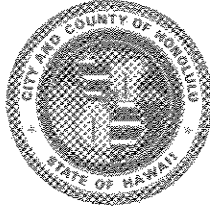


AM: Jeyon E

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR



BENJAMIN B. LEE
CHIEF PLANNING OFFICER

ROLAND D. LIBBY, JR.
DEPUTY CHIEF PLANNING OFFICER

MM

92 MAY 20 P 1:44

May 15, 1992

Honorable Brian Choy, Director
Office of Environmental Quality Control
Central Pacific Plaza
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Mr. Choy:

Acceptance Notice for the Proposed Kailua
Gateway Development Plan Amendment
Folder No. 92/KP-1
Final Environmental Impact Statement (Final EIS)

We are notifying you of our acceptance of the Final EIS for the proposed Kailua Gateway Development Plan Amendments, as satisfactory fulfillment of the requirements of Chapter 343, Hawaii Revised Statutes.

Pursuant to Section 11-200-23 (c), Chapter 200, Title 11 ("Environmental Impact Statement Rules") of the Administrative Rules, this acceptance notice should be published in the May 23, 1992 OEQC Bulletin.

We have attached our Acceptance Report of the Final EIS for the Kailua Gateway Development Plan Amendments and the "DOCUMENT FOR PUBLICATION IN THE OEQC BULLETIN." Should you have any questions, please contact Melvin Murakami of our staff at 527-6020.

Sincerely,

A handwritten signature in black ink, appearing to read "Benjamin B. Lee", written over a circular stamp or seal.

BENJAMIN B. LEE
Chief Planning Officer

BBL:js

Attachments

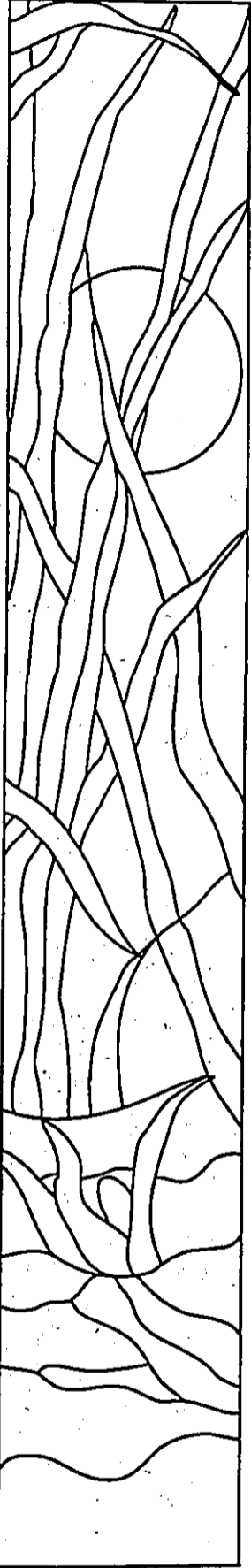
cc: Kaneohe Ranch
Helber, Hastert, and Fee

1992 - Oahu - FEIS -
Kailua Gateway

FILE COPY

Final Environmental Impact Statement

MAY 23 1992



KAILUA GATEWAY DEVELOPMENT

Koolaupoko, Oahu

Prepared for: Kaneohe Ranch
Prepared by: Helber Hastert & Fee, Planners

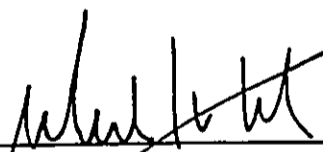
May 1992

Final Environmental Impact Statement

KAILUA GATEWAY DEVELOPMENT

Koolaupoko, Oahu

Prepared for: Kaneohe Ranch
Prepared by: Helber Hastert & Fee, Planners



Mark H. Hastert, Principal-in-Charge

May 1992

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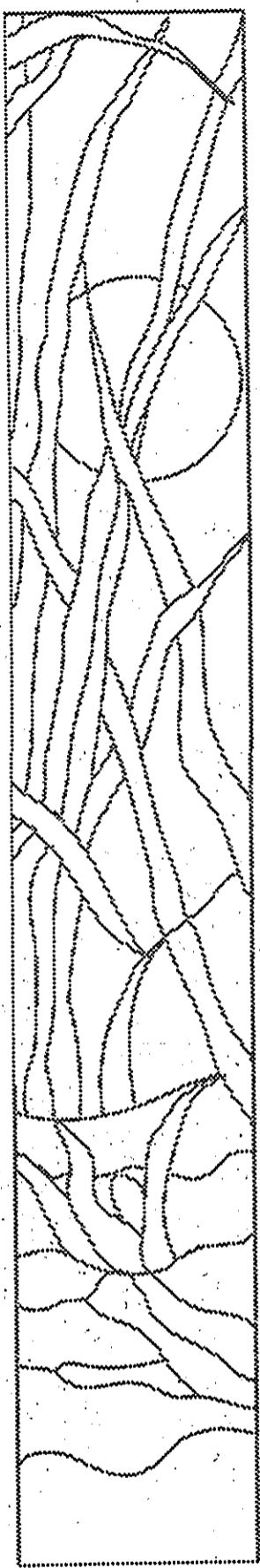
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Chapter I

Introduction & Summary

CHAPTER I INTRODUCTION AND SUMMARY

1.1 Introduction

Kaneohe Ranch has applied to the City and County of Honolulu Department of General Planning (the "Accepting Agency") for an amendment to the Koolaupoko Development Plan (DP) to permit the development of a lifecare retirement community, elderly affordable housing, community center, and the expansion of an existing commercial area in Kailua, Koolaupoko, Oahu.

The application requested the redesignation of approximately 32 acres of land from Preservation to Medium Density Apartment and 1 acre from Preservation to Commercial.

1.2 Development Summary

Applicant: Kaneohe Ranch
1199 Auloa Road
Kailua, Hawaii 96734

Property Owner: Kaneohe Ranch

Developer: Episcopal Homes of Hawaii, Inc. (a non-profit 501(c)3 organization)

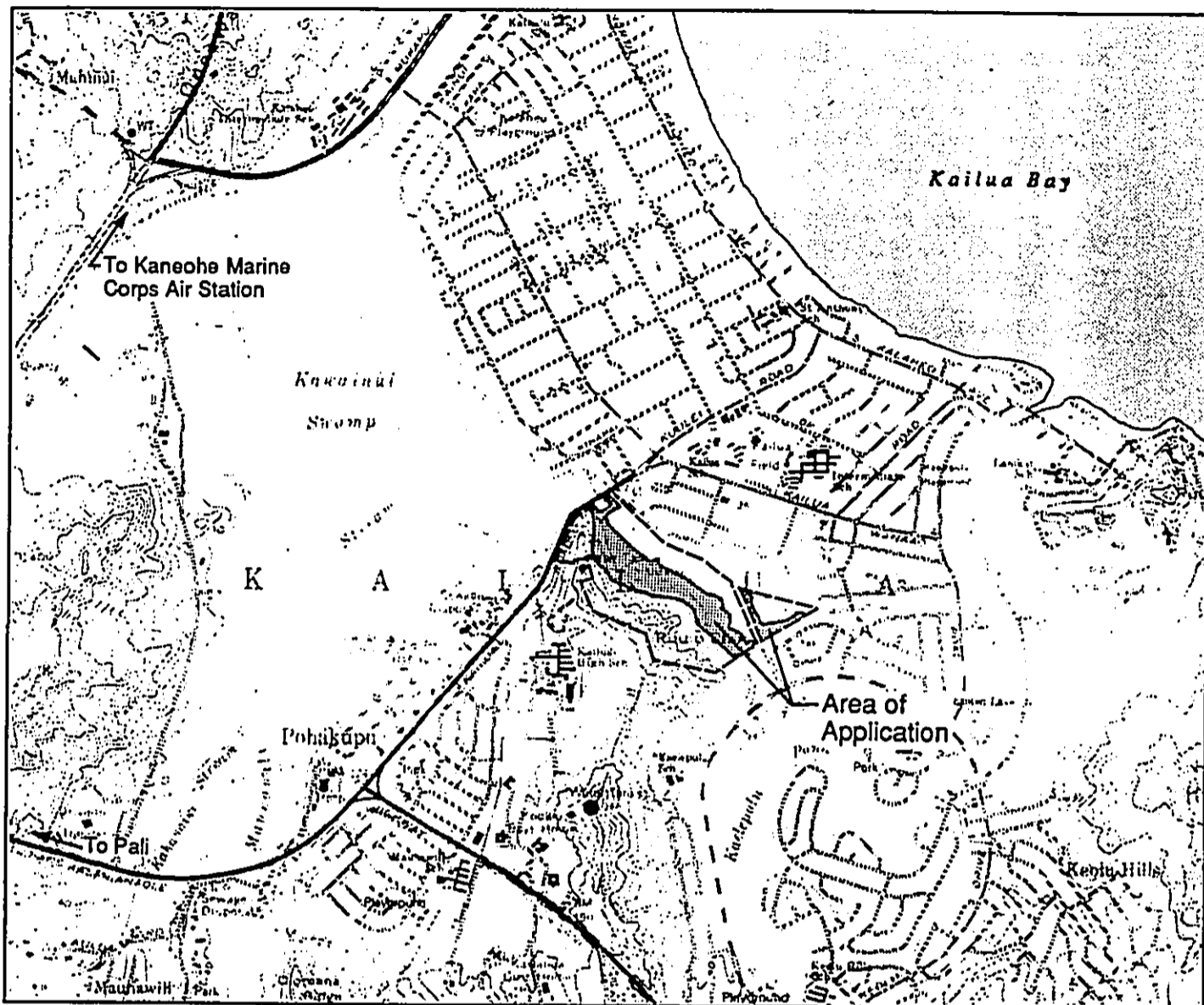
Accepting Authority: Department of General Planning
City and County of Honolulu
650 South King Street, 8th Floor
Honolulu, Hawaii 96813

Preparers of Draft EIS: Helber Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Proposed Action: Applicant requests a change in land use designation from Preservation to Medium-Density Apartment (32 acres) and Commercial (1 acre) on the Development Plan Land Use Map for Koolaupoko for the development of a lifecare retirement community (consisting of 333 independent living units, 20 personal care beds and 60 skilled nursing beds); 70 elderly affordable housing units; a community center and the expansion of an existing commercial area. A total of 403 dwelling units is proposed (333 lifecare retirement units and 70 elderly affordable housing units).

Project Name: Kailua Gateway

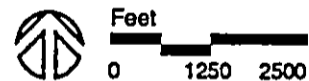
Project Location: Kailua, Koolaupoko Development Plan area (see Figure 1). The area of application is located near the intersection Kailua Road and Hamakua Drive, approximately one mile west of Kailua Bay. Approximately 30 acres of the area of application are



Vicinity Map

KAILUA GATEWAY

Prepared for: Kaneohe Ranch Company, Limited
 Prepared by: Helber Hastert & Fee, Planners



Figure

1

located on the mauka side Hamakua Drive and 3 acres are on the makai side.

TMK: 4-2-1: por. 1 and por. 55;
4-2-3: por. 17 and por. 29

Area of Application: Approximately 33 acres.

Total Project Area: Approximately 97 acres, including
TMK: 4-2-1:1, 55; 4-2-3:17, 29.

Existing Uses: Undeveloped and unimproved. Existing land use is limited to some cattle grazing on the mauka side of Hamakua Drive.

State Land Use District: Conservation (approximately 20 acres) and Urban (approximately 13 acres)

Development Plan Designation:

Land Use Map: Preservation

Public Facilities Map: Drainage improvements along west (Coconut Grove) boundary of Kawainui Marsh programmed within the next six years; park (State-planned wildlife sanctuary and interpretive center) programmed within next six years across Kailua Road from area of application.

Zoning: P-1 Restricted Preservation
P-2 General Preservation

1.3 Significant Beneficial and Adverse Impacts

Beneficial Impacts

The proposed lifecare facility and elderly affordable housing will provide special purpose and affordable rental housing opportunities for the elderly in an area with convenient and accessible public transportation facilities, retail businesses, professional services and available infrastructure. The project will also provide a community center, which may accommodate meeting space for social services, adult day care, child day care, and an auditorium for worship services or performing arts. The project will create temporary and permanent jobs, during construction and operation of the project, not associated with the visitor industry. It will also generate additional income for local businesses and indirect tax revenue for the State and City governments.

Adverse Impacts and Proposed Mitigation Measures

Traffic. Expected increases in traffic demand even without the proposed project will cause an increase in delay and deterioration of level of service at the signalized intersection of Kailua Road, Hamakua Drive, and Kainehe Street. Widening of Hamakua Drive (as shown on City and County street widening plans) could allow for restriping, which, along with adjustments in the signal phasing and timing, could

mitigate the project impacts, and provide for a better level of service condition than what would exist without the project under future conditions.

Additional improvement of the intersection of Kailua Road and Hamakua Drive/Kainehe Street to current highway design standards would provide added capacity and, along with changes in signal phasing, permit the intersection to serve future traffic at an acceptable overall level of service (LOS D). This improvement would require that the Kawainui Bridge (eastbound) on Kailua Road be widened. The further addition of a right turn lane on the northbound Hamakua Drive would provide for LOS D conditions on each approach. These improvements would be required even without the proposed project to provide the intersection with an acceptable level of service in the future. Additional traffic due to the proposed project will increase delays, but LOS D would continue to describe conditions for each approach.

The proposed project will change the existing T-intersection at Hamakua Drive and Hekili Street to a four-way intersection. Traffic exiting the project may not have sufficient capacity to cross or turn left onto Hamakua Drive. Pedestrians wishing to cross Hamakua Drive will also have difficulty finding acceptable gaps in the main street traffic. Signalization will be provided to improve this condition. Traffic impacts on Hamakua Drive south of Hekili Street were found to be negligible.

Residential Population. The project will result in an estimated 650 additional residents in the Koolaupoko District. According to the Department of General Planning's Development Plan Status Review (September 1, 1991), the Year 2010 Population Capacity for the Koolaupoko District (121,300) is slightly under the maximum population allowed by the General Plan for the Year 2010 (121,900). The addition of the estimated 650 residents associated with the proposed Kailua Gateway development would result in the total Koolaupoko District population exceeding the Year 2010 population guideline by 50 persons, or 0.04%.

Despite its contribution to the Koolaupoko population exceeding General Plan population guidelines by an estimated 0.04%, the project responds to and supports other General Plan objectives and policies. These include the provision of affordable housing, special needs housing for the elderly, and the protection of the natural environment.

The increased population will consist of retirement age adults, who will be contributing members of the community, responsible stewards of the neighboring wetlands, and patronize local businesses and services.

Water Quality. Short term impacts from the project will be primarily from runoff and sedimentation which may occur during construction, and should be moderate and of short duration. Earthwork for the project will be done according to City and County grading, soil erosion, and sediment control ordinances. Impacts to Kawainui Stream from storm runoff and sedimentation during the construction phase will be reduced by the construction of a berm at the wetlands boundary and a drainage swale above the berm which will drain runoff into sedimentation basins. Overflow water from the sedimentation basins which has lost most of its sediment load will flow to the northwest corner of the project area and enter Kawainui Stream near Kailua Road. Sedimentation impacts from construction will be further reduced by sodding and planting exposed areas as soon as grading is completed.

The proposed project will increase the total flow under 10 year storm conditions into Kawainui Stream and Kaelepulu Pond by about 9.5%. The initial effect of this

increased flow on Kawainui Stream would be to elevate turbidity and suspended solids slightly and to decrease nutrient concentrations by dilution. Over the longer term, assuming that Kawainui Stream continues to be primarily an enclosed system with no continuously open outlet to the ocean, the present and eutrophic condition of the stream will increase and water quality will continue to degrade, although the total effect of the project on stream water quality will not be significant. Long term eutrophication and degradation of Kawainui Stream could be mitigated to some degree by continuing to release runoff into the wetland area, thereby using it as a nutrient and sediment sink. This would only partially alleviate the problem, since input into the closed system would still continue at a slower rate. Stream water quality could be increased considerably by utilizing the increased runoff as part of a management plan to maintain continuous flow from the Kawainui Stream-Enchanted Lake-Kaelepulu Stream estuarine system to the ocean.

The use of permeable construction materials to pave roads and driveways to minimize urban runoff will be considered, if feasible. The preliminary plans include green open space and landscaped areas which would also serve to minimize urban runoff into the stream.

Fauna. Potential impacts of project on the wetland fauna include noise and disturbance from vehicles and people during and after construction; erosion and siltation; contamination of soils and water from pesticides, herbicides and industrial wastes that usually accompany urbanization of an area; increased predator activity (cats and dogs), and changes in runoff volumes reaching the wetlands. Proposed mitigation measures include the creation of a drainage system protecting wetlands from uphill flooding and siltation; retaining a buffer of trees and bushes between wetland and development for visual and auditory screening, construction of a moat to deter predators; monitoring water levels; and regular monitoring for chemical contamination. The applicant is working with the wetland restoration organization, Ducks Unlimited, to include the appropriate mitigation measures in the design of the development.

According to AECOS, Inc. (water quality and biological consultant), there is little likelihood that the modest increases in sedimentation resulting from the project will damage sensitive organisms or communities in Kawainui Stream. The moderate increase in runoff to the stream and Kaelepulu Pond that is likely to occur only during storm periods is unlikely to have any significant negative impact on the stream or pond environment.

It is unlikely that any negative long term impact on the nearshore marine environment would result from the Kailua Gateway development.

Visual and Scenic Resources. The project will impact some views of the Puu O Ehu hillside, although the upper two-thirds and expanse of open space in the form of the restored wetland will remain unimpaired. Development will be clustered in two pockets of the property, with the highest buildings being four stories. Other buildings will be one- or two-story structures. The project will not impact views of Puu O Ehu from the Kaelepulu Pond area, mauka or makai viewplanes of Kawainui Marsh, views of Mount Olomana, or makai views from the Koolaus.

When adequately mitigated, the cumulative effect of these impacts described above will not be in conflict with the urban-fringe character of Kailua, nor will they present urban stress significantly different or in excess of what is currently experienced in Kailua. As stated in the Development Plan Special Provisions for Koolaupoko, the predominantly residential use is suburban single-family development, with limited apartment uses

permitted close to regional commercial and industrial center. The proposed development will be low-rise (maximum of 4-stories) in keeping with the overall open space setting of Koolaupoko.

1.4 Alternatives Considered

A number of alternatives were analyzed for the project site including: all development on mauka side; low-rise development; no action; single-family residential development; townhome residential development; commercial and mixed use development; higher-density development; and development on alternative sites.

After consideration of each alternative and with input from the community advisory committee, the applicant found the proposed project on the entire area of application the most feasible and beneficial use of the site.

1.5 Unresolved Issues

Necessary Permits

The project will require various land use permits and approvals, which are listed in Section 1.7.

Archaeological Resources

The first of a two-phase archaeological investigation resulted in the location of four archaeological sites on the project site. Two of the sites have been recommended to be recorded in detail and tested for subsurface archaeological remains. The other two sites were also recommended for subsurface testing. These recommended actions will be conducted during the next phase of archaeological investigation. The findings of the survey are discussed in Chapter 4. Phase II of the survey will involve detailed site descriptions, mapping, subsurface testing, and possibly paleoenvironmental investigations of the wetlands, as recommended in the Phase I report. This phase will also assess the significance of the four sites according to existing federal and state criteria. These assessments will be submitted to the State Historic Preservation Division for review and approval. Phase II will be conducted in coordination with city and state development permitting processes. A specific commencement date for Phase II has not yet been identified, although it will take place prior to any ground work.

Impacts to Wetland Habitat

The proposed development may adversely impact the wetland habitat and the feeding, sheltering and breeding activities of endangered waterbirds existing on the property through project-related construction, increased human activity, access routes, and changes to stormwater runoff volumes and pollutant content. The impacts of these changes on the wetland habitat are presently undetermined. The applicant will continue to work with the conservation group performing the wetland restoration and relevant government agencies to determine what adverse impacts, if any, on the endangered waterbird habitat and activities would result from the development and to identify specific mitigation measures. Mitigation measures (e.g. a buffer between the proposed development and the restored wetland, and the timing of construction activities) have already been incorporated into preliminary plans. The final design and characteristics of these measures will be determined as the wetlands restoration and management plans are finalized.

1.6 Compatibility with Land Use Plans and Policies

Chapter 3 contains a discussion of the project's compatibility with existing government plans and policies. The proposed action is generally consistent with relevant federal, state, and city land use plans and policies.

1.7 Necessary Permits and Approvals

<u>Approval Required</u>	<u>Authority</u>
o Section 404 of the Clean Water Act Department of the Army Permit	U.S. Army Corps of Engineers
o Bridge Permit*	U.S. Coast Guard
o Section 10 Permit of the Endangered Species Act*	U.S. Fish and Wildlife Service
o Land Use District Boundary Amendment	State Land Use Commission
o Section 401 Water Quality Certification	Department of Health Clean Water Branch
o Stormwater Runoff NPDES Permit	Department of Health Clean Water Branch
o Stream Channel Alteration Permit*	State Department of Land and Natural Resources
o Koolaupoko DP Land Use Amendment	Honolulu City Council
o Koolaupoko DP Public Facilities Amendment	
o Zone Change	
o Special Management Area Use Permit	
o Conditional Use Permit, Type 2	Department of Land Utilization
o Subdivision Approval	
o Building Permits	Building Department
o Grading Permits	
o Water Commitment	Board of Water Supply
o Sewer Connection Permit	Department of Public Works

* possibly required

1.8 Statement of Purpose and Need for Action

The applicant is requesting an amendment of the Koolaupoko DP Land Use Map (hereinafter referred to as the "action") to change the land use designation of the area of application from Preservation to Medium Density Apartment (32 acres) and Commercial (1 acre). The purpose of this action is to permit the development of the

proposed retirement community, community center, elderly affordable housing, and commercial area expansion on the subject property.

1.9 Purpose of Environmental Impact Statement

The purpose of this Environmental Impact Statement (EIS) is to describe a proposal for the development of a retirement community, a community center, elderly affordable housing, and the expansion of a commercial area to be located on property owned by Kaneohe Ranch at the entrance to the Kailua business district. The EIS identifies potential impacts of the proposed project, both beneficial and adverse, and proposed measures to either avoid or minimize adverse impacts to the environment. A discussion of alternatives to the proposed development is discussed in Chapter 7.

1.10 Need for Environmental Impact Statement

An application for a Development Plan Amendment and Environmental Assessment was submitted to the City's Department of General Planning (DGP) on September 3, 1991. The proposed action was subject to the provisions of Chapter 343, HRS, Environmental Impact Statements, because the proposed amendment to the Koolaupoko Development Plan would result in a designation other than agriculture or conservation.

The Department of General Planning (accepting authority) determined that the proposed action may have a significant effect on the environment. On October 18, 1991, an Environmental Impact Statement Preparation Notice (EISPN) was filed with the Office of Environmental Quality Control (OEQC) and notice of the determination was subsequently published in the November 8, 1991 OEQC Bulletin. The publication of the notice of determination began a 30-day public review period which ended on December 8, 1991.

Design studies completed subsequent to the submittal of the original amendment application resulted in an increase in the area of application from 21 acres to 33 acres. This increase was due, in part, to an effort to create an adequate buffer between the development and the adjacent wetlands and by the desire to keep the structures low-rise and dispersed in character.

The land being proposed as a buffer between the proposed project and the wetland was retained in the land area included in the application to maintain flexibility in its planning and design and because its specific design has not yet been determined. The applicant is working with Ducks Unlimited (wetlands conservation organization) to create a buffer which will provide adequate protection for the wetland habitat from predators, auditory impacts, and visual impacts, as well as to provide controlled educational opportunities for the public. The buffer was also retained in order to avoid the creation of a split-zoned lot, partly in the Preservation District and partly in the Medium-Density Apartment District.

The additional acreage requested in the amended application was the result of more detailed design studies which were completed after the submittal of the original application. The revised application includes a workable site plan and accommodated the buffer. The revised design attempts to keep the structures low-rise (under 40 feet) in character, yet clustered in the pockets of land located between the ridges. In addition, the preservation of a buffer area will encompass 4-5 acres of the most developable land within the application area. In order to compensate for this loss, developable area located further mauka was necessary. A simple replacement of 5 mauka acres for the buffer acreage could not be accomplished due to the site's

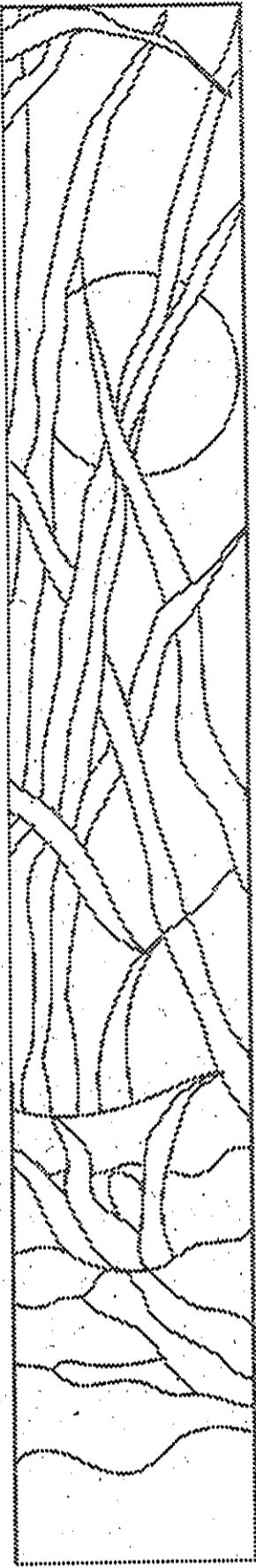
topography. The resulting site plan attempts to concentrate the structures in the pockets of gentler slopes between the ridges. Consequently, the configuration of the structures required additional acreage for roadways to access these areas efficiently and less obtrusively.

An amended Application for DP Amendment and Environmental Assessment was filed with DGP on January 8, 1992. As was the case with the original application, DGP determined that the revised DP amendment request required the preparation of an Environmental Impact Statement. Notice of this determination was published in the January 23, 1992 OEOC Bulletin. This publication began a 30-day public review period, which ended on February 22, 1992.

A list of agencies, organizations, and individuals consulted during preparation of the draft EIS is found in Chapter 10 of this document. Chapter 11 contains reproductions of comments on the EIS Preparation Notice received by February 26, 1992 and the applicant's responses to the comments.

The notice for the draft EIS was published in the March 8, 1992 OEOC Bulletin. This began a 45-day comment period which ended on April 22, 1992. Reproductions of comments on the DEIS received by May 11, 1992 and the applicant's responses to the comments are found in Chapter 13.

Chapter II



Project Description

CHAPTER II PROJECT DESCRIPTION

2.1 Location

The proposed project area is located near the intersection of Kailua Road and Hamakua Drive at the entrance to Kailua town (Figure 2). The shaded area on Figure 2 indicates the area for which this Koolaupoko Development Plan Land Use Map Amendment is being made, and represents approximately 33 acres. These 33 acres are hereinafter referred to as the "area of application".

The tax map parcels included in the area of application are TMK #4-2-1: portion of 1 and portion of 55 and 4-2-3: portion of 17, portion of 29. The area of application is part of a total project area of 97 acres, which are located in TMK #4-2-1:1, 55; 4-2-3:17, 29. Figures 3 and 4 show the area of application with respect to the tax map parcels on which they are located. This EIS discusses the impacts of the proposed development on the entire 97-acre project area.

Hamakua Drive bisects the property into an 89-acre mauka portion and an 8-acre makai portion. The mauka portion runs from Kawainui Stream (also referred to as Hamakua Canal) and Hamakua Drive to the top of the surrounding Puu O Ehu ridge, and contains some steep slopes. The makai portion is triangular in shape, and is bounded by Hamakua Drive, the Enchanted Lakes subdivision and the Windward Cove, Windward Harbour, and Hokulani at Kailua condominium projects.

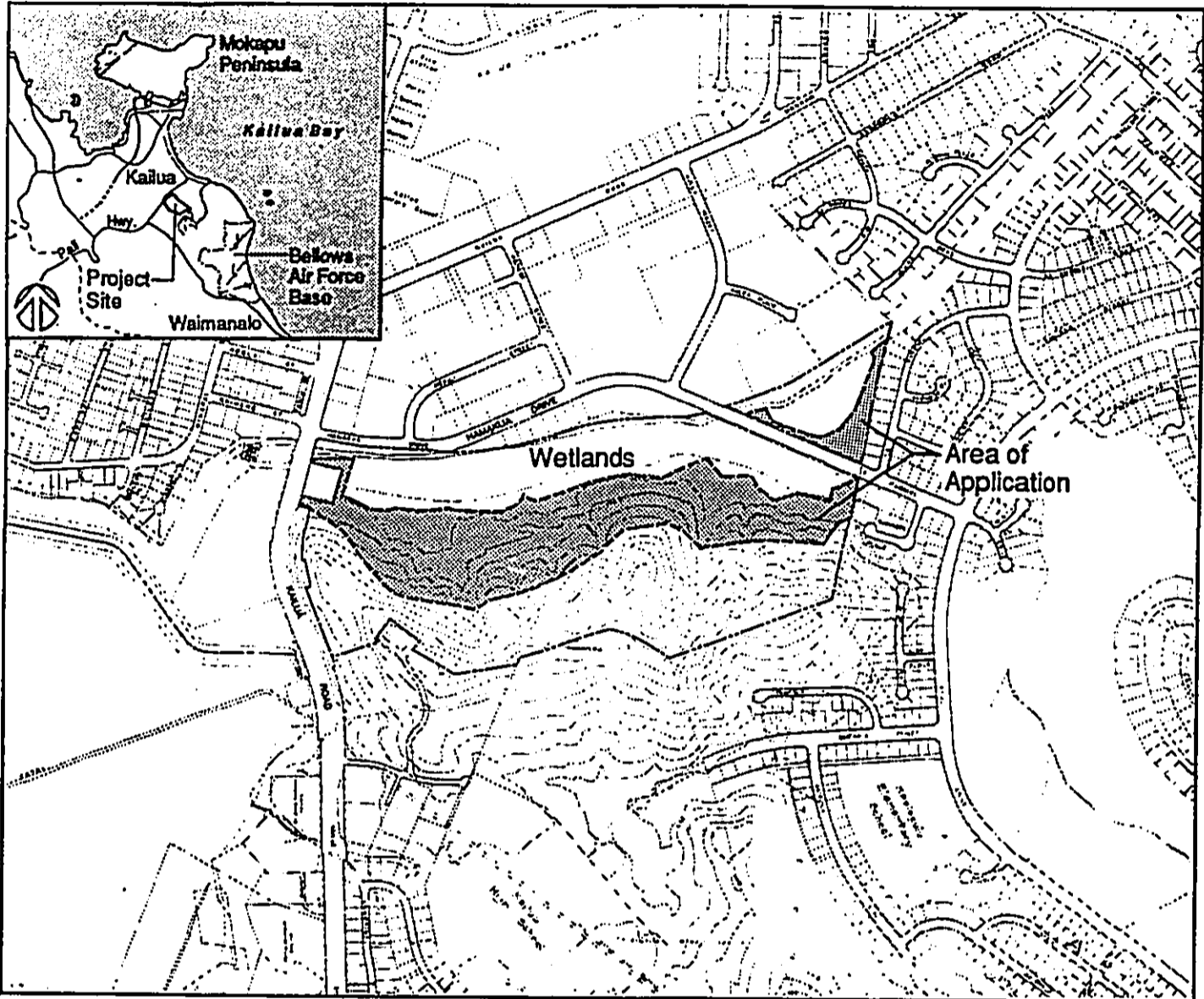
2.2 Historical Perspective

History of Land Use in Project Area. According to findings of a literature and documents search, a differential pattern of land use characterized the pre- and post-contact land use for the project area. The earliest evidence suggests pre- and post-contact traditional Hawaiian activities, which emphasized broad-spectrum collection, arboriculture, and taro production. Rice cultivation beginning during the mid-19th century replaced taro cultivation, which was in turn supplanted by livestock grazing. Finally, during the 20th century, intensive residential and commercial development directly affected the project area through sporadic land disturbances, such as earth removal.

