENTS

17 DEC. 84

Sheet 3 of 8

Francis S Oda AIA, Inc
Robert K L Wong AIA, Inc
Norman G Y Hong AIA, Inc
Sheryl B Seaman AIA, Inc

4 October 1985

Mr. Ernest Kosaka
Project Leader
Office of Environmental Services
United States Department of the Interior
Fish and Wildlife Service
P.O. Box 50167
Honolulu, HI 96850

Dear Mr. Kosaka:

Subject: Draft EIS for Kuilima Resort Expansion

We would like to take this opportunity to express our appreciation for the efforts of the Service in assisting us with the planned improvements of the waterbird habitat at Punahoolapa Marsh. If implemented as planned, we believe that Punahoolapa Marsh wildlife refuge will be an excellent example of private and public sector cooperative effort in furthering wildlife preservation.

Thank you for the copy of your department's letter of 23 September 1985 to John Whalen, Director of the Department of Land Utilization. We have reviewed your specific comments and offer the following responses:

Page 20-21:

The drawings enclosed in your letter will be included (in addition to your letter and our response) in the Revised EIS.

The applicant is presently exploring the alternatives of private management of the Punahoolapa Marsh. Private management of the marsh will most likely involve continuous consultations with the Service. We believe that continued coordination with the Service (which yielded the Service's recommended improvements to the marsh habitat) during management of the marsh, will yield the same end result as if the marsh were to be part of the James Campbell NWR system.

Page 41-42

As noted in the Draft EIS, golf course G-2 will be irrigated with brackish water from sources within the resort expansion area (Punahoolapa Marsh). These sources have a sustainable yield of approximately 5 to 10 million gallons per day (EDP Hawaii, Inc., 1983). Since the source of water for the Punahoolapa Marsh is a natural groundwater discharge point in the region, unless the sustainable yield of the brackish water sources are threatened, it is unlikely that the proposed pumping will affect water levels and marsh vegetation.

Page 44-46

As recommended, the Coastal Water Quality section of the Revised EIS will include a description of the benthic communities and fishery resources found in Kawela Bay, Turtle Bay and Kuilima Bay.

It is our understanding that studies conducted by the National Marine Fisheries of Green Sea Turtles at Kawela Bay are not yet completed. According to conversations with residents of Kawela Bay, Green Sea Turtles are generally found in the western half of the bay. Oceanit Laboratories, Inc. found that the northwestern portion of the bay contained abundant growths of algae that are known to be important diet items of Chelonia mydas: Ulva reticulata, U. fasciata, and Codium arabacum.

Please note the site of the proposed desilting operation is located across the bay in the southeastern corner of the bay. As noted in the Draft EIS, the desilting operation is expected to have little effect on the surrounding more productive areas of the bay because a silt curtain would be utilized to isolate the desilted area.

The statement that the bottom sediments in the southeastern portion of Kawela Bay are anaerobic and are of a gelatinous texture is based on studies conducted by Oceanit Laboratories, Inc. (1985).

As stated in the Draft EIS, "The major source of fine terrestrial sediments in the bay is believed to be from Kawela Stream". But the statement which follows will be revised to read: "However, fine calcium carbonate sediments of oceanic origin are the major contributors to the turbidity problem".

The approximate location of the desilting operation (and the area of anaerobic sediments) is enclosed with this letter which will be included in the Revised EIS.

Robert K L Wong AIA Inc
Norman G Y Hong AIA Inc
Sheryl B Seaman AIA Inc

4 October 1985

Mr. Stanley F. Kapustka
District Chief
U.S. Department of the Interior
Geological Survey
Water Resources Division
P.O. Box 50166
Honolulu, HI 96850

Dear Mr. Kapustka:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for the copy of your letter of 12 August 1985 to John Whalen, Director of the Department of Land Utilization. We have reviewed your comments and offer the following response. We will implement the first two corrections suggested in your letter, however, we will reference the "Management Guide to the Water Resources of the Kahuku Water Managment Area (Malaekahana to Kaunala)" prepared for Campbell Estate by EDP Hawaii, Inc. In regards to the estimated sustainable yield of brackish water sources within the resort expansion area, EDP Hawaii, Inc. collaborated with John Mink in the preparation of the "Management Guide" and it was Mink who estimated the sustainable yield of the brackish water sources as being between 5 to 10 mgd. Please note that Mink is familiar with K.J. Takasaki and S. Valenciano 1969, Water in the Kahuku Area, Oahu, Hawaii: U.S. Geological Survey Water Supply 1874, and referenced the latter study in the "Management Guide".

Please note that your letter and this response will be appended to the revised EIS.

Sincerely,

GROUP 70

Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Mr. Paul Low, EDP Hawaii, Inc.
Ms. Jan Sullivan

7710A/vs

Apparently, there is no available data on the frequency that the Kawela Stream discharges into Kawela Bay. However, Kawela Stream has been known to discharge during storm runoff conditions into Kawela Bay, temporarily causing environmental stress. By moving Kawela Stream it is believed that periodic storm discharge can be avoided; thus, alleviating the bay from high stress conditions caused from storm runoff.

Page 55-56

We appreciate the information provided.

Page 122

The applicant is equally concerned with the effect of the pesticide Dursban on waterbirds. As recommended, the applicant will ask the existing golf course operator(s) to explore less toxic alternatives to replace Dursban.

Summary Comments

As previously noted, the applicant is studying the alternatives for management of the marsh.

It appears the one interagency survey is the basis for the Service's opinion that there is no justification for the proposed desilting of the southeastern portion of Kawela Bay. The applicant is willing to conduct a field trip to inspect the bottom conditions of the proposed desilting area. Please feel free to make the arrangements through our office.

While the studies conducted by the National Marine Fisheries of Green Sea Turtles at Kawela Bay are not yet completed, it is our understanding that "the value of Kawela Bay as important turtle foraging grounds and as a nursery area for various fish species" will not be reduced by the desilting of a portion of the bay and the realignment of Kawela Stream, for the following reasons. First, Kawela Stream apparently has not discharged in a number of years, and therefore it is unlikely that the stream has been providing nutrients that impact the food sources of the turtles or fishes that feed in the bay, or has been affecting the habitat (coral growth) of any fish species. On the other hand, Kawela Stream has been known to discharge during storm runoff conditions into Kawela Bay, temporarily causing environmental stress. By moving Kawela Stream, it is believed that periodic storm discharge can be avoided; thus, alleviating the bay from high stress conditions caused from storm runoff.

Secondly, it is highly unlikely that the de-siltation process would impact any reproductive and/or feeding grounds. All of the fish observed in Kawela Bay reproduce either by broadcasting their eggs into the water to be carried about by the prevailing currents or by attaching their eggs to hard substrate; no fish use the fine sediment to lay or hatch their eggs. This sediment area is also devoid of macroalgal or other growth, and thus does not constitute a site of feeding for resident populations. OI Consultants, Inc. did not find any evidence that Kawela Bay serves as a significant spawning ground for any commercially important fish.

The turbid waters of the southeastern part of the bay may be used by schools of small fishes as a refuge from larger predators. None of the biological surveys of the area have mentioned such schools, but their presence is possible. The fish in such schools are typically rapid swimmers which remain near the surface; the actual dredging operation, being confined to a small area and near the bottom, is unlikely to directly impact these fishes.

In addition, as noted earlier in this letter, the desilting operation is expected to have little effect on the turtle's feeding area as it will be located across the bay from where the food material is abundant.

Please note that your letter and this response will be appended to the revised EIS.

Sincerely,

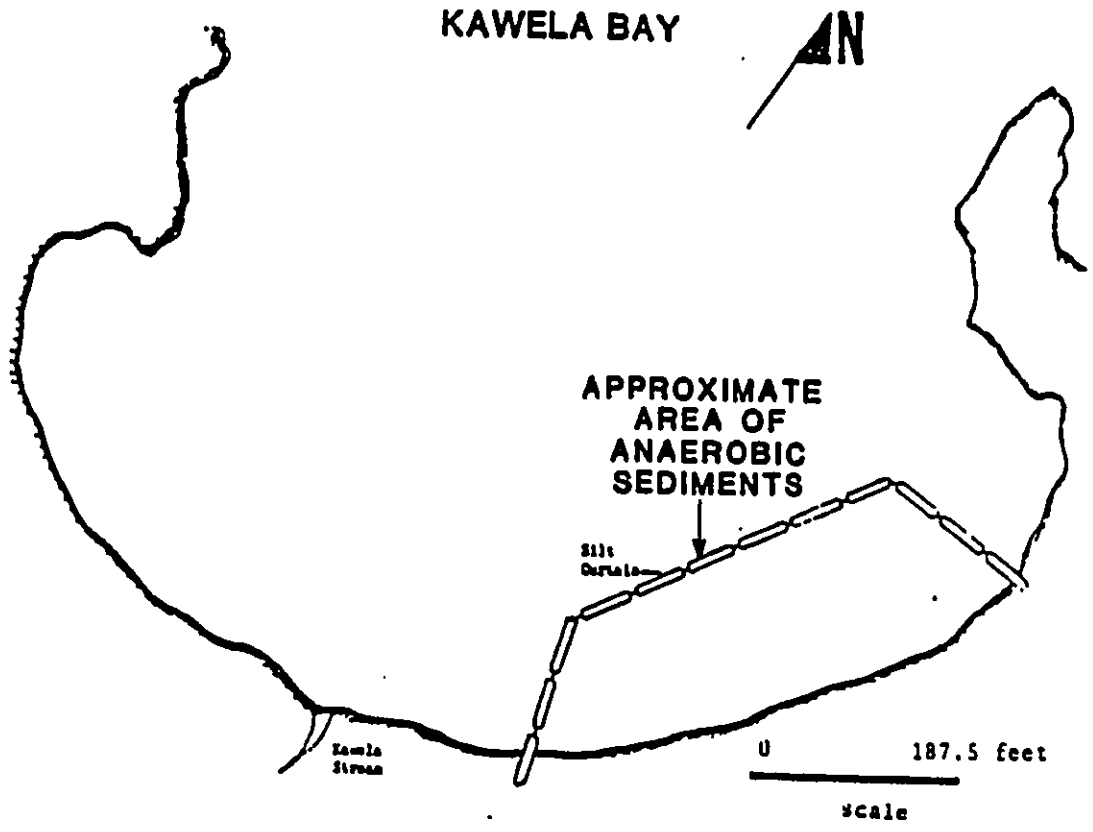
GROUP 70

for Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Ms. Jennifer J. Kleveno, Dames & Moore
Mr. Paul Low, EDP Hawaii, Inc.
Mr. Patrick Sullivan, Oceanit Laboratories, Inc.
Ms. Jan Sullivan

7846A/vs

Enclosure: As stated above


KAWELA BAY
N
APPROXIMATE
AREA OF
ANAEROBIC
SEDIMENTS
Silt
Curtain
Kawela
Stream
0
187.5 feet
Scale

United States Department of the Interior

GEOLOGICAL SURVEY

Water Resources Division
P.O. Box 50166
Honolulu, Hawaii 96850

August 12, 1985

Mr. John P. Whalen, Director
Dept. of Land Utilization
650 South King Street
Honolulu, Hawaii 96813

Subject: Draft EIS for Kuilima Resort Expansion

Dear Mr. Whalen:

The draft EIS for Kuilima Resort Expansion was reviewed by Kiyoshi J. Takasaki of this office.

Mr. Takasaki's review comments follow:

Page	Paragraph	Line	Comments
41	3	4	Irrigation waters Delete "caprock" from "caprock sources"
41	3	5	Delete "The marsh" Add "These sources"
41	3	6	Delete "5 to 10 million gallons per day" Add "6 million gallons per day"
In regard to above comments:			See U.S . Geological Survey Water Supply Paper 1874, Pages 48 and 49.

We thank you for the opportunity to review the subject draft EIS.

Sincerely,

Stanley F. Kapustka
District Chief

cc: Mr. Francis S. Oda

Francis S Oda AIA
Robert K. Wong AIA
Norman G. Hong AIA
Sheri B Seaman AIA

4 October 1985

Mr. Henry J. Rinnert
Captain, CEC, U.S. Navy
Facilities Engineer
Department of the Navy
Headquarters
Navy Base Pearl Harbor
Box 110
Pearl Harbor, HI 96860-5020

Dear Mr. Rinnert:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for the copy of your letter of 20 August 1985 to John Whalen, Director of the Department of Land Utilization. We have reviewed your comment and offer the following response. We appreciate the information provided on the locational relationship between the U.S. Navy Opana Station and the Opana Well Fields and the source of potable water for the Station. Please note that your letter and this response will be appended to the Revised EIS, a copy of which will be forwarded to you.

Sincerely,

GROUP 70

Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Mr. Paul Low, EDP Hawaii, Inc.
Ms. Jan Sullivan

7711A/vs

HAWAIIAN ELECTRIC COMPANY, INC. PO BOX 2750 · HONOLULU, HAWAII 96840

HEI

Brenner Munger, Ph.D., P.E.
Manager
Environmental Department
(808) 548-6880

September 6, 1985

Mr. John P. Whalen, Director
Department of Land Utilization
State of Hawaii
650 South King Street
Honolulu, Hawaii 96813

Subject: Draft EIS Statement for Kuilima Resort Expansion
Koolauloa District, Oahu

Dear Mr. Whalen:

We have reviewed the Draft Environmental Impact Statement for the subject project and have no comments.