Evidence presented by previous archaeological investigations suggests four primarily agricultural land use phases that may have occurred either in or near the project area (International Archaeological Research Institute, 1991). Settlement in the area around Kawainui Marsh may have occurred as early as about A.D. 650. Wetland taro cultivation, possibly beginning as early as 1300, lasted until about 1860; Rice cultivation replaced taro cultivation towards the latter half of the 19th century and was replaced by livestock grazing during the 20th century.

Ownership by Castle Family. In 1894, Harold K.L. Castle, son of James B. and Julia W. Castle and grandson of Samuel N. and Mary Castle (the missionary Castle founders of Castle & Cooke) purchased Kaneohe Ranch Company, Limited from Joseph P. Mendonca. Kaneohe Ranch was then a working cattle ranch that leased approximately 15,000 acres from Nannie R. Rice.

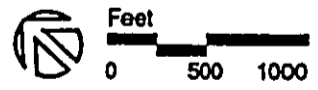
In 1917, Mr. Castle purchased the land leased by Kaneohe Ranch from Mrs. Rice. Kaneohe Ranch continued to operate as a cattle ranch on land leased from Mr. Castle until the second world war.



Location Map

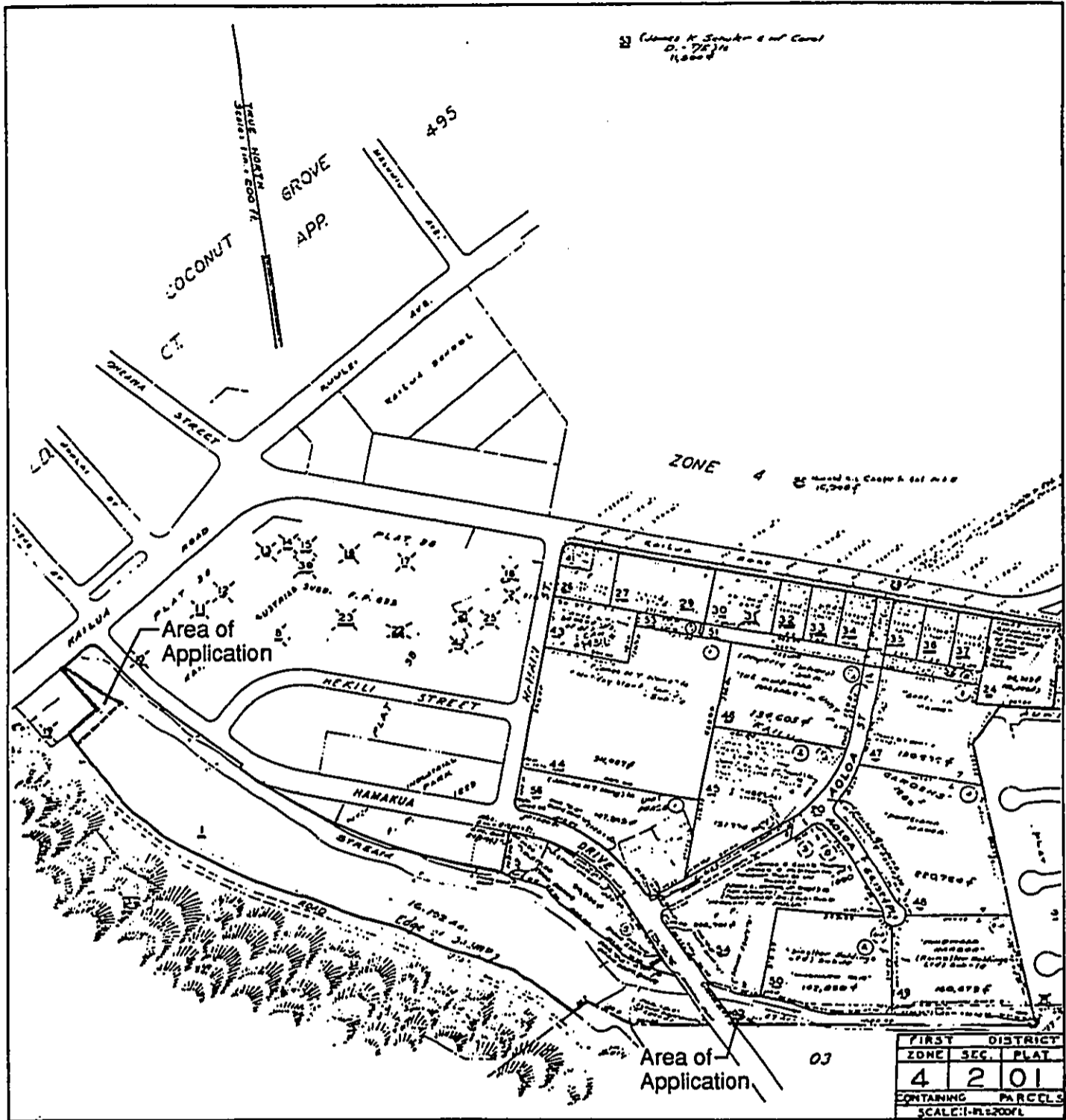
KAILUA GATEWAY

Prepared for: Kaneohe Ranch Company, Limited
 Prepared by: Helber Hastert & Fee, Planners



Figure

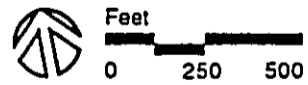
2



Tax Map Parcels 4-2-1: 1, 55

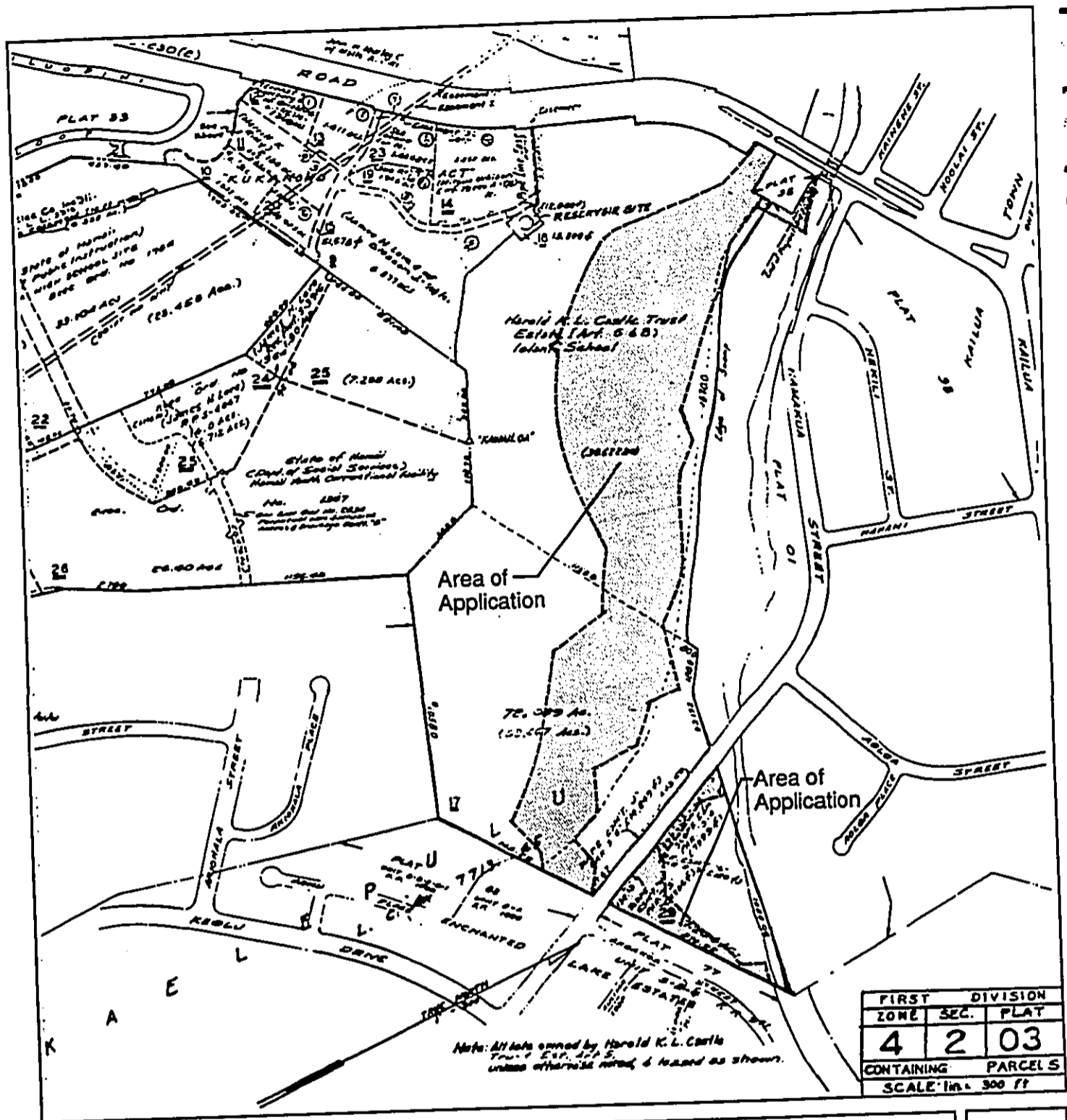
KAILUA GATEWAY

Prepared for: Kaneohe Ranch
Prepared by: Helber Hastert & Fee, Planners



Figure

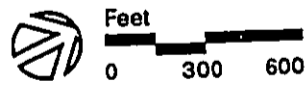
3



Tax Map Parcels 4-2-3: 17, 29

KAILUA GATEWAY

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Figure

4

Prior to his death in 1967, Mr. Castle established a private charitable foundation, called the Harold K.L. Castle Foundation. During their lifetimes and under their wills, he and his wife, Alice, established trusts for the benefit of their children and grandchildren.

Under provision of Mr. Castle's will, some of his land holdings were bequeathed to the Castle Foundation. Most of the land was leased to individual lessees, generally at rates significantly below the then fair market value of the land. Some of the land was vacant and earned no income.

Private foundations such as the Castle Foundation are required by the Internal Revenue Code to annually distribute 5% of the market value of their assets. Because the Castle Foundation's annual earnings from its assets was significantly less than this 5% threshold, the Foundation was obliged to distribute land. The chief beneficiary of these distributions of land was Iolani School, which received from the Castle Foundation the undivided interest owned by the Foundation in various Castle lands.

Over the years, Iolani School and the various Castle Estate entities have exchanged fractional interests in lands they jointly owned, with the result being the Castle Estate owning a 100% interest in certain parcels, and Iolani School owning a 100% interest in certain other parcels.

The land included in the Kailua Gateway project was among the last of the Castle lands still jointly owned by the Castle Estate and Iolani School. It was not until October 1989 that the Castle Estate acquired Iolani School's fractional interest in these lands.

The existing 38,000-square foot commercial parcel along Kailua Road is the only land included in the Gateway project area which was not part of the Castle Foundation-Iolani School lands. This property had been leased to Wong's Development Company, Inc., successor to the Standard Oil Company of California, since 1950. Their long-term lease expired early in 1990, and has been replaced with individual short-term leases to the current tenants.

In early 1990, the Castle Estate trustees retained the firm of Helber Hastert & Fee, Planners to assist in the planning for the Kailua Gateway lands.

2.3 Community Involvement

The planning process employed for this project centered around consultation with a community advisory committee, consisting of representatives of Kailua and Windward area community organizations. In early 1990, Kaneohe Ranch organized this committee for the purpose of incorporating community concerns and desires into a master plan for the subject property. Beginning in April 1990 and ending in December 1990, a series of 7 meetings were the advisory committee were held, at which candid observations and input were offered and subsequently incorporated in the various alternatives considered for the property.

The primary elements of the proposed development were identified as a result of consultation with the advisory committee. Participation by the various community organizations in this committee does not imply formal endorsement or support of the proposed development, and such endorsement was never solicited of the advisory committee by the applicant. The applicant's objective in organizing the committee was to obtain input from a cross-section of the Kailua community in the formulation of a master plan for the subject property. After consideration of the various alternatives,

the applicant determined that the proposed project was the most feasible and beneficial use of the site.

Kaneohe Ranch has continued to convene this committee subsequent to the culmination of the planning process, in order to maintain a reciprocal exchange of information. The project developer will continue to work with the advisory committee as the plans and program are finalized and government approvals are sought.

2.4 Existing and Surrounding Land Uses

The area of application is mostly vacant and undeveloped with the exception of a shed and fencing associated with cattle grazing on the property. The area of application surrounds a small commercial area, which is located along Kailua Road. The project area is not cultivated in any crops.

The amendment area is surrounded mostly by vacant and agricultural (pasture) lands and Kawainui Stream (all of which are located on the 97-acre total project area). The land uses surrounding the tax map parcels on which the area of application is located include residential (both single- and multi-family) to the south and east; commercial to the north and west; industrial to the east; and public facilities to the west.

2.5 Objectives of the Action

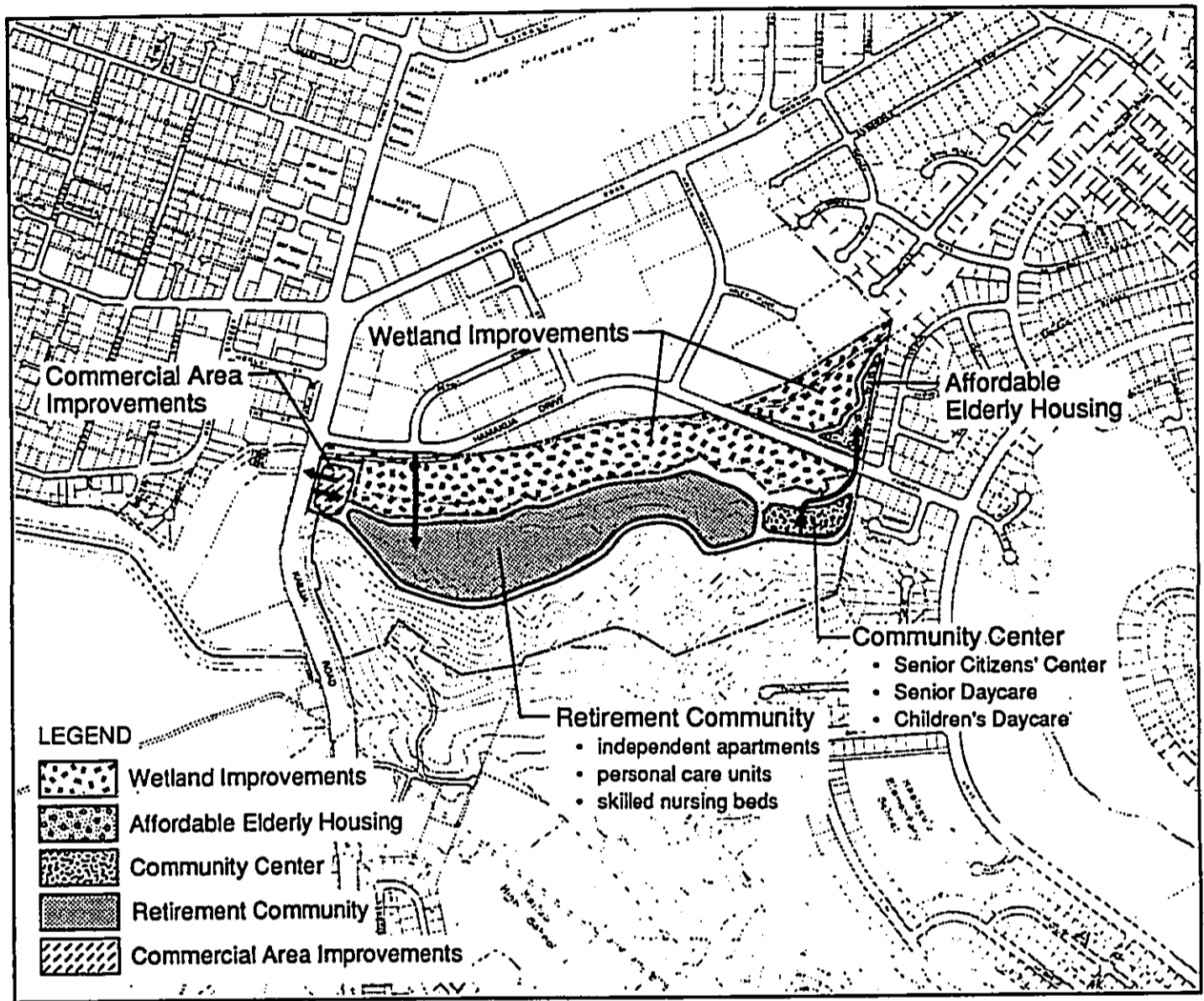
The objective of this action (Koolaupoko DP Land Use Map amendment) is to allow the development of a lifecare retirement community (which includes independent living units, personal care units, and a skilled nursing facility), affordable rental housing for the elderly, a community center, and expansion of an existing commercial area on the subject property.

2.6 Project Proposal

The applicant proposes to develop a lifecare retirement community (consisting of 333 independent living units, 20 personal care units and 60 skilled nursing beds), 70 elderly affordable housing units, and a community activity center on the area of application. A total of 403 dwelling units (333 independent retirement units and 70 elderly affordable rental units) are being proposed. The developer, Episcopal Homes of Hawaii, Inc., is a non-profit, or 501(c)3, organization whose mission is to provide housing which serves the needs of the full range of seniors in Hawaii. It is a separate entity from the Episcopal Church. Any profit realized from the development will be used to fund other senior housing projects. The project concept also includes improving and expanding the existing commercial area on Kailua Road, as well as improvements to the wetlands makai of the area of application. Figure 5 shows the conceptual plan for the development.

Lifecare Community

Program concept. The proposed lifecare program will be based on six lifecare facilities in northern California built and operated by the Episcopal Homes Foundation of California. The program consists of a contractual relationship between the facility and qualified residents, where residents are guaranteed living quarters, full health care, meal program, housekeeping, maintenance, and other services in exchange for a one-time entry fee and monthly maintenance fees. There is no real estate transaction involved in entering a lifecare facility. The lifecare contract extends for the life of the residents, regardless of changes in their health or financial conditions. A financial



Conceptual Plan

KAILUA GATEWAY

Prepared for: Kaneohe Ranch Company, Limited
 Prepared by: Helber Hastert & Fee, Planners



Figure

5

audit of the lifecare proposal was performed by a public accounting firm (Deloitte and Touche), and was found to be satisfactory.

The lifecare facility will offer three types of residential accommodations: independent living apartments (333 units), personal care (health care aide-assisted) units (20 beds), and a skilled nursing facility (60 beds). Meals will be served in a main dining room. The personal care units serve residents who, either permanently or temporarily, require a moderate level of assistance with activities of daily living, but do not require continuous nursing supervision. The skilled nursing facility serves residents who require permanent or temporary 24-hour nursing care. The skilled nursing facility will be licensed by the State of Hawaii Department of Health. These facilities will be available to residents without additional cost. A preliminary site plan for the lifecare facility and community center is shown in Figure 6.

Admission to the lifecare program will be open to individuals age 65 or older, and to couples of whom one partner is at least 65, without regard to race, religion, sex, or national origins, but limited to Social Security recipients.

A financial review of the prospective resident will be conducted prior to acceptance, using an actuarial screening model designed to ensure residents have adequate funds for personal expenditure and the reasonable ability to absorb future rate increases. Medical screening is predicated on the expectation that applicants will be capable of independent living at the time of admission.

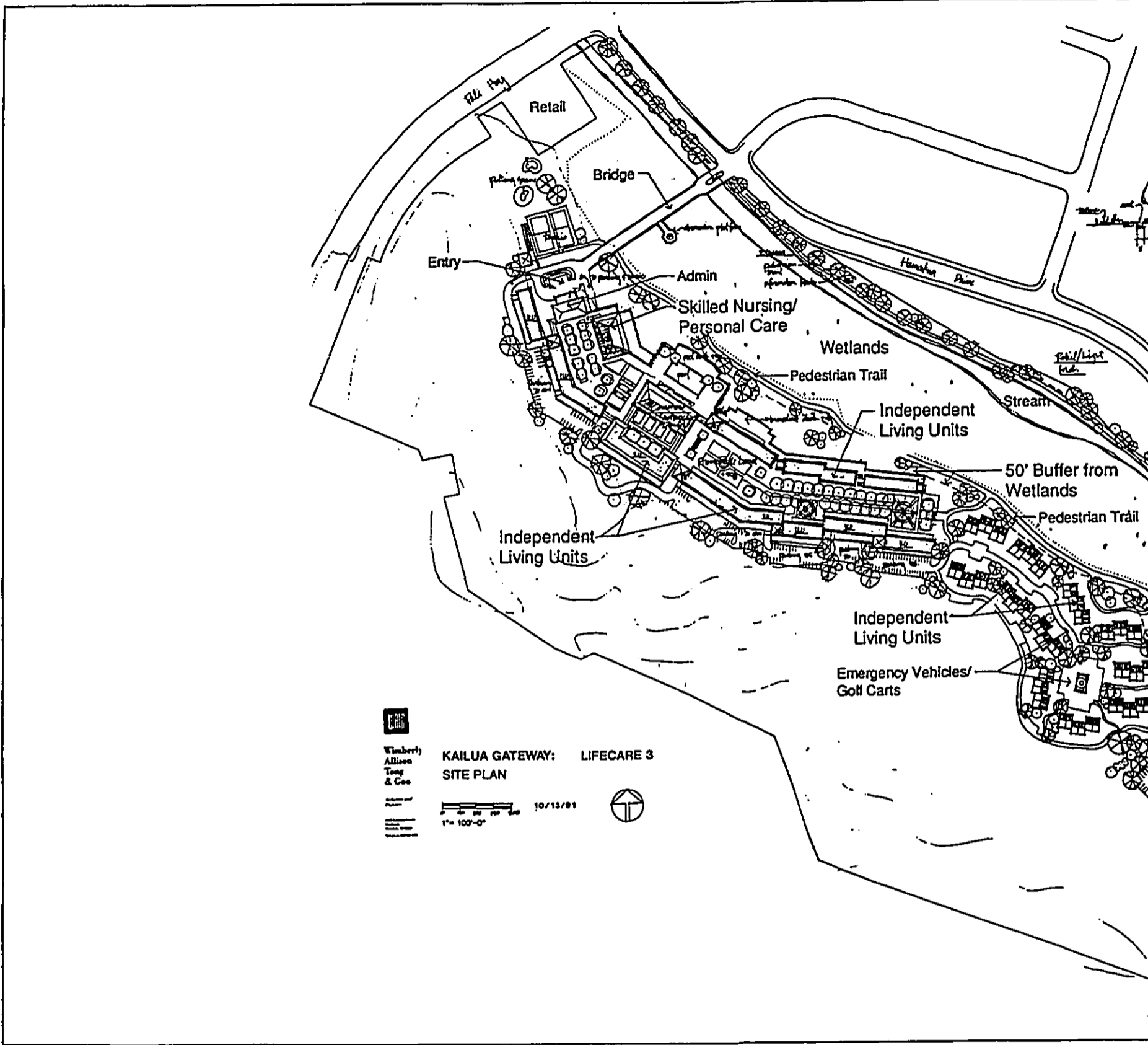
There will be a 90-day trial period for the residents, during which time they may receive a full refund if they change their minds about the project. If the resident changes his/her mind during the next 60 months (5 years), a pro-rata portion of the entry fee is returned. After 5 years, the resident is fully vested, with no part of the entry fee refunded should the resident leave.

The developer has based the distribution of independent living units, personal care units, and skilled nursing beds within the lifecare community on what has been successful in existing lifecare projects and on actuarial data.

Description of facility. The proposed lifecare facility includes 333 independent living units located in 2- to 4-story apartment structures in the northern half of the mauka development area and in clusters of duplexes in the southern half. The development will be set back from the wetland by a landscaped buffer area and protective moat. Jogging and walking paths will be located in within this buffer. The lifecare center will include recreational facilities such as a pool and tennis courts for the residents. Parking and circulation will be located primarily mauka of the development, with some parking and access below grade.

The 60-bed skilled nursing and 20-bed personal care facility will be located in a separate structure near the entrance to the community.

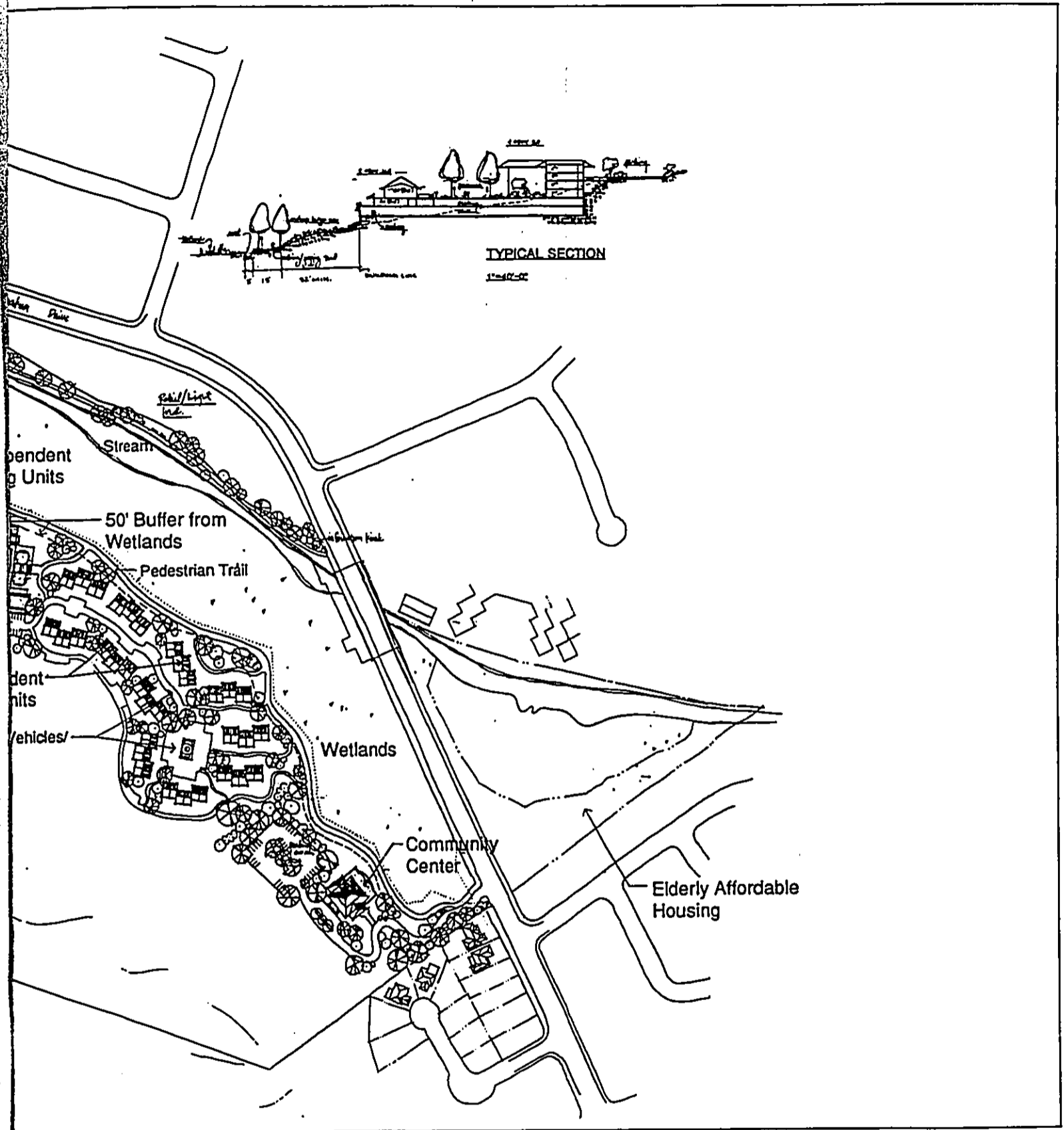
Access to the facility will be via a 2-lane bridge from Hamakua Drive opposite Hekili Street. This bridge will be supported by piers over Kawainui Stream and the wetland area. A secondary access for emergency vehicles will be through the community center driveway, further south on Hamakua Drive. Although not specifically shown on the site plan, the pedestrian path will be able to accommodate emergency vehicles.



Preliminary Site Plan

KAILUA GATEWAY

Prepared for: Kaneohe Ranch
 Prepared by: Helber Hastert & Fee, Planners



Figure

6

Elderly Affordable Housing

The project proposes 70 affordable housing rental units for the elderly to be located on 3 acres on the triangular parcel makai of Hamakua Drive. These units are planned as studio or 1-bedroom units in low-rise structures for low-income seniors. The eligibility requirements for the proposed elderly affordable housing will be based on income limits set by federal or city housing programs utilized for the project, generally those households earning up to 120% of the median income for the appropriate household size. The city may require that a percentage of the units be set aside for "very low" income (incomes less than 50% of median) and "lower" income (incomes less than 80% of median) households. Specific eligibility requirements will be determined by the appropriate government agency.

The developer is currently working with the Salvation Army in obtaining government funding for this development. The developer is committed to pursuing the development of affordable housing with or without the participation of the Salvation Army.

This project would be residential only; meals and health care would not be associated with residence in the development and the residents will not be required to pay an entry fee or monthly maintenance fee. The residents would have access to the community center, where meal programs and other senior-related activities and programs may be conducted. There is an existing meal program for the elderly in Kailua, which will relocate in mid-1993 to the City's Kailua elderly housing project, currently under construction. The developer has found, through past experience with lifecare projects in Northern California, that separate facilities are generally preferred for the affordable and lifecare projects in order to protect the dignity of the lower-income residents. This site is conveniently located near shopping, health care, and public transportation facilities. Residents will be in close proximity to the proposed community center on the mauka side of Hamakua Drive. Access will be via a driveway from Hamakua Drive.

The makai development site is wide enough to be developed according to existing regulations. The exact configuration of this development has not yet been determined. The development site averages greater than 100 feet in width, which is adequate for a 24-foot access road, the buildings, and any landscaping. Fire truck access is possible. A turnaround will be included in the final design because the access road is longer than 350 feet.

Community Center

The proposed development includes a 10,000 square-foot multi-use community center, to be located on the southern portion of the mauka development area. Preliminary plans include uses for social services, child care, adult day care, worship services, and community meeting space. Adult day care or child care facilities would be subject to State of Hawaii Department of Human Services licensing requirements.

Access to the community center will be from a driveway from Hamakua Road, near the southern boundary of the project area. Ingress and egress of emergency vehicles is also available through this access.

The community center is being planned as a multi-purpose facility to be open to the entire Kailua community. While the actual uses it will support and its operator are as yet undetermined, the applicant is committed to providing the land for the center and pursuing its development as a part of the overall development.

Wetlands Improvements

Nearly 70% of Hawaii's natural lowland wetlands have been filled or converted to other land uses such as agriculture and urban expansion. Despite the loss, many of Hawaii's wetland adapted plants and animals have been able to survive. The remaining wetlands on Oahu's windward coast are small and isolated. Most are closely associated with human communities. Long-term protection of the remaining wetlands are essential to ensure the stability of native endemic waterbirds, hydrologic cycles, ground water recharge, and aesthetic values.

The overall master plan for the project also includes improvements to the wetlands found on the project area, and the eventual transfer of the wetland portion of the property to the State of Hawaii. The wetland area is not included in the area of application for DP amendment, and will retain the DP Preservation designation.

Description of wetland. Approximately 27 acres of the project area, makai of the area of application, were identified as wetlands by the U.S. Army Corps of Engineers by means of field survey in 1991. This area includes about 22 acres on the mauka side of Hamakua Drive and 5 acres on the triangular parcel makai of Hamakua Drive. The wetland boundary was identified by the Army Corps of Engineers in 1991 based on field survey, and was used as the basis for determining the area of application. The Corps of Engineers uses three criteria when making wetland determinations: (1) vegetation; (2) soil; and (3) hydrology. Unless an area has been altered or is a very rare natural situation, all three criteria must be present for an area to be designated a wetland.

The wetland is a remnant flood plain that once linked Kawainui Marsh to Kaelepulu Pond. The basin collects rainfall runoff originating on the adjacent hillside and from Kawainui Stream, which collects runoff from Coconut Grove and the business area makai of the stream. Runoff from the land is regulated by tide, downstream blockages at the mouth of the stream and flood control gates in Coconut Grove. The marsh is an urban wetland, but still has intrinsic values that make it an important area for wildlife and wildlife interpretation and education.

The Hamakua Canal wetland, in association with Kawainui Marsh, is identified in the U.S. Fish and Wildlife Service (USFWS) Waterbird Recovery Plan as essential to the recovery of the endangered Hawaiian waterbirds. It has not been listed as a "Critical Habitat" for the Hawaiian Stilt by the USFWS, although its characteristics may fulfill criteria as a "Critical Habitat". The listing of the wetland as a "Critical Habitat" for these species by the USFWS is beyond the control of the proposed development or its EIS.

Proposed improvements. The applicant has an unofficial agreement with the national non-profit wetlands preservation group, Ducks Unlimited, to make improvements to the wetlands on the property. Ducks Unlimited, Inc. (DU) is a private, national nonprofit organization dedicated to conserving wetland habitat for waterbirds and other wildlife. DU was incorporated in 1937 and has a current membership of more than one-half million. Its conservation projects originally focused on Canada, but are also located in the U.S. and Mexico. DU currently has projects in all fifty states.

Ducks Unlimited has prepared a draft restoration and management plan for the subject wetlands, which provides recommendations to restore and enhance the quality of the wetland habitat. It focuses on restoring a quality emergent marsh benefiting native

endangered waterbirds and resident and migratory waterbirds. The final plan is being prepared in consultation with the State Department of Land and Natural Resources and the U.S. Fish and Wildlife Service. The draft plan, which is subject to revision, is included as Appendix H.

Restoration and management goals proposed by Ducks Unlimited include:

Restoration:

- 1) remove alien, upland shrubs and clear overgrown wetland basins;
- 2) clean-up trash and other debris; and
- 3) moat construction to restrict predators.

Management:

- 1) implement habitat management through vegetation control and periodic water quality analysis;
- 2) maintain a predator control program to reduce predation by feral dogs, cats, and the introduced Indian Mongoose;
- 3) implement eradication program on all mallards and other domestic ducks found on the property (in order to discourage further hybridization of the endangered Hawaiian duck with domestic ducks); and
- 4) develop and install informational kiosk and interpretive panels and assist in design and funding for boardwalks.

After the improvements have been made, the wetlands are planned to be conveyed to the State Department of Land and Natural Resources for management in perpetuity. These improvements and the transfer of property will take place after the property has been subdivided to result in two wetlands-only lots and two non-wetlands lots. An application for the subdivision of the mauka section has been submitted to the Department of Land Utilization and is pending approval.

Two documents are included in Appendix I, which indicate DU's willingness to assume the project and the State's willingness to accept conveyance of lands and responsibility for management in perpetuity. The first document is a letter from DU to Kaneohe Ranch, dated February 5, 1992 and an inter-office DU memorandum containing a status report on the project. The second document is a letter from the U.S. Fish and Wildlife Service to the Board of Land and Natural Resources, dated March 12, 1992 confirming the availability of 1992 National Coastal Wetlands Conservation grant funds for the project.

The restoration and management plan by DU describes improvements to the mauka area wetlands. The restoration of the 5-acre makai wetland may be the subject of a separate resubdivision action and transaction to DU, with a separate restoration and management plan prepared accordingly. The proposed improvements will likely be of the same general nature as the mauka wetland improvements: vegetation removal, construction of a barrier or moat for protection from land predators, and auditory and visual screening from the surrounding developments.

Although the wetland area is not included in the application area for Development Plan (DP) amendment and will retain the preservation designation, the applicant is committed to pursuing the wetlands restoration project with DU regardless of the outcome of the DP amendment application. However, the wetlands restoration project is part of the master plan for the entire 97-acre project area, which was formulated as a

result of community-based input over the past two years. The applicant initiated these wetland improvements as a component of the overall master plan. The restoration project is included in this EIS because it will be impacted by the proposed development and, in turn, impacts the development with respect to design and access. The applicant has conscientiously sought input from DU in designing the development and identifying mitigation measures to potential wetland impacts. While the wetland improvements are the subject of separate permitting actions, they should nonetheless be considered part of the overall master plan and an educational resource for future residents of the project and the general public.

The specific mitigation measures necessary to protect the wetland from potential adverse impacts of the proposed development will be determined in consultation with DU and the appropriate government agencies.

Commercial Area Expansion

The project concept also includes improving and expanding the existing commercial area on Kailua Road by about one acre. The project proposes a cluster of retail stores and restaurants on this site that would take advantage of the wetland and mountain views and complement the other proposed activities. The buildings would be limited to one- or two-stories in height, and designed and sited in such a way as to avoid obstructing views of the Puu O Ehu ridge and Mount Olomana. The area identified for expansion was determined based on topography, relationship to the existing commercial area, and usable land configuration.

Access to this site would continue to be from a right-turn in, right-turn out movement only from Kailua Road.

The following table summarizes the parties involved in the proposed development and their roles. The commercial area will be contiguous to but not part of the lifecare center. Although the community center will be developed by the developers of the lifecare center, it will be available for use by the entire Kailua community.

Elderly Affordable Housing

Developer:	Episcopal Homes of Hawaii, Inc.
Manager:	Episcopal Homes of Hawaii, Inc.
User:	Low-income elderly on rental basis

Community Center

Developer:	Episcopal Homes of Hawaii, Inc.
Manager:	Episcopal Homes of Hawaii, Inc.
User:	Kailua community

Commercial Area

Developer:	Castle Estate/undecided
Manager:	Kaneohe Ranch
User:	Kailua community

2.7 Project Rationale

The percent of the state's 55 years and older population has increased from 17% in 1980 to almost 20% in 1989 (U.S. Bureau of the Census, Current Population Reports, Population Estimates and Projections, Series P-25, No. 1058, March 1990). It is estimated to grow to nearly 25% by 2010. The State's over-60 population is growing

2-1/2 times faster than the national average (State of Hawaii, Executive Office on Aging, Long-Term Care Plan for Hawaii's Older Adults). This anticipated growth will result in the need for a range of housing types and services for seniors, from low-income to high-income.

Lifecare Center

While many seniors prefer to remain in their own homes as they age, some will not be capable of maintaining a larger home, or do not desire to do so. Some may opt for condominium living, but this option does not provide for the long-term health care that some seniors will require. The Human Services Functional Plan articulates one of the long-term care problems faced by seniors as follows:

"Traditionally, the system has encouraged impoverishment in order to pay for or acquire long-term care services.

Wealthy families are able to absorb the large out-of-pocket costs for long-term care. Some poor are able to access needed services by qualifying for Medicaid. But those in the middle must deplete savings of a lifetime in order to afford care. To be eligible for Medicaid, individuals must either already be categorically eligible for welfare assistance or must 'spend down' their income and deplete their assets to meet the State's eligibility standard.

There is a need to find ways of assisting this gap group in accessing needed services without impoverishment."

The proposed lifecare facility would meet the needs of this group, who may be middle-income homeowners, by providing long-term care security, while at the same time preserving an independent lifestyle.

While senior care projects exist on Oahu, only one existing facility, the 245-unit Arcadia, approximates the scope of services planned to be offered by the proposed lifecare facility. The Arcadia, however, does not offer important elements of medical care included in the lifecare facility. Pre-sale activity for the proposed Hale O Malia lifecare community in Waialae-Kahala indicates a large potential market for a facility of this type. Within seven months, the facility was over 100% pre-sold; 95% of the units being sold to local residents and 3% to past residents who wished to return to Hawaii. The development group for Hale O Malia is also developing the Kailua Gateway facility. The proposed Kailua Gateway lifecare community will have a lower rate structure than the Waialae-Kahala lifecare community, due to its location and target market.

The proposed lifecare community will not only contribute to meeting a previously under-addressed need for appropriate senior housing designed to meet the housing, recreation and health care requirements of this special population, but also indirectly contribute to the overall housing supply by making the dwellings previously occupied by the lifecare residents available to the general community.

Elderly Affordable Housing

At the other end of the continuum are the low-income seniors who qualify for government housing subsidies. They are generally on fixed incomes, and may have little or no assets. The competitive affordable rental market in Hawaii makes it even more difficult for this group to secure adequate housing.

The proposed elderly affordable housing project will address the housing needs of this group.

Community Center

The proposed community center will serve another group of seniors; the frail elderly living with and cared for by family members. Senior day care facilities provide respite service for the caregivers or supervision for the elderly while they work, and at the same time provide social and health needs to the elderly.

Commercial Area Expansion

The additional one acre which is proposed for redesignation from Preservation to Commercial is presently being used for commercial purposes, and there is no anticipated increase in the commercial use of the property. Therefore, there should be no impact to existing commercial uses or commercial space absorption rates in the Kailua area. The expansion and improvement of the commercial area are being proposed in order to redevelop the property into more aesthetic and complementary uses befitting of the entrance to Kailua. Existing use, topography, and land configuration are the primary rationale for the expansion.

2.8 Project Phasing and Costs

Upon resubdivision of the four parcels involved into two wetland and two upland parcels, the wetland parcels will be conveyed to Ducks Unlimited. A subdivision application has been submitted for the mauka section to the Department of Land Utilization, and is pending approval; a subdivision application for the makai section is pending submittal. Ducks Unlimited would restore the wetlands and transfer the property to the State Department of Land and Natural Resources.

Upon obtaining the necessary governmental approvals, site construction will begin, with building construction estimated to be completed in 18 to 24 months. The necessary government approvals could be obtained by the end of 1994, with construction beginning in mid-1995 and delivery in late-1996. The elderly affordable housing could be constructed earlier, as the site lies within the Urban district and would not require a State Land Use District Boundary Amendment.

The approximate timetable of the application for the various permits required by the development as follows.

Development Plan Land Use Map Amendment	in progress
State Land Use Boundary Amendment	summer 1992
Zone Change	1993
Special Management Area Permit	1993
Conditional Use Permit	1994
Subdivision Application	1994
Building Permit	1994

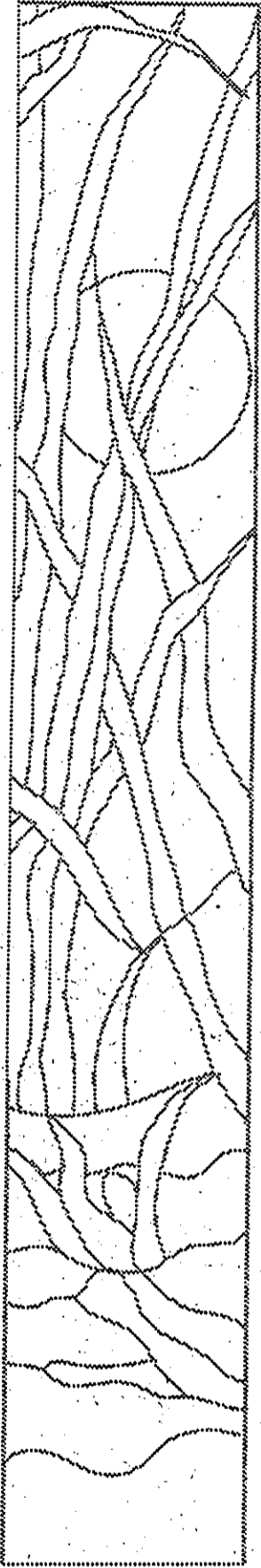
Total construction costs for the lifecare facility, elderly affordable housing, and community center are estimated at \$100 million in 1992 dollars. This does not include construction of the commercial area expansion. No estimate for this component is available at this time.

2.9 Use of Public Funds or Lands

The proposed development will not use any public lands. Public funds may be used in the development of the elderly affordable housing on the makai triangular parcel, in which case the developer would comply with the appropriate conditions of the funding program.

The lifecare center is planned as a non-profit facility to be built with tax-exempt special purpose revenue bonds authorized by the State of Hawaii. The project will rely on the application of payments from Social Security, Medicare and other health insurance programs to help support the operational costs of the lifecare concept.

Chapter III



**Relationship of the Proposed Project to Existing
Public Plans, Policies and Controls**

III. RELATIONSHIP OF THE PROPOSED PROJECT TO EXISTING PUBLIC PLANS, POLICIES AND CONTROLS

3.1. Federal

1. U.S. Army Corps of Engineers Regulatory Permit Program

The U.S. Army Corps of Engineers has a Memorandum of Agreement with the U.S. Environmental Protection Agency stressing a hierarchical approach to wetland planning. First, it must be demonstrated that there are no practicable alternatives to avoid any fill in the wetland. If the avoidance is overcome, it must be demonstrated that the fill has been minimized. The legal presumption that there is an environmentally less damaging alternative to the fill must be overcome. Once this is done, mitigation can be discussed. The emphasis in this process is on preserving wetland values for projects that do not have a basic water dependent purpose.

The project is intended to comply with the Corps of Engineers' policy of "no net loss" of wetlands. A field survey was completed by the Corps of Engineers Operations Division in 1991 in which the boundaries of the wetlands occurring on the 97-acre project site were delineated. The area of application for DP Land Use amendment excludes any area identified as wetlands by the Corps of Engineers.

A Department of the Army permit would be required if there is any grading or placement of fill in the wetland or Kawainui Stream, as well as any construction in the stream. A jurisdictional determination will be made when development plans are submitted to the Operations Division for review.

2. Coast Guard Bridge Permit

Any individual, partnership, corporation, or local, state, or federal legislative body, agency, or authority planning to construct or modify a bridge or causeway across a navigable waterway of the United States must submit an application for a Coast Guard permit according to The General Bridge Act of 1946, as amended, and the Rivers and Harbors Act of 1899, as amended.

For Coast Guard bridge permitting purposes, a navigable waterway is defined as follows:

1. Any waterway which is subject to the ebb and flow of the tide; or
2. Any waterway which is presently used and or is susceptible to use in its natural condition, or by reasonable improvement, as a means to transport interstate or foreign commerce.

The vehicular and pedestrian bridge across the wetlands and Kawainui Stream from the project area to Hamakua Drive may require a Coast Guard bridge permit. The Coast Guard Aids to Navigation Branch will make a determination of the navigability of the stream and decide what degree of permitting would be required after zoning issues are resolved and the project moves into a more specific level of planning.

3. Endangered Species Act of 1973, as amended (Act)

The issuances of Department of the Army and Coast Guard Bridge permits will require consultation with the USFWS under Section 7 of the Act if the proposed action may affect listed species. Through this consultation, the USFWS will prepare a Biological Opinion for the federal action agency which will determine whether the proposed federal

and interdependent actions will jeopardize the continued existence of endangered species or result in the destruction or adverse modification of critical habitat.

The Biological Opinion may also include an incidental take statement and reasonable and prudent measures to minimize the taking of endangered species under Section 9 of the Act. Section 9 of the Act prohibits the taking (harm, harass, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species without special authorization. Harm is defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding or sheltering. Harass means an intentional act or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering.

The construction and operation of the proposed development may result in the taking of endangered Hawaiian waterbirds through harm or harassment. The taking of endangered species may be authorized by the incorporation into the appropriate federal permit of the mandatory terms and conditions developed by the USFWS in the incidental take statement. In the case that a federal action is not necessary, the taking of endangered species on private lands would require authorization under Section 10 of the Act. The Section 10 permit would authorize the taking of endangered species provided the applicant institutes appropriate conservation measures for habitat maintenance, enhancement, and protection coincident with the development. The development of a habitat conservation plan for a Section 10 permit is designed to reduce conflicts between endangered species and private development. The issuance of the Section 10 permit requires compliance by the USFWS with the provisions of the National Environmental Policy Act.

3.2 State

1. Hawaii State Plan

The Hawaii State Plan (Chapter 226, Hawaii Revised Statutes, as amended) establishes a set of guidelines for the statewide planning system, and provides the overall theme, goals, objectives, policies, and priority guidelines. The following describes the purpose of the State Plan.

"...[it] shall serve as a guide for the future long-range development of the State; identify the goals, objectives, policies, and priorities for the State; provide a basis for determining priorities and human resources, land, energy, water, and other resources; improve coordination of federal, state, and county plans, policies, programs, projects, and regulatory activities; and to establish a system for plan formulation and program coordination to provide for an integration of all major state and county activities" (Chapter 226-1: Findings and Purpose, HRS).

The following section analyzes the proposed project with respect to relevant State Plan goals, objectives and policies.

Section 226-11 Physical Environment - Land-based, Shoreline, and Marine Resources. State Plan objectives for this area include (1) "prudent use of Hawaii's land-based, shoreline, and marine resources" (Section 226-11(a)(1)) and (2) "effective protection of Hawaii's unique and fragile environmental resources" (Section 226-(a)(2)). To achieve these objectives, it is the policy of the State to "take into account the physical attributes of areas when planning and designing activities and facilities" (Section 226-11(b)(3)),

"manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage" (Section 226-11(b)(4)), "encourage the protection of rare or endangered plant and animal species and habitats native to Hawaii" (Section 226-11(b)(6)), and "promote increased accessibility and prudent use of inland and shoreline areas for public recreational, educational, and scientific purposes" (Section 226-11(b)(9)).

As a part of the proposed project, the wetland improvements will support the objectives stated above and adhere to the relevant policies by providing an enhanced wetland habitat and protection from predators for the four endangered endemic species of waterbirds found on the property. The educational value of the wetlands will also be enhanced via the proposed interpretive displays associated with the improvements. In a preliminary agreement, maintenance of the improved wetlands will be managed by the State, thereby insuring the long term protection of the wetlands. The proposed plan includes a 50-foot wide buffer area between the wetland mauka boundary and the urban development to provide an auditory and visual screen for the waterbirds. The structures will be in conformance with the densities and height limits of the DP land use designation being sought, and will not impair the views of the upper Puu O Ehu slopes or Mount Olomana.

Section 226-18 Facility Systems - Energy/Telecommunications. One objective of the State Plan in this area is "increased energy self-sufficiency" (Section 226-18(a)(1)). To achieve the energy objectives, it is a policy of the State to "promote prudent use of power and fuel supplies through conservation measures including education and energy-efficient practices and technologies."

The proposed project will employ energy conservation measures such as the use of dimming, selection of energy efficient light sources, and use of photocells or automatic timing devices to turn off lights when not needed. Where feasible, lights and motors will be energized at higher voltages to minimize line losses. Capacitors will be applied at VAR producing loads to improve voltage regulation and distribution efficiency.

Section 226-19 Socio-Cultural Advancement - Housing. Relevant objectives of the State Plan in this area are (1) "to provide greater opportunities for Hawaii's people to secure reasonably priced, safe, sanitary, livable homes located in suitable environments that satisfactorily accommodate the needs and desires of families and individuals" (Section 226-19(a)(1)); and (2) "the orderly development of residential areas sensitive to community needs and other land uses" (Section 226-19(a)(2)). In order to achieve these housing objectives, it is a State policy to "stimulate and promote feasible approaches that increase housing choices for low-income, moderate income, and gap-group households" (Section 226-19(b)(2)); "promote design and location of housing developments taking into account the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas" (Section 226-19(b)(5)); and "facilitate the use of available vacant, developable, and underutilized urban lands for housing" (Section 226-19(b)(6)).

The proposed project will contribute about 400 units of senior housing; 70 affordable units and 333 lifecare units. The project will also provide 60 skilled nursing beds to alleviate the projected statewide shortfall of 1,000 long term care beds in the year 2000 (State Health Planning and Development Agency, March 1991). The design of the development works around the physical constraints (steep slopes, wetlands) of the site. The site is accessible to existing public facilities and services in the adjacent urban development of Kailua town. The portion of the site proposed for low-income elderly housing is already in the State Land Use Urban District, as is about 13 acres of the site

proposed for the lifecare facility. Both areas are currently vacant, developable and underutilized.

Section 226-20 Socio-Cultural Advancement - Health. Relevant State Plan objectives in this area include the "fulfillment of basic individual health needs of the general public" (Section 226-20(a)(1)). A policy supporting this objective is to "encourage improved cooperation among public and private sectors in the provision of health care to accommodate the total health needs of individuals throughout the State" (Section 226-(b)(2)).

The proposed project will provide a facility and system designed to care for the lifetime health care needs of its senior residents. The financing of the project will entail cooperation between the private sector (in this case, a non-profit entity) and the State in the form of a tax-exempt bond issue authorized by the State Legislature.

Section 226-22 Socio-Cultural Advancement - Social Services. One State Plan objective in this area, which pertains to the proposed project, is "the achievement of improved public and private social services and activities that enable individuals, families, and groups to become more self-reliant and confident to improve their well-being" (Section 226-22(a)). To achieve this objective, it is the policy of the State to: "promote coordination and integrative approaches among public and private agencies and programs to jointly address social problems that will enable individuals, families, and groups to deal effectively with social problems and to enhance their participation in society" (Section 226-22(b)(2)) and "promote alternatives to institutional care in the provision of long-term care for the elderly and disabled populations" (Section 226-22(b)(4)).

The low-income elderly population will be served by the project's proposed affordable housing component. Proximity to the public services and urban development in Kailua will enable this population to continue, as long as possible, independent activities and self-sufficiency. The lifecare facility also proposed for the project is an alternative to the present facilities for the elderly in Hawaii. Residents will be able to remain in an independent living arrangement as long as it is prudent, while being assured lifetime personal and medical care when and if those needs arise.

Section 226-23 Socio-Cultural Advancement - Leisure. The objective of the State in this area states that "planning for the State's socio-cultural advancement with regard to leisure shall be directed towards the achievement of the objective of the adequate provision of resources to accommodate diverse cultural, artistic, and recreational needs for present and future generations" (Section 226-23(a)). To achieve this objective, State policies include promoting "the recreational and educational potential of natural resources having scenic, open space, cultural, historical, geological, or biological values while ensuring that their inherent values are preserved" (Section 226-23(b)(4)).

The primary natural resource on the project site is the wetland habitat. The project proposes improvements to the wetlands by a third-party non-profit entity, with the land eventually being transferred to the State for maintenance in perpetuity. The proposed improvements and interpretive displays will foster a more valuable environment for the waterbirds currently found on the site as well as afford the public opportunities to view endangered species in a natural habitat.

2. State Functional Plans

The Hawaii State Plan directs the appropriate State agencies to prepare functional plans for their respective program areas including: agriculture, transportation, conservation

lands, housing, tourism, historic preservation, energy, recreation, education, higher education and health. The State Functional Plans serve as the primary implementing vehicle for the goals, objectives and policies of the Hawaii State Plan.

The plans set forth "...the policies, statewide guidelines, and priorities within a specific field of activity, when such activity or program is proposed, administered, or funded by an agency of the State" (Section 226-2 [10] Hawaii Revised Statutes). Each functional plan contains objectives to be achieved and policies to be pursued within the specified areas. "...[S]uch policies shall address major programs and the location of major facilities" (Section 226-57 (b) HRS).

The State Functional Plans have been adopted by the Hawaii State Legislature. The State Plan mandates that these plans "...shall be taken into consideration in amending the county general plans (Section 226-52 (a)(3) HRS)." The applicable functional plans have been reviewed and are discussed below.

State Human Services Functional Plan. The State Human Services Functional Plan was prepared by the Department of Human Services and identifies elderly care as one of four priority issues. The plan notes in its supporting narrative the need to assist "gap group" elderly who cannot afford out-of-pocket costs for long-term care but who also do not qualify for public assistance. The plan also recognizes the need for "more elder housing, especially projects that take into consideration age cohort developmental needs, social needs, personal needs, health needs, etc."

The lifecare facility will be affordable to middle-income homeowners seniors, and provide an environment supportive of their social, intellectual, recreational, and physical needs. The proximity to the Kailua commercial and business district as well as to public transportation facilities will enable the project's residents to continue an independent lifestyle, contributing to the life of the Kailua community.

State Housing Functional Plan. Expanding rental opportunities for the elderly and other special need groups is one of the six issue areas addressed in the State Housing Functional Plan, prepared by the Housing Finance and Development Corporation. One objective in this issue area is the "increased development of rental housing units for the elderly and other special need groups to afford them an equal access to housing."

The proposed project will increase the supply of affordable rental housing, specifically targeted for the elderly.

State Recreation Functional Plan. Wetland protection and management is one of six issue areas addressed in the Draft State Recreation Functional Plan (1990), prepared by the Department of Land and Natural Resources. An objective of the plan with respect to this issue area is to assure the protection of the most valuable wetlands in the state through acquisition and management.

The wetland found on the subject property is not listed as a top-priority wetland by the State (although it is viewed by conservation groups as a part of the entire Kawai Nui Marsh ecosystem) and thus is not likely to receive funding for fee acquisition. It was identified as a wetland of secondary importance in the Kawai Nui Management Plan. The proposed project would make available to the State an improved wetland habitat, which already supports four endangered native waterbirds.

State Conservation Lands Functional Plan. The Draft State Conservation Lands Functional Plan (1990), also prepared by the Department of Land and Natural Resources,

has as one objective the protection of fragile or rare natural resources. This plan also advocates the protection of top-priority wetlands through fee acquisition or other arrangements.

The proposed transfer of ownership of the improved wetlands to the State will guarantee their continued maintenance and protection.

3. State Land Use Law

All lands in the State have been classified in one of four land use districts, (Urban, Rural, Agricultural, and Conservation) by the State Land Use Commission, pursuant to Chapter 205, HRS. Approximately 13 acres of the area of application are in the Urban District, while the remaining 20 acres are in the Conservation District (Figure 7). The 27 acres designated as wetlands are in the Urban District. A State Land Use District Boundary Amendment will be sought to transfer approximately 20 acres presently in the Conservation District to the Urban District and 27 acres of wetlands now in the Urban District to the Conservation District. When this action is complete, there will be a net increase of 7 acres in the Conservation District.

4. Environmental Impact Statements (Chapter 343, HRS)

Section 343-5 (a)(6), HRS notes that the provisions of Chapter 343 apply to "any amendment to existing county general plans where the amendment would result in designations other than agriculture, conservation, or preservation...."

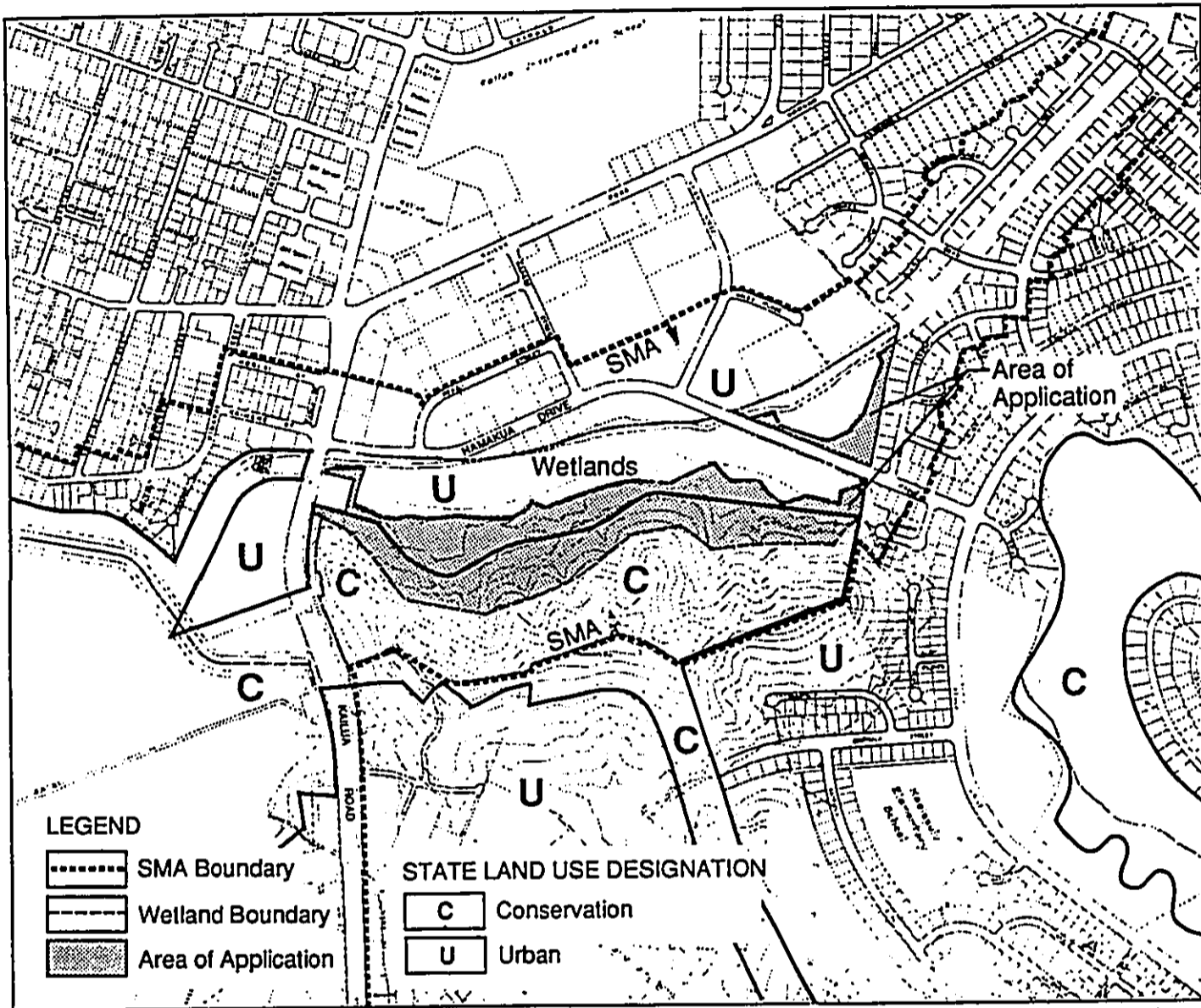
A State Attorney General opinion (Opinion N. 85-30) has broadened the scope of the definition of county general plans to include "...non-county initiated actions which propose amendment or change to a county's planning documents, however denominated, as development plans or otherwise, and which would result in a designation other than agriculture, conservation or preservation."

The action requested by this application will result in an amendment to the Koolaupoko DP Land Use Map from the Preservation designation to the Commercial and Medium Density Apartment designations.

By letter to the Office of Environmental Quality Control dated October 18, 1991, the Department of General Planning (accepting authority) determined that the proposed development may have a significant impact on the environment. Notice of this determination was published in the November 8, 1991 OEOC Bulletin. This began a 30-day public comment period which ended on December 8, 1991.

The applicant filed a revised application for DP amendment with DGP, as there have been changes in the area of application and development program. The changes involve an increase in the area proposed for DP amendment from 21 acres to 33 acres; 32 acres from the Preservation DP designation to Medium-Density Apartment (MDA) and 1 acre from Preservation to Commercial.

As was the case with the original application, DGP determined that the revised DP amendment request required the preparation of an EIS pursuant to Chapter 343 HRS. Notice of this determination was published in the January 23, 1992 OEOC Bulletin. This began a 30-day public comment period, which ended on February 22, 1992.



State Land Use District and SMA Boundaries

Figure

KAILUA GATEWAY

Prepared for: Kaneohe Ranch Company, Limited
 Prepared by: Helber Hastert & Fee, Planners



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Notice of the draft EIS was published in the March 8, 1992 OEOC Bulletin. This began a 45-day comment period which ended on April 22, 1992. This EIS was prepared pursuant to Chapter 343 HRS.

5. State Water Code

Chapter 174C, HRS, also known as the State Water Code, requires a Stream Channel Alteration Permit (SCAP) for any action resulting in the construction or alteration of a stream diversion works. Although the proposed project will not alter the alignment of Kawainui Stream, the proposed access bridge opposite Hekili Street may be subject to a SCAP, issued by the Commission on Water Resource Management, Department of Land and Natural Resources.