Sincerely,

Brenner Munger

R. Brenner Munger

cc: Francis S. Oda
Group 70

JMP/jy

DEPARTMENT OF THE NAVY
HEADQUARTERS
NAVAL BASE PEARL HARBOR
BOX 110
PEARL HARBOR, HAWAII 96860-5020

IN REPLY REFER TO

9510
002(09P2)/1485
20 AUG 1985

Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS)
KUILIMA RESORT EXPANSION, KOOLAULOA DISTRICT
OAHU, HAWAII, 5 AUGUST 1985

Thank you for your transmittal letter of 6 August 1985, providing the subject Draft EIS for review and comment. The U.S. Navy has no major comment upon this project but provides the following for your information.

The Water Master Plan (Figure 30) on Page 113 indicates a proposed Opana (Kawela) well site near an existing reservoir, both on Campbell Estate property. The Draft EIS indicates that this plan was reviewed and approved by the Board of Water Supply. This map does not show the location of the nearby Navy Opana Station, located mauka of Kawela Bay. Since Navy imports its own water supply by truck, the proposed development will have no impact upon the Station's operation. Enclosure (1) is provided for reference.

The U.S. Navy would appreciate a copy of the Final EIS upon publication.

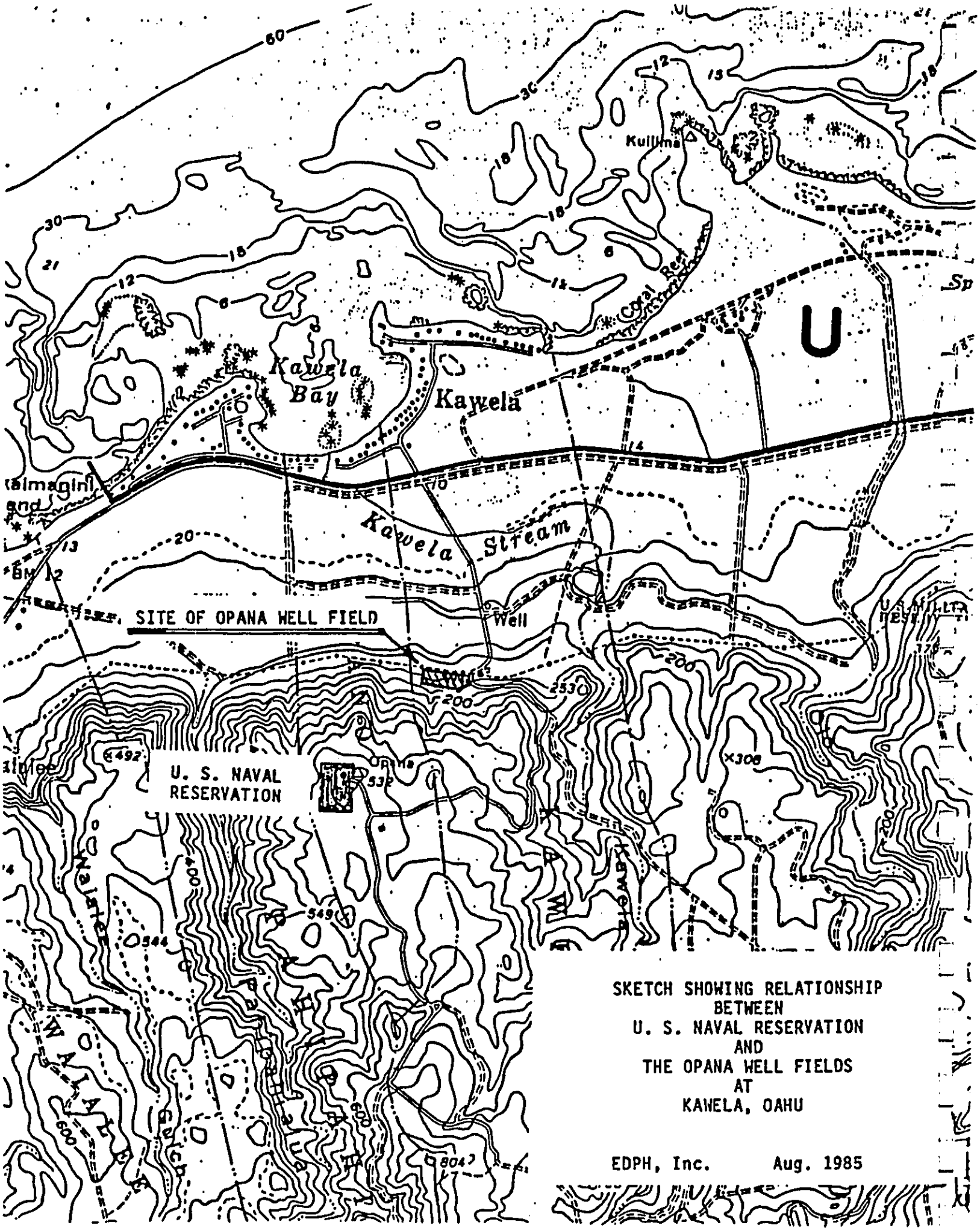
Sincerely,

HENRY J. RINNERT
Captain, CEC, U. S. Navy
Facilities Engineer
By direction of the Commander

Enclosure
(1) Sketch Map
EDHP Inc. Aug 85

Copy to:
Mr. Francis S. Oda
GROUP 70
924 Bethel Street
Honolulu, Hawaii 96813

Kuilima Resort Expansion



SKETCH SHOWING RELATIONSHIP
BETWEEN
U. S. NAVAL RESERVATION
AND
THE OPANA WELL FIELDS
AT
KAWELA, OAHU

EDPH, Inc. Aug. 1985

LU 8/85 T - 3598

1985 AUG 20 PM 1:26

DEPT. OF LAND UTILIZATION
CITY & COUNTY OF HONOLULU

749 Mokapu Road
Kailua, HI 96734
August 15, 1985

Mr. John P. Whalen, Director
Department of Land Utilization
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

I am submitting some comments as a private citizen on the August 5, 1985 Draft Environmental Impact Statement for Kuilima Resort Expansion.

First, there seems to be a great deal of use of the words "estimated" and "proposed." I feel a definite promise of action to be taken should be made.

Second, I find no enforcement or penalty system for non-compliance. Promises are easy for developers to make, but the government should have some monetary incentive to enforce continued compliance after permits have been granted. All too often, we residents have seen promised "public access" to beaches near resorts closed off by inconveniently placed parking, exorbitant parking fees, access paths marked "for hotel guests only" and even by husky lifeguards saying "this is private property."

A system of fines for non-compliance to conditions specified in the granting of permits should not bother honest developers and would give government enforcement power over future owners and managers.

Third, I feel that 50 parking stalls for P-1 and P-2 should be the minimum, that they should be guaranteed as free parking, and should be guaranteed as located convenient to the beach. If families have to hike ½ mile from a parking area to the beach, lugging coolers, lunches and babies, etc., it is hardly "free public access."

A few other comments are marked on the enclosed copies of pages 21 and 22 of the draft environmental impact statement.

Your serious consideration of these comments from a long-time permanent resident of Hawaii is respectfully requested.

Sincerely,

Gordon R. Fowler, Sr.

-- The construction of a moat around the marsh surrounded by chain link fencing and a visual barrier of vegetation;

-- The construction of additional open waterways makai of the existing open water areas; and

-- The creation of a number of islands on the new waterways.

In order to develop the new golf course (G-2), the applicant is proposing to fill approximately 13 acres of marginal marsh land (along its perimeter) and add 6.2 acres of buffer area to the marsh boundary.

Parks:

- Park P-1 - This proposed park, which is located on the western most end of the property, would occupy an area of approximately 4.8 acres fronting Kawela Bay. Entry/exit would be from Kamehameha Highway, with adequate parking for 30 to 50 vehicles provided within the park. The park would provide direct public access to Kawela Bay for passive beach-oriented recreation. Such access has not been available to the general public in years. This park would be one of two on site that are proposed to be dedicated to the County for improvement and maintenance.

Should be 50 stalls guaranteed + free parking

- Park P-2 - This 37-acre park is located from Kahuku Point to the eastern boundary on Hanaka'ilio Beach. The major feature of this beach is the primary sand dunes located along this section of the shoreline. With expected parking capacity for 30 to 50 cars, this park would also be dedicated to the County. Expected uses include camping and picnicking. Negotiations are currently underway with Campbell Estate to provide direct access to the park via Kahuku Airport Road. If approved, Kahuku Airport Road would be improved to County standards. By when? Developer, Campbell, or Co.?

Should be 50 stalls Guaranteed + free parking

- Park P-3 - This passive, privately-maintained, 6-acre park would abut Punahoolapa Marsh and would provide an area from which the public could view the waterbirds within the marsh. It would contain: a lookout over the marsh; displays providing information on the environmental value of the marsh and the identification of various avifauna species; picnic area; and 15 parking stalls. P-3 would also act as a buffer between the marsh and resort condominium site A-5.

P-3. Will parking be free? What is access? If this is a buffer next to condominium site, will condo owners seek to keep the public off the sole? 21

in ... penalty clauses to insure compliance

- Park P-4 - The areas adjacent to the outlet of one of t major drainage ways on the property will be used for park. This park site of 2 acres will be private developed and maintained. P-4 provides open space and view corridor between hotel sites H-4 and H-3, the latt being the eastern-most hotel site on the property. P will be separated from hotel site H-3 by R.O.W. 4. R.O. 4 would be approximately 280 feet long and would conta parking for 15 cars.

What assess? What amenities? Who will maintain? any public assess?

Hotels:

- Hotel sites H-1 and H-2 - These hotel sites would located on 20 acres each on Kawela Bay, the best beach f swimming along the property. Each hotel would ha approximately 500 units. H-2 also borders the weste portion of Turtle Bay, and from portions of this sit would offer views into both bays. A right-of-way (R.O. 1) to Kawela Bay would separate these two hotel site R.O.W. 1 would be approximately 680 feet long and wou contain parking for 15 cars.

- Hotel H-3 - This site is located on 22 acres alc Kaibalulu Beach. It is presently planned to include 2 low-rise units in a village-like cluster. It is locat across the proposed interior roadway from golf course (and the proposed club house area, CH-1.

- Hotel H-4 - This site is located next to the exist: Turtle Bay Hilton Hotel and along Kaihalulu Beach, a would provide an expansion area of 7 acres for the exist: hotel. It is expected that approximately 100 cabana-ty structures similar to the ones directly south of t existing hotel will be built here.

Commercial Areas:

- Commercial area C-1 - This 9 acre commercial area is sit across the interior roadway from hotel sites H-1 and H- and is adjacent to Kamehameha Highway. C-1 would provi 40,000 square feet of commercial space and a great variety of shopping and dining opportunities than would available within the proposed hotels. Regional produc and crafts, as well as the region's diverse food produc would be the focus of goods offered here. Its location Kamehameha Highway is intended to attract area reside and passers-by.

- Clubhouse CH-1 - This 5-acre site will become the ma clubhouse facility for the existing and new golf course Restaurants, and additional commercial and athlet facilities will make this site the focal point for t eastern portion of the property.

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813 ● (808) 523-4432

FRANK F. FASI
MAYOR

JOHN P. WHALEN
DIRECTOR

(EKM)

August 22, 1985

Mr. Gordon R. Fowler, Sr.
749 Mokapu Road
Kailua, Hawaii 96734

Dear Mr. Fowler:

Draft Environmental Impact Statement (EIS)
Kuilima Resort Expansion
Tax Map Key 5-6-03, 5-7-01, 5-7-03, 5-7-06

Thank you for your comments on the subject Draft EIS. The Mayor has requested that I respond in his behalf.

Currently, the Draft EIS is in the public review stage during which comments, including yours, are being received. This review period will end on September 23, 1985, after which the applicant will have 14 days to append all comments and his responses to them to the Final EIS.

The specific provisions for public access and parking which you are concerned about will be determined through the Special Management Area Use Permit (SMP). This permit can only be applied for after the Final EIS has been deemed satisfactory and accepted by our Department.

The SMP procedure requires a public hearing to be held prior to the City Council rendering a decision on the permit. Typically, SMPs granted for major coastal developments are encumbered by a variety of conditions. In areas where public access to the shoreline is inadequate, those conditions may specify requirements for public accessways and associated parking and signage. Non-compliance with conditions of the SMP could subject the applicant to a civil fine of up to $500 a day for each day a violation persists.

If you have any questions regarding the EIS or SMP procedures, please feel free to contact Mr. Earl Matsukawa of our staff at 527-5038.