6. Comprehensive Master Plan for the Elderly and Long Term Care Plan for Hawaii's Older Adults

Policy statements contained in these plans, published by the Executive Office on Aging, include the following.

Policies must:

- o be client-centered and family supportive;
- o assure dignity, self-determination, and independence to the maximum extent possible for all older persons;
- o prevent and/or delay the need for institutional care; and
- o promote partnerships within and among the public and the private sectors and elder consumers and their families.

The concept behind the proposed lifecare center supports these goals by providing an environment that promotes an independent lifestyle for its residents, social interaction with other residents and with the community at large, delays institutionalization by providing recuperative and personal care only as needed, and allows older persons and their families to take the initiative in planning for their long-term care needs, with the guarantee of lifetime shelter and medical care despite possible changes in their financial conditions.

7. State Department of Health

A Section 401 Water Quality Certification may be required from the Department of Health if a DA permit (either individual, regional general or nationwide) is required.

Since the subject project involves land disturbance of five (5) acres or more, stormwater runoff will likely be regulated under Section 402 of the Clean Water Act through the National Pollutant Discharge Elimination System permit program administered through the Department of Health.

8. Resource Management Plan for Kawainui Marsh

This plan was produced by the Kawainui Marsh Technical and Policy Advisory Committee, Hawaii Coastal Zone Management Program, Department of Planning and Economic Development of the State of Hawaii in March 1983. The overall function of the plan was to "characterize and manage the primary area of the Marsh and where appropriate, the secondary area, as a natural heritage area which is to be acquired, zoned,

and utilized for its intrinsic recreational, cultural/archaeological, religious, educational, open space, wildlife and economic values."

The policies of the Kawainui Marsh Resource Management Plan apply principally to the primary area, which is bounded by Kapaa Quarry Road on the west and north, Oneawa Channel on the east, and Kailua Road (from the bridge crossing the canal to its junction with Kapaa Quarry Road) on the south. The project area is located within the secondary area, within the Kawainui Watershed. The following discussion addresses the objectives which specifically refer to the secondary area.

Cultural Resources

Objective: "Protect and preserve identified historic and pre-historic sites and districts within the primary and secondary areas which are listed or eligible for listing on the National and State registers."

Discussion: The phase II of the archaeological survey, as described above, will assess the significance of the four sites identified in the first phase, according to existing federal and state criteria.

Objective: "Identify, enhance, and preserve aesthetic qualities of the primary and secondary areas, including vistas, view planes and site-specific features and elements."

Discussion: The project will alter the view of the Puu O Ehu hillside, when viewed from portions of Hamakua Drive and at the approach to the intersection of Hamakua Drive from Kailua Road. The project will not affect any views of Kawainui Marsh.

3.3 City

1. General Plan

The General Plan for the City and County of Honolulu (adopted 1977) was amended by the City Council in 1987. The Plan is a statement of the long-range social, economic, environmental and design objectives for the general welfare and prosperity of the people of Oahu. The Plan is also a statement of broad policies which facilitate the attainment of the objectives of the plan.

A Population policy of the General Plan is to manage physical growth and development in the urban-fringe and rural areas so that their population densities are consistent with the character of the development and environmental qualities desired for such areas (Policy C3).

The project will result in an estimated 650 additional residents in the Koolaupoko District. According to the Department of General Planning's Development Plan Status Review (September 1, 1991), the Year 2010 Population Capacity for the Koolaupoko District (121,300) is slightly under the maximum population allowed by the General Plan for the Year 2010 (121,900). The addition of the estimated 650 residents associated with the proposed Kailua Gateway development would result in the total Koolaupoko District population exceeding the Year 2010 population guideline by 50 persons, or 0.04%.

Despite its contribution to the Koolaupoko population exceeding General Plan population guidelines by an estimated 0.04%, the project responds to and supports other General Plan objectives and policies. These, as discussed below, include the provision of

affordable housing, special needs housing for the elderly, and the protection of the natural environment.

The proposed project will support the following General Plan policies.

Housing

Objective A, Policy 12: *Encourage the production and maintenance of affordable rental housing.*

Discussion: The elderly affordable housing component of the proposed development will provide 70 rental units to be made available to low income seniors, whose eligibility will be determined by federal or city income limit guidelines.

Objective A, Policy 13: *Encourage the provision of affordable housing designed for the elderly and the handicapped.*

Discussion: The proposed lifecare facility will provide both housing and health care for its residents, which is guaranteed to continue throughout the individual's life. This growing segment of the population has special housing and health care needs, both of which will be addressed by the lifecare program and facility.

Health and Education

Objective A, Policy 1: *Encourage the provision of health-care facilities that are accessible to both employment and residential centers.*

Discussion: The proposed lifecare facility includes personal care and skilled nursing components located on-site. The project site is located near the Kailua business district as well as neighboring residential subdivisions, of both single-family and apartment dwelling types.

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 wetland improvements proposed by the project will provide a more protected and valuable habitat for the four species of endangered Hawaiian birds now found in the wetlands.

Objective B, Policy 4: *Provide opportunities for recreational and educational use and physical contact with Oahu's natural environment.*

Discussion: The proximity of the wetland habitat to Kailua Town will provide an opportunity for observation by the public, while at the same time being protected from intruders and predators.

2. Development Plan

The City and County of Honolulu's Development Plan (DP) program provides a relatively detailed framework for implementing General Plan objectives and policies on

an area-wide basis. A total of eight DP areas have been established on Oahu. The Koolaupoko DP area encompasses the area from Waimanalo to Kualoa.

The DP Ordinances consist of four elements: Common Provisions (applicable for all DP regions), and Special Provisions, DP Land Use Maps and DP Public Facilities Maps (for each DP region).

a. Common Provisions

Section 3 of the DP Common Provisions describes the various land use categories found within each of the eight DP regions. The Medium-Density Apartment designation requested for the site is described below:

"Except as otherwise specified in the special provisions of each development plan, medium-density apartment areas are for mid-rise, medium-density multi-family residential structures."

The proposed lifecare and affordable elderly housing projects will introduce a residential use at a density consistent with the DP Medium-Density Apartment designation. The community center would be considered an accessory use to the residential developments.

A description of the Commercial designation follows:

"Except as otherwise specified in the special provisions of each development plan, commercial areas are principally for business or commercial activities, in contrast to other types of economic activities. Limited accessory uses may also be permitted but only on the same lot and not as a principal use."

The proposed commercial area expansion would require a DP Commercial designation.

Section 32-1.10 of the DP Common Provisions contains a set of social impact factors which are used in evaluating any proposed development as they pertain to the objectives of the general plan. The following summarizes these impacts.

Demographic. The project will increase the residential population of Koolaupoko by about 650 persons (including residents of the personal care and skilled nursing facilities). It will not have an impact on the visitor population to the area. The project is being designed to be compatible with the neighboring residential uses. The senior residents, many of whom will be from the Koolaupoko district, will likely play active roles in the community and will be compatible with both the neighboring subdivisions and the wetlands.

Economic. Construction and operation of the project will provide additional employment in a variety of fields in the Koolaupoko District. The project will also generate public revenues in the form of increased general excise and income taxes as the new residents patronize local retail and service establishments.

Housing. The project will increase the inventory and options for senior housing. As the older adults move out of their larger homes, these dwellings will increase the overall housing inventory on Oahu. The affordable rental component of the project will provide 70 housing units for low-income elderly.

Public Services. The proposed project will provide new medical facilities for the elderly and will not have a negative impact on educational, recreational, police and fire protection, and public utilities facilities.

Physical Environment. When completed, the lifecare center will impair views of the lower Puu O Ehu hillside in some places, although the views of the ridgeline and Mount Olomana will remain unobstructed. Building structures will occupy 21 percent of the area of application or 7 percent of the entire project area. The design of the development will be compatible with the existing architecture and blend with its natural surroundings. The wetland improvements will enhance the educational and visual value of the existing wetland habitat.

b. Special Provisions

The DP Special Provisions for Koolaupoko set forth urban design considerations for development within the district for open space and public views specifying that the "visibility, preservation, enhancement and accessibility of open space areas as defined in Section 32-1.4 of the development plan common provisions shall be given high priority in the design of adjacent and nearby developments in Koolaupoko. These areas include, but are not limited to the Koolau ridges, Kawainui Marsh, Mokolii Island, Mt. Olomana, Heeia Fishpond, Moli Pond, Puu O Kona, Puu Lanipo, Makapuu Point, Kahaluu Fishpond (Kahouna), Puu O Hule Hule, Puu O Ehu, (emphasis added) and Kaiwa Ridge."

A discussion of the heights of the proposed structures in relation to the hillside, as well as information on footprint coverage of the structures can be found in Section 4.9. A preliminary perspective drawing (to scale) showing the heights of the proposed structures in relation to the hillside is included as Figure 16 in Section 4.9. As shown in the perspectives, portions of the lower one-third of the hillside will be obstructed by the buildings. A ridge in the northern sector of the property will remain unobscured by the development as will a ridge near the center of the property.

Section 32-6.2(a)(1) of the Special Provisions for Koolaupoko (Specific Urban Design Considerations) states that the "visibility, preservation, enhancement and accessibility of open space areas as defined in Section 32-1.4 of the development plan common provisions shall be given high priority in the design of adjacent and nearby developments in Koolaupoko. These areas include...Puu O Ehu...". The applicant recognizes the open space value of Puu O Ehu and is committed to designing the development to minimize visual and scenic impacts and the loss of open space. The structures will be clustered and generally located in the lower third of two sectors of the property. Heavy landscaping with complementary vegetation will be included in the development.

Section 32-6.2(a)(2), Public Views, states that "panoramic views of the Pali and views of Puu O Ehu ridge and Olomana from Kaelepulu Pond area" are important public views and shall be protected whenever possible. The proposed development will not impact panoramic views of the Pali and views of Puu O Ehu ridge or Olomana from the Kaelepulu Pond area. In most areas around Kaelepulu Pond, only the west (mauka) side of Puu O Ehu is visible. When the east (makai) side is visible, only the southern portion of the hillside can be seen, and the surrounding residential developments and landscaping obscure at least the lower one-half of the hillside. The proposed development along the southern portion of the application area will not be visible from the Kaelepulu Pond area, as the structures will be located along the lower one-third of the hillside.

Open space will continue to exist between the development and the industrial area along Hamakua Drive, in the form of the protected wetlands.

c. Land Use Map

The entire project area is designated Preservation on the DP Land Use Map for Koolaupoko (Figure 8). This application to amend the Koolaupoko DP Land Use Map requests that the area of application, consisting of 33 acres, be designated Medium-Density Apartment and Commercial (Figure 9).

The subject parcel currently has a Development Plan "Preservation" designation. The Development Plan Common Provisions (Section 32-1.3(11)) describes the types of lands included in preservation areas. The following is a partial list of preservation area land characteristics, as described in the Common Provisions. Some of these characteristics are applicable to the subject parcel. The development proposal recognizes the environmental constraints and offers measures which will mitigate, as much as feasible, impacts that may change the land's usefulness in carrying out the objectives of the preservation designation. These proposed mitigation measures and rationale follow each land type item.

Section 32-1.3(11)(A) *Lands necessary for protecting watersheds, water resources and water supplies.*

Discussion: The water quality assessment for the project concluded that the additional runoff from the proposed development will not have a significant impact on the water quality of Kawainui Stream, and will not negatively impact Kailua Bay or the nearshore marine environment. The water in Kawainui Stream is not currently used for either potable or irrigation purposes.

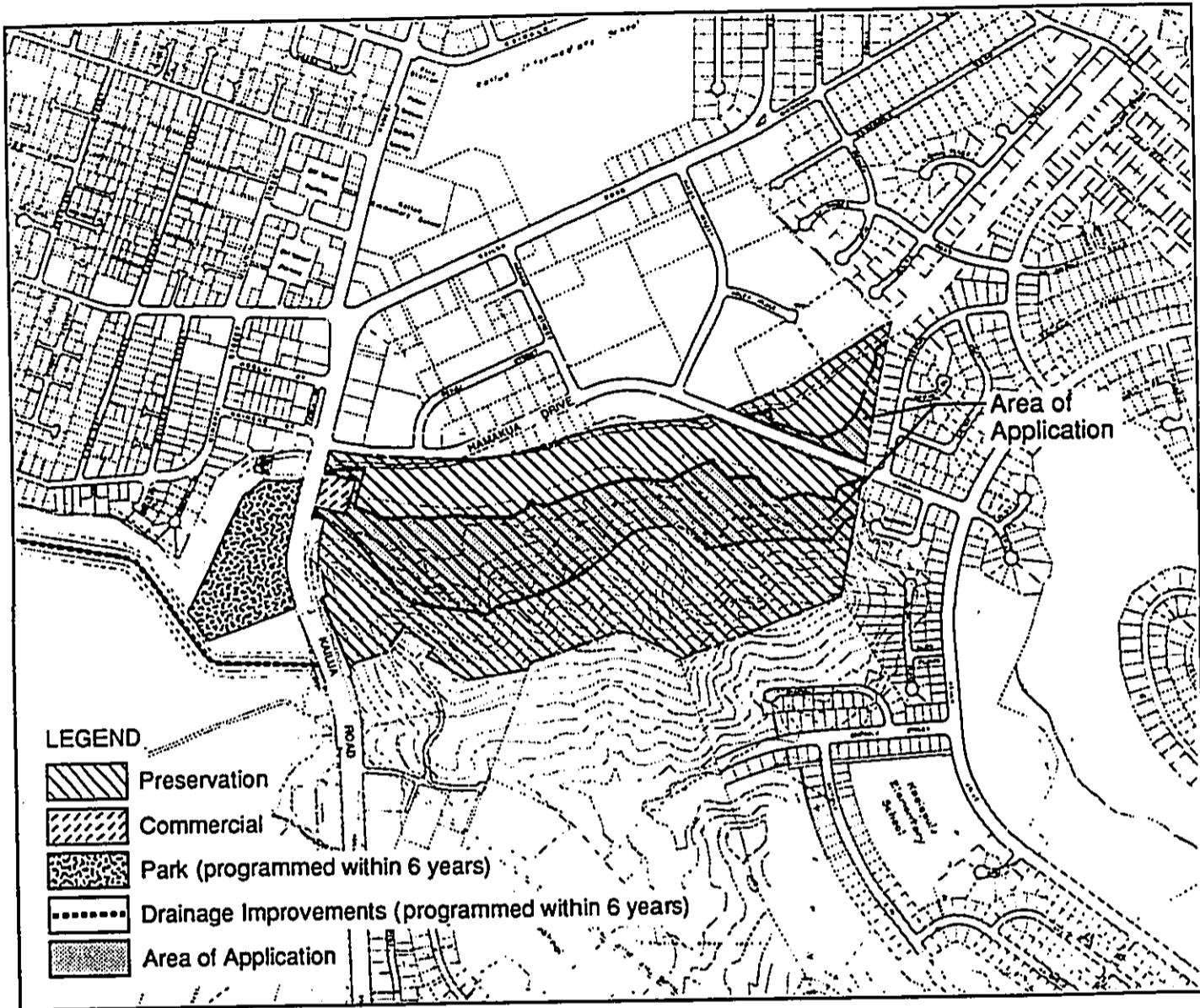
Section 32-1.3(11)(B) *Lands necessary for the conservation, preservation and enhancement of sites with scenic, historic, archaeological or ecologic significance.*

Section 32-1.3(11)(G) *Lands with general slopes of 20 percent or more which provide for open space amenities and/or scenic values.*

Discussion: The project will obscure portions of the lower slopes of Puu O Ehu as seen from some sections of Hamakua Drive. However, the applicant is committed to designing the project to preserve as much open space and views of Puu O Ehu as is feasible, as well as to incorporate design elements, construction materials and landscaping compatible with its surroundings.

Section 32-1.3(11)(C) *Lands necessary for providing and preserving park lands, wilderness and beach reserves, and for conserving natural ecosystems of endemic plants, fish and wildlife, for forestry, and other related activities to these uses.*

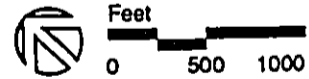
Discussion: Because the project site is adjacent to the wetland habitat, the applicant has been in consultation with the Ducks Unlimited, a non-profit organization that will restore the wetlands and create a permanent plan for its management and protection. The applicant has agreed to provide a buffer area between the urban development and the wetland based on discussions with Ducks Unlimited. The design of the project reflects a conscientious attempt to minimize potential impacts to the wetlands. Such design elements include locating entry roads at the extreme south end of the parcel and at the north end of the parcel over a section of the wetlands which predominantly supports upland vegetation uncharacteristic of



Current DP Land Use and Public Facilities Map

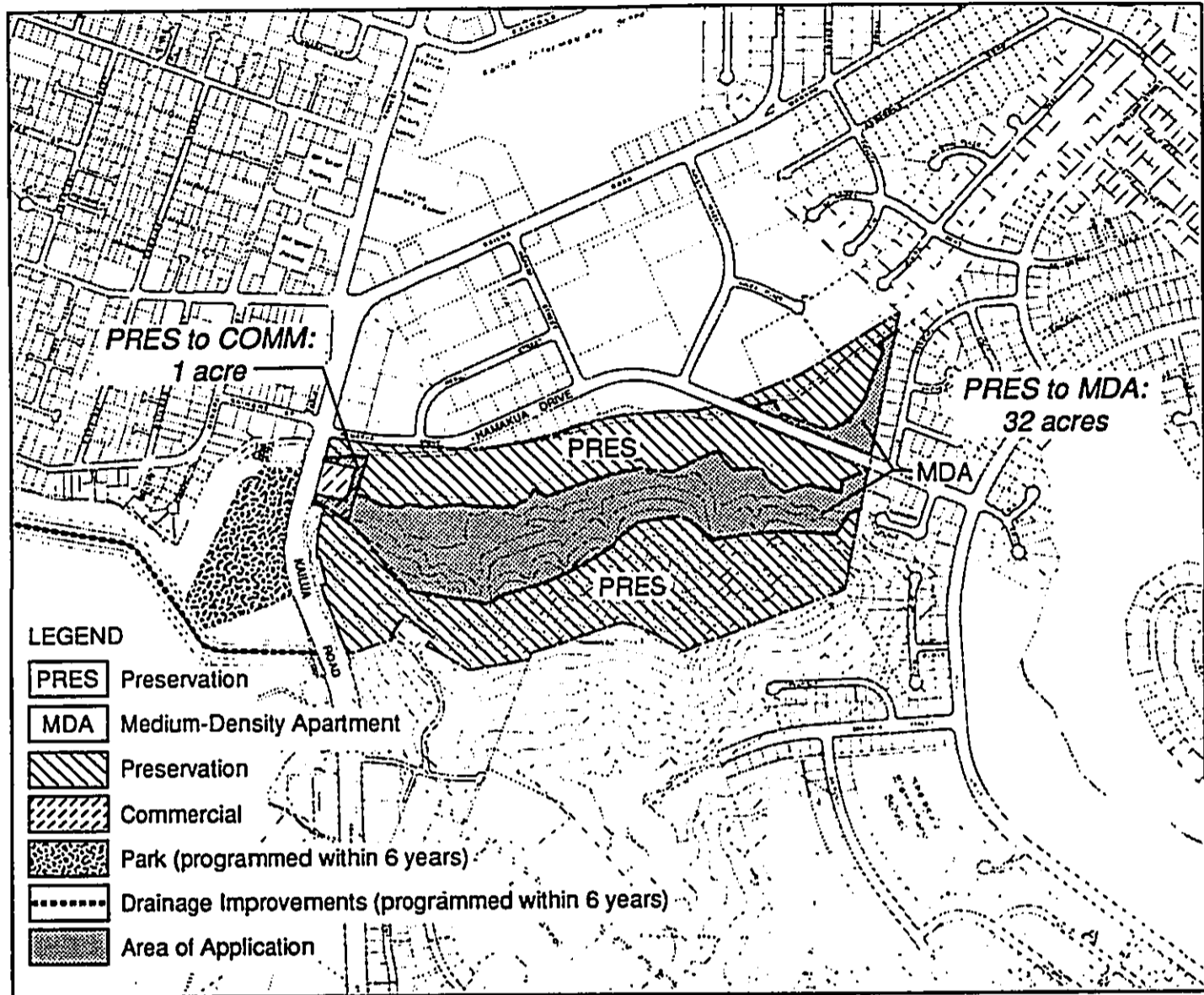
KAILUA GATEWAY

Prepared for: Kaneohe Ranch Company, Limited
 Prepared by: Helber Hastert & Fee, Planners



Figure

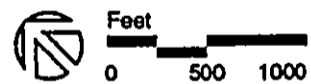
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Proposed DP Land Use and Public Facilities Map

KAILUA GATEWAY

Prepared for: Kaneohe Ranch
Prepared by: Helber Hastert & Fee, Planners



Figure

9

wetland habitat. Proposed mitigation measures for the bridge roadway include solid railing walls to decrease light and sound transmission.

d. **Public Facilities Map**

The DP Public Facilities Map for Koolaupoko (shown in Figure 8) indicates improvements to the Kawainui Marsh flood control levee programmed within the next six years. The area across Kailua Road from the project site is programmed as a park within the next six years. According to the Department of Land and Natural Resources, Division of Forestry and Wildlife, the State plans to develop a portion of the site as a wildlife sanctuary and a portion as an interpretive center. A DP Public Facilities Map amendment would be required to show any roadway improvements resulting from the proposed project.

e. **Department of Public Works/Department of Transportation Services Street Widening Plan**

The City and County Departments of Public Works (DPW) and Transportation Services (DTS) have a street widening plan which indicates that Hamakua Drive, from Kailua Road and for a distance of approximately 800 feet to the east, shall be widened to an 80-foot right-of-way, with all of the additional width on the south side. The widening will include 20 to 24 feet of pavement and 8 feet of sidewalk. This widening would have impacts to the stream and wetlands since the existing top of the stream bank is only about 12 feet from the existing curb. Because of the proximity to Kawainui Stream, the developer will consult with DTS to determine the most desirable solution with respect to both the impacts to the stream and accommodation of projected traffic volumes.

3. **Land Use Ordinance**

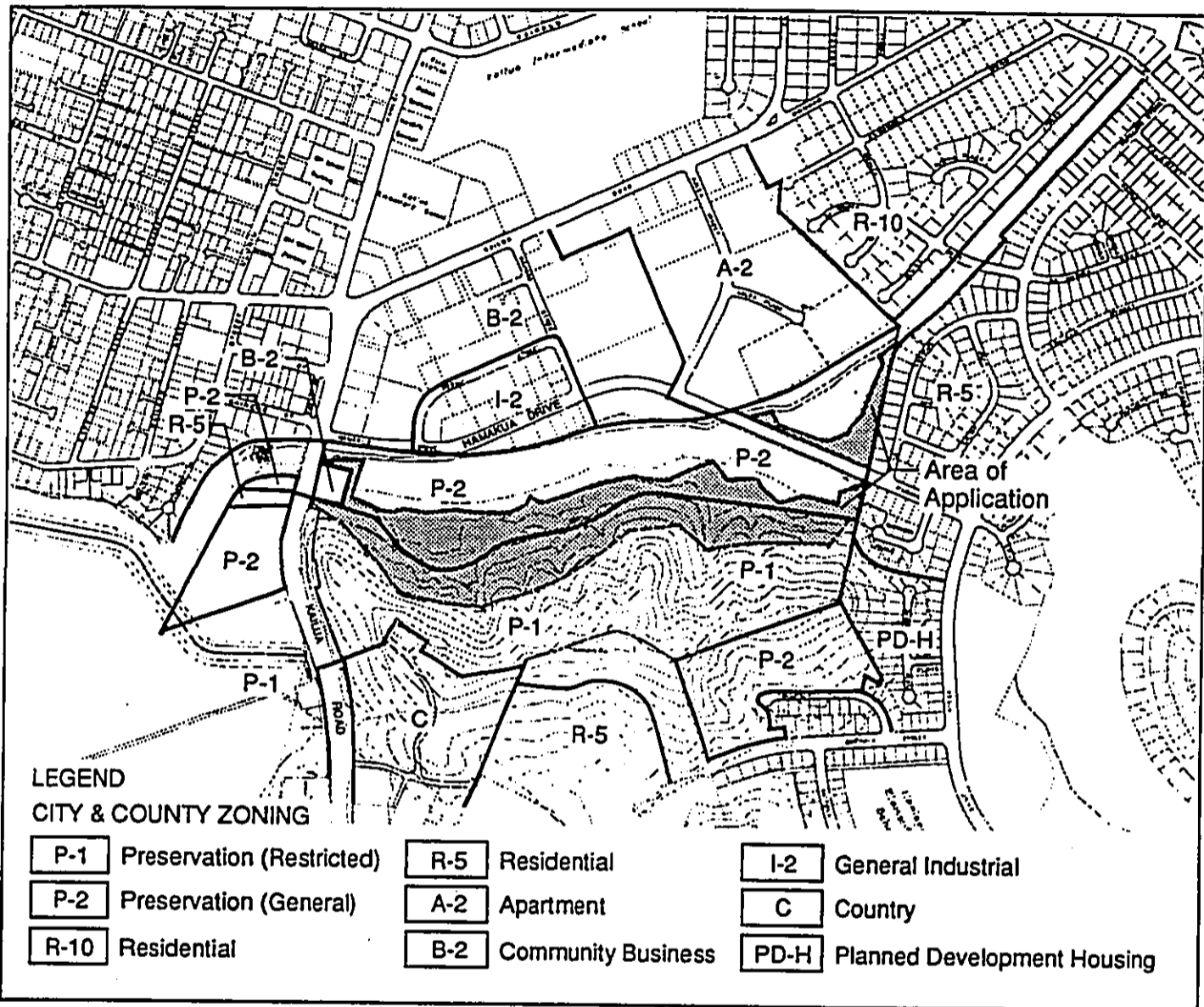
Under the City and County of Honolulu Land Use Ordinance, the area of application is zoned P-1 Restricted Preservation and P-2 General Preservation (Figure 10). Upon approval of this application, rezoning of the area to be consistent with the requested Koolaupoko DP Land Use Map amendment will be sought.

4. **Special Management Area**

The entire project area is located within the Special Management Area (SMA), as shown in Figure 7, and therefore the proposed development will require a Special Management Area Use Permit (SMP) from the City and County of Honolulu after approval of a zone change request.

The Department of Land Utilization (DLU) has recently proposed amendments to the City's Special Management Area Ordinance. These amendments are intended to provide landowners with special regulations regarding development within or in close proximity to wetlands within the Special Management Area.

In the amendments, DLU proposed to the City Council that "wetlands" shall be defined on the basis of the definition found in the publication "Classification of Wetlands and Deepwater Habitats of the United States" (Cowardin et al, 1979). The National Wetlands Inventory Maps, prepared by the U.S. Fish and Wildlife Service (USFWS), reflect the USFWS's interpretation of this document, based on aerial photography. Figure 11 shows two wetland boundaries: (1) based on both the National Wetlands Inventory Maps and (2) a delineation made by the U.S. Army Corps of Engineers in 1991. If the proposed amendments are accepted, a field survey identifying the wetlands will be required as part



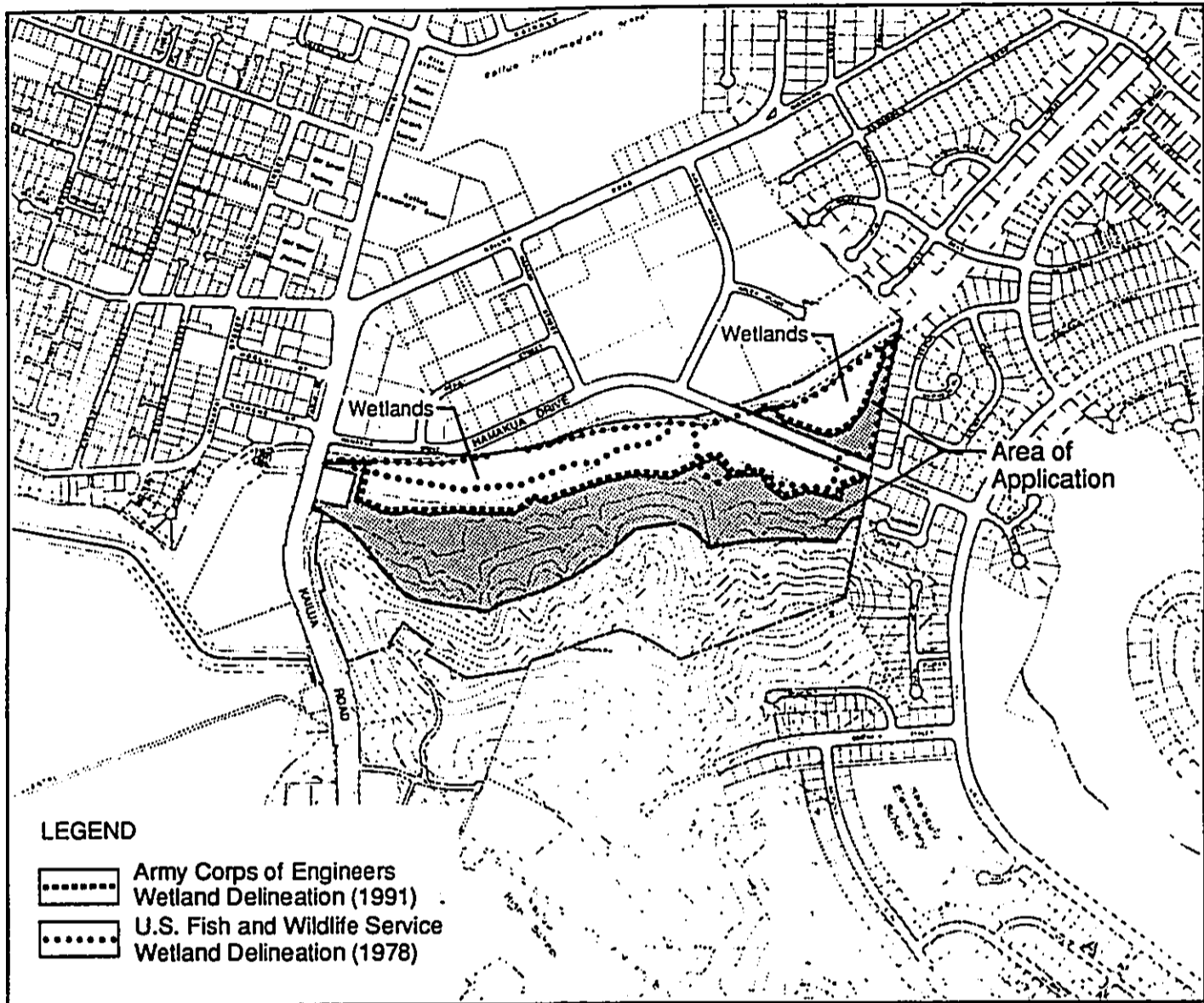
City and County Zoning

KAILUA GATEWAY


Prepared for: Kaneohe Ranch
Prepared by: Helber Hastert & Fee, Planners

Figure 10

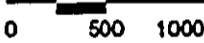
Feet
0 500 1000



<p style="text-align: center;">Wetland Boundaries</p> <hr/> <p style="text-align: center;">KAILUA GATEWAY</p> <p>Prepared for: Kaneohe Ranch Prepared by: Helber Hastert & Fee, Planners</p>	<p>Figure</p> <hr/> <p>11</p>
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Feet

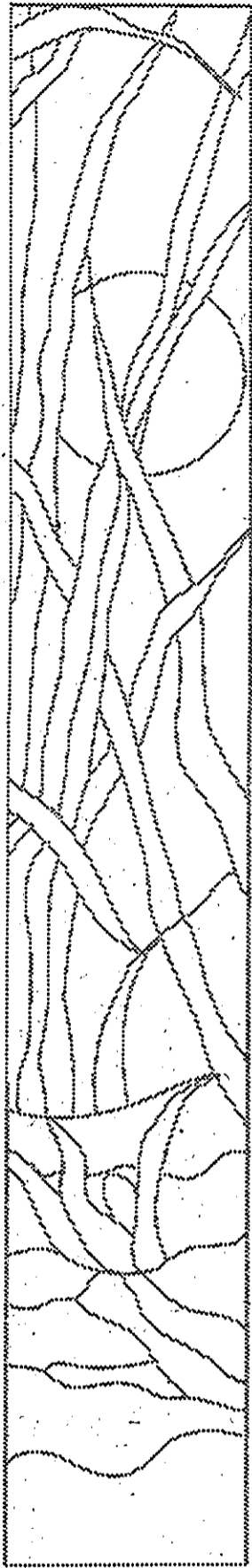


of the SMA application. The specific determination of the exact location and boundaries of the wetlands with respect to the SMA Permitting process will be determined by the DLU.