Very truly yours,

JOHN P. WHALEN
Director of Land Utilization

JPW:sl
2362A

cc: Mayor

September 20,1985

Mr. Francis S. Oda
Group 70
924 Bethel Street
Honolulu, Hawaii 96813

The following are a number of comments on matters which I felt were absent or not appropriately covered in the Draft E.I.S. for Kuilima Resort Expansion:

1. Archeological and Historica'

The entire Kawela Bay area has been referred to as an "archeological site" by archeologist Joyce Bath while conducting the survey for P.H.R.I. With it's close proximity to the significant findings at Kahuku Point, Kawela Bay deserves special attention for further research. P.H.R.I. recommends extensive archeological excavation at site T-6. This should take place before, and not during construction. If significant findings are made, what alternatives or plans do you have for preserving these sites? What if archeological remains are discovered in the area where hotels and condominiums are to be situated? Will you build around these sites?

Kuleana Lands: What is the present legal ownership status of Kuleana land: L.C. 2838:2 20 listed under the names of Lucy Holt-Dow, Henry Holt and Henriette Holt. Also L.C. 2878:2 18 William K. Aki and L.C.2878 2 19 Christian K. Holt.

The boundaries of these historical Kuleana's still appear on tax and land use maps as recent as August 28, 1985. See enclosed maps.

2. Water

Admittedly I am not an expert on the availability of potable water on Oahu, but I find it difficult to believe availability is "more than adequate" for the expanded resort while at the same time the Board of Water Supply has continually told us to conserve water over the past 2 years.

I question the opinion of EDP Hawaii consultant, John Mink who bases his decision on a U.S. Geological Survey conducted 15 years ago(K.J. Takasaki) concerning the Waialee aquifer's output. page 42 Draft E.I.S. Mink states the output of Opana Wells are "unknown" at this time, while the alternative Waialee aquifer's output is "reasonably" well known. More recent pumpage test data should be conducted and this information included in the final E.I.S. Water availability could be one of the most critical issues involved in this development and "unknowns" should become known before development begins.

3. Wetlands and Wildlife habitats

What plans are being made for the wetland and natural spring area located inland on the eastern corner of Kawela Bay? Is this wetland to be filled, since this is in the general vicinity of Hotel 2? And if it is to be filled, is not this contrary to Special Management Rules and Regulations of the City and County of Honolulu Ordinance 84-47 Also what affect would such filling have on wildlife in the area? No mention of this wetland was made in the Draft E.I.S.

Also missing in the Draft E.I.S. is information concerning the threatened species of Hawaiian Green Sea Turtle. Kawela and Turtle Bays are known habitats and shelters for these turtles. Their presence is well documented by noted turtle expert and marine biologist George Balaz. What will be the affect of stream diversion (siltation) into Turtle Bay along with increased human contact in Kawela Bay?

4. Regarding tsunami, high surf and flooding as they relate to building structures and human safety:

If a "no habitable space" of 17 feet is to be a guideline for the first floor of hotels, are we to infer the same for the proposed condominiums? And if so, what would the roof height of these condominiums then be? Is this consistent with the "low rise" image you are projecting?

The beaches on the western portion of Turtle Bay are directly exposed to large winter surf conditions. Every winter, waves wash up to and under the existing homes sometimes causing extensive damages. The beach is extremely hazardous at this time. Do you have any plans to patrol and alert unknowing visitors of these dangers? And will lifeguards be available for rescue if they get swept out?

Finally, according to the Draft E.I.S., State and County revenues derived from the expanded development will be more than sufficient for the government to afford needed capital improvements and services.

I am concerned about highway improvements and traffic conjestion in particular. At present the State has no funds for further improvements of Kamehameha Highway until the year 2000.i.e. Haleiwa bypass. Why has'nt the existing resort provided the necessary revenues to alleviate this problem at present and not 15 years from now? Are we to believe traffic problems will be resolved because revenues generated from the development will "more than sufficient?"

Thank you for the opportunity to comment.

Sincerely,

James Hoffman

D[illegible] TME[illegible] LA[illegible] [illegible]

N[illegible] CO[illegible]TY [illegible] HONOLULU

650 SOUTH KING STREET

HONOLULU, HAWAII 96813 • (808) 523-4432

JOHN P. WHALEN
DIRECTOR

85/Z-11(BN)

August 28, 1985

NOTICE OF APPLICATION

CHANGE IN ZONING - KOOLAULOA

La[illegible] Utilization is reviewing a zone change
and [illegible]n the Koolauloa District. Proposed
-6 Residential, AG-1 Restricted Agricultural,
A-1 Low-Density Apartment, and H-1 Resort
P-1 Preservation, H-1 Resort Hotel, and B-2
Districts. Although the project will total
95 acres are being considered for rezoning.
consist of the development of 2,000 hotel
ng hotel units) and 1,000 resort condominiums.
al area providing 40,000 square feet of floor
and dining, a new 18-hole golf course (in
isting golf course which will be renovated and
ic beach parks totalling 41.8 acres, a private
, a 100-acre wildlife preserve, and 5 public
lso contemplated within the project site will
course/clubhouse/convenience center.

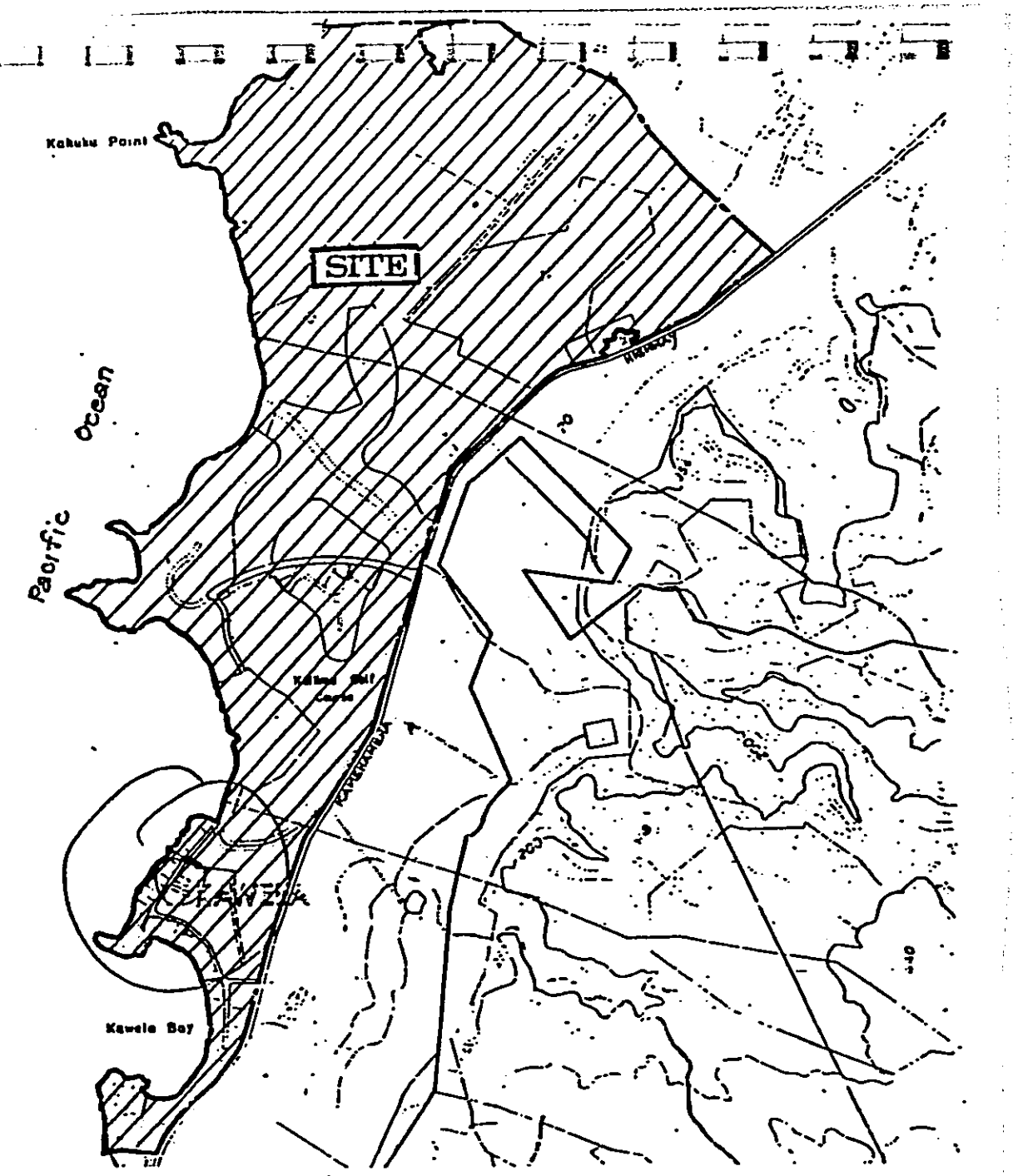
lands being considered in this zoning
her 236 acres of adjoining lands will be
This portion of the project will include an
resort condominiums; additional park and golf
a l[illegible] acre site for a riding stable. The total
ed [illegible] be completed 10 years from the approval
uest.

plication material for this project at our
rough Friday, 7:45 a.m. to 4:30 p.m., or at
ite City Hall.

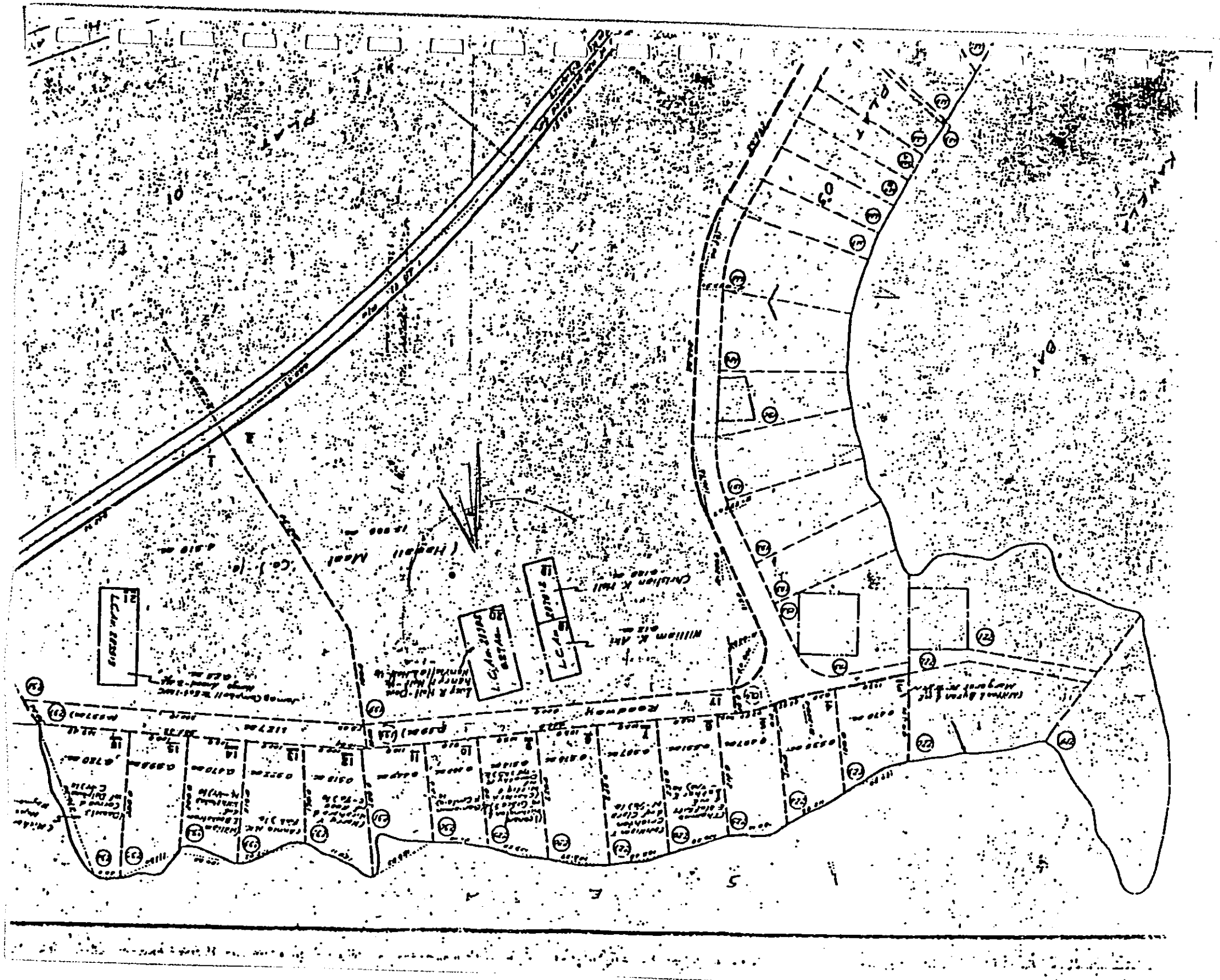
ment on this application, please feel free to
[illegible] Nagao of my staff at 523-4817 or 650 South
lulu, Hawaii 96813.

Very truly yours,

JOHN P. WHALEN
Director of Land Utilization



LOCATION MAP



4 October 1985

Mr. James Hoffman
59-520 Makana Road
Haleiwa, HI 96712

Dear Mr. Hoffman:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for your interest in the project. We have reviewed your letter of 20 September 1985 and offer the following responses to your comments:

1. Archaeological and Historical

The applicant is presently in the process of contracting additional studies of the Kawela Bay site. It is the applicant's intention to complete the necessary archaeological surveys (as required by the State Historic Preservation Officer) prior to construction. Please note that significant archaeologic sites will be avoided and preserved in place where possible. However, where this is not possible, the applicant will conduct further studies, under the guidelines of the State Historic Preservation Officer, to mitigate any loss of data that will result from the proposed resort expansion.

If the information provided in the tax map keys are correct, then TMK 5-7-06: 18 is owned by William K. Aki, TMK 5-7-06: 19 is owned by Christian K. Holt, and TMK 5-7-06: 20 is owned by Lucy R. Holt-Dew.

2. Water

New wells in the Opana (Kawela) Well field have been considered for a number of years. Results of the tests conducted by the Board of Water Supply (BWS) in 1969, indicated a static water level at about 8 feet elevation. Drawdowns measured during pumping tests indicated a drawdown of about 4.5 feet at a pumping rate of 800 gpm, which increased to about 21.6 feet at 1780 gpm pumping. Chloride concentrations remained constant at 31 ppm at all pumping rates up to 1780 gpm. Recovery time from 1780 gpm pumping was about 10 minutes. Overall results of the

five-hour tests seem to indicate the potential availability of a good source of groundwater for potable use. Additional pump tests will be conducted by the end of this year. This information will be included in the Revised EIS.

Please note that the Water Master Plan for the Kuilima Resort was approved by the City and County of Honolulu Board of Water Supply, an agency that is responsible for management of island-wide needs.

3. Wetlands and Wildlife Habitats

The applicant plans to retain the small wetland area near Kawela Bay. This wetland was mentioned on pages 55 and 57 of the Draft EIS.

It is our understanding that studies conducted by the National Marine Fisheries of Green Sea Turtles at Kawela Bay (and Turtle Bay) have not been completed. According to conversations with residents of Kawela Bay, Green Sea Turtles are generally found in the western half of the bay. Oceanit Laboratories, Inc. found that the northwestern portion of the bay contained abundant growths of algae that are known to be important diet items of Chelonia mydas: Ulva reticulata, U. fasciata, and Codium arabacum.

Since the studies of the Green Sea Turtles are not yet complete, and the feeding areas within Turtle Bay have not been identified, we cannot assess the effects of realigning Kawela Stream on the turtles. It should be noted that the stream will be realigned to discharge at a point west of the Turtle Bay. In 1969, a study was conducted to determine the diffusion processes in Turtle Bay assuming the diversion of Kawela Stream ("Study of Coastal Currents to Determine Suitability of Drainage Channel Relocation Site for Kahuku Land Development". Sunn, Low, Tom & Hara, Inc.) The results of the dye test conducted for the study showed that stream discharge into the western-most portion of Turtle Bay will carry along the coast to the west. Dye concentration in Turtle Bay tended to disperse immediately.

4. Tsunami, High Surf and Flooding

The applicant, Kuilima Development Company, is aware of the potential damage which tsunamis can cause. In 1967, Kuilima Development Company, then known as INSCON, retained the services of two ocean engineers, Drs. Adams and Bretschneider. It was their assignment to forecast a tsunami design wave height upon which the first floor of the Kuilima Hotel (now known as the Turtle Bay Hilton) would be designed and built.

Subsequent to 1967, two Federal Flood Insurance laws were passed, the National Flood Insurance laws were passed, the National Flood Insurance of 1968 (P. 1. 90-448 and 91-152) and the Flood Disaster Protection Act of 1973 (P.L. 93-234) and their amendments. Recognizing that suitable land could be limited and that people would inhabit flood areas, Congress made it a stipulation that if a county or municipality were to receive Federal or Federally-assisted related financial assistance, it would be necessary for the county or municipality to adopt flood control regulations as prescribed by these laws.

One of these regulations is that the first habitable floor of new structures be equal to or above the regulator flood elevation established by the U.S. Federal Insurance Administration. These regulatory flood elevations have been delineated on the Flood Insurance Rate Maps (FIRM) on file with the Department of Land Utilization of the City and County of Honolulu (DLU).

In addition to the above regulations other regulations covering design criteria for foundations, uplift forces and flood damages have been adopted by DLU.

In regards to your questions regarding roof heights, please note that the Development Plan for Koolauloa stipulates specific principles and controls for the Kahuku Point-Kawela Bay Resort Area. These include:

"(2) Structures shall be generally setback a distance of 300 feet from the shoreline. Within the distance of 100 feet to 300 feet from the shoreline, structures shall be setback pursuant to policies set forth herein:

(a) No structure shall be located between the shoreline and 100 feet from the shoreline.

(b) For each increment fronting Kawela Bay and Kawela Point fronting Turtle Bay and between 100 feet and 300 feet from the shoreline, there shall be a maximum building to land coverage ratio of 10% of the land area makai of the 300-foot line to the property line and shall have staggered building heights with a maximum of 50 feet. The percentage of any given section shall not be clustered.

(c) Structures located between 100 feet and 300 feet from the shoreline are subject to design review approval by the Department of Land Utilization.

(d) Structures in the Kawela Bay increments over 50 feet shall be setback a minimum of 300 feet from the shoreline."

To mitigate the potential hazards of increased visitor exposure to the shoreline, it is expected that the resort operators will provide warnings to visitors during large surf conditions.

5. Traffic

The resort has not produced the necessary revenues for highway improvements because until recently, the existing hotel was not successful. As noted in the Draft EIS, one of the primary factors in the reevaluation of the Kuilima Resort was the concern that a "one hotel resort" is not sufficiently diverse to provide overall marketability of the resort to the international, as well as local and national markets. In order to provide environments that could compete with the opportunities available in Waikiki (including shopping, dining, transportation and other services), outlying/outer-island resort developments have to provide effective wide-ranging diversions, beyond physically desirable locations, in order to attract consistently high volumes of visitors. It was determined that in order to remain competitive in the market, the Kuilima Resort property would have to provide similar facilities and opportunities. The proposed resort expansion, then, is an integral component of the "critical mass" the entire Kuilima Resort requires in order to be viable and to produce the revenues to finance the project's fair share of the cost for major transportation and capital improvements which are or will be needed on the North Shore.

We cannot answer your last question; it is best directed to various government agencies. The allocation of funds for capital improvements are prioritized, and funding priority decisions will no doubt be made in the usual fashion, with sensitivity both to islandwide needs and to local residents' wishes. However, the applicant has expressed the following position: that Kuilima Development Company will be among the prime supporters of timely improvements. Congested roads, among other public problems, will affect not only regional residents, but also the resort's business.

Please note that your letter and this response will be included in the Revised EIS.

Sincerely,

GROUP 70

for Francis S. Oda, AIA

cc: Mr. Norman Quon, Kuilima Development Company
Ms. Jan Sullivan

7815A/vs

KOOLAULOA NEIGHBORHOOD BOARD NO.
(Kahuku, Laie, Hauula, Punaluu, Kaaawa-Kahana)
c/o HAUULA SATELLITE CITY HALL
54-010 KUKUNA ROAD
HAUULA, HAWAII 96717

September 23, 1985

Group 70
Attention: FRANCIS S. ODA, AIA
924 Bethei Street
Honolulu, Hawaii 96813

SUBJECT: DRAFT EIS FOR THE KUILIMA EXPANSION

Dear Mr. Oda:

Koolauloa Neighborhood Board No. 28 cannot take a position on the Draft Environmental Impact Statement until the questions already posed by the Board are answered.

Sincerely,

Deborah Carr V. Kidepostes, Secretary
for THOMAS PICKARD, Chair
Koolauloa Neighborhood
Board No. 28

cc: John Whalen
Department of Land
Utilization

TP:da

The other conditions include: educating the public on the proposed use of effluent (the Draft EIS fulfills some of this requirement); educating the golf course maintenance personnel on the use of effluent for irrigation; and applying effluent with low volume sprinklers near habitated areas.

DRAINAGE: Improvements proposed for the West Main Drain at the shoreline are as follows: the removal of the two 48-inch culverts at the terminus of the West Main Drain; and the existing West Main Drain will be widened to a trapezoidal channel with a base of 75 feet with side slopes of 3 to 1.

The channel of the East Main Drain will be widened from a base of 30 feet to a base of 100 feet and the slopes will be made more steep, from 0.002 to 0.0032. Also, the four 72-inch culverts including the headwalls at the terminus of the drain will be removed and the channel will be left unlined.

Sources of storm runoff for the various drainage systems are identified on pages 33 and 34 of the Draft EIS. Estimated volume flows into Kawela Bay (Kawela Stream), Turtle Bay (West Main Drain) and Kuilima Bay (East Main Drain) before and after development is provided on pages 46, 47 and 49 of the Draft EIS.

It is expected that during normal conditions, the West and East Main Drain outlets will be blocked by sand, not unlike the Ulehawa Stream drainage outlet at Ulehawa Beach in Nanakuli. According to Mike Honma of the Turtle Bay Golf Course, the beach at the existing East Main Drain outlet returns within 24 hours after storm flow ceases.

The new drainage channel which will connect the Punahoolapa Marsh to the East Main Drain is being designed to avoid back flooding into the marsh. Unique feature of the Punahoolapa Marsh Drainage System (PMD) are: the system will not have a direct outlet to the ocean; and the flow from the marsh will be controlled by a weir or two weirs, depending on the water level of the marsh.

OFF-SITE HOUSING: The Draft EIS stated that housing pressures from employees desiring to move into the region will be greatly reduced if job training programs succeed in maximizing resort employment for residents already housed in the region (page 83). It is the applicant's intention to fashion such programs, whether through improved coordination of existing programs or creating new ones. For example, the applicant has been one of the major supporters of the North Shore Career Training Program. A plan to ensure that residents of the region can qualify for construction and operating jobs generated by the resort

expansion is still being formulated and a report on the applicant's results so far in developing the plan will be appended to the Revised EIS (Appendix M). In addition, the applicant will be providing 95 units of low moderate housing in Kahuku for employee use. The details requsted on the employee housing are unavailable at this time.

ECONOMIC/SOCIAL IMPACTS: Population data is presented on pages 79 and 81 of the Draft EIS. For further information on regional housing and employment/unemployment refer to Appendix J (housing: pages 69-79, 164-170; employment: pages 51-61, 131-163). Regional job skills data is unavailable but will probably be obtained as regional residents submit applications in anticipation of future employment opportunities at the resort. Also, the information you requested on the number of unemployed, employed and unemployable will be sought when the necessary governmental approvals are recieved and the resort development can begin. Actual job descriptions and salaries of future jobs are unavailable at this time, however, Appendix J provides the projected distribution of future jobs by industry and occupation on pages 145 and 146. Apparently, no survey of students of Kahuku and Waialua high schools have been conducted in order to determine their future plans, however, this idea will be presented to the appropriate parties.

As noted in the Draft EIS, a plan to ensure that residents of the region can qualify for construction and operating jobs generated by development within the project site, encompassing training and related mitigation measures is still being formulated (refer to Appendix M of the Revised EIS) but will contain at least the following features:

- A basic education component to assist those disadvantaged residents who must first be brought to a level from which they can then be trained for specific jobs.

- Working through existing community organizations which could administer the program, such as the North Shore Career Training Corporation, which would provide local access and support services for start up training periods and counseling, referral, and placement as ongoing, long-term services.

- An in-service upgrade training component to assist local residents in moving up to supervisory positions.

- A community outreach and education component to assist people to become aware of the opportunities and also to understand the nature of the employment being provided.

- Close liaison with area schools, so that young people do not feel any alienation and so that school vocational programs can link up with what will be the region's primary employment center in the future.

The program is being prepared with input from the North Shore Career Training Corporation, the Kuilima North Shore Stategy Plan Community Advisory Committee, the personnel departments of various existing rural Hawaii resort operations (including the Turtle Bay Hilton and Country Club), existing publicand private-sector providers of job training and vocational education, and KDC's various socio-economic consultants.

The program may include government financing, but will definitely be designed to avoid overlap with existing training programs.

Please note that most hotel organizations have some form of in-service upgrade training program to help promising employees climb the career ladder to supervisory or management positions. However, few if any hotels have extensive programs for assisting disadvantaged applicants to gain minimum qualifications for entry-level jobs. Thus, the proposed jobs training program would provide some supplementary assistance to management training expected to be available anyway, but more of the program's resources would be devoted to (1) the types of jobs which are most plentiful in resorts and (2) the types of training (e.g., basic skills) which may not be otherwise available. No assurances can be made (or has been made) that all unemployed residents will be employed, but the program will be designed so that regional residents can qualify for the jobs.