5. Park Dedication Ordinance No. 4621

According to this ordinance, the City requires that prior to approval of a subdivision by the Director of Land Utilization or issuance of a building permit for multiple family development by the Building Department, every subdivider shall provide land in perpetuity or dedicate land for park and playground purposes.

The project will be designed to include active and passive recreation areas and facilities. These private park facilities will be used to comply with the Park Dedication Ordinance requirements. According to the Department of Parks and Recreation, the anticipated project population would not overtax the existing park and recreational areas in Kailua.



Chapter IV

Assessment of Existing Conditions and Probable Impacts: Physical Environment

CHAPTER IV ASSESSMENT OF EXISTING CONDITIONS AND PROBABLE IMPACTS: PHYSICAL ENVIRONMENT

4.1 Climate

The climate of the Kailua area is very much affected by its windward and coastal situation. Trade winds from the east or northeast are unobstructed and provide good ventilation most of the time. When the larger scale trade winds or Kona winds are weak or absent, small scale landbreeze-seabreeze and/or mountain-induced circulations may develop. Wind speeds predominantly range between about 10 and 25 miles per hour, although there can be prolonged periods of lower velocities.

Based on temperature data for the area, extreme temperatures at the project site likely range between about 54 degrees F and 93 degrees F, while the average range is 68 to 79 degrees F. Average annual rainfall is moderate to wet in this area of Oahu, ranging from 45 inches to 75 inches depending on location and year (B.D. Neal & Associates, 1991).

Annual rainfall at Station 731 (approximately 2,000 feet mauka of the Kailua Road-Hamakua Drive intersection) totals over 30 inches. The median monthly rainfall fluctuates throughout the year from a low of 1.1 inches in June to a high of 4.2 inches in March.

4.2 Geology, Physiography and Topography

Existing Conditions

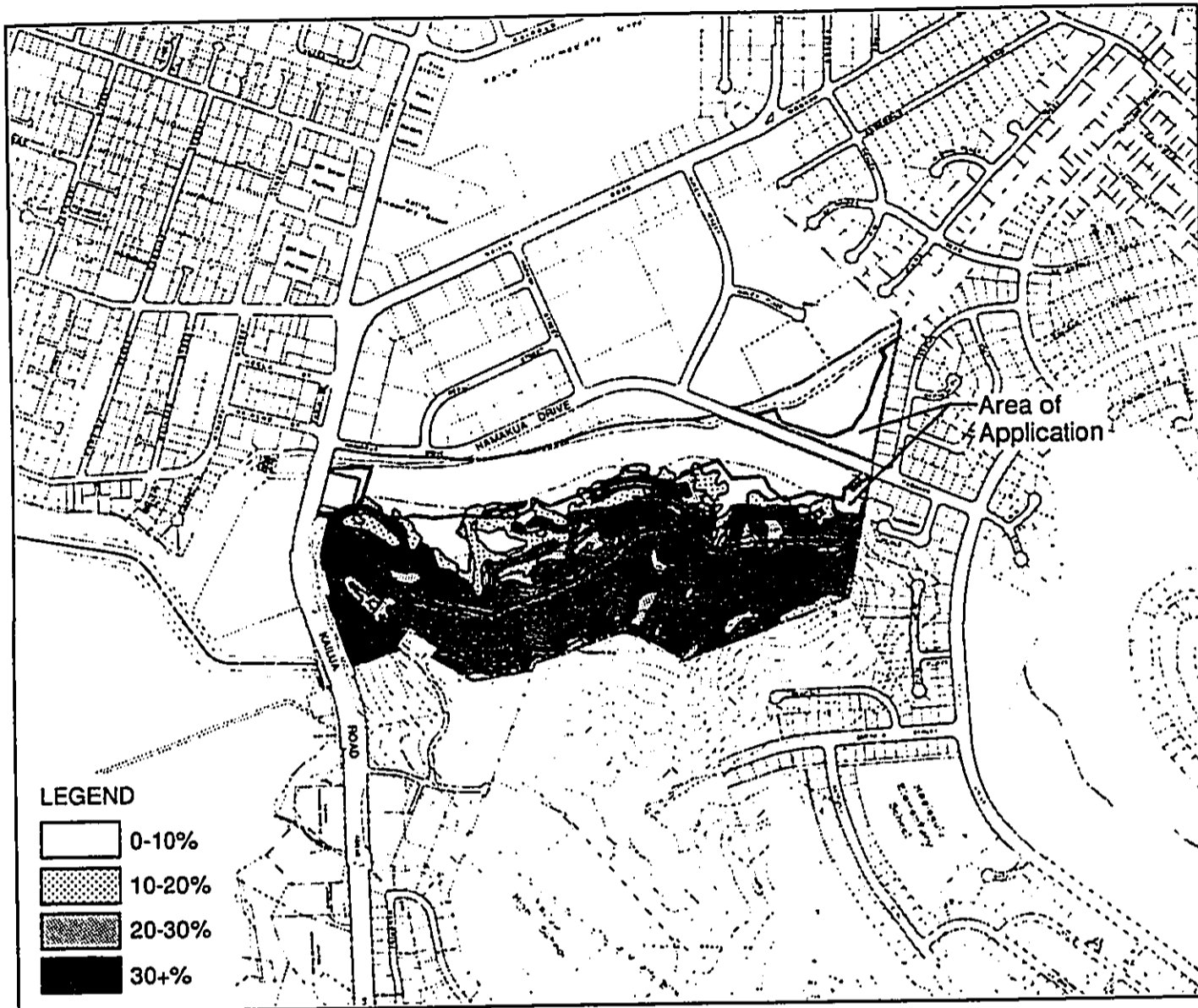
The site's topography ranges from level to gently sloping lands in the lower elevations near the stream, to steep slopes in the western portion of the property. The Puu O Ehu ridge forms the southwestern boundary of the property. The wetlands are nearly level (slopes approximately 2%) with deep grasses and low brush. The lower hillside has slopes between 10% and 20% with medium to heavy vegetative cover. The development site will be on the lower hillside. The upper hillside is steeply sloped (up to 50%) and the vegetative cover is sparse. Small portions of the hillside appear to have been excavated in the past. Figure 12 shows the slope analysis of the project site.

Elevations at the property range from 0 feet above mean sea level (msl) near the stream to a height of 300 feet at the top of the ridge. Of the 33-acre area of application, 55% is at or below the 50-foot elevation, 36% between the 50- and 100-foot elevation, and 9% between the 100- and 150-foot elevation. Ground floor elevations of the proposed structures are at approximately the 55-foot elevation, with parking and circulation located on the mauka side. Figure 13 shows the elevations at the project site.

Impacts and Mitigation Measures

About 10 acres, or 30% of the application area contains slopes of 30% or greater which will be impacted by the development. The other 70% of the application area contains lands with slopes less than 30% as well as lands in excess of 30% slopes, which have minimal impacts from the development. These are the ridges in the north, center and south sectors of the project area which will act as screens to the developments contained in the pockets of more developable lands.

While no studies have been conducted yet, the existence of development on these slopes (e.g. water reservoirs and single-family residential adjacent to the site) indicate that



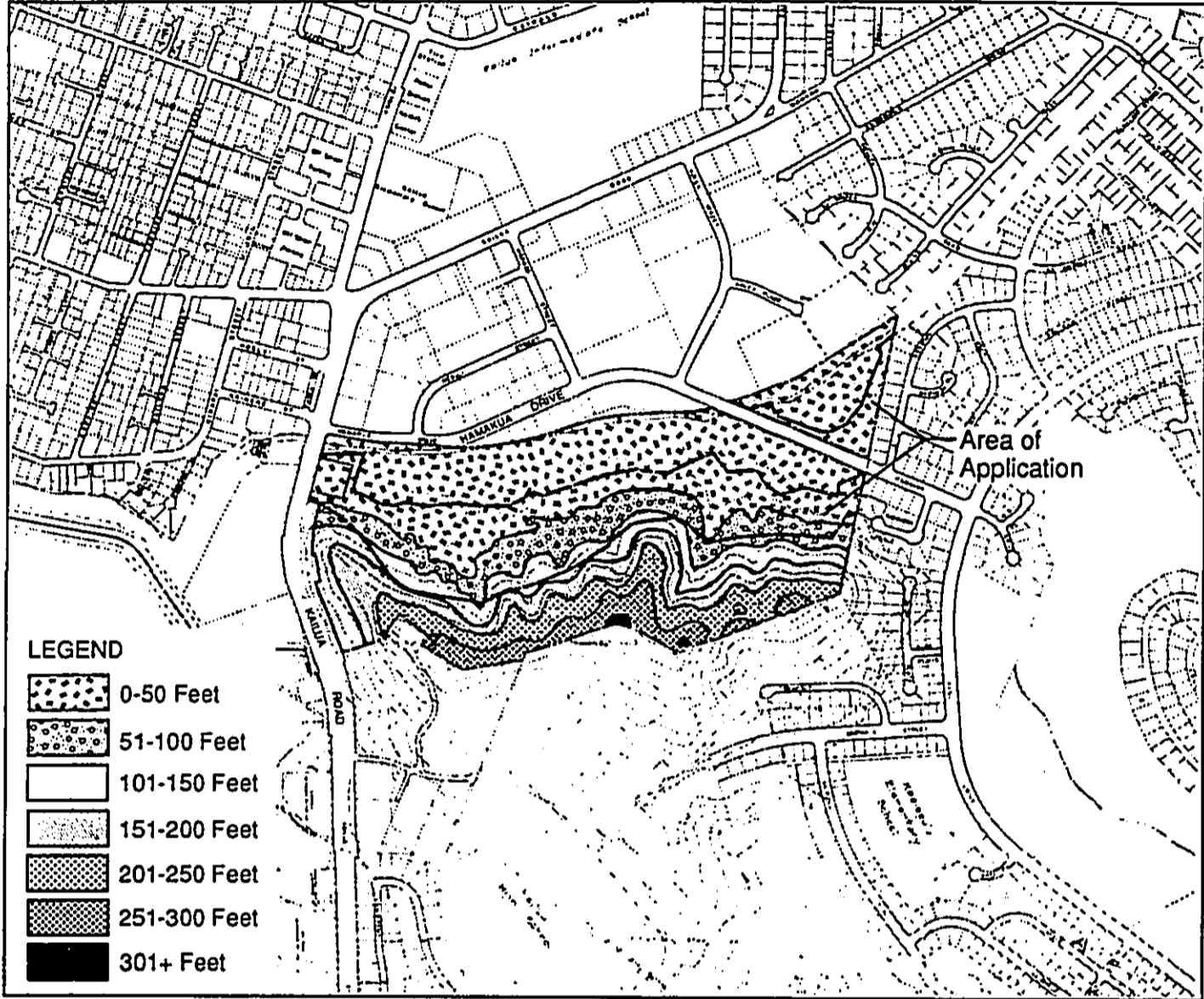
Slope Analysis

KAILUA GATEWAY

Prepared for: Kaneohe Ranch
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Figure

12



<p>Elevations</p> <hr/> <p>KAILUA GATEWAY</p> <p>Prepared for: Kaneche Ranch Prepared by: Helber Hastert & Fee, Planners</p>	<p>Feet 0 500 1000</p>	<p>Figure</p> <hr/> <p>13</p>
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development has occurred on slopes and soils of these types. Although rock slides have occurred on the Kailua Road side of the hill, this is likely due to the vertical cut and lack of grading on that side. The graded slope on the Enchanted Lake-facing side of the ridge indicates that proper grading would preclude rock slides.

4.3 Soils

Existing Conditions

Soil Conservation Service. According to the U.S. Department of Agriculture Soil Conservation Service, soils in the area of application consist of Papaa Clay, 35-70% slopes (PYF); Papaa Clay, 20-35% slopes (PYE); and Marsh (MZ). Figure 14 shows the distribution of these soils on the project site. These soil types are briefly described below.

a. Papaa Clay, 35 to 70 Percent Slopes (PYF)

The Papaa series consists of well-drained soils on uplands of Oahu. These soils formed in colluvium and residuum derived from basalt. This subseries of the Papaa series occupies approximately 18 acres, or 55% of the area of application along the mauka side.

In a representative profile the surface layer is very dark brown clay about 12 inches thick. The next layers are dark reddish-brown and dark reddish-gray clay that has prismatic structure. They extend to a depth of about 24 inches. Below this is clay to silty clay loam that has a variegated color pattern of grays, browns, and yellows. Soft, weathered rock is at a depth of about 40 inches. The clays in this soil are very sticky and very plastic, and they crack widely when dry. The soil is slightly acid throughout the profile.

Permeability of these soils is slow, runoff is rapid, and erosion hazard is severe. Roots penetrate to a depth of 40 inches or more.

These soils have a high shrink-swell potential; low shear strength; and are susceptible to sliding where slopes are more than 15 percent.

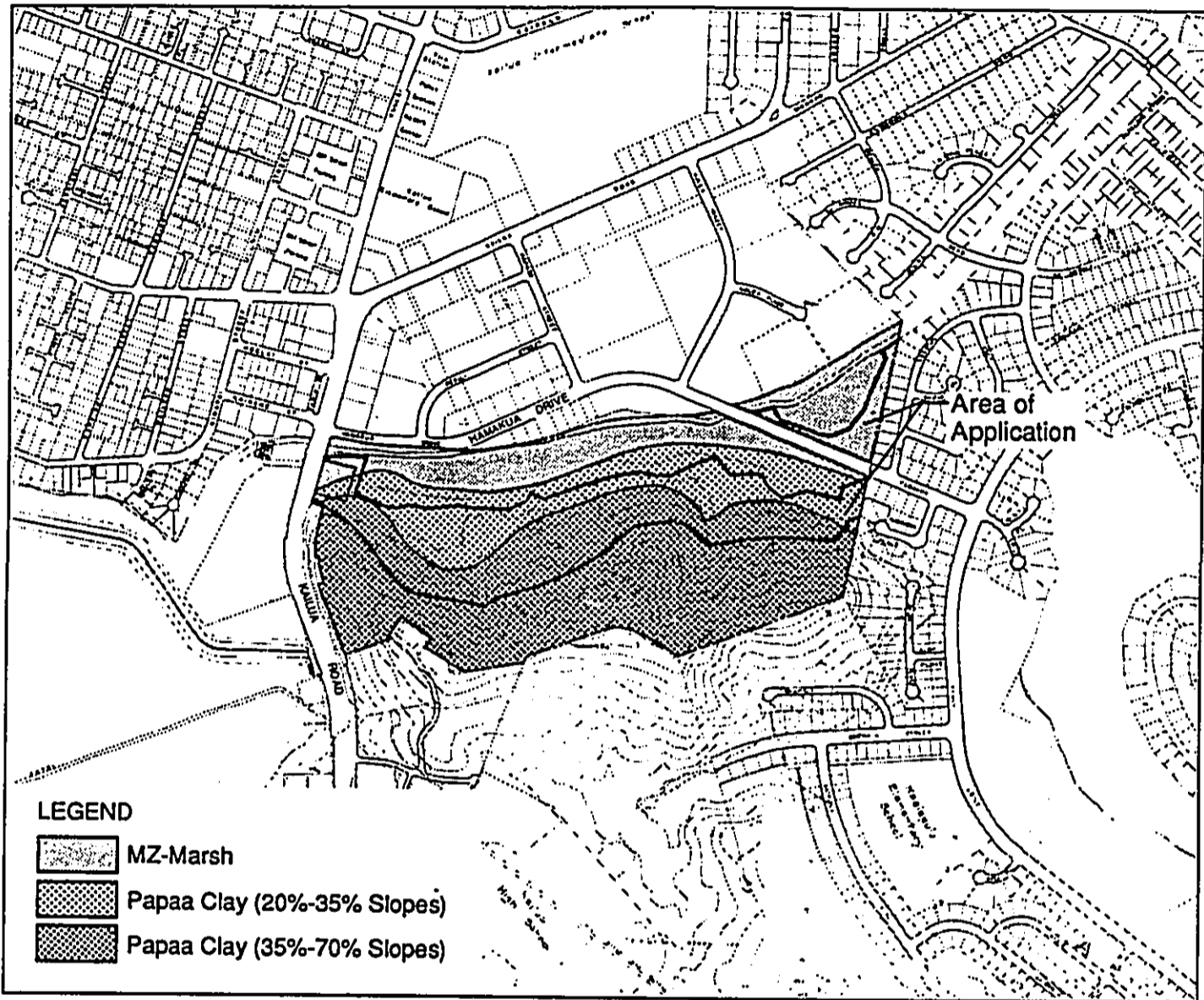
b. Papaa Clay, 20 to 35 Percent Slopes (PYE)

This subseries of the Papaa Clay series occupies approximately 11 acres, or 33% of the area of application. Runoff for this subseries is medium to rapid and the erosion hazard is moderate to severe. Workability is difficult.

These soils have a high shrink-swell potential; low shear strength; and are susceptible to sliding where slopes are more than 15 percent.

c. Marsh (MZ)

Marsh soils consist of wet, periodically flooded areas covered dominantly with grasses, bulrushes or other herbaceous plants. It occurs as small, low-lying areas along coastal plains, and occupies approximately 4 acres, or 12% of the area of application along Kawainui Stream. The presence of marsh soils does not in itself indicate a corresponding presence of wetlands.



Soils

KAILUA GATEWAY

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 Prepared by: Helber Hastert & Fee, Planners

Figure

14

Detailed Land Classification. The University of Hawaii Land Study Bureau's Detailed Land Classification--Island of Oahu classifies soils by land type in which classifications are provided for an overall crop productivity rating, with and without irrigation, and for selected crop productivity ratings for seven crops. LSB overall ratings range from A to E, with A being the best. According to this classification system, the soil types at the area of application have overall ratings of Class C and Class E.

Agricultural Lands of Importance to the State of Hawaii (ALISH). The ALISH system consists of the mapped identification of three broad classes of agricultural land based, in part, on the criteria established by the SCS. The category "Prime Agricultural Land" is defined as "...land best suited for the production of food, feed, forage, and fiber crops." The two other classes of the ALISH are "Unique Agricultural Land" and "Other Important Agricultural Land." Both describe successively less productive soils. None of the soils at the project site have been classified as "Prime", "Unique" or "Other Important Agricultural Land."

Impacts and Mitigation Measures

The development will require some grading of the site, although the extent to which grading will occur is difficult to calculate due to the preliminary nature of the plans to date. The intent of the project is to minimize the amount of earth that needs to be imported to or exported from the site to prepare it for construction.

During construction, soil erosion may occur due to grading, removal of vegetation, and excavation. This short-term impact will be mitigated by several measures.

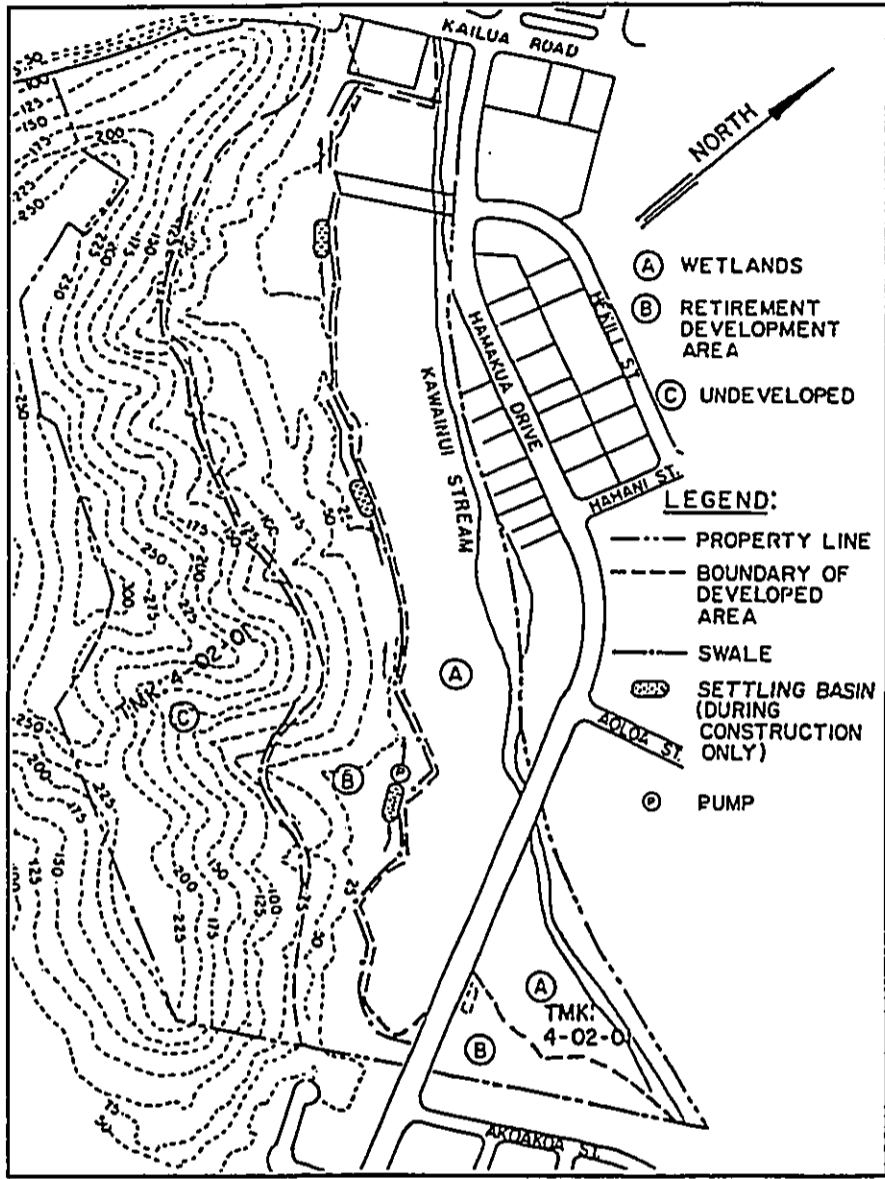
All clearing and grubbing work shall be done in accordance with Chapter 23, Grading, Soil Erosion and Sediment Control, of the Revised Ordinances of Honolulu, 1978, as amended (Ordinance no. 81-13). The graded area shall be planted or sodded as soon as possible after the grading and shaping is completed.

As part of the erosion control plan, a berm will be constructed at the wetlands boundary to prevent runoff from flowing into the wetlands during construction. A drainage swale will be constructed mauka of the berm to channel the overland flow to settling basins to prevent silt from being carried from the site (see Figure 15). Overflow from the settling basins will flow in a drainage swale to the northwest corner adjacent to the commercial area and thence to Kawainui Stream. The overflow from the easternmost settling basin must be pumped up to the next settling basin.

As the site lies downwind from the wetlands and the existing developments along Hamakua Drive, any noise or dust generated by the construction equipment will be suppressed by the prevailing wind direction during normal tradewind conditions. In addition, the contractor shall dampen the grubbed graded area with water as required to suppress dust.

All slopes and exposed areas shall be sodded or planted as soon as final grades have been established. Once planted, the sodded slopes will be maintained to ensure adequate ground cover.

All grubbing operations shall be performed in conformance with the applicable provisions of Chapter 54, Water Quality Standards, and Chapter 55, Water Pollution Control, of Title II, Administrative Rules of the State Department of Health.



Construction Activities Drainage Plan

KAILUA GATEWAY

Prepared for: Kaneohe Ranch
 Prepared by: Helber Hastert & Fee, Planners

Not to Scale

Figure

15

After construction, the proposed drainage improvements for the mauka development area will prevent the development area runoff from flowing overland to the wetlands, and will control the stormwater flows in the lower levels of the hillside. This will reduce the overall erosion of the hillside. A description of the proposed drainage system is found in Section 6.4 Drainage.

The proposed permanent drainage system will be designed and constructed to contain adequate retention and sedimentation capacity. This will be reflected in the utility systems plans as they move into more detailed stages of design.

The project's current development timetable has the commencement of site construction taking place in mid-1995, which would be during the dry season, which would reduce construction-related sedimentation of the water resources.

While no soils engineering studies have been performed for the site, surrounding developments on these soil types indicate that they are developable when properly graded. The Hokulani in Kailua and Windward Cove condominium projects are constructed on Marsh soils; the homes at 1005 Kailua Road on the northwest side of Puu O Ehu, and some homes on Hamakua Place, Alihi Place, Akiohala Place and Akiohala Street are constructed on Papaa Clay, 20-35% (PYE) soils; and an abandoned 0.3 million gallon concrete reservoir is located on Papaa Clay, 35-70% (PYF) soils. A steel 1.5 million gallon reservoir existed previously on the ridge on PYF soils, and the Board of Water Supply is planning a 4 million gallon reservoir also to be located along the ridge on PYF soils. The existing commercial area is constructed over PYE, PYF and Marsh soils.

The former borrow area near the center of the application area consists of lands with shallow soils resulting from the excavation operations and sparse vegetation. According to Char & Associates (botanical consultant), these soils are not deep enough to support major root systems and consequently, revegetation has been slow. International Archaeological Research Institute, Inc. (archaeological consultant) noted on their survey of the quarry area that it was very rocky with no evidence of fill or dumping. Based on this information, it is unlikely that there are hazardous materials in the former borrow area that would impact its development.

4.4 Water Resources

A water quality and biological study was prepared by AECOS, Inc. and is summarized below. The complete report is included as Appendix A.

Existing Conditions

Stream Environment. Kawainui Stream (sometimes referred to as Hamakua Canal) forms the makai boundary of the project area, and consists of two main segments. The first is a man-made canal which runs approximately 6,500 feet along the eastern side of Kawainui Marsh, from the stream's present blind end near the Oneawa Canal to the Kailua Road bridge. The second segment follows the stream's original natural water course for about 6,700 feet through a marshy area next to and beyond Hamakua Drive and ends in Kaelepulu Stream, which drains Enchanted Lake. The upper segment of Kawainui Stream provides drainage through four canals from the Coconut Grove area, and a total of thirteen major and minor discharge points empty into the stream between its head and Kailua Road. Water from Kawainui Stream and Enchanted Lakes eventually reaches the ocean through the Kaelepulu Stream outlet at Kailua Beach Park.

However, this channel is often blocked by accumulated beach sand which limits the capacity of the system to drain, especially during storm conditions.

The study found that Kawainui Stream is a stagnant, highly eutrophic estuarine system which, under its current and expected future configuration, has little capability of removing any dissolved or suspended material which may reach it.

Water samples were taken at five stations along Kawainui Stream from just upstream of the project site (north side of Kailua Road bridge) to just downstream of the site (east side of Ke Awakea Bridge), both during dry weather and following a heavy rain. Analysis of the samples showed that Kawainui Stream water quality in the vicinity of the proposed project is very low. The individual values and geometric means for most parameters far exceed the state water quality standards, especially for dissolved nutrients, total nitrogen and phosphorus and Chlorophyll *a*. The standard geometric mean for ammonia is exceeded by the geometric mean of the samples by 25 to 64 times; the standard for nitrate+nitrite by 4 to 14 times; the standard for total nitrogen by 1.1 to 7 times; and the standard for total phosphorus by 4 to 5 times. The geometric mean for chlorophyll *a* exceeded the state standard by 3.8 to 10 times and turbidity by 1.2 to 1.3 times. All dissolved oxygen concentrations were below the state standard of 75% of the saturation value at the given temperature and salinity, ranging to as low as 30% of the saturation value.

The sampling indicated a pronounced influence of ocean water into the upper reaches of Kawainui Stream, as well as a pattern of increasing stagnation and decay of organic matter going upstream. Despite the low oxygen concentrations and stagnant conditions, tilapia and other animal life were observed in the stream at each station.

Nearshore Marine Environment. The waters of Kailua Bay are Class A coastal waters fringed by white sand beaches, and are a major recreational resource. Deep reef flats with some corals, plentiful algae, and reef fish are present immediately offshore from the beach. The bay is heavily used for spear fishing, pole-and-line fishing, swimming, snorkeling, kayaking, canoeing, wind surfing, and other water contact recreation.

Impacts and Mitigation Measures

Stream environment. Short term impacts from the project will be primarily from runoff and sedimentation which may occur during construction. Impacts to Kawainui Stream from storm runoff and sedimentation during the construction phase will be reduced by the construction of a berm at the wetlands boundary and a drainage swale above the berm which will drain runoff into sedimentation basins. Overflow water from the sedimentation basins which has lost most of its sediment load will flow to the northeast corner of the project area and enter Kawainui Stream near Kailua Road (see Figure 15). The contractor shall remove all silt and debris resulting from earth work and it shall not be deposited in drainage facilities, roadway, and other areas. Special care shall be taken to ensure that construction debris is kept out of the wetlands. Sedimentation impacts from construction will be further reduced by sodding and planting exposed areas as soon as grading is completed. Impacts due to project construction should be moderate and of short duration.

Longer term effects on the stream could result from increased runoff into the stream coming from new paved and other impermeable surfaces after construction is completed. Runoff from the project property presently flows down the hillside and through the wetlands before entering the stream along the perimeter of the wetlands. After project completion, runoff will flow from the site through two separate storm

drains from the mauka portion of the property and through one storm drain from the portion of the property makai of Hamakua Drive.

Runoff from two-thirds of the mauka area will flow into Kawainui Stream through a storm drain outlet at the northwest section of the property near Kailua Road. Drainage from the lower third of the mauka portion will be diverted to an existing 36" storm drain at Hamakua Drive, which eventually connects to Kaelepulu Pond (Enchanted Lakes). Runoff from the area makai of Hamakua Drive will drain into Kawainui Stream at the southeastern most point on the property.

Total present runoff from the 97 acres comprising the project site has been estimated at 166 cubic feet per second (cfs) for 10 year storms, increasing to 204 cfs after site development, or an increase of about 38 cfs (see Appendix G, Civil Engineering Reports for revised stormwater runoff and drainage report and calculations). This increase can be compared to 10 year storm total flow in Kawainui Stream from sources upstream of the Kailua Road bridge that has been estimated to be about 235 cfs (M&E Pacific, 1989, cited in AECOS, Inc. 1991). Total increased flow under 10 year storm conditions into Kawainui Stream and Kaelepulu Pond due to increased runoff from the project will be about 16% more than present flow from upstream of the project site, or 9.5% above total present 10-year storm flow into the stream.

The initial effect of this increased flow on Kawainui Stream quality would probably be to elevate turbidity and suspended solids slightly and to decrease nutrient concentrations by dilution. Over the longer term, assuming Kawainui Stream continues to be primarily an enclosed system with no outlet to the ocean, the present stagnant and eutrophic condition of the stream will increase and water quality will continue to degrade.

Long term eutrophication and degradation of Kawainui Stream could be mitigated to some degree by continuing to release runoff into the wetland area between the project area and the stream, utilizing the wetland as a nutrient and sediment sink. However, this would only partially alleviate the problem, since input into a closed system would still continue at a slower rate. Realistic improvement to the stream can be achieved only by restoring it to a free flowing condition.

Kaelepulu Pond and Kailua Beach are too far from the project to be affected by sedimentation from the project. It is very unlikely that any effects can extend below the confluence of Kawainui Stream with Kaelepulu Stream.