SOCIAL: The impact of the project on the regional lifestyles was presented on pages 88 to 94 of the Draft EIS. We do not have any data on regional residents "who supplement their income or practice subsistance living through fishing, farming, hunting, and fruit and ornamental foliage gathering". However, please note that the impacts of the project on the lifestyle of area residents and on near shore food-gathering activities is discussed on pages 116 and 117 of the Draft EIS. The characteristics of resident-visitor interactions was described by the socio-economic consultants and is summarized on pages 90 and 93 of the Draft EIS.

ENVIRONMENT: Please refer to Appendix G for the list of chemicals used in golf course maintenance. Note that the impact of the use of fertilizers are described as nitrogen loading.

The consultants, Dames & Moore, provided estimated loadings of HCX into the marsh (see Appendix G). However, concentrations of HCX in the marsh waters cannot be determined at this time because the hydrologic characteristics of the marsh are unknown. Therefore, HCX concentrations that avifauna will be exposed to are also unknown. A draft of the "Letter Report Drainage Impacts on Punahoolapa Marsh, Proposed Kuilima Resort Expansion, Kahuku, Oahu, Hawaii" (Dames & Moore, 1985) was submitted to the U.S. Fish and Wildlife Service. They provided review comments and the revised version of the report was appended to the Draft EIS (Appendix G). Their main concern was the reported use of the pesticide Dursban. As recommended by the Service, the applicant will ask the existing golf course operator to seek a less toxic alternative. It should be noted that Dursban is applied on the existing golf course at a rate of one quart per acre approximately three to four times a year.

During floods, please note that as flow increases, fewer suspended solids settle out of the runoff, and the time that hydrocarbons are in contact with the flora or fauna is likewise reduced. Increased flow through the marsh will result in many of the algal species, that might otherwise benefit from the increased nitrogen, being washed out of the ecosystem.

Regarding the potential for impact on coastal waters of HCX flowing out of the marsh, OI Consultants, Inc. presents the following information for HCX after drainage modifications (data from Dames and Moore report):

Mean HCX loading	=	0.456 pounds per month	(Table 5)
Mean flow into marsh	=	17,529,284 gallons per month	(Table 3)
Percent active ingredient	=	10%	(Table 4)
Mean Concentration	=	mean loading/mean flow	
	=	2.6×10^{-8} pounds/gallon	
	=	3.1×10^{-6} grams/liter	
	=	3.1 parts per billion (ppb)	

This concentration could vary due to changes in drainage flow. Maximum flow is approximately 195,500,000 gallons per month and minimum flow is approximately 530,000 gallons per month (Table 3); these flows result in concentrations of 0.3 ppb under maximum flow and 100 ppb under minimum flow. Several processes occur in the marsh and nearshore environment which serve to decrease these concentrations. Suspended sediments carried with the drainage flow absorb some of the HCX onto the particle sur-

faces; some percentage of these particles settle to the bottom of the marsh, thus decreasing the concentration of HCX in the water. Note that the settling process is most effective under low flow, the time of highest HCX concentration. Under high flow, the concentration of HCX decreases due to dilution. Once the drainage water reaches the ocean, the flow is rapidly mixed with ocean water and diluted, and carried off-shore by prevailing currents.

According to OI Consultants, Inc., the low initial concentrations of HCX in the drainage water and the processes acting to decrease these concentrations still further imply that the potential for harmful impact of HCX on the nearshore ocean environment is minimal.

During the public review period the State Department of Land and Natural Resources (DLNR) requested that the applicant provide monitoring of the near shore water quality at the outlets of West and East Main Drains. The applicant has agreed to annual monitoring during development and operation of the resort, with termination after three years after completion of the resort if results show impacts are insufficient to warrant continuation (Ono, 1985).

RECREATION: As previously noted, traffic projections produced by Austin, Tsutsumi & Associates, Inc. are in aggregate form and do not isolate future traffic attributable to the proposed second 18-hole golf course and improved recreational facilities on site.

PUBLIC SERVICES: An estimate of the resort's fair share of expenditures (capital improvements and operations and maintenance) is provided on pages 85 and 86 of the Draft EIS. As noted on page 86 of the Draft EIS, State and County revenues derived from the proposed expansion of the Kuilima Resort will be very large, and will be sufficient for government to easily afford capital improvements and services needed to accommodate resident, visitor, and business growth which will be directly or indirectly dependent on the increased visitor activity made possible by the expansion of the Kuilima Resort. Please note that infrastructure improvements needed to service the project such as water transmission, sewage collection and disposal, and drainage collection will be paid for by the applicant. It is proposed that the water and sewage systems be dedicated to the City and County of Honolulu, and the resort's share of use of these systems will be paid for through user's fees. The drainage system will be maintained by the golf course operator.

ALTERNATIVES: As suggested, the applicant has reassessed the feasibility of the existing golf course as a free-standing amenity and determined that it will be able to continue operations without additional development.

Please note the previous Development Plan reflected a portion of a now-outmoded proposal for a much larger development. However, even under the applicant's old plan, the previous DP designations were never intended as a "first phase" and would not have been considered a viable development. The City established the boundaries for the previous DP designations as part of an effort to scale down the previous proposal, but the applicant pointed out problems with this decision even at that time. As noted on page 14 of the Draft EIS, a market study undertaken by the Hallstrom Appraisal Group, Inc. indicates that there is expected to be a conservative demand for 5,000 to 6,200 units at the resort.

The applicant may sell its interest in the property, if the necessary governmental approvals are not granted.

Portions of the project may be developed by KDC, joint venture, or other development firms, under covenant, codes and restrictions established by the applicant.

The Draft EIS provides an approximate phasing plan for the project (refer to page 32). Please note that almost of all of the infrastructure improvements are included in the first phase. Proposed plans for drainage, water distribution, sanitary wastewater disposal, and access roads require review by a number of governmental agencies, this will ensure that the project will not be adversely affecting nearby residents.

Sincerely,

GROUP 70

Vincent Shigekuni

for Francis S. Oda, AIA

6815A/vs

cc: Mr. John Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company

NR 1132 - 4241

3876 Sierra Dr.,
Honolulu, Hawaii 96816
September 23, 1985

Mr. John Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 S. King St.,
Honolulu, Hawaii 96813

Dear Mr. Whalen:

I have just read the Kuilima Development Company's Draft Environmental Impact Statement dated August 5, 1985 covering its proposed Kuilima Resort Expansion.

The developer is to be complimented on the thoroughness with which he has prepared this document.

I am particularly concerned, however, with the access proposals to Kawela Bay as stated.

The applicant (developer) has indicated:

1. A proposed park of approximately 4.8 acres would provide direct public access to Kawela Bay for passive beach-oriented recreation.

2. Right-of-way (R.O.W.) 1, a 15-ft., pedestrian walkway will be located on the northeasterly shore of the bay.

3. A walkway within the 100-ft., setback area will ensure unimpeded <u>lateral</u> access along the shoreline and shall be linked to the public access-ways (4.8 acre park and R.O.W. 1).

Consider this scenario. It is a torridly humid day and 1000 of Oahu's residents and their families decide to enjoy the beauty of Kawela Bay (after all this presently restricted and unknown oceanside gem with its placid waters and beautiful white sand beach is in a class of its own). The tide is up, however, and an unusually high surf is running.

Will these taxpaying citizens be expected to confine their activities to the narrow boundaries of the 4.8 acre park, 15-ft., right of way and areas of the beach below the highwater mark or will they be permitted to enjoy "passive beach oriented activities" such as sunbathing, picnicking, etc., within the 100-ft., setback area fronting the bay's shoreline?

The applicant (developer) has also indicated that he supports establishm of an underwater park and Marine Life Conservation District at Kawela Bay.

Unless unrestricted public access to the 100-ft., setback area for passive recreational activities between the hours of sunrise to sunset is granted designating Kawela Bay as an underwater park and MLCD would simply mean establishing an outdoor aquarium for the select few resident of the area and guests of the resort development.

I have read a statement to the effect that the unrestricted public acce being requested is over property (100-ft., setback area) worth a millio

dollars. My response to this comment is that the parcel would have no such value were it not for the generous government concessions being granted to the applicant (developer).

A party I know owned one acre of choice beachfront land in Santa Barbara, California which could not be developed because of zoning restrictions. The parcel had a negligible value.

Government regulations controlling land development do have a very great influence on property values.

I have attached a copy of my March 14, 1985 testimony to the City Council at its hearing on proposed amendments to the Koolauloa Development Plan which details conditions the developer of the Wailea Resort on Maui was obliged to comply with.

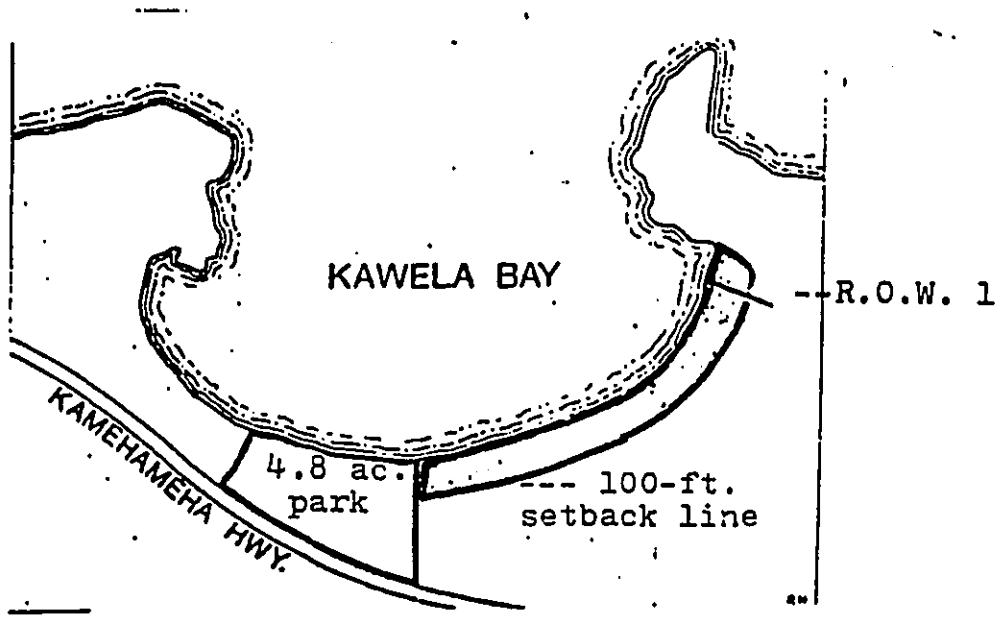
Prudential's compliance requirements by comparison are miniscule.

Under these circumstances granting a perpetual unrestricted public access to the 100-ft., setback area fronting Kawela Bay's shoreline for passive beach-oriented activities between the hours of sunrise to sunset would represent a very small concession on the part of the developer.

The City Council in its deliberations and action on the Kuilima Developmen Plan Amendments has widely determined that:

> "Areas within 100 feet from the shoreline shall be open to the public under terms and conditions to be determined at the time of zoning and to be recorded at the Bureau of Conveyances". -- Special Provisions -- Section 2.2.a.(2)h.

Accordingly, it is respectfully requested that your department's report to the City Planning Commission covering the applicant's rezcning request include a recommendation that a perpetual unrestricted public access to the 100-ft., setback area fronting Kawela Bay's Shoreline (shown outlined in blue below) for passive beach-oriented activities be required of the developer.



The applicant has correctly stated "This development will involve the irretrievable commitment of natural resources".

Our children, their children and future generations of Hawaii's people will be most grateful to you for your help in preserving this bit of Hawaii for their use and enjoyment.

Sincerely,

James C. Lam/Voters For Kawela

Att.

cc: City Planning Commission
Council Members
Mayor Fasi
Governor Ariyoshi
Senators
Representatives
Neighborhood Boards
Hawaii's Thousand Friends
Sierra Club
Nature Conservancy
Outdoor Circle
League of Women Voters
OHA
DPED
Corps of Engineers
OEQC
Oahu Canoe Racing Ass'n.
Honolulu Advertiser
Honolulu Star Bulletin
North Shore News
Health and Community Services Council
M. Trask
T. Yoneyama
Wm. King
Bill Dodge
Phyllis Zerbe
Puaala McElhaney
Life of the Land
Jim Hoffman
Barbara Kahana
Sherwood Maynard
Frank Lee
American Legion
VFW
Disabled Amer. Veterans
Cathy DeSilva
F. Centeio
Land Use Commission

March 14, 1985

Chair Mink, Members of the City Council, thank you for giving me the opportunity of speaking to you on the subject of Kawela Bay.

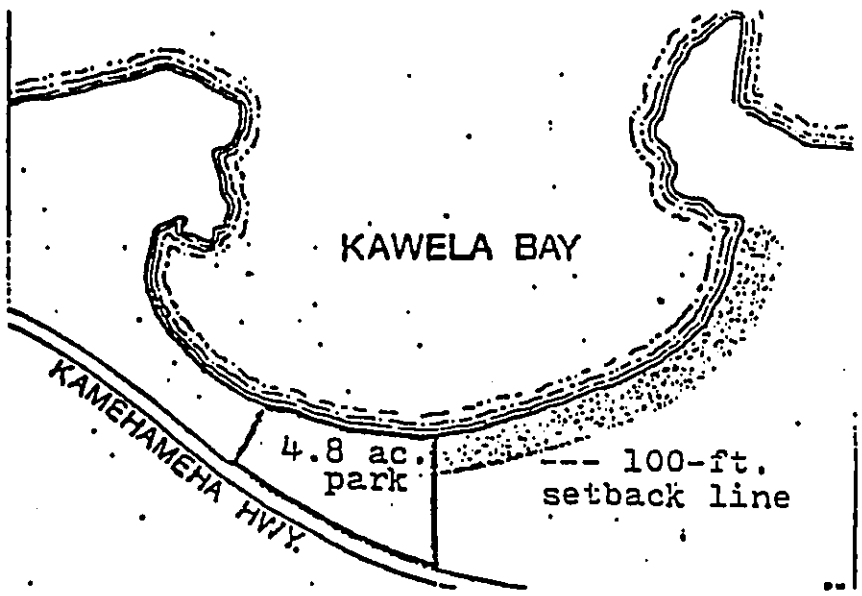
My name is James C. Lam representing Voters For Kawela.

As you know from previous communications the primary focus of my concern is tied to providing "adequate" public access to this beautiful area.

It is my understanding that The Prudential Insurance Company which previously agreed to provide a 4.8 acre park site fronting the bay has now committed itself to permitting public access over the 100-ft., setback area along the bay's shoreline it is currently requesting approval for.

Given the history of what has happened to so many of Hawaii's choicest beachfront areas, however, I believe a documentation of Prudential's foregoing commitment by way of a legal instrument that "runs with the land" is the only certain means of insuring the public's future right to use this area (100-ft., setback).

In this connection I recommend that The Prudential Insurance Company of America execute a "perpetual grant of easement in favor of the City and County of Honolulu (or the State of Hawaii) over and across the above described 100-ft., setback area (which is approximately shown below shaded in gray)for unrestricted public access and recreation purposes":



This action will not preclude the developer from landscaping and maintaining the subject area as he has proposed to do, I understand. On the other hand should Prudential decide to transfer its interest in the development to other parties (as in the sale of the Kuilima Hotel) the public's right to use this crucially important shoreline frontage will still be protected. Can anyone argue that guaranteeing access above the high water mark to this beautiful bay's white sandy beach would be a bad thing for the public?

I believe some information on what was required by the County of Maui of the developers of the Wailea Resort is in order at this time.

The requirements stipulated are as follow:

1. Kilohana-Kihei Road right-of-way --------- 65 parking stalls.
2. Right-of-way 2A near Ekaha Development --- 24 parking stalls.
3. Right-of-way 2B at Ulua Beach ---------- 39 parking stalls.
4. Wailea Beach Right-of-way ---------- 40 parking stalls.
5. Polo Beach Right-of-way ---------- 44 parking stalls.
6. Three restrooms (divided among the above described rights-of-ways) containing 4 commodes for women, 2 commodes for men 2 urinals each.
7. Lighting installed at each parking area and along each right-of-way leading to the beaches.
8. Installation of a shower on the beach at each right-of-way except for the Kilohana-Kihei Road right-of-way.

With the foregoing in mind it is recommended that the City Council approve Prudential Insurance Company's application to amend the Koolauloa Development Plan as it affects Kawela Bay subject to the following terms and conditions:

1. Execution by Prudential Insurance Company of America of a perpetual grant of easement in favor of the City and County of Honolulu (or the State of Hawaii) over and across the above described 100-ft., setback area for unrestricted access and recreation purposes.
2. The executed document shall be submitted to the City and County of Honolulu (or the State of Hawaii) within 120 days from the date of Council approval (this time period will provide the

developer with sufficient time to prepare the necessary maps and descriptions covering the easement as well as insure the sincerity of Prudential's commitment to permit public access over this 100-ft.,setback area along Kawela Bay's shoreline).

On a related note I would like to inform you that petitions requesting public support for the above "adequate" access proposal are being circulated and will be transmitted to your office as they are received.

Sincerely,

James C. Lam

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 523-4432

FRANK F. FASI
MAYOR

JOHN P. WHALEN
DIRECTOR

September 27, 1985

Mr. James C. Lam
3876 Sierra Drive
Honolulu, Hawaii 96816

Dear Mr. Lam:

Thank you for your comments on the Turtle Bay Resort Expansion Environmental Impact Statement (EIS). Under the State's EIS Regulations, the EIS preparer is required to consider your comments and make a point-by-point response to them. Your comments will also be taken into consideration when this department evaluates the acceptability of the EIS. Following the EIS process, the City will be reviewing applications for rezoning and for a Special Management Area Use Permit (SMP) for this project. I encourage you to participate in the public hearings on these applications.

If you have any questions about the EIS or procedures, please contact Mr. Earl Matsukawa regarding the SMP or Mr. Calvin Ching regarding the rezoning.

Sincerely,

JOHN P. WHALEN
Director of Land Utilization

JPW:sl

cc: Mayor Fasi
✓Group 70

Frank S. Ohta AIA
Eugene K. Morgan AIA
Norman S. Hong AIA
Stan. E. Sakamoto AIA

4 October 1985

Mr. James C. Lam
3876 Sierra Drive
Honolulu, HI 96816

Dear Mr. Lam:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for your interest in the project. We have reviewed the copy of your letter of 23 September 1985 to John Whalen, Director of the Department of Land Utilization, and offer the following responses to your comments:

In response to your questions regarding the provision of the public's use of the area within 100 feet of the shoreline, please be assured that this is an integral part of the Master Plan for the Kuilima Resort Expansion. Please note that, excluding the facilities of the existing Turtle Bay Hilton, and the proposed beach parks (P-1, P-2 and P-4), the applicant will maintain a 100-foot setback that will be available for public use (totaling approximately 21.3 acres). Please note that specific provisions for public access will be determined through the Special Management Area Use Permit (SMP). According to the Department of Land Utilization, SMP's granted for major coastal developments are usually encumbered by a variety of conditions. It is expected that the conditions will include, as specified in the Development Plan for Koolauloa, a provision that areas within 100 feet from the shoreline be open to the public.

We are interested in learning of the source which stated that the 100 foot setback area is "worth a million dollars". At approximately 21.3 acres, this area is worth well in excess of that amount.

We disagree with your statement that "Prudential's compliance requirements by comparison are miniscule." While the public access requirements stipulated for the Wailea Resort were generous, please note that the provisions for public coastal recreational opportunities proposed for the Kuilima Resort, in the form of shoreline parks, rights-of-ways and setbacks, are considerable.

Parks proposed to be dedicated to the County include P-1 and P-2. Park P-1 will be located on the western most end of the project site, and will occupy an area of approximately 4.8 acres. Entry/exit will be from Kamehameha Highway, with parking provided within the park. Park P-1 will provide direct public access to Kawela Bay for passive beach-oriented recreation. Such access has not previously been available to the general public.

Park P-2 will be located on 37 acres between Kahuku Point and the eastern boundary of the project site on Hanaka'ilio Beach. The major feature of this beach park is the sand dunes located along this section of the shoreline.

The areas adjacent to the outlet of one of the major drainage ways on the property will be used for a park (P-4). This park site of 2 acres will be privately developed and maintained. Park P-4 provides open space and a view corridor between hotel sites H-4 and H-3, the latter being the eastern-most hotel site on the property.

A 100-foot setback is proposed along the shoreline of the project site, except for the area presently occupied by the Turtle Bay Hilton. This setback will contain a continuous walkway, with landscaping, and will ensure unimpeded lateral access along the shoreline.

It is proposed that 5 right-of-ways providing public access to the shoreline from the internal roadway, with free public parking, be developed. Development of parks P-1, P-2 and P-4, the 100-foot setback and the right-of-ways will encourage public recreational use of shoreline lands and waters fronting the project site.

Please note that your letter and this response will be appended to the revised EIS.

Sincerely,

GROUP 70

Francis Oda

Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Ms. Jan Sullivan

7781A/vs

2222 Manoa Road
Honolulu, Hawaii 96822

September 23, 1985

Group 70
Attention Mr. Francis S. Oda, AIA
924 Bethel Street
Honolulu, Hawaii 96813

Gentlemen:

Subject: EIS Draft - Kuilima Resort Expansion

Thank you for sending me the above.

Following are just a few of many statements on which I would like to comment:

Water Usage...The use of 3.055 (million gallons per day) of water.

The City is asking people to conserve now. Instead of using public water, why doesn't Prudential put in their own desalination plant? The public should not have to give up their water for the development.

Wastewater Disposal System

Has the County agreed to operate and maintain the wastewater disposal system?

Parks

Has the County agreed to develop and maintain the parks? Do they have the funds for the maintenance of more parks? Or, will the proposed parks stand idle and later be developed as part of a golf course?

Solid Waste Disposal

Will revenues from the resort be able to support the expense of the proposed refuse to energy plant and other expensive infrastructure and services costs as well? How many years will it take to generate these revenues? Kuilima has not been really successful in the past. Will more development in the area be more successful? Is the future economy that predictable?

Thank you for giving me an opportunity to express my concerns.

Very truly yours,

Eloise McIntosh

cc: City & County of Honolulu
Department of Land Utilization

Francis S Oda AIA Inc
Robert K L Wong A A Inc
Norman G Y Hong AIA Inc
Steven E Seaman AIA Inc

4 October 1985

Ms. Eloise McIntosh
2222 Manoa Road
Honolulu, HI 96822

Dear Ms. McIntosh:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for your interest in the project. We have reviewed your letter of 23 September 1985 and provide the following responses to your comments:

Water Usage

The impact of potable water requirements of the proposed resort expansion on regional resources is described on pages 40 through 42 of the Draft EIS. In addition, please note that the Water Master Plan for the Kuilima Resort was approved by the City and County of Honolulu Board of Water Supply, an agency that is responsible for management of island-wide needs.

While the provision of a desalination plant is an interesting idea, you are probably aware that the energy required to run such a plant is high, making the cost of water economically prohibitive.

Wastewater Disposal System

The County has agreed to operate and maintain the wastewater disposal system.

Parks

The City and County of Honolulu Development Plan for Koolauloa states that: "A total of four park sites, as designated on the Koolauloa Development Plan Map shall be provided and shall be open to the general public. The land for two of these parks shall be dedicated to the City. The remaining two parks shall be privately owned and maintained." We think this reflects a strong commitment on the part of the City to develop and maintain the areas that will be dedicated for public parks (P-1 and P-2). The remaining parks, P-3 and P-4 will be developed and maintained by the applicant and/or resort owner(s).

Solid Waste Disposal

Based on a study prepared by Decision Analysts, Inc., it is predicted that State and County revenues derived from the proposed expansion of the Kuilima Resort will be very large, and will be sufficient for government to easily afford capital improvements and services needed to accommodate resident, visitor, and business growth which will be directly or indirectly dependent on the increased visitor activity made possible by the expansion of the Kuilima Resort. The revenues will be sufficient to: (1) finance the fair share of the cost for major transportation and other capital improvements which are or will be needed on the North Shore; (2) provide the same level of per-unit services as are currently provided (including the use of the refuse to energy plant); and (3) serve other community needs with the remaining net revenues. Furthermore, government will be exposed to little, if any, risk since major government investment need not be made until the success of the expanded resort is proven, and substantially increased tax revenues are already being derived.

Please note that your letter and this response will be appended to the revised EIS.

Sincerely,

GROUP 70

Francis Oda

Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Ms. Jan Sullivan

7783A/vs

NORTH SHORE NEIGHBORHOOD BOARD NO. 27
P. O. Box 607
HALEIWA, HAWAII 96712

September 19, 1985

John P. Whalen, Director
Department of Land Utilization
City & County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Dear Mr. Whalen:

The North Shore Neighborhood Board No. 27 is very happy with the Kuilima EIS. It is a well prepared document. The Neighborhood Board is also very pleased with the Kuilima Development Company's willingness to keep the communities affected by the expansion, informed and involved in this project.

At our special meeting on September 18, 1985, 7:30 p.m., at the John Kalili Surf Center, it was unanimously voted to make these recommendations.

1) TRAFFIC

Expansion of the hotel should be determined by expansion and/or adequacies of public facilities, i.e. roads. If roads aren't adequate, growth should be slowed and/or phased for facilities to be improved.

Incremental review should be incorporated as a community responsibility by both hotel, government and community.

2) ARCHEOLOGY AND HISTORIC SITES

It is recommended that a through study of historic finds be made, using a minimum of 3 carbon datings to ascertain the merits of the sites.

A confirmed contract with an archeologist should be signed now. Until this is done, building permits should not be issued.

All archeological research should be done before Parks and Right-of-Ways are dedicated in Phase I. (Ref. Fig. 9) Any sites qualified to be placed on the National Register of Historic Places should also be done before Parks and Right-of-Ways are dedicated in Phase I.

3) SAND DUNES/VEGETATION

We are concerned about Beach Erosion and the need to protect Shoreline Plants.

4) GENERAL CONCERNS

What kind of guarantees does the community have when promises are not kept; no recourse after the fact.