Urban-based pollutants will also increase as a result of the development. The effects of this increase on the wetland and waterbirds is undetermined. It should be noted that Kawainui Stream is primarily fed by urban stormwater runoff from the Coconut Grove and Kailua business district areas, and was constructed for the specific purpose of draining developed areas.

The use of permeable construction materials to pave roads and driveways to minimize urban runoff will be considered, if feasible. The preliminary plans include green open space and landscaped areas which would also serve to minimize urban runoff into the stream.

Nearshore marine environment. The increased flow from the project can have no impact on the water quality of Kailua Bay as long as Kawainui Stream remains isolated from the bay by the sand berm at the stream's outlet. This stream berm is opened monthly. Even if flow to Kailua Bay is restored, the small increase in pollutants from

project runoff will be inconsequential in terms of the total flow, nutrient loading, and urban based runoff which reaches the Enchanted Lakes area and passes over the shoreline. The water quality and bacteriological characteristics are presently being studied by the University of Hawaii Water Resources Research Center for the City and County of Honolulu. The results of the U.H. Water Resources Research Center studies of bacterial levels in Kawainui and Kaelepulu Streams have not been published, and therefore, are not yet available for reference. Results are expected to be published in late May 1992, after which they can be evaluated with respect to the proposed project.

In view of the present degraded condition of Kawainui Stream in the vicinity of the proposed project and the fact that the total increase in water flow and runoff based pollutants to the stream will be potentially increased by only about 9.5%, the total effect of the project on stream water quality will not be significant.

4.5 Flora

A botanical survey was conducted for the project site by Char & Associates. A summary of the report is provided below and the full report is included as Appendix B.

Existing Conditions

The vegetation on the 97-acre project site is dominated almost exclusively by introduced or alien plants. Two vegetation types are recognized on the site: wetlands are found along and adjacent to the drainage canal while a scrub vegetation, composed primarily of grasses and shrubs, is found on the higher grounds behind the wetlands.

Scrub vegetation. Vegetation on the Puu o Ehu slopes consists of mixed grasses with scattered shrubs. The major grass component is sourgrass which forms erect tufts from 3 to 5 feet tall. The grass is quite unpalatable and is not often grazed by the cattle on the property. In between the bunches of sourgrass are other grasses such as Bermuda grass or manienie, swollen finger grass, Guinea grass, and Natal redtop, which are preferred by the cattle. Also fairly common on the slopes are three-flowered beggarweed, Spanish clover, and puahilahila. Scattered shrubs of klu are common, while lantana, koa-haole, pluchea, Christmas berry, and wild basil are occasional. Small trees of fiddlewood, an escaped landscape species, are also occasional. Rocky outcroppings support 'ihi, while swales and small gullies support a somewhat dense growth of shrubs, primarily koa-haole.

At the base of the puu are scattered stands of trees, primarily kiawe. Other woody components include African tulip, fiddlewood, and Chinese banyan. A few large trees of mango can be found near an old quarry site. Koa-haole shrubs are common in open areas and sometimes under the trees. Because it is wetter at the base of the puu, the vegetation is denser and contains a number of species not found on the drier slopes.

On the smaller 8-acre parcel, the scrub vegetation consists of a koa-haole thicket. Draping over the koa-haole are dense tangles of glycine, a legume, and coccinia, a member of the cucumber or squash family. Where the koa-haole is not dense, California grass forms thick mats between the shrubs.

Wetlands. Wetland vegetation consists largely of low, dense, bright yellow-green mats of pickleweed. Bordering the pickleweed mats are shrubs of Indian pluchea. In places, kiawe forms a narrow band along the mauka perimeter of the wetlands. Along the stream itself are dense stands of mangrove and open patches of California grass.

Of the total 100 plants inventoried on the site, 93 are alien or introduced species; 3 are originally of Polynesian introduction; and 4 are indigenous, that is, they are native to the Hawaiian Islands and elsewhere. No endemic species, i.e. native only to the Hawaiian Islands, were found. None of the plant species on the project site are officially listed threatened and endangered plants; nor are any proposed or candidates for such status.

Impacts and Mitigation Measures

The botanical consultant found no botanical reasons to impose any restrictions, conditions, or impediments to the proposed development of the site, as the proposed project is not expected to have a significant negative impact on the botanical resources. It is recommended that the areas cleared of vegetation will be landscaped as soon as possible to minimize the loss of soil and discharge of sediments into the wetlands and stream due to construction activities.

While the wetlands do not support any threatened and endangered plants or sensitive plant communities, they do provide habitat for endangered Hawaiian waterbirds. The project proposes to preserve the wetlands as well as provide a vegetative buffer between the proposed developments and the wetland habitat.

4.6 Fauna

A survey of the avifauna and feral mammals at the project area was conducted by Phillip L. Bruner, Ph.D. The objectives of the field survey were to 1) document what bird and mammal species occur on the property or may likely occur given the type of habitats available; 2) provide some baseline data on the relative abundance of each species; 3) determine the presence or likely occurrence of any native fauna particularly any that are considered "endangered" or "threatened"; and 4) if any special or unique wildlife habitat occurs on the property, locate such sites and note their possible value for birds and mammals in this region of the island. The findings of the study are summarized below and the full report is included as Appendix C.

Existing Conditions

Avifauna and mammals. No endemic land birds were recorded on the survey. The following four endemic and endangered waterbirds were recorded on the survey: Black-necked Stilt, Hawaiian Duck or Koloa, American Coot, and Common Moorhen. The following table shows the total recorded number of each species observed during the survey.

<u>Waterbird Species</u>	<u>Total Observed</u>
Black-necked Stilt	14
Koloa	2
American Coot	8
Common Moorhen	2

One species of migratory indigenous (native) birds was observed on the site, the Pacific Golden Plover. Thirty-seven plover were recorded on the survey. Ruddy Turnstone, Wandering Tattler, and Sanderling are common migratory shorebirds which could also utilize the mudflats and shallow ponds in the wetland areas on the project site. Migratory ducks such as Northern Pintail and Northern Shoveler are also known to occur at this site. No migratory waterfowl, however, were found on this survey.

A total of three Black-crowned Night Heron were tallied on the survey. This species is the only native waterbird that is not listed as endangered.

No nesting seabirds were observed on the property. The presence of predators renders this site unsuitable for nesting or roosting seabirds. Great Frigatebird are known to take fresh water from the open ponds in Kawainui Marsh.

A total of 14 species of exotic (introduced) birds were recorded during the field survey. The most abundant birds were: Japanese White-eye, Zebra Dove, Spotted Dove, Red-crested Cardinal, Red-vented Bulbul, Java Sparrow, and House Finch. The following exotic species may also occur at this site: Common Barn Owl, Ring-necked Pheasant, Northern Mockingbird, Japanese Bush-warbler, Hwamei, and Chestnut Mannikin.

Small Indian Mongoose and feral cats were observed. Cattle were seen on the upper slopes as well as in the wetlands.

The endemic waterbirds found on the survey have long been known to occur in this region. The wetlands at the project site are censused for waterbirds twice a year by the Department of Land and Natural Resources Division of Forestry and Wildlife.

The property supports the typical array of exotic birds one would expect in this type of environment on Oahu. Java Sparrow have experienced an island wide population expansion in the last five years, and were particularly abundant at this site.

The wetlands at the site are important as a wildlife habitat because they provide feeding, nesting, and resting areas for endemic, indigenous and migratory waterbirds. The small triangular portion of the property, located east of Hamakua Drive, is presently of limited value to waterbirds due to the dense mangrove thickets and an absence of any sizeable open water habitat.

Stream fauna. According to the water quality and biological study conducted by AECOS, Inc. (water quality consultant), at present, both the water quality and the resident biological community of Kawainui Stream in the vicinity of the proposed project indicate a low quality aquatic environment which is inhabited only by a few hardy species. The stream sediment is characterized by anaerobic conditions. The stream is also characterized by very limited benthic and fish fauna and a highly eutrophic water column with nutrient concentrations many times above state water quality standards. The anoxic sediments in the stream are mostly fine silt and clay, reflecting a long history of uncontrolled runoff from the hillside.

Few species of fish and invertebrates were observed to occur in the Kawainui Stream course. The only abundant organisms were tilapia and various species of topminnows and mosquito fish. Tubes of the polychaete worm occur on rocks and other hard surfaces at the stream's edge, and small gastropod snails can be seen on the sediment bottom in shallow water. Water fowl observed on the stream survey were limited to a few mallard ducks and black crowned night herons.

Downstream of the confluence of Kawainui Stream with Kaelepulu Stream, the stream bed becomes substantially widened, mangroves and other vegetation are less dominant and a greater variety of organisms occur. Along with the tilapia common upstream, the swimming crab, shore crab, and aholehole were observed during the stream survey. Although not observed at that time, Hawaiian stilt have been observed feeding in the area near the stream mouth.

The aquatic macro-biota that survives in the stream in the vicinity of the proposed project is depauperate and not diverse, primarily composed of the introduced exotics tilapia, topminnows, mosquito fish, one benthic snail and one swimming crab. The only Hawaiian native species found anywhere in the stream was the fish 'o'opu nakea, which was rarely encountered and parasitized by a leech at the upstream stations.

Nearshore marine fauna. According to the AECOS, Inc. report, the subtidal zone in the Kailua Beach area typifies a high energy shoreline highly influenced by scour and deposition of carbonate sand, the predominant bottom type. Although the area is somewhat protected by being in the lee of Popia ("Flat") Island, the almost constant tradewinds blowing onshore create nearly continuous short period waves which are the dominant environmental factor affecting nearshore marine organisms. Fine carbonate sands are almost continuously resuspended in the water, and turbidity is usually moderate to high. These factors and the resulting sand scour prevent the development of the substantial coral and invertebrate growth that would occur under calmer conditions.

Three transects were inspected along Kailua Beach in the vicinity of the Kaelepulu Stream mouth, from the shoreline to about 250 meters offshore and the relative abundances of the dominant macroalgae, invertebrates and vertebrates were recorded. The transect locations were 1) directly offshore of the lifeguard chair south of the stream mouth, 2) directly offshore of the stream mouth, and 3) offshore of the north side of the Kailua Beach Pavilion north of the stream mouth.

Observations on Transect 1, south of the Kaelepulu Stream channel, and on Transect 3, north of the channel, are typical of the conditions described above, with the substratum dominated by sand consolidated with heavy growths of macroalgae.

On Transect 1, the bottom is entirely sand covered out to approximately 180 meters from shore, beyond which the bottom becomes consolidated limestone interspersed with sand channels and pockets, and occasional patches of fossilized coral skeleton and other dead coral. Modest cover of live coral totaling less than 5% cover can be found on these patches of hard substratum on the outer zone of Transect 1.

Although absent on Transect 3 and rare on Transect 1, live reef corals were relatively common Transect 2, directly offshore of the Kaelepulu Stream mouth, while macroalgae were less abundant here compared to further north or south.

Along with reef corals, other benthic macro-invertebrates were rare in the area, except for the small mussel which was abundant in the sand on the nearshore segment of Transect 3. The only other non-coral macro-invertebrate was the black sea cucumber rarely seen on Transects 2 and 3. Fish were also rare on Transects 1 and 3, with only 2 to 3 species observed on these areas where the sand covered bottom offers vertical relief. Probably greater relief and habitat provided by both live and dead coral on Transect 2, fishes were both more abundant and diverse, with a total of eight species found. Green sea turtles were observed on Transects 2 and 3, and these undoubtedly utilize the abundant macroalgae of the area for food.

Previous studies made in this area along Kailua Beach (see AECOS report for references) report similar findings to the present study, except no reef corals were previously found. The absence of live coral for previous studies may be due to its very limited distribution in the area and having been missed on previous surveys, or may be due to new settlement and growth since the last surveys were made. The coral growth

and diverse fish assemblages are mostly confined to the channel directly seaward of the Kaelepulu Stream mouth where there is more hard substratum that has not been covered by sand and is available for coral settlement and growth. The infrequent discharge of brackish water from Kaelepulu Stream whenever the channel has been opened has therefore not caused any negative impact on the coral reef community directly offshore where coral growth and fish populations are most abundant in this area off Kailua Beach.

Impacts and Mitigation Measures

Avifauna and mammals. Development of lands adjoining wetlands will usually result in some negative impacts such as noise and disturbance from vehicles and people during and after construction; erosion from land cleared for construction and the subsequent siltation of the downslope wetland; contamination of soils and water from pesticides, herbicides and industrial wastes that usually accompany the urbanization of an area; and increased predator activity in the form of domestic cats and dogs. The proposed roads and bridges at either end of the wetlands will encroach on the habitat physically and also expose these areas to increased disturbance in the forms of vehicles, pedestrians and dogs. While waterbirds can habituate to a limited amount of disturbance in areas where they forage, they are not as tolerant in the cases of breeding, nesting and resting sites.

The U.S. Fish and Wildlife Service has generally recommended that certain construction activities be suspended between March and August for the Hawaiian Stilt. Nesting by the endangered Hawaiian Moorhen apparently occurs throughout the year with peak activity between March through August. Nesting by the Hawaiian Moorhen at the Hamakua Canal wetland has been reported for January, February, April, June, July, and November. The State Department of Health has requested that grading activities take place during the dry season (April through October) in order to prevent sedimentation problems. Construction activities will be regulated to minimize or avoid disturbance to breeding endangered waterbirds and minimize sedimentation. The timing of construction activities will have to balance the recommendations of the various government agencies.

A buffer area of trees and bushes between the wetland and the development is included in the project to help screen off visual and auditory disturbances that interfere with nesting, foraging and resting waterbirds. The wetlands restoration and management plan proposed by Ducks Unlimited includes a moat which will isolate the wetlands from adjoining lands and exclude cats, rats and mongooses and discourage dogs and people from accessing the site. The proposed buffer, as currently designed, widens from 50 feet to over 200 feet in some areas. As noted by the U.S. Fish and Wildlife Service, site-specific evaluations of the project area are necessary to determine the exact dimensions and design details of the buffer. There is no standard adequate width for buffer areas established by statute or guideline. The applicant has, and will continue to work with DU in establishing the most appropriate buffer.

According to Andrew Engilis, Jr., project biologist with Ducks Unlimited and preparer of the wetlands restoration and management plan, a border of existing vegetation will be preserved around the wetland perimeter, within the boundaries of the wetland. A moat will be constructed between the wetland and buffer area to provide protection from predators. Auditory and visual screening in the form of existing trees and vegetation will further protect the wetland habitat. The proposed pedestrian path contained within the buffer area will be screened from the wetlands, with one or more viewing stations located along the path, possibly equipped with interpretive kiosks.

Access to these viewing stations would be controlled. According to Ducks Unlimited, these pedestrian paths are not expected to have significant impact on the wetland waterbirds, which will be provided more private and secure resting and nesting areas with the wetland restoration improvements. The jogging path will not have a significant impact on the botanical resources on the site as it will mainly replace introduced species. The buffer area may be landscaped with native coastal shrubs, in an effort to outcompete the exotic flora, by having the native species push out the exotics.

The runoff from the 17 acres of undeveloped hillside will be directed into inlets which will be piped under the development to avoid contamination and then released into the wetlands. This drainage pattern will preserve the natural flushing of the wetlands as it exists today.

The total projected runoff flowing directly into the wetlands was calculated at 124 cubic feet per second (cfs) for 10-year storm conditions. The urban runoff will be directed around the wetland to Kawainui Stream (59 cfs) and to Kaelepulu Pond through an existing storm drain (21 cfs). This would result in a net decrease of 42 cfs reaching the stream via overland runoff (the revised drainage report calculates existing runoff from the 97-acre site at 166 cfs). According to the DU Draft Wetland Restoration and Management Recommendations for the Hamakua Marsh, runoff from the land is regulated by the tide, downstream blockages at the mouth of the stream, and flood control gates in Coconut Grove. The net change in runoff reaching either the stream and wetland is an increase of 17 cfs for a 10-year storm event. According to the U.S. Fish and Wildlife Service, the wetland is probably maintained primarily by periodic inundation from Kawainui Stream, although the impacts of the changes in runoff on the wetland habitat are undetermined (letter of April 24, 1992 reproduced in Chapter 13).

Ducks Unlimited recommends regular monitoring of the wetland for chemical contamination should be performed by the entity which will manage the restored wetland in perpetuity (Personal communication, Andrew Engilis, Ducks Unlimited, April 9, 1992). The wetland portion of the property will not be transferred to Ducks Unlimited prior to the completion of an acceptable restoration and management plan; assurances of funding availability; and an agreement between the State Department of Land and Natural Resources (DLNR) for permanent management of the restored wetlands.

Ducks Unlimited's final restoration and management plan for the wetland is being prepared in consultation with the U.S. Fish and Wildlife Service and the State DLNR, and is expected to be completed in summer 1992.

Plantings along the proposed road and bridge may provide auditory and visual shields for the waterbirds, but may overtake the wetlands. Concrete walls may be included on both sides of the bridge to minimize sound and light transmission to the wetlands below. The proposed locations of the road and bridge at either end of the wetlands will minimize the amount of habitat that would be disturbed and are preferable to being located across the center of the wetland. Furthermore, the bridge would be used by local traffic only, unlike the highly-traversed Hamakua Bridge near the south end of the wetlands.

Access alternatives that do not cross the wetland would present a lesser impact on the waterbird habitat. However, consideration of traffic engineering and pedestrian circulation has determined that neither alternative is desirable. One alternative would be to direct all project traffic through the driveway on Hamakua Drive, at the south end

of the property. Another alternative would be to provide another access point from Kailua Road, with a right turn-in, right turn-out movement only.

The triangular portion of the property, located east of Hamakua Drive, is presently of limited value to waterbirds due to the dense mangrove thickets and an absence of any sizeable open water habitat. If the area is conveyed to Ducks Unlimited, a buffer area will probably be provided within the boundaries of the wetlands, in order to maintain sufficient developable area for the elderly affordable housing. Although the wetlands at this site are of little present value as a wetland habitat, it is hoped that these wetlands will also support native waterbirds. Even with these improvements, it is unlikely that they will be as well utilized as the mauka wetlands.

Some pasture and brushy vegetation habitat will be lost due to the proposed development. A small decline in introduced species such as cardinals, doves and mynahs could be expected if the pasture-type vegetation is replaced by residential uses.

Although none of the following species were sighted during the survey of mammals and avifauna conducted by Phillip L. Bruner, individual Hawaiian Owls, Pacific Golden Plovers, and pheasants are known to utilize pasture-type land, and may be displaced by the conversion of the area of application from pastureland to residential.

Stream fauna. According to AECOS, Inc., there is little likelihood that the modest increases in sedimentation resulting from the project will damage sensitive organisms or communities in Kawainui Stream. The moderate increase in runoff to the stream and Kaelepulu Pond that is likely to occur only during storm periods is unlikely to have any significant negative impact on the stream or pond environment.

Nearshore marine fauna. The comparison of the present condition offshore of Kailua Beach in the vicinity of the Kaelepulu Stream mouth with the limited information available from surveys taken in 1973 and 1977 suggests that no degradation in the offshore benthic or fish environment has occurred in the past 15 to 20 years. No reef coral and few fish were reported from the earlier studies, compared to moderate coral growth, fish abundance and diversity in the present study. More significantly, the most pristine area found in the present study occurred directly off the stream mouth. No negative long term impact is therefore indicated for the periodic outflow from Kaelepulu Stream that has occurred in the past 15 to 20 years, and it is unlikely that any would result from the modest increase in flow that may result from the Kailua Gateway development. Even when the Kaelepulu Stream channel is periodically opened, or if flow to Kailua Bay were permanently restored, the small increase in pollutants from project runoff will be inconsequential in terms of the total flow, nutrient loading and urban based runoff which reaches the Enchanted Lakes area and passes over the shoreline.

4.7 Air Quality

An air quality study was prepared by B.D. Neal & Associates, and is summarized below. The complete report can be found in Appendix D.

Existing Conditions

Air quality in the vicinity of the project presently is mostly affected by emissions from natural, industrial, agricultural and/or vehicular sources, with the latter probably being the dominant factor. The little air quality monitoring data available for the area from the Department of Health suggest that air quality standards are currently being met,

although carbon monoxide measurements from Honolulu suggest that concentrations could exceed the state standards on occasion near traffic congested areas.

Impacts and Mitigation Measures

If the proposed project is constructed, it is inevitable that some short- and long-term impacts on air quality will occur either directly or indirectly as a consequence of project construction and use. Short-term impacts from fugitive dust will likely occur during the project construction phase. To a lesser extent, exhaust emissions from stationary and mobile construction equipment, from the disruption of traffic, and from workers' vehicles may also affect air quality during the construction period. State air pollution control regulations require that there be no visible fugitive dust emissions at the property line. An effective dust control plan will be implemented to ensure compliance with state regulations. Fugitive dust emissions can be largely controlled by watering of active work areas, use of wind screens, keeping adjacent paved roads clean, and by covering open-bodied trucks. Paving and landscaping of project areas early in the construction schedule will also reduce dust emissions. Exhaust emissions can be mitigated by moving construction equipment and workers to and from the project site during off-peak hours.

After construction, long-term impacts on air quality could potentially occur indirectly as a result of emissions emanating from vehicular traffic coming to and from the development. An air quality modeling study was conducted to estimate current maximum ambient concentrations of carbon monoxide along roadways leading to and from the project area and to predict future levels of air pollution both with and without the proposed project. Based on the modeling results, present worst-case carbon monoxide concentrations were estimated to be within the national ambient air quality standards but may occasionally exceed the state standards near the intersection of Hamakua Drive and Kailua Road due to traffic congestion during the afternoon. Because the state standards are set at such stringent levels, however, it is likely that they are currently exceeded at many locations in the state that have even moderate traffic volumes. Other locations in the project area will likely meet both state and federal standards during the current year. In the year 1997 without the project, concentrations will likely decrease substantially due to the retirement of many older, more-polluting vehicles from the island's roadways during the intervening years, although the state standards would likely continue to be exceeded on occasion near the Hamakua Drive/Kailua Road intersection. With the project and with the proposed roadway improvements suggested in the project traffic study (see Section 6.1 Transportation for summary), the project would have the greatest impact near the Hamakua Drive/Hekili Street intersection, where a traffic signal is recommended for installation. Although concentrations would increase by about 30% compared to without the project, maximum concentrations are forecast to comply with even the stringent state standards. Thus, further roadway improvements or other traffic-related air quality mitigation measures are probably unwarranted.

Depending on the demand levels, long-term impacts on air quality are also possible due to indirect emissions associated with a development's electrical power and solid waste disposal requirements. Quantitative estimates of these potential impacts were not made, but based on the relatively low estimated demand levels and emission rates involved, any impacts are unlikely. Nevertheless, requiring homes and businesses to incorporate energy conservation design features and promoting conservation and recycling programs within the proposed development could serve to further reduce any impacts.

4.8 Noise Quality

The project will not have a significant impact on noise quality in the area. Potential sources of noise can be mitigated as follows.

Construction activities will comply with the provisions of the Department of Health's Administrative Rules, Chapter 11-43, "Community Control for Oahu."

Traffic noise from heavy vehicles travelling to and from the construction site will be minimized near existing residential areas and will comply with the provisions of the Department of Health's Administrative Rules, Chapter 11-43, "Vehicular Noise Control for Oahu."

Noise from stationary equipment will be attenuated to comply with the provisions of the Department of Health's Administrative Rules, Chapter 11-43, "Noise Control for Oahu."

The project will be designed so that noise emanating from activities associated with the proposed commercial area will not adversely impact the residents of the planned project.

4.9 Scenic and Visual Resources

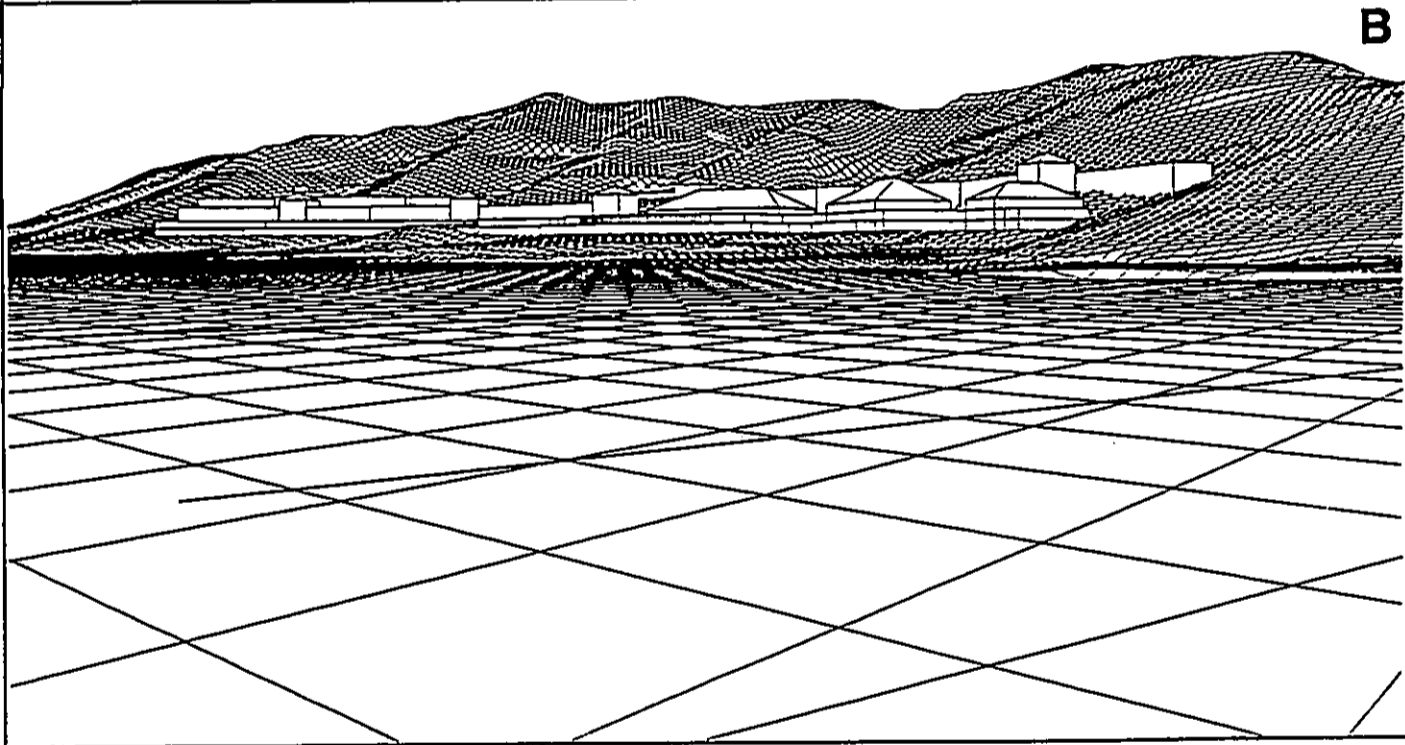
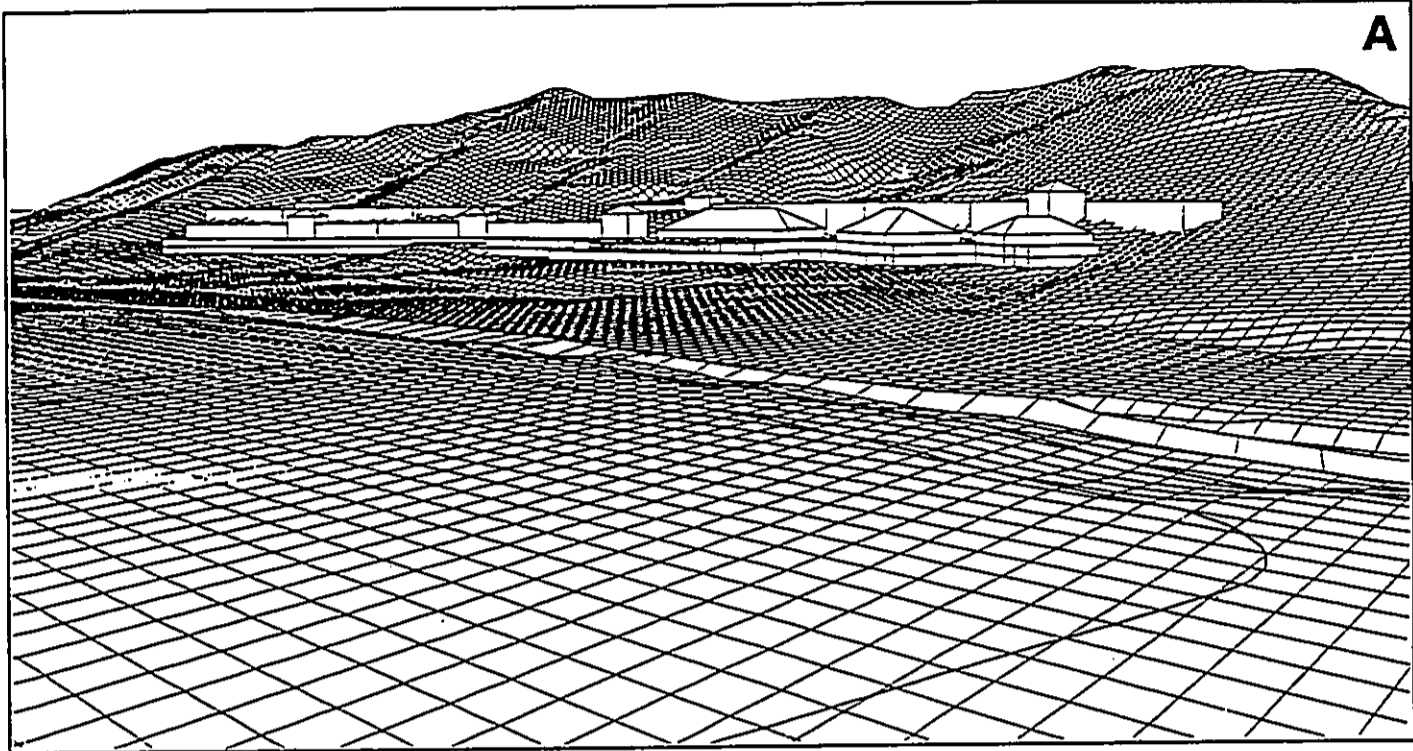
Existing Conditions

At present the entire site is undeveloped and in open space. Views of the Puu O Ehu ridgeline and hillside are unobstructed from streamside. The triangular parcel makai of Hamakua Drive is heavily vegetated and undeveloped. The existing commercial area on Kailua Road contains such commercial operations as boat sales and automotive repair and painting.

Impacts and Mitigation Measures

Mauka area developments. The development of the proposed lifecare facility and community center will introduce clusters of low-rise buildings along the length of the area of application. The tallest structures are planned as 4 stories buildings, and will comply with the 40-foot height limits applicable to the Medium Density Apartment DP designation being sought. The ground floor for the tallest buildings will be at about elevation 55 feet, with rooflines at about the 95-foot elevation. These buildings will be located in the northern half of the area of application. The proposed duplexes will be one-story structures, located along the southern half of the area of application. As the top of the ridgeline is at the 300-foot elevation, the roofs of the tallest proposed structures will be approximately one-third the height of the hill. Figure 16A shows a preliminary building massing perspective of the proposed lifecare facility as viewed from the intersection of Kailua Road and Hamakua Drive, from approximately the same elevation as the tallest buildings. Figure 16B shows the same view from approximately six feet above the same intersection. The building forms provide massing information only, and do not represent final design.

The total proposed building footprint for the lifecare facility and community center will cover about 5.6 acres, or only 20% of the 29-acre mauka area of application (excluding the 1 acre proposed for commercial expansion).



Preliminary Building Massing Studies

KAILUA GATEWAY

Prepared for: Kaneohe Ranch
Prepared by: Helber Hastert & Fee, Planners

Figure

16

A vegetated buffer between the restored wetlands and the proposed lifecare facility will mitigate the visual impacts of the hillside from streamside. Both the lifecare facility and community center will be designed to complement the surrounding environment, and will be liberally and appropriately landscaped.