The Neighborhood Board would like to have expounded in writing, meaningful appeal or review procedures to guarantee that assurances and commitments are kept.

5) EDUCATION

The hotel should sponsor and support career training and orientation with schools, i.e.:

- Career Training Days,
- Job Fair,
- Career Shadowing, and
- Work Study.

This should be integrated into high school programs now.

Thank you very much for letting the Neighborhood Board have input on this matter and we are awaiting your response.

Yours very truly,

Meryl Andersen

MERYL ANDERSEN, CHAIRMAN
North Shore Neighborhood Board No. 27

cc: Group 70
924 Bethel Street
Honolulu, Hawaii 96813

Councilman Toraki Matsumoto

Francis S Oda A.I.A. Inc
Robert L. Wong A.I.A. Inc
Norman G. Hong A.I.A. Inc
Sheri B Seaman A.I.A. Inc

4 October 1985

Ms. Meryl Andersen
Chairperson
North Shore Neighborhood Board No. 27
P.O. Box 607
Haleiwa, HI 96712

Dear Ms. Andersen:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for the copy of your letter of 19 September 1985 to John Whalen, Director of the Department of Land Utilization. We have reviewed your comments and offer the following responses:

1) TRAFFIC

As noted in the Draft EIS, previous studies have identified problem traffic areas along the North Shore and the need for highway improvements. The preparation of the "Traffic Impact Report for the Proposed Turtle Bay Resort" by Austin, Tsutsumi & Associates, Inc. (ATA), and its review by the City and County of Honolulu Department of Transportation Services and the State of Hawaii Department of Transportation, should give the appropriate government agencies a clearer picture of future traffic in the region, with or without the project. As noted in the Draft EIS, if the ATA recommended regional improvements are implemented, the increased traffic generated by the proposed resort expansion will not beyond the carrying capacity of Kamehameha Highway.

2) ARCHAEOLOGY AND HISTORIC SITES

The applicant is presently in the process of contracting additional studies of the Kawela Bay site. A proposal by an archaeological consultant that is presently being reviewed contains over 10 carbon datings for the Kawela site.

It is the applicant's intention to complete the necessary archaeological surveys (as required by the State Historic Preservation Officer) prior to applying for the necessary building permits and before the dedication of parks and right-of-ways in Phase 1.

Because of processing time involved, the actual placement of eligible sites in the National Register of Historic Places may occur after the dedication of parks and right-of-ways in Phase 1. However, the State Historic Preservation Officer's recent determination that the sites in question are eligible, provides these sites with a status that is essentially the same as being on the Register, in terms of protection.

3) SAND DUNES/VEGETATION

As recommended by Dames & Moore, the engineering firm which studied the sand dunes on site, no structures will be constructed on the primary dunes on site, nor will they be modified.

Earthwatch, in their report, "Vegetation Survey for the Proposed Kuilima Resort, Island of Oahu" (1984), wrote: "Since the highest diversity of coastal species and greatest number of native species occurs in a thin strand of coastal vegetation on the seaward side of the dune vegetation, the plan as proposed would protect most of these species as part of the setback or primary dunes."

4) GENERAL CONCERNS

The Special Management Area Use Permit (SMP) and rezoning procedures require that a public hearing be held prior to the City Council renders a decision on either the SMP or rezoning request. As noted by the Department of Land Utilization, SMP's granted for major coastal developments are usually encumbered by a variety of conditions. In the case of rezoning requests, a unilateral agreement on conditions placed on rezoning approval, must be signed by the applicant prior to the third reading by the Council.

5) EDUCATION

Your encouragement to integrate career orientation programs for students has been relayed to the applicant and to the North Shore Career Training Corporation.

Sincerely,

GROUP 70

Francis Oda

Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Dr. Paul Rosendahl, PHRI
Ms. Jan Sullivan

7768A/vs

SIERRA CLUB, HAWAI'I CHAPTER
P.O. BOX 11070 HONOLULU, HAWAI'I 96828
(808) 946-8494

September 23, 1985

Group 70, Attention: Mr. Oda
924 Bethel Street
Honolulu, Hawaii 96813

Re: Draft Environmental Impact Statement for the Proposed Kuilima Resort Expansion, Koolauloa District, Oahu, Kuilima Dev. Co.

Dear Mr. Oda:

In response to the Draft EIS, the Honolulu Group Conservation Committee of the Hawaii Chapter of the Sierra Club would like to make the following comments dealing principally with two aspects:

I. The required water supply:

1. We do not consider the proposal to develop wells to meet the expected demand a suitable or viable solution in view of the fact that Oahu has been on water rationing or water conservation for over a year. This action has been based on aquifer measurements; any new wells must draw on this aquifer. Release of sugar cane water can only be a temporary solution, since a high percentage of this water use returns to the aquifer; water for resort and urban development does not.
2. The research has not yet been done which fully reveals the effect of new wells on the total system, including the potential for drying up the two remaining stream systems on Windward Oahu.
3. The minimum stream flow standards have not yet been set. Until this has been accomplished, there should be no drilling of new wells.
4. The 1978 Constitutional Convention demand that the State develop a water policy and adopt a water code has not been met. Until this is done, there should not be large allocations of water.
5. As an Island, all of our natural resources are limited. These must not be allocated exclusively to visitors. The fresh water

SIERRA CLUB, HAWAI'I CHAPTER
P.O. BOX 11070 HONOLULU, HAWAI'I 96828
(808) 946-8494

supply is so much and no more, and there is ample evidence that we are reaching the limiting factor of fresh, natural water supply. Therefore, the large proposed resorts should solve their water supply by installation of de-salination plants. Resort demands must not be met at the expense of Hawaii's residents.

II. Coastal Zone Impact:

State and Federal Coastal Zone Management Law deals with the necessity of considering cumulative impacts of any development on the Coastal Zone. We feel that this has not been adequately dealt with from the point of:

1. water pollution from general drainage and from pesticide, herbicide and fertilizer drainage from golf courses and lawns.
2. Disturbance of the natural systems from dredging, water activities, and general traffic, further endangering and threatening native species.
3. Diminishing the "nursery" potential of these inshore waters.
4. Isolating large areas of presently relatively undeveloped coast from use by Hawaii's people. The present Turtle Bay (Kuilima) has effectively excluded people from their area of the coast. Even though supposed provision will be made through providing park space and access, this will not prevent exclusion. The effectiveness of turning over park space to the City and County which has already exceeded its capacity to maintain its parks is hardly a solution. People need access to coast line and freedom to carry on informal recreation where the coastal zone has been allowed to remain in its natural state. The true impact on the Coastal Zone of such a large development with high-rises just a hundred feet from the water has, we feel, been glossed over.

Mahalo

Lola N. Mench

Lola N. Mench, Chair

c.c. City and County of Honolulu
Dept. of Land Utilization

4 October 1985

Ms. Lola N. Mench
Chair
Sierra Club, Hawai'i Chapter
P.O. Box 11070
Honolulu, HI 96828

Dear Ms. Mench:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for your letter of 23 September 1985. We offer the following responses to your comments:

I. Water Supply

The Water Master Plan for the Kuilima Resort was approved by the City and County of Honolulu Board of Water Supply (BWS), an agency that is responsible for management of island-wide needs, and which, on occasion, has encouraged voluntary water conservation and enforced mandatory water restrictions.

The water resources of the Kahuku Water Management Area (Malaekahana to Kaunala) were studied by EDP Hawaii, Inc. and described in the Management Guide to the Water Resources of the Kahuku Water Management Area (EDP Hawaii, Inc., 1984), and is summarized below:

> A substantial sustainable yield of potable fresh water in Campbell Estate lands in the region remains to be developed. One of these untapped groundwater resources is the Waialee aquifer, a major portion of which lies within the Campbell Estate boundaries. The features and potential capacity of the Waialee Aquifer are reasonably well known. The U.S. Geological Survey in a study completed 15 years ago (K.J. Takasaki) estimated groundwater flux through the two mile front of the aquifer to be 20 mgd. It is the opinion of EDP Hawaii, Inc.'s consultant, John Mink, that the estimate is too high and "the flux may be as low as ten mgd but is probably on the order of 15 mgd. At least half of this can be safely extracted with wells having pumps rated at or less than 600 gpm."

Only 0.5 mgd of the Waialee aquifer is currently being pumped. Mink states that "the remaining 7.0 mgd should be able to satisfy all of the urban demand projected for the Waialee-Kawela-Kuilima area and part of that for consuming centers farther away". Mink also notes that "On the basis of land ownership, the Campbell Estate should be allotted at least 5.5 mgd of the total yield". The applicant has received a commitment from Campbell Estate to make 3 to 4 mgd available for use by the resort subject to availability and State and County approvals. It should be noted that 3 mgd is the maximum day demand for the Kuilima Resort at full completion.

We feel that your references to the potential for research on the impact of new wells on "the two remaining stream systems on Windward Oahu", the establishment of minimum stream flow standards, the development of a State water policy and water code, and the allocation of water to visitors would be best directed to the appropriate government agencies. The applicant has endeavored to obtain all the necessary governmental appprovals for the development of a potable water system. In addition, the applicant will provide the State of Hawaii Department of Land and Natural Resources and the BWS with a drilling log.

While the provision of a desalination plant is an interesting idea, you are probably aware that the energy required to run such a plant is high, making the cost of water economically prohibitive.

Please note that, as stated in the Draft EIS, the cost of all infrastructure improvements, including water development, will be paid for by the applicant. According to Decision Analysts, Inc., an approximate estimate for operations and maintenance expenditures needed to service the growth supported by the activities within the project site is $23.7 million per year. These expenditures should provide approximately the same level of per-unit services to residents, visitors, and businesses as is currently the case with locally generated revenues. To offset these costs, the combined State and County revenues during full operations is expected to total $36.2 million per year. Therefore, "resort demands" will not be met at the expense of Hawaii's residents, but revenues from the resort will be sufficient to: (1) finance the fair share of the cost for major transportation and other capital improvements which are or will be needed on the North Shore; (2) provide the same level of per-unit services as are currently provided; and (3) serve other community needs with the remaining net revenues.

II. Coastal Zone Impact

We cannot provide responses to an opinion you hold that we did not consider the cumulative impacts of the project on Coastal Zone Management Area (especially regarding the topics of: water pollution; the impacts of "dredging, water activities and general traffic"; "the 'nursery' potential of these inshore waters"; and public access to the shoreline), without some reference to studies with differing findings.

We provided an assessment of the impact of storm runoff on Punahoolapa Marsh and the near shore waters in the Draft EIS, on pages 62 to 64, 44 to 49, respectively. The impact of desilting a portion of Kawela Bay was described on page 46. A description of future traffic with and without the project was provided on pages 95 through 109. The benthic communities of the nearshore waters were surveyed by OI Consultants, Inc. and were not described as having "nursery" potential.

In response to your expressed concerns regarding public access to the shoreline, please note that plans for the resort expansion include: the dedication of beach parks P-1 and P-2; the development of a 2-acre beach park (P-4) to be privately maintained; and the provision of 5 public right-of-ways to the shoreline (with free public parking). All of these features are stipulated in the City and County of Honolulu Development Plan. We think this reflects a strong commitment on the part of the City to develop and maintain the areas that will be dedicated for public parks (P-1 and P-2). The remaining parks, P-3 and P-4 will be developed and maintained by the applicant and/or resort owner(s).

We disagree with your statement the project will entail "a large development with high-rises just a hundred feet from the water". Please note that the Development Plan for Koolauloa stipulates specific principles and controls for the Kahuku Point-Kawela Bay Resort Area. These include:

"(2) Structures shall be generally setback a distance of 300 feet from the shoreline. Within the distance of 100 feet to 300 feet from the shoreline, structures shall be setback pursuant to policies set forth herein:

(a) No structure shall be located between the shoreline and 100 feet from the shoreline.

(b) For each increment fronting Kawela Bay and Kawela Point fronting Turtle Bay and between 100 feet and 300 feet from the shoreline, there shall be a maximum building to land coverage ratio of 10% of the land area makai of the 300-foot line to the property line and shall have staggered building heights with a maximum of 50 feet. The percentage of any given section shall not be clustered.

(c) Structures located between 100 feet and 300 feet from the shoreline are subject to design review approval by the Department of Land Utilization.

(d) Structures in the Kawela Bay increments over 50 feet shall be setback a minimum of 300 feet from the shoreline.

Please note that your letter and this response will be appended to the revised EIS.

Sincerely,

GROUP 70

Francis Oda

Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Ms. Jan Sullivan

7790A/vs

[-copy of letter sent to Mr. Whalen... as requested

Terry J Walker
PO Box 31,
Haleiwa, HI 96712
9/22/85

Dear Mr. Whalen and Dept. of Land Utilization,

The following are my comments concerning the Draft EIS for Kuilima Resort Expansion:

Summary-p.1: In referring to the 37 individual lessees of East Kawela Bay parcels, it does not make it clear that the lessees families will also bear the costs of the proposed development.

Part IV-C.: I question the committment of our limited island water supply to such a large project, in light of the recent water shortages and conservation effots.