The proposed expansion of the existing commercial area along Kailua Road will include the development of a small retail and restaurant complex. The project will be oriented to take advantage of views the restored wetlands, and also designed to provide an aesthetic entrance to Kailua town. This development will likely be a two-story complex, set back from Kailua Road, and designed and sited in such a way as to avoid obstructing views of the Puu O Ehu ridge and Mount Olomana.

This project does not have the potential to affect the mauka or makai viewplanes of Kawainui Marsh or the makai views from the Koolaus.

The proposed berm between the wetlands and the developed area will be under 5 feet high and less than 12 feet wide. It will be landscaped with ground cover appropriate to its proximity to the wetlands.

Makai area development. The proposed elderly affordable housing facility will be located on approximately three acres of land in the 8-acre triangular parcel makai of Hamakua Drive. It is being planned as a 2-story facility. Because of the configuration of the wetlands as determined by the U.S. Army Corps of Engineers, the developable area lies primarily along the southern boundary of the parcel, abutting the existing homes along Akoakoa Street. Because of the proximity of the existing single-family homes, the proposed elderly affordable housing may be partially placed on piers over the wetland, if permitted by the applicable authority. The applicant will consult with the Corps of Engineers regarding the application of Section 404 of the Clean Water Act to the use of pilings to construct multi-family housing.

The five acres of wetlands on the triangular parcel will also be restored in an effort to return it to a viable habitat for waterbirds. Vegetation will remain on the site to provide a visual buffer between the condominium projects on the makai side of Kawainui Stream and the proposed affordable housing. Views of Mount Olomana from these condominiums should not be affected, as the proposed project is not likely to protrude beyond the heights of the existing vegetation on the parcel. Landscaping on the southern boundary of the parcel will provide a buffer between the homes on Akoakoa Street and the proposed housing.

4.10 Historical and Archaeological Resources

An archaeological inventory survey was conducted by International Archaeological Research Institute, Inc. as the first phase of a two-phase project, which is intended to comply with the State Historic Preservation Division's requirements for permitting actions. The first phase involved full archaeological surface coverage of the project area and a review of existing literature and archival documents, a summary of which is provided below. The second phase will include whatever additional investigations are determined necessary to complete the assessment process. The full report covering Phase I can be found in Appendix E.

Phase II of the survey will involve detailed site descriptions, mapping, subsurface testing, and possible paleoenvironmental investigations of the wetlands, as recommended in the Phase I report. This phase will also assess the significance of the four sites according to existing federal and state criteria. These assessments will be

submitted to the State Historic Preservation Division for review and approval. Objectives and mitigation measures for protecting archaeological resources on the project site will be determined during Phase II when more detailed information on the sites is available. Phase II will be conducted in coordination with city and state development permitting processes. A specific commencement date for Phase II has not yet been identified.

The inventory survey resulted in the location of four archaeological sites. Three sites are situated within the study area of the mauka development parcel while the other is located just outside of its northeastern edge (Figure 17). A house site which was previously recorded within the development area makai of Hamakua Drive was revisited, but found to be a formation of boulders and cobbles, possibly the result of past bulldozing. The following paragraphs describe this probable mistaken house site and the four recorded sites, which have been assigned site numbers provided by the State Historic Preservation Office.

1. Site 50-80-11-4428

Site 4428 is a possible habitation site situated in the wetland area just outside of the development area at an elevation of 5 to 10 feet above sea level. It is about 50 meters northwest of a horse pen in the southeastern section of the mauka parcel. The site consists of two platform features, designated Features 1 and 2. Cattle grazing has highly impacted both features. Since this site is densely covered with vegetation, additional features could be present in the surrounding area.

Site 4428 is a probable habitation structure. The site may be either of fairly recent origin if the source of the utilized coral is the dredged material of nearby Kawainui Stream, or of pre-contact origin if the coral came from the original ocean side of Kailua Bay. The atypical tiered platform construction of the site suggests the latter.

2. Site 50-80-11-4429

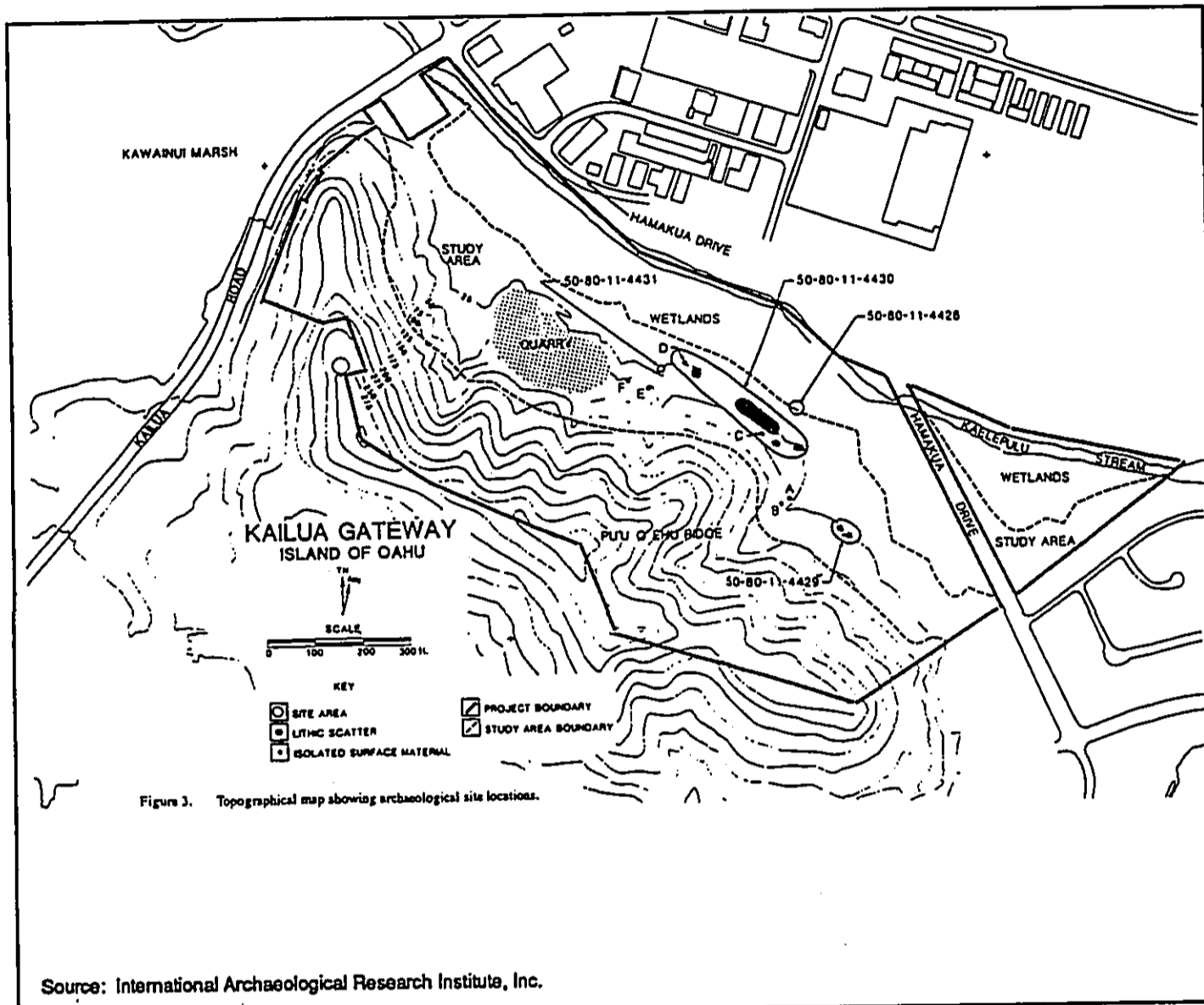
Site 4429 is a lithic scatter concentrated on two ridge toes overlooking a narrow gully at the southern section of the mauka development area. Along with site 4430, Site 4429 provides tangible evidence of prehistoric activities within the development area. The presence of volcanic glass, shell, and gastrolith remains in addition to the scatters implies that more diversified activities may have characterized the prehistoric use of the slope.

3. Site 50-80-11-4430

Site 4430 is mainly a widely distributed lithic scatter on a wide ridge toe north of Site 4429 and overlooking Site 4428. This widely distributed scatter has four localities in the south, southwest, north and center of the site. These localities were included as a single site because of their relative closeness and similarity in content.

4. Site 50-80-11-4431

Site 4431 is situated on the northern slopes of a ravine located at the approximate center of the mauka development area at an elevation of 15 to 20 feet above sea level. It consists of two adjacent stone structures that extend from the base of a dry channel. This feature could actually be three parallel short terraces except that the corners are fairly evident although collapsing, and its interior appears to be filled with small basalt



Archaeological Sites

KAILUA GATEWAY

Prepared for: Kaneohe Ranch
 Prepared by: Helber Hastert & Fee, Planners

Figure

17

boulders and a few coral and limestone ones. The absence of cultural material may indicate a possible agricultural function.

5. Previously Recorded House Site

During the current survey, a stone formation was found at the approximate location of a house site recorded in 1977 (refer to Appendix E). This formation, however, resembles bulldozer push in that the large boulders used for its north facing is consistent with those found lining the edge of the designated wetland. In addition, though, there are numerous cobbles in its interior, possibly suggesting a prepared surface area. There were no historic or prehistoric remains on the surface of this structure. The origin of this structure is likely from the development of the residential area of Akoakoa Street to the immediate south.

Recommendations

It is recommended that Sites 4428 and 4431 be recorded in detail, including the preparation of accurate plan maps and profiles. In addition, these sites should be tested for subsurface archaeological remains in an effort to determine their function and age. Subsurface testing should also be conducted at the two lithic scatters (Sites 4429 and 4430) to assess the possibility that intact deposits or feature might be present.

The north section of the mauka parcel (just north of the quarry) has a deep gully that opens into a wide flat area. This gully may have been channeled for agricultural purposes. During the next phase of archaeological investigation, this area should be more thoroughly surveyed.

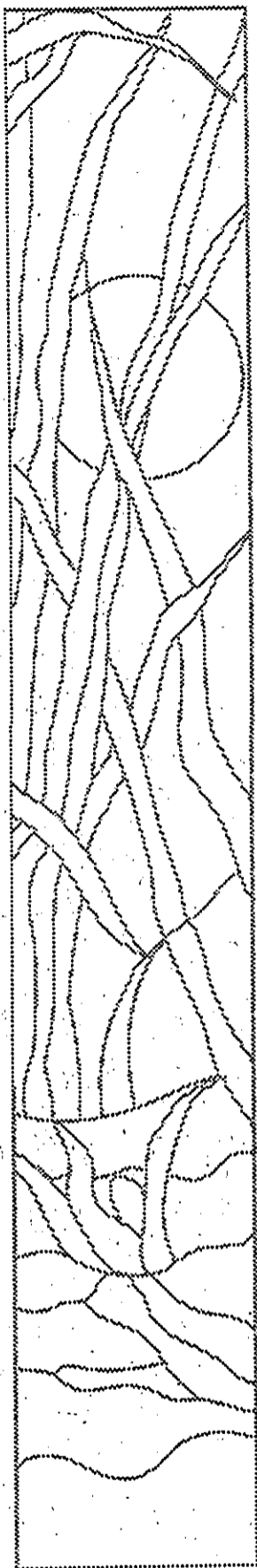
Site 4428 is within the designated wetlands of the project area. It is possible that additional sites may also be present here.

Should actual disturbance to the wetland be anticipated from the development project, a paleoenvironmental study of this area is recommended to examine the possibility that taro pondfields, buried remains of earlier agriculture fields, or prehistoric cultural deposits may be present. It would also be appropriate to assess the environmental and vegetation history of this area. Such work would include radiocarbon dating of the various soil layers and pollen analysis, as appropriate.

4.11 Seismic Activity

According to the Uniform Building Code (1991), the island of Oahu is in Seismic Risk Zone 1 of 5 zones; Zone 5 being the highest risk. All buildings within the proposed development will be designed and constructed in accordance with Uniform Building Code (UBC) requirements for Seismic Zone 1. The UBC specifies construction standards for soils of various bearing capacities as well as for different building types.

Chapter V



**Assessment of Existing Conditions and
Probable Impacts: Socioeconomic Environment**

CHAPTER V ASSESSMENT OF EXISTING CONDITIONS AND PROBABLE IMPACTS: SOCIOECONOMIC ENVIRONMENT

5.1 Population and Demographics

According to the U.S. Bureau of the Census, as of 1990, the population of the Koolaupoko District was 117,694 (Department of Business, Economic Development and Tourism, Draft 1991 State Data Book). This represents a growth of 7.6% over the 1980 population of 109,373. This compares with a 9.7% total population increase for all of Honolulu county and a 2.8% increase in the Kailua Census Designated Place (CDP) for the same time period.

Following the pattern of the county in general, 1990 Census data show an increase in both the median age and the percent of the total population 65 years and older for Koolaupoko and Kailua CDP. As shown in Table 5-1, the median age in Honolulu county increased from 28.0 to 32.2; in Koolaupoko from 26.4 to 31.3; and in the Kailua CDP from 29.5 to 34.8. The percent of the total population age 65 and older increased in each case, most notably in the Kailua CDP, which increased from 5.7% to 10.8%.

Table 5-1

**POPULATION AND AGE
HONOLULU COUNTY, KOOLAUPOKO DISTRICT AND KAILUA CDP
(1980 and 1990)**

	<u>Honolulu County</u>		<u>Koolaupoko District</u>		<u>Kailua CDP</u>	
	<u>1980</u>	<u>1990</u>	<u>1980</u>	<u>1990</u>	<u>1980</u>	<u>1990</u>
Total population	762,565	836,231	109,373	117,694	35,812	36,818
Median age (in years)	28.0	32.2	26.4	31.3	29.5	34.8
Percent of total population (age 65 and over)	7.3%	11.0%	5.0%	9.0%	5.7%	10.8%

Sources: U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing, Summary Tape File 1A; and U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population, General Population Characteristics.

The project will result in an estimated 650 additional residents in the Koolaupoko District. This includes residents of the 333 independent living units, 20 personal care units, 60 skilled nursing beds, and 70 elderly affordable housing units. According to the Department of General Planning's Development Plan Status Review (September 1, 1991), the Year 2010 Population Capacity for the Koolaupoko District (121,300) is slightly under the maximum population allowed by the General Plan for the Year 2010 (121,900). The addition of the estimated 650 residents associated with the proposed Kailua Gateway development would result in the total Koolaupoko District population exceeding the Year 2010 population guideline by 50 persons, or 0.04%.

Despite its contribution to the Koolaupoko population exceeding General Plan population guidelines by an estimated 0.04%, the project responds to and supports other General Plan objectives and policies. These include the provision of affordable

housing, special needs housing for the elderly, and the protection of the natural environment.

5.2 Visitor Population

Existing Conditions

There is presently no visitor population at the property.

Impacts and Mitigation Measures

The proposed lifecare and elderly affordable housing projects will not generate a significant number of visitors to the property. Depending on its use, the community center may generate a maximum of 100 visitors to the site during the day and 25-35 people during the evenings.

5.3 Character or Culture of Neighborhood

Existing Conditions

Kailua is a suburban residential community with supporting retail and service activities located in neighborhood shopping centers and strip developments.

Kailua is a suburban bedroom community with most local employment in supporting retail and service sectors. It can be characterized as a stable or mature market for commercial activities without growth opportunities typical of rapidly developing communities. The population and housing supply of Kailua have grown slowly over the past decade, primarily due to lack of developable urban land and City Development Plan policies directing growth to Leeward and Central Oahu.

As shown by 1980 Census data, Kailua's population is predominantly Caucasian. Kailuans are also likely to be longtime Hawaii residents or to have moved to Hawaii from the Mainland. In addition, they have generally received higher levels of education than other Oahu residents, and work in more professional occupations.

Residents of Kailua were generally more likely to live in "traditional" family households and enjoyed a significantly higher median family income. Compared to other Oahu residents, a significantly higher percentage of Kailua residents were home owners. Homes in Kailua were generally in better condition than elsewhere on the island (AM Partners, Inc., May 1991).

Impacts and Mitigation Measures

The proposed project will be compatible with the existing land use in Kailua. While increasing the population of the area, the proposed project is not likely to have a negative impact on the character or culture of the neighborhood. The design of the residential developments will be compatible with existing architecture, and the wetland improvements will enhance the educational and visual value of the existing wetland habitat. The senior residents, many of whom will be from the Koolaupoko district, are not expected to generate significant adverse impacts to the area, such as noise and traffic. Retired persons play active roles in their communities, and will be compatible with both the neighboring subdivisions and the wetlands.

Although there is no medium-density housing along Akoakoa Street or Hamakua Drive between Akoakoa Street and Keolu Drive, there are other examples of medium-density residential uses located adjacent to single-family residences elsewhere in Kailua. For example, the 5-story Gardenia Manor, 4-story Poinciana Manor, and 4-story Windward Harbor projects (Development Plan designation: Medium-Density Apartment) are adjacent to the single-family residences along Auwinala Road, Awakea Road, Ka Awakea Road, and Auwina Street (Development Plan designation: Residential). The residences on these streets are in zoning district R-10 (10,000-square foot residential lots), while the residences on Akoakoa Street and Hamakua Drive between Akoakoa Street and Keolu Drive are in the higher density zoning district, R-5 (5,000 square-foot residential lots). Furthermore, the proposed development is located in an urban context, flanked by existing residential uses, including the condominiums along Aoloa Place and Aoloa Street. This triangular parcel is also located within the State Land Use Urban District, indicating that there is some governmental recognition of the property's potential for urban uses.

While the Akoakoa Street homes bordering the application area will lose some of their isolationist ambience, every effort will be made to preserve their privacy, including a buffer of landscaping between the elderly affordable housing and the single-family homes. Even with fill bringing the development area out of the flood plain to elevation 6 feet above MSL, the final grade of the development area will be lower than the existing Akoakoa Street homes, and the proposed 2-story structure is not expected to have an imposing presence. The project will comply with applicable City and County setbacks and building standards for the A-2 zoning district.

5.4 Displacement

Existing Conditions

There are currently no residents on the subject property.

Impacts and Mitigation Measures

No residents will be displaced by the proposed project, although the current lessees of the existing commercial area along Kailua Road may be replaced by uses more compatible with the proposed residential development.

5.5 Economic Impacts

Economic Activities

The largest employer in the area is the Kaneohe Marine Corps Air Station, which, as was noted above, has a significant impact on local business activity. Other significant local employers include the Castle Hospital and Hawaii Loa College.

Most businesses are small "Mom and Pop" operations. Hawaii Business Directory files available from the Oahu Metropolitan Planning Organization indicate there were only 36 employers with 50 or more workers in Kailua in 1989. In contrast, the Census Bureau counted over 440 retail, wholesale, and service establishments in Kailua in 1987.

Kaneohe Ranch is the largest landowner in the area. A significant portion of the downtown Kailua area is leased from Kaneohe Ranch (AM Partners, Inc., May 1991).

Employment

According to the State of Hawaii Department of Labor and Industrial Relations, the civilian labor force on Oahu in December 1991 was 404,000. Of this, 2.6%, or 10,300 persons were unemployed. This compares with the 2.1% of the civilian labor force unemployed on Oahu in December 1990.

Short term construction-related employment. Construction of the project is likely to have a short term impact on direct construction employment in the County. As shown in Table 5-2, it is estimated that the development of the project will generate approximately 380 full time equivalent (FTE) construction jobs.

Table 5-2

CONSTRUCTION PHASE EMPLOYMENT

Construction Expenditure	\$50 million/year	(1)
Average Expenditure per worker	\$131,550/worker/year	(2)
Direct Construction Jobs (Construction costs divided by expenditure per worker)	380 jobs	(3)

Notes:

- (1) Based on a total two-year construction cost estimate of \$100 million by Episcopal Homes of Hawaii, Inc.: \$100 million/2 years = \$50 million/year.
- (2) Based on an estimate of the 1991 general excise tax base for contracting by the State of Hawaii Department of Business, Economic Development and Tourism (DBEDT), an estimated statewide construction jobcount by the Department of Labor and Industrial Relations for 1991. This figure reflects the value of output associated with one full-time construction worker over one year.
- (3) This estimate is derived from total construction expenditures as associated with each full-time construction worker. The employment generated by a specific project may vary from this estimate due to fluctuations in overhead and profit.

According to the DBEDT (personal communication with Tu Duc Pham, Econometrics Branch), 1.4 indirect jobs would be generated for each construction job created by the project. Approximately 532 indirect jobs would be created by the project, or a total of 912 direct and indirect short term jobs.

Long term operations-related employment. According to the project developer and operator, the lifecare center would generate about 150 full time equivalent jobs associated with the 333 independent living units, 20 personal care units, and 60 skilled nursing beds. The elderly affordable housing project would employ one manager, and the community center would employ six to eight full time staff. None of these positions would be related to the visitor industry.

Sales and Output

Direct sales associated with the project construction is estimated at \$100 million over two years. Indirect sales generated by the project construction can be calculated using the multiplier of 1.0, provided by the DBEDT Econometrics Branch (personal communication with Tu Duc Pham, DBEDT Econometrics Branch). Using this multiplier, the indirect sales and output associated with the project construction would be an additional \$100 million over two years.

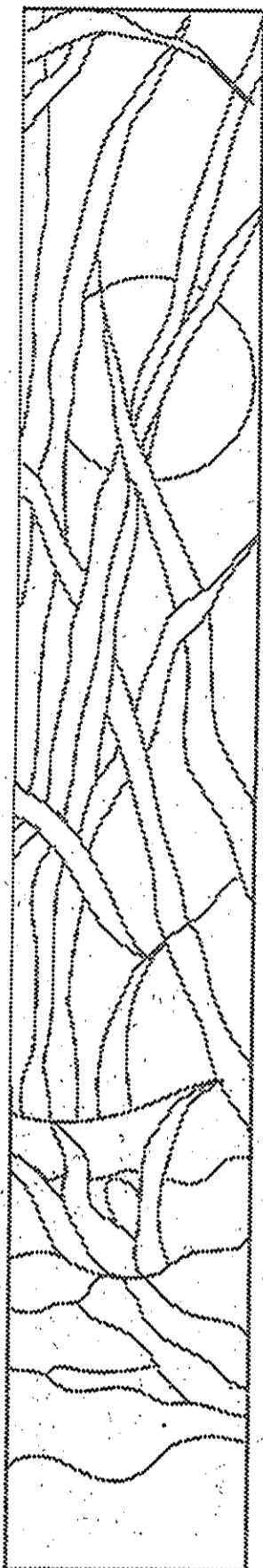
Direct and Indirect Income

Using an average salary per construction worker of \$38,000 per year (personal communication with Tu Duc Pham, DBEDT Econometrics Branch), the direct income generated by the project would be about \$14.4 million per year, for the estimated 380 workers. Indirect income can be calculated by using a multiplier of 0.8. Indirect income generated by the project construction would be about \$11.5 million per year. Total income generated by the project construction (direct and indirect) is estimated at \$25.9 million per year.

Government Revenues

The project will generate indirect tax revenues for both the State and City governments through construction and operation of the project.

Chapter VI



**Assessment of Existing Conditions and
Probable Impacts: Public Facilities and Services**

CHAPTER VI ASSESSMENT OF EXISTING CONDITIONS AND PROBABLE IMPACTS: PUBLIC FACILITIES AND SERVICES

6.1 Transportation

A traffic impact analysis report was prepared by Julian Ng, Incorporated, and is included as Appendix F. The following summarizes the findings of the report.

Existing Conditions

The proposed project is located at the primary entrance to Kailua town from the west on State Route 61 (Pali Highway/Kailua Road). The proposed commercial area expansion will retain the existing access from and onto the eastbound (makai-bound) lanes of Kailua Road. The remainder of the project will connect to Hamakua Drive, a collector roadway between the Kailua town area and the Enchanted Lakes area of Kailua to the south. The portion of Hamakua Drive from its intersection with Kailua Road to the point it widens from a 56-foot right-of-way (ROW) to a 76-foot ROW (approximately 800 feet of roadway) is owned by the State and maintained by the City and County of Honolulu. The remainder of Hamakua Drive to its intersection with Keolu Drive is owned by the City and County.

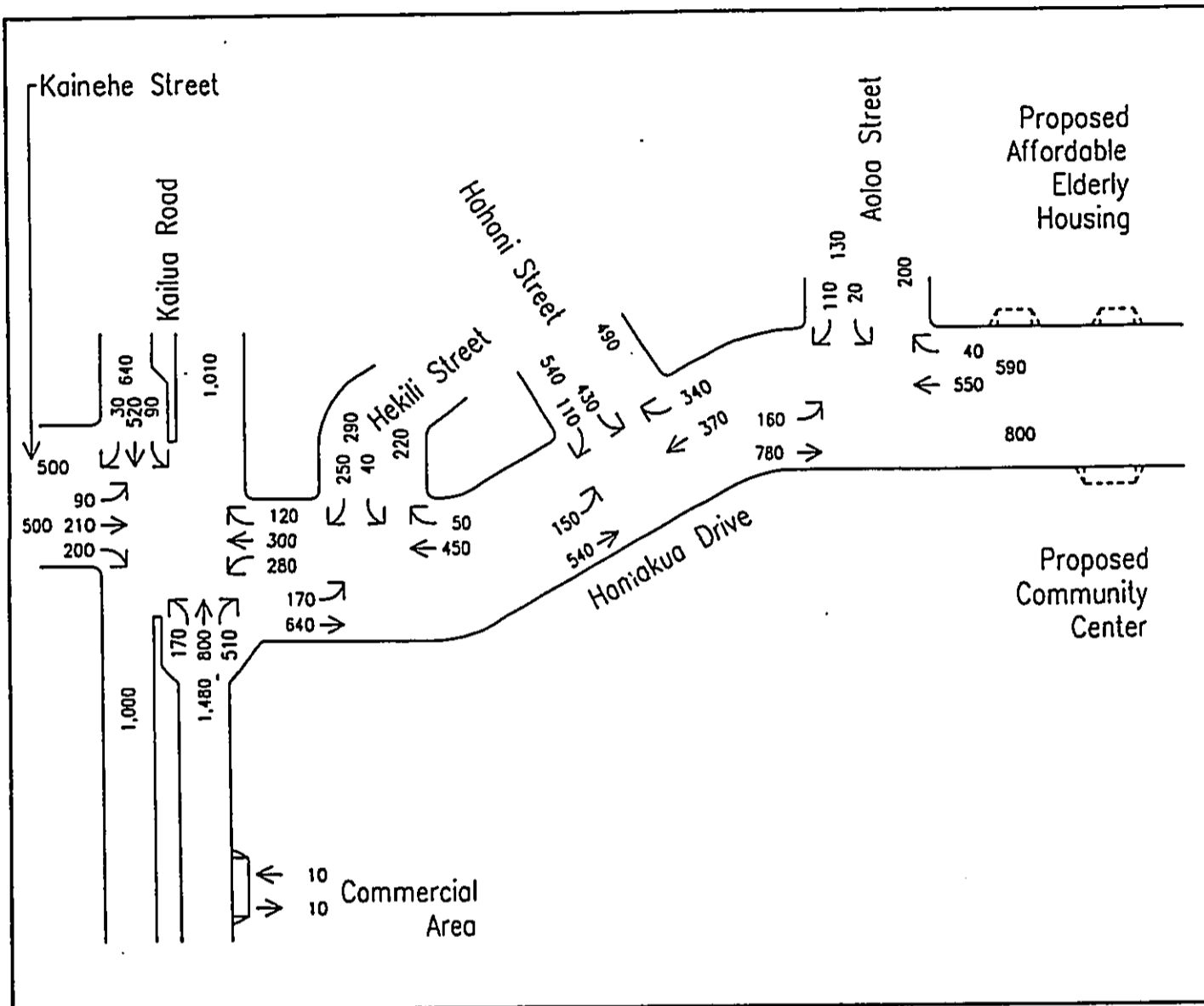
A review of traffic count data indicates that existing traffic volumes in the area are highest during the late afternoons. High traffic volumes were also recorded during the morning commute peak period and from late morning through the mid-afternoon hours. The historical data suggest that traffic volumes are increasing in this area.

In urban areas, traffic conditions are determined by capacity constraints at intersections. Several intersections, including driveways within the project area, were analyzed by different methods, which are based on the type (signalized versus unsignalized) of intersection. Figure 18 shows the existing PM Peak Hour traffic assignment.

Kailua Road-Hamakua Drive-Kainehe Street. The analysis of the existing PM Peak Hour traffic assignment for this intersection (Figure 18) produced Level of Service (LOS) "D" conditions for the eastbound approach on Kailua Road, LOS C for the westbound Kailua Road approach, and LOS E conditions on the Hamakua Drive and Kainehe Street approaches. Overall intersection condition was LOS D. (LOS is a quantitative and qualitative assessment of traffic operations, defined by LOS "A" through LOS "F", with LOS "A" being the best operating condition with little or no delay, and LOS "F" being the worst operating condition with extreme delays).

Hamakua Drive-Hahani Street. This signalized intersection was analyzed to determine whether it operates at under capacity, near capacity, or over capacity. The analysis showed that existing volumes are under capacity; although long queues formed on Hahani Street waiting to turn left, vehicles were able to clear the intersection in the next green phase for Hahani Street.

Hamakua Drive-Hekili Street. The analysis of the existing traffic assignment at this unsignalized intersection was based on the excess of capacity over demand, and gave LOS E for the left turn from Hekili Street to Hamakua Drive, and LOS A for both the Hekili Street right turns and the left turns into Hekili Street.



Existing PM Peak Hour Traffic

KAILUA GATEWAY

Prepared for: Kaneohe Ranch
 Prepared by: Heiber Hastert & Fee, Planners

Not to Scale

Figure

18

Hamakua Drive-Aoloa Street. The unsignalized intersection analysis for existing traffic assignments shows LOS B for left turns from Hamakua Drive into Aoloa Street, LOS A for right turns from Aoloa Street, and LOS E for left turns from Aoloa Street.

Future Traffic Conditions and Impacts of Project

Future conditions for year 1997 were evaluated. From past and existing traffic counts, future traffic in the area can be expected to remain the same as existing or increase by no more than one percent per year. For the purpose of evaluating 1997 conditions without the proposed project and to serve as a baseline for future with-project conditions, the existing traffic assignment was increased by six percent. In addition, the existing one-acre commercial site fronting Kailua Road was assumed to be redeveloped as a small shopping center, thereby increasing driveway volumes from less than 10 vehicles observed to 115 vehicles in the peak hour in each direction. Figures 19 and 20 show the future PM peak hour traffic assignment without and with the proposed project, respectively.

Kailua Road-Hamakua Drive-Kainehe Street. The analysis of the increased volumes in the future without project traffic assignment show poorer LOS for all but the westbound Kailua Road approach, with LOS F describing the other approaches and the overall intersection condition. Higher average delays and similar levels of service were found for the future with project assignment.

Hamakua Drive-Hahani Street. Future volumes for this intersection were also found to be under capacity, both with and without the project traffic assignment.