Part IV-D.: Kawela Bay has a history of very destructive tsunamis. There is a great danger in building a resort where 1,000's of people (unfamiliar with the ocean and the area) will be exposed to such danger. Who will be responsible for any ensuing accidents, deaths or destruction that may occur in the future?

Part IV-E.: Removal of silt from Kawela Bay may disturb the habitat of the green sea turtles who live and feed in the bay. These turtles are a threatened species and should be protected by law. Studies have been done by the National Marine Fisheries to reinforce what people familar with Kawela know--that it is a turtle habitat. Also, it is a spawning ground for various types of fish--has this been checked into, particularly in light of the fish shortages happening around Oahu.

Part IV-J.: I am concerned that an inadequate job has been done in the archaeological survey, in general, and for Kawela Bay (T-6) in particular. Are possible archaeological findings and evidences of Hawaiian cultural history going to be bulldozed and covered over with cement? (As has happened in so many other sites in Hawaii.) You have a responsibility to thoroughly research this area. When will it be done?

Part IV-N.: Figure 18-Visual analysis is grossly out of scale. The trees that are existing are no where near 90' tall to cover the buildings proposed. The existing growth in the area designated for the hotel is maybe 50' tall. The proposed hotels will be eyesores and the growth will not hide them.

Part IV-O.1: Proposed introduction of 4,783 average daily vistors (replacing approx. 140) will overstress the environment and bays, cause housing, traffic and infrastructure problems that the proposed development will not adequately mitigate. Proposing condo units to mitigate housing shortages will only cause other problems such as the increased cost of housing. Redoing the intersection outside the hotel entrance will be virtually useless

on mitigating traffic problems that will arise with such an increase in population. Infrastructure improvements will be necessary and the state will be ultimatly responsible (despite the statement in Part III-C. that no public funds or action will be required).

Part IV-0.2: Correction: "...current lease rent of $280 a month..." plus all land taxes due on the property.

Part IV-0.4: What proposed mitigative measures are being taken for the displaced residential lessees? The shortage of housing in the area will make it extremely difficult for these residents to remain in this community. It will upset their lifestyles if they have to leave the general area (i.e. work, school, friends, etc.).
The comment concerning choosing between country and community values is absurd! These two concepts cannot be seperated The *people who live out here choose to do so because of the type of* community it is--and that is rural or country! Your definition seems to center around economic concerns only--community includes far more than that.

Part IV-P.1: The traffic study underestimates the amount of traffic that will be generated. Mitigatory measures need to be taken now, resort or not--waiting until after the proposed resort is built would be a catastrophy.

Part IV-P.4&5: Where's the waste going to go??? It's already a problem on Oahu. Typical unsolution solution--let the state handle it.

This project will be generating far more problems than are evident in this EIS--many problems are downplayed and made to seem inconsequential. The benefits of the proposed action DO NOT outweight the costs. Potential benefits to the people of Hawaii will in no way pay for the costs of those who will bear the negative (long term) effects of this project, if it is built. Alternatives should more carefully checked into. I am not opposed to development--I am in fact in favor of QUALITY development. This proposed development IS NOT THAT. Please carefully consider the choice you will be making for you will be committing land and resources of the people of Hawaii to a permanent endeavor.

Thank-you for your attention and consideration.

Terry J Walker

Terry J Walker

4 October 1985

Ms. Terry J. Walker
P.O. Box 31
Haleiwa, HI 96712

Dear Ms. Walker:

Subject: Draft EIS for Kuilima Resort Expansion

Thank you for your interest in the project. We have reviewed your letter of 22 September 1985 to John Whalen, Director of the Department of Land Utilization, and offer the following responses to your comments:

Summary, page 1: According to the property management company administering the East Kawela rentals for the Kuilima Development Company, 39 parcels were being leased on a month-to-month basis. Of these, only one-half (19) were in full-time residential use; 5 were occasionally but frequently occupied; 10 were occasionally but infrequently occupied; and 5 were unoccupied. As per your comments the sentence will be revised to read: "Those sectors of the region's population who would be adversely affected by the proposed resort expansion have been identified as being: the 39 individual lessees of east Kawela Bay parcels and their families,...".

PART IV, C.: Please note that the Water Master Plan for the Kuilima Resort was approved by the City and County of Honolulu Board of Water Supply (BWS), an agency that is responsible for the management of potable water resources on an island-wide basis.

All new water sources developed to serve potable water to a public water system as defined by Chapter 20, Title 11, Administrative Rules must be approved by the Director of Health prior to their use to serve potable water. In addition, the applicant will provide the State of Hawaii Department of Land and Natural Resources and the BWS with a drilling log.

PART IV, D.: Please note that despite the conditions that you described in your letter, this has not discouraged people from residing around the bay in single-story, wood frame houses. Current Federal laws require hotel-type structures in tsunami areas to withstand the dynamic forces of the waves, with the lowest habitable floors above the height of the 100-year wave.

Additionally, we believe that your reference to a "history of very destructive tsunamis" refers to an incident that occured in 1946 at Kawela Bay. Please note that the degree of uncertainty regarding tsunami occurences has been greatly reduced since that time. Since then, our means of detecting earthquakes have become markedly more sophisticated, and since there is a correlation between earthquakes and tsunamis, earthquake occurences are constantly being assessed for their tsunami generating potential. When a tsunami is imminent, the State of Hawaii Civil Defense System will provide adequate notification so that the scenario that you have described in your letter can be avoided.

PART IV, E.: It is our understanding that studies conducted by the National Marine Fisheries of Green Sea Turtles at Kawela Bay are not yet completed. According to conversations with residents of Kawela Bay, Green Sea Turtles are generally found in the western half of the bay. Oceanit Laboratories, Inc. found that the northwestern portion of the bay contained abundant growths of algae that are known to be important diet items of Chelonia mydas: Ulva reticulata, U. fasciata, and Codium arabacum.

Please note the site of the proposed desilting operation is located across the bay in the southeastern corner of the bay. As noted in the Draft EIS, the desilting operation is expected to have little effect on the surrounding more productive areas of the bay because a silt curtain would be utilized to isolate the desilted area.

It is highly unlikely that the de-siltation process would impact any reproductive and/or feeding grounds. All of the fish observed in Kawela Bay reproduce either by broadcasting their eggs into the water to be carried about by the prevailing currents or by attaching their eggs to hard substrate; no fish use the fine sediment to lay or hatch their eggs. This sediment area is also devoid of macroalgal or other growth, and thus does not constitute a site of feeding for resident populations. OI Consultants, Inc. did not find any evidence that Kawela Bay serves as a significant spawning ground for any commercially important fish.

The turbid waters of the southeastern part of the bay may be used by schools of small fishes as a refuge from larger predators. None of the biological surveys of the area have mentioned such schools, but their presence is possible. The fish in such schools are typically rapid swimmers which remain near the surface; the actual dredging operation, being confined to a small area and near the bottom, is unlikely to directly impact these fishes.

PART IV, J.: Because you did not describe the specific reasons why you felt "an inadequate job has been done in the archaeological survey", we cannot provide any response to this comment.

On 13 August 1985, the State Historic Preservation Office provided a formal determination that three sites in the project area, including the site at Kawela Bay, met the criteria of eligibility for the National Register of Historic Places. The Corps of Engineers will begin preparing a Memorandum of Agreement. This agreement will address further survey and testing of all three sites, which will determine the extent of the sites, their significance, and the need for any mitigation measures prior to construction.

PART IV, N.: The tallest trees in the area appear to be between 60 feet to 80 feet in height by photographic analysis. Your assumption that the hotels will be eyesores is, of course, subjective, since no designs exist for the hotels.

PART IV, O., 1.: Since you do not provide any references upon which you base your statement regarding the future population overstressing the environment and bays and causing housing, traffic and infrastructure problems, we cannot provide any responses to your remarks.

We believe that you may have misinterpreted paragraphs 1 and 2 of page 83 of the Draft EIS. Please note that the proposed condominum units are expected to relieve that portion of future housing demand represented by out-of-state interest in rural Oahu vacation home and/or investment units, and not for all sectors of future demand.

Again, your opinion regarding the entrance to the existing resort (please note that it is proposed that there will be three ingress/egress points to the resort) is stated without providing any references or objective reasoning to respond to.

It is acknowledged that infrastructure improvements are required in order to develop the project. These were described on pages 24 and 25 of the Draft EIS and will be paid for by the applicant.

PART IV, O., 2.: We appreciate the information provided, however, please note that this section describes the gross lease rental income provided by the cottages along Kawela Bay.

PART IV, O., 4.: Tenants have been informed of the applicant's plans for eventual termination of their leases. In Section 1(d) of the most recently executed rental agreement, dated January 1 of 1978, each tenant warrants and acknowledges that:

> Landlord and its predecessors-in-interest have planned for at least the last ten (10) years to use the property and certain adjacent lands, the property and such other adjacent lands being hereinafter collectively called the "larger parcel", for the development of a resort development, and it is the Landlord's present intent to commence such

> development at the earliest possible time, or otherwise use or dispose of the property to third persons, and Landlord shall have the right hereunder to allow the six-month tenancy created hereby to expire at any time without any extension, in the sole and absolute discretion of Landlord, in which event Tenant shall immediately vacate and surrender the property to Landlord, and neither the Landlord nor any of its officers, employees or agents have made any representations to Tenant as to how long the six-month tenancy created hereby might continue.

In an extension letter to the 1978 lease (dated 19 March 1980), the rental agreement was amended to a "month-to-month tenancy," in which this term was defined as:

> The tenancy will continue from month-to-month until terminated by either party at any time, with or without cause, by giving thirty days' prior written notice thereof to the other party.

The effect of the termination of the leases will be mitigated by providing ample notice before termination. Since the lessees have been aware of the eventual termination of their leases since 1978, there appears to be an adequate amount of time (approximately 7 years) for preparing for relocation.

The comments on page 89 of the EIS do not suggest that the two value orientations are separate. Rather, it is stated: "While most residents would like both, if forced to choose, they tend to lean to one value or the other." (This tendancy has been exhibited at the numerous public meetings and hearings held in conjunction with the proposed project.) It is also stated that the decline of plantation agriculture has created a situation where many people do indeed feel forced to choose, and that the proposed Kuilima expansion, or virtually any other major proposed economic development, triggers this pre-existing value conflict.

These statements reflect the social impact consultant's professional interpretation of survey and key-informant data, and we believe that your comments tend to validate the consultant's opinions.

In regards to your comment that "the people" living in the area "choose" to do so because of the "country" surroundings, please note that the 1980 Census data indicate that 62.5% of the North Shore/ Koolauloa population as of that time lived in urban concentrations (Waialua, Haleiwa, Kahuku, Laie, and Hauula) rather than sparsely-settled "country" areas. (Given recent housing projects, the 1985 proportion would be closer to 70%.)

While not large in population compared to Honolulu, these communities feature a different sort of social dynamic than may be observed in the more individualistic and sparsely-settled "country" areas (e.g., Sunset Beach). The "community" populations consist more of longtime Hawaii residents. More people have shared economic and historical ties extending back several generations. More people live in family households. In short, there are more considerations than "country" atmosphere which affect their decisions to remain in these communities. In contrast to those moving into a new place, the word "choose" may have different connotations to people whose goals involve staying in their birthplace or keeping together an existing family or social network. The discussion provided in the EIS does not allege that one value orientation is superior to the other, it summarizes Knox's understanding that there is more than one point of view or value system at work in the area.

PART IV, P., 1.: As previously explained, we cannot provide a response to an opinion regarding an underestimation of future traffic without some reference to a study with differing findings.

The "Traffic Impact Report for the Proposed Turtle Bay Resort" indicates that even after the development of Phase I (hotel H-2, resort condominium A-7, both golf course, 20,000 s.f. of commercial area C-1, and parks P-1 and P-2), future traffic attributable to the project on Kamehameha Highway will just exceed capacity only at Waimea, on weekends.

As noted in the Draft EIS, previous studies have identified problem traffic areas along the North Shore and the need for highway improvements. The preparation of the "Traffic Impact Report for the Proposed Turtle Bay Resort" by Austin, Tsutsumi & Associates, Inc. (ATA), and its review by the City and County of Honolulu Department of Transportation Services and the State of Hawaii Department of Transportation, should give the appropriate government agencies a clearer picture of future traffic in the region, with or without the project and of the need to provide improvements. As noted in the Draft EIS, if the ATA recommended regional improvements are implemented, the increased traffic generated by the proposed resort expansion will not be beyond the carrying capacity of Kamehameha Highway.

PART IV, P., 4., 5.: Page 114 clearly indicates that liquid wastes will be treated and then used for irrigation of the golf courses. Page 115 states that solid waste will disposed of at public or private landfills.

Please note that your letter and this response will be appended to the Revised EIS.

Sincerely,

GROUP 70

for Francis S. Oda, AIA

cc: Mr. John P. Whalen, Director
Department of Land Utilization
Mr. Norman Quon, Kuilima Development Company
Mr. John Knox, Community Resources, Inc.
Mr. David Ziemann, OI Consultants, Inc.
Ms. Jan Sullivan

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