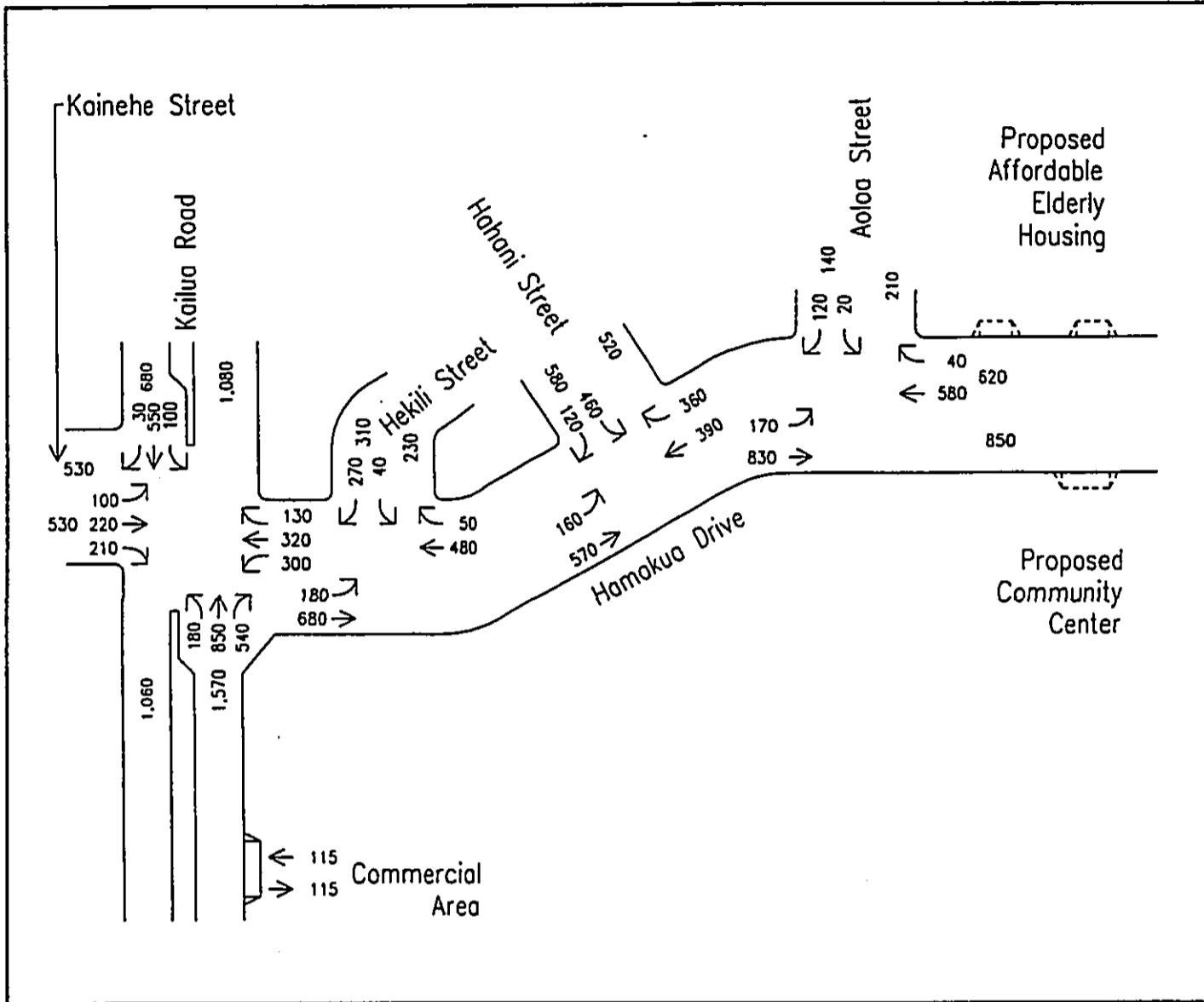
Hamakua Drive-Hekili Street. Future LOS conditions at this intersection without the project were found to be similar to existing conditions. The proposed project would change the intersection by adding a fourth leg opposite Hekili Street. Increased through traffic on Hamakua Drive would result from the other project access driveways, in addition to the increased traffic turning into or out of the fourth leg. The left turn from Hamakua Drive to Hekili Street changes to LOS B while Hekili Street remains at LOS E (left lane) and LOS A (right lane). The new approach would not have sufficient capacity to serve the estimated peak hour traffic leaving the project.

Hamakua Drive-Aoloa Street. Increased volumes on Hamakua Drive will have little impact to this intersection, and future traffic conditions with or without the project will generally remain the same as existing conditions.

Affordable Elderly Housing and Community Center Driveways. The analysis of these driveways as unsignalized intersections show that capacity will be adequate.

Mitigation Measures

Kailua Road-Hamakua Drive-Kainehe Street. The City and County of Honolulu Departments of Public Works and Transportation Services has a street widening plan which indicates that Hamakua Drive, from Kailua Road and for a distance of approximately 800 feet to the south, shall be widened to an 80-foot ROW, with all of the additional width on the west (mauka) side. This modification of the Kailua Road-Hamakua Drive-Kainehe Street intersection would provide two departure lanes, allowing through movements from both lanes on Kainehe Street. The overall LOS for the intersection would improve from LOS F (both with or without the project) to LOS E. However, widening of this portion of Hamakua Drive would impact Kawainui Stream and the wetlands. Because of the proximity to Kawainui Stream, the developer



Future PM Peak Hour Traffic

KAILUA GATEWAY

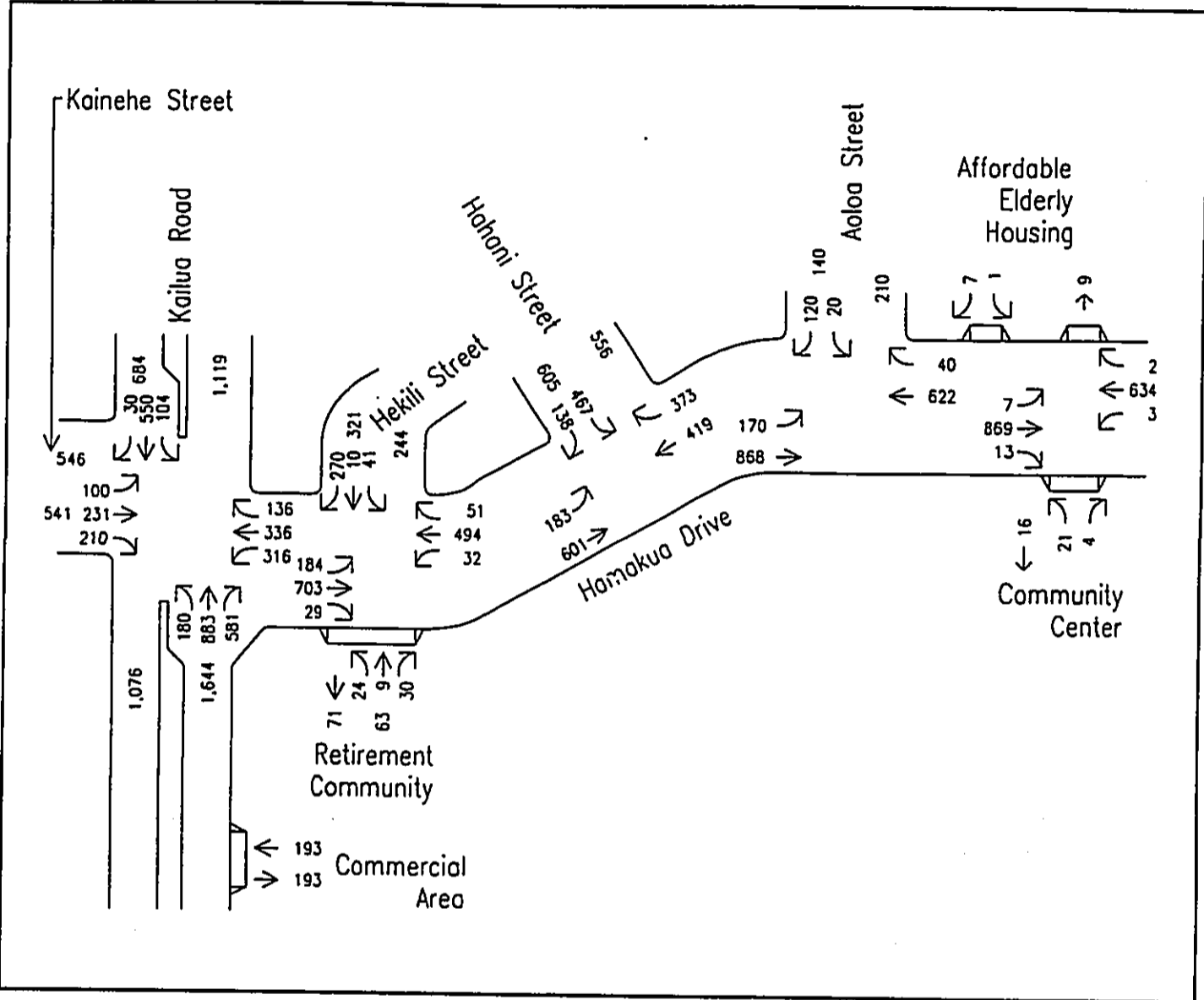
Prepared for: Kaneohe Ranch
 Prepared by: Helber Hastert & Fee, Planners



Not to Scale

Figure

19



Future PM Peak Hour Traffic with Project

KAILUA GATEWAY

Prepared for: Kaneohe Ranch
 Prepared by: Helber Hastert & Fee, Planners



Not to Scale

Figure

20

will consult with DTS to determine the most desirable solution with respect to both the impacts to the stream and accommodation of projected traffic volumes. The widening of Hamakua Drive will accommodate two east-bound lanes from Kainehe Street to Hamakua Drive. Associated modifications to the Hamakua Drive/Kainehe Street intersection will be provided.

The property line radii will be adjusted to 30 feet at the southwest corner of the Kailua Road/Hamakua Drive intersection in addition to a 24-foot road widening fronting Hamakua Drive. Full frontage improvements will be provided with respect to the new property line.

Preliminary plans indicating the roadway improvements will be provided to DTS as the project moves into more detailed stages of design.

The project traffic engineer, Julian Ng, Incorporated, consulted with DOT Planning Branch regarding alternative mitigation measures to improve the Level of Service (LOS) at the Kailua Road/Hamakua Drive/Kainehe Street intersection. As requested by DOT, additional analyses was done to identify an appropriate improvement for the intersection in question. The November 1991 Traffic Impact Analysis Report discussed an alternative which was found to improve future PM Peak Hour conditions to Level of Service E; the Highways Division indicated that an appropriate improvement would provide LOS D.

A letter describing the findings of the analyses is appended to the Traffic Impact Analysis Report in Appendix F. In summary, improvement of the intersection of Kailua Road and Hamakua Drive/Kainehe Street to current highway design standards would provide added capacity and, along with changes in signal phasing, permit the intersection to serve future traffic at an acceptable overall level of service (LOS D). This improvement would require that the Kawaiui Bridge (eastbound) on Kailua Road be widened. The further addition of a right turn lane on the northbound Hamakua Drive would provide for LOS D conditions on each approach. Due to the existing relationship between the centerlines of Hamakua Drive and Kainehe Street, any widening for additional approach lanes on Hamakua Drive should be on the east side. Additional traffic due to the proposed project will increase delays, but LOS D would continue to describe conditions for each approach.

Hamakua Drive-Hekili Street. The proposed project will change the existing T-intersection at Hamakua Drive and Hekili Street to a four-way intersection. Traffic exiting the project may not have sufficient capacity to cross or turn left onto Hamakua Drive. Pedestrians wishing to cross Hamakua Drive will also have difficulty finding acceptable gaps in the main street traffic.

According to the traffic consultant, the proposed traffic signal at Hamakua Drive and Hekili Street may be necessary even without the proposed access opposite Hekili Street. Currently, the left turn movement from Hekili Street to Hamakua Drive (toward Enchanted Lake) operates at Level of Service (LOS) E (LOS D is generally considered an acceptable level for urban traffic). The current LOS indicates that improvements to this intersection should be considered. Traffic volumes making this movement are expected to increase even without the proposed project.

Traffic signals at the Hamakua Drive-Hekili Street intersection would interrupt the heavier Hamakua Drive traffic stream and provide for the cross street flows. Signals would also improve the pedestrian crossing of Hamakua Drive, which is expected to

have a higher demand with the proposed project. Signalization of the Hekili Street/Hamakua Drive intersection will be provided.

The addition of a traffic signal at the Hekili Street/Hamakua Drive intersection will result in the possibility of traffic on Hamakua Drive being stopped by the signal. Analysis performed by the traffic consultant concluded that even with the addition of a traffic signal at that intersection, it will have sufficient capacity to provide good operating conditions on Hamakua Drive (personal communication, Julian Ng, Inc., May 4, 1992).

A curbed cut driveway, opposite Hekili Street, will be provided for access to the retirement community. All other vehicular access points along Hamakua Drive will be constructed as standard City dropped driveways.

Standard wheelchair ramps will be provided on both corners of the curbed cut driveway servicing the retirement community.

Affordable Elderly Housing and Community Center driveways. Pedestrian crossing demand at the affordable elderly housing and community center driveways should be directed to a crosswalk at the nearby Akoakoa Street intersection though the use of signs or other devices. Since the median strip was constructed after the preparation of the traffic analysis, it was not included in the report.

The construction plans for the project's access on Kailua Road will be developed to conform to applicable design standards with respect to sight distances.

The internal roadway circulation pattern for the proposed commercial area and retirement community will be designed to prevent or minimize vehicle backup onto Kailua Road.

Any roadway plans for construction work within the State highway right-of-way will be submitted to DOT Highways Division for review and approval.

6.2 Water

Smith Young & Associates prepared a water system report for the project which is included as Appendix G. It is summarized below.

Existing Conditions

There is currently no water service to the project area. There are two water mains under Kailua Road crossing Kawainui Stream; one 24" diameter line and one 14" diameter line. There is one 12" diameter water main under Hamakua Drive.

The water reservoir at the top of the hill on the west end of the property has been abandoned. The BWS plans to construct a water reservoir at the top of the hill on the west end of the project adjacent to the abandoned reservoir. The Pohakupu Reservoir (overflow elevation = 272) provides the water for this part of Kailua.

Proposed Development and Water Demands

The proposed retirement community will require water for personal use and for landscape irrigation. The maximum daily demand for water for the proposed development of approximately 400 apartment units will be 240,000 gallons. According

to the BWS, the existing water system is adequate to accommodate the proposed development. The availability of water will be confirmed when building permits are submitted for BWS review and approval. A water master plan for the project would be required for BWS review and approval if the water system is installed and dedicated to the BWS.

The project will connect to the existing BWS water distribution system. The mauka parcel of the development will connect to the 24" water main under Kailua Road. The community center on the east end will connect to the 12" water main under Hamakua Drive. The makai parcel will also connect to the 12" water main under Hamakua Drive. The service limit for the area is at the 172-foot elevation. The development will be subject to BWS cross-connectional control requirements prior to the issuance of the building permits.

Fire hydrants will be required at 250' intervals. An estimated total of 14 fire hydrants will be required for the entire project.

Impacts and Mitigation Measures

No water lines will be located in the wetlands. There will be some minor, temporary impacts during construction because of the trenching required to install the water line. These impacts will be mitigated according to the guidelines described in the discussion of mitigation measures in Chapter 4, Section 4.3 Soils.

The availability of water will be confirmed when the BWS reviews and approves building permits for the project.

If a three-inch or larger meter is required, the construction drawings showing the installation of the meter will be submitted for BWS review and approval.

The BWS will require a drainage easement to accommodate the proposed Kailua 272' Reservoir. The reservoir, which is tentatively scheduled for construction in fiscal year 1994-95, is required to bring water storage capacity for the Kailua area up to BWS standards. The BWS must drain the reservoir for periodic maintenance. The runoff from this draining must be collected in the storm drain system. Any impact from these flows on the wetlands comes under the Board of Water Supply development plans. The feasibility study and EIS for the project are presently being formulated. The exact location of the drainage easement will be negotiated between the BWS and the property owner.

6.3 Wastewater

Existing Conditions

There are two existing pump stations near the project site, the Kailua Road pump station and the Kailua Heights pump station. The Kailua Road pump station is across Kailua Road from the proposed development. The Kailua Heights station is currently severely overloaded.

Proposed Development and Wastewater Flows

The construction of a retirement community will generate an average of approximately 76,000 gallons daily. All project wastewater flows will be directed to the Kailua Road Wastewater Pump Station via an existing 27" sewer along Hamakua Drive.

The buildings on the 89-acre mauka site will be at, or above 25 feet above mean sea level. Wastewater flows will be piped to a sewer main makai of the buildings in the buffer zone between the development area and the wetlands. The western mauka sewer system can be connected to an existing manhole at Kailua Road. The proposed sewer line on the eastern part of the mauka site will connect the community center to the existing 27" sewer under Hamakua Drive. Refer to Appendix G for further discussion of the wastewater system and illustrations of the system layout.

The 8-acre triangular lot makai of Hamakua Drive will also be connected to the existing 27" sewer line under Hamakua Drive.

Impacts and Mitigation Measures

The Department of Public Works has indicated that the municipal sewer system is currently adequate to support the proposed wastewater requirements.

Increased sedimentation and noise levels affecting the wetland habitat are the two adverse impacts that may result from routing the future sewage improvements along the proposed wetland buffer. Sedimentation reaching the wetlands as a result of the sewer improvements into the wetlands will be prevented or minimized by a berm which will be constructed at the wetlands boundary to prevent runoff from flowing into the wetlands during construction. A drainage swale will be constructed mauka of the berm to channel the overland flow to settling basins to prevent silt from being carried from the site. A description of the construction activity erosion control measures can be found in Appendix G.

Noise and activity impacts of the sewer improvement construction will be mitigated by the regulation of timing of the construction. Construction activities will be regulated to minimize or avoid disturbance to breeding endangered waterbirds and minimize sedimentation.

6.4 Drainage

Existing Conditions

In the existing drainage pattern, the stormwater runoff flows down the hillside into the wetlands area. Kawainui Stream drains the wetlands to Kaelepulu Stream and thence to the ocean. Stormwater runoff carries soil particles from the hillside so that silt accumulates both in the wetlands and the stream.

The City and County of Honolulu is planning to dredge Kawainui and Kaelepulu Streams to its original design capacity. Kawainui Stream will be dredged to approximately (-)7 feet mean sea level (MSL), with the Coconut Grove end of the stream slightly higher. Kaelepulu Stream will be dredged to approximately (-)8 feet MSL. The dredging of Kawainui Stream will take place during Phase II of the project.

According to the Environmental Assessment of the Kaelepulu and Kawainui Streams Maintenance Dredging "there have been instances of stream overflow due to the sediment overload in the stream bed; however, there have been no recorded instances of property damage, and this project (maintenance dredging) will relieve this potential risk." The proposed dredging will "restore the design capacity" of the streams. The applicant will continue to consult with DPW regarding the stream dredging project.

There is a curb inlet on either side of Hamakua Drive approximately 300' south of the bridge crossing Kawainui Stream. These inlets drain to an outlet in the wetlands on the makai side of Hamakua Drive. There are also curb inlets on either side of Akoakoa Street at the intersection of Akoakoa and Hamakua Drive and one curb inlet on Hamakua Drive across from Akoakoa Street. These inlets connect to an existing 36" storm drain line under Hamakua Drive which flows away from the site and eventually terminates in Kaelepulu Pond (Enchanted Lake). City and County of Honolulu Storm Drainage Standards require this line to be designed for a 10-year storm. There is sufficient capacity to handle the additional runoff from the portion of the mauka development site which will flow into this line. Flooding in Kawainui Stream does not affect the inlets on Akoakoa Street.

There are three storm drain outlets on the northeast side of Kawainui Stream between Hekili Street and Kailua Road. These outlets release flows into Kawainui Stream.

Drainage Changes by Development

Smith Young & Associates prepared a revised stormwater runoff and drainage report, which is included as Appendix G. Calculations for runoff were based on rainfall intensities of 2.0 inches per hour for 10 year storms. The overall increase in storm water runoff for the entire 97-acre site was calculated at 23%, or an increase from 166 cubic feet per second (cfs) to 204 cfs (see Appendix G for calculations). The revised calculations were based on a more detailed analysis of the drainage patterns than was done for the previous calculations. The resulting flows differ slightly from the numbers presented in the original report, with the existing flow calculated to be 166 cfs and the total post development flow calculated at 204 cfs, as originally stated.

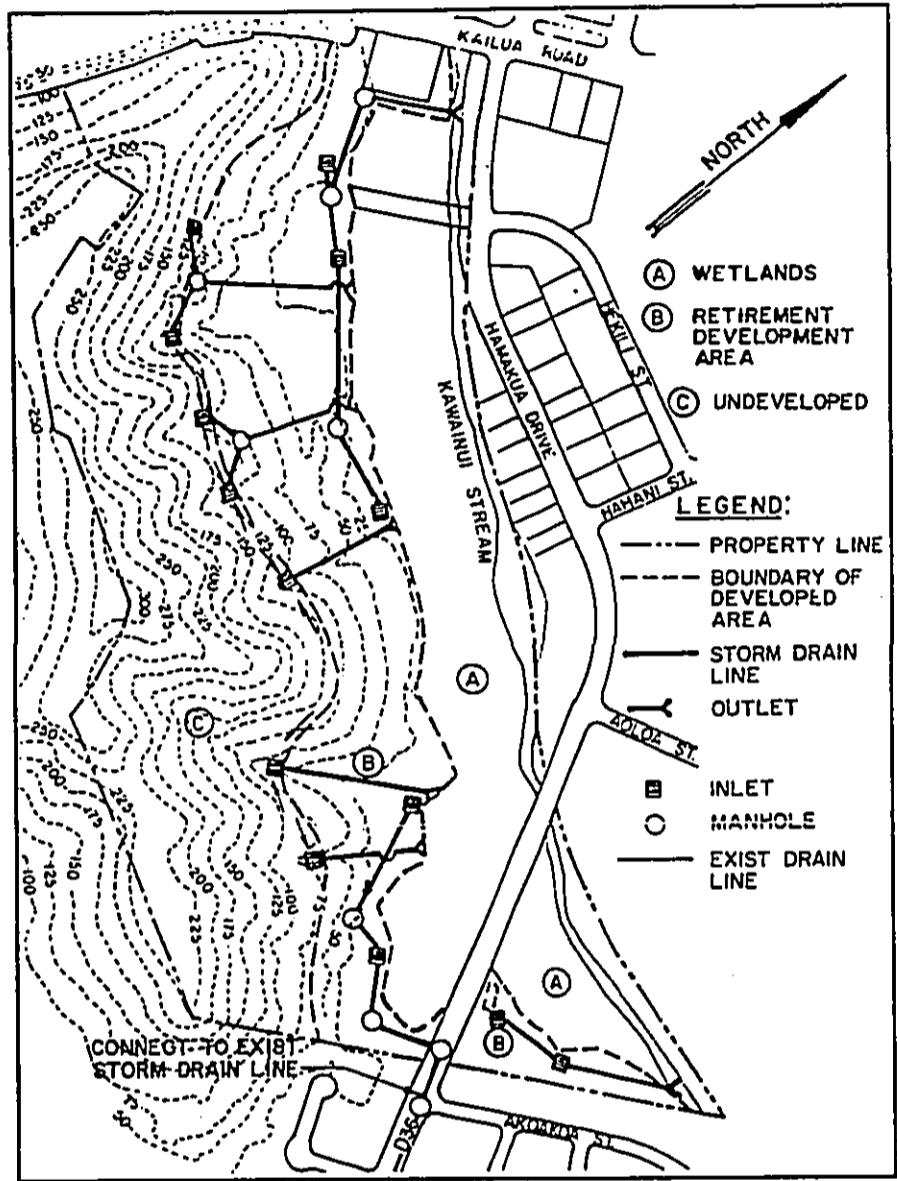
In general, development of the retirement community will change the drainage characteristics of approximately 31 acres of the 97-acre site. The thick grasses of the lower hillside will be replaced by building, roadways and parking areas. These will account for a higher runoff coefficient and shorter time of concentration (see Appendix G for runoff coefficients).

Two separate storm drain systems will service the mauka site. One storm drain system will service the makai site. See Figure 21 for the proposed drainage system. The proposed drainage improvements for the mauka development site will intercept runoff from the upper hillside above the proposed development and divert the flow into pipes. The pipes will run under the proposed development area. The flows will be released into the wetlands to preserve the existing flushing action of these wetlands.

The wetlands will be separated from the development by a 50' buffer zone. A permanent berm and swale shall be constructed at the buffer zone lower boundary to intercept overland flows and direct them into inlets which will connect to the proposed storm drain system. Storm drain inlets along the lower boundary of the development will also intercept runoff from the developed area and divert that flow into pipes.

The western mauka system will terminate in an outlet in the northwest corner adjacent to the commercial area. The eastern mauka system will terminate at Hamakua Drive and Akoakoa Street where it will connect to the existing 36" storm drain line. The calculations included in the drainage report show that this drain line can accommodate the additional runoff from the project.

One storm drain line will extend across the lower boundary of the developed area on the makai parcel. At the eastern wetlands boundary, an outlet shall be constructed to



Drainage Plan

KAILUA GATEWAY

Prepared for: Kaneohe Ranch
 Prepared by: Helber Hastert & Fee, Planners

Not to Scale

Figure

21

release storm water flows into the stream. According to the Flood Insurance Rate Map (Community Panel #150001 0090C) this parcel is in Zone AE (areas inundated by the 100-year flood with a base flood elevation of 6.0 feet above mean sea level) (see Figure 22). The 100-year flood elevation is 6 feet. Fill must be put in place to raise the lots above the 6' flood level in order to develop this site. The lots must be raised enough to create sufficient slope to drain the developed area down to the stream. Fill will not be deposited in the wetlands, as this area does not require flood protection. Every effort will be made to balance the earthwork so a minimal amount of fill is transported on- or off-site. Any fill material would likely originate from non-urban spoils on-site.

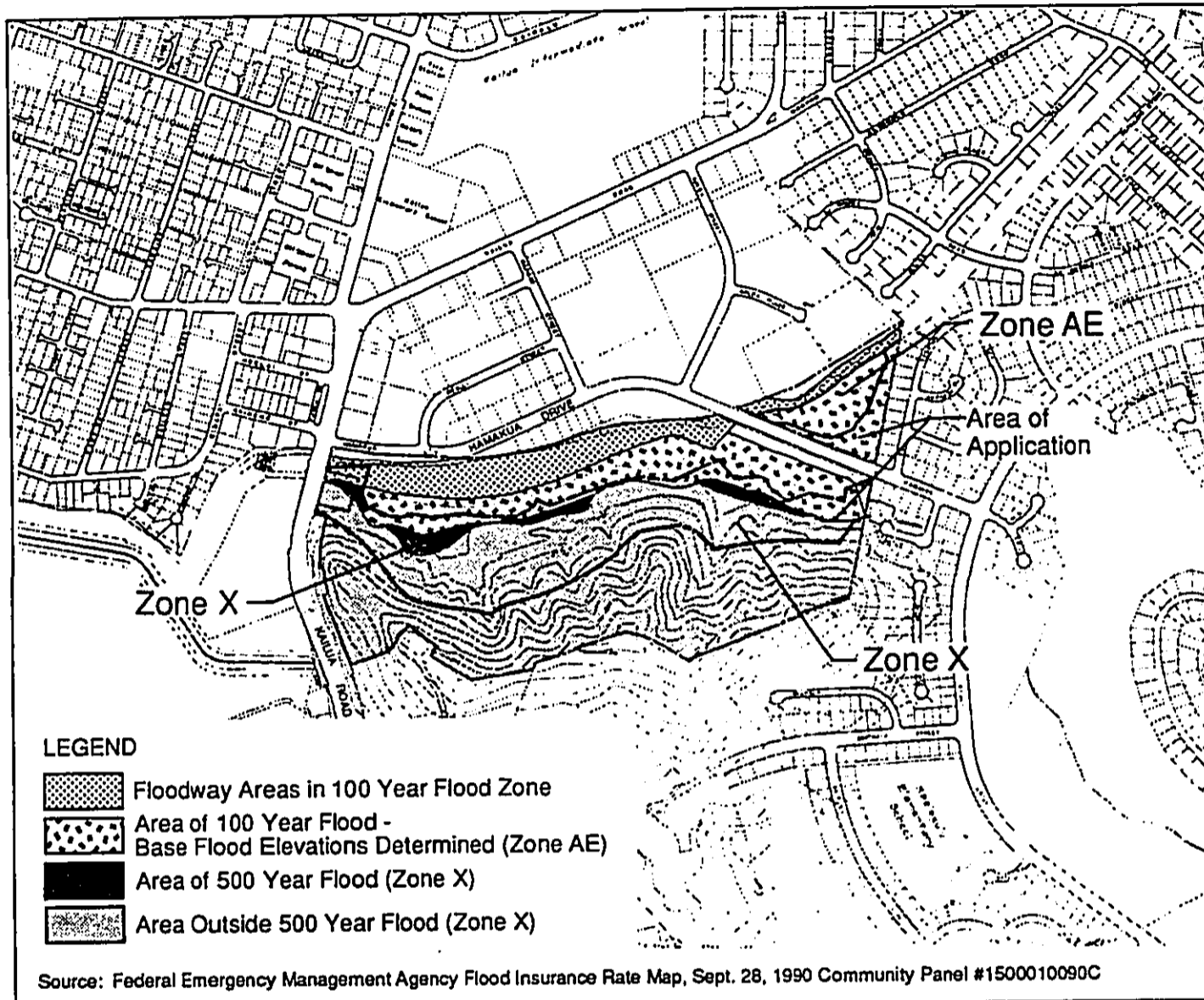
Other portions of the application area are located in the floodway area; Zone X - shaded (areas inundated by the 500-year flood); and Zone X - unshaded (areas determined to be outside the 500-year flood plain). New structures in the proposed expanded commercial area will not be located in the floodway.

The dwellings along Akoakoa Street and the condominiums across Kawainui Stream from the project area are located in areas determined by the Federal Emergency Management Agency as Zone X in a Flood Area on the Flood Insurance Rate Map (Community Panel #150001 0090 B). Occasional ponding in backyards has been reported by residents of Akoakoa Street adjacent to the makai development area. Existing drainage problems on adjacent properties are beyond the control of the proposed development. The policy of lending institutions to require flood insurance and the rates for such insurance are beyond the control of this development. According to the project civil engineers, runoff from the project is expected to be accommodated by Kawainui Stream.


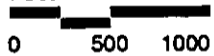
Impacts and Mitigation Measures

The total projected runoff flowing directly into the wetlands was calculated at 124 cubic feet per second (cfs) for 10-year storm conditions. The urban runoff will be directed around the wetland to Kawainui Stream (59 cfs) and to Kaelepulu Pond through an existing storm drain (21 cfs). This would result in a net decrease of 42 cfs reaching the wetland via overland runoff (the revised drainage report calculates existing runoff from the 97-acre site at 166 cfs). According to the DU Draft Wetland Restoration and Management Recommendations for the Hamakua Marsh, runoff from the land is regulated by the tide, downstream blockages at the mouth of the stream, and flood control gates in Coconut Grove. The net change in runoff reaching either the stream or wetland is an increase of 17 cfs (124 cfs to wetlands, 59 cfs to stream) for a 10 year storm event. According the U.S. Fish and Wildlife Service (letter dated April 24, 1992 reproduced in Chapter 13), the wetland is probably maintained primarily by periodic inundation from Kawainui Stream, although the impacts of the changes in runoff on the wetland habitat are undetermined at this time. One of the goals of the wetland restoration project is the impoundment of water at optimum levels for the endangered waterbirds.

Although the proposed development will increase the flow in Kawainui Stream, the design capacity of the stream will be restored by maintenance dredging improvements currently proposed by the City and County of Honolulu. Less silt will be deposited in the wetlands because the proposed storm drain improvements will divide the flows and prevent runoff from flowing overland to the wetlands. This will preserve the natural flushing action of fresh water filtering through the wetlands. Controlling the stormwater flows in the lower levels of the hillside will reduce the overall erosion of the hillside and reduce the overall silt load presently reaching the Kawainui Stream.



<p style="text-align: center; margin: 0;">Flood Zones</p> <hr/> <p style="text-align: center; margin: 0;">KAILUA GATEWAY</p> <p style="margin: 0;">Prepared for: Kaneohe Ranch Prepared by: Halber Hastert & Fee, Planners</p>	<p>Figure</p> <hr/> <p style="font-size: 24pt; margin: 0;">22</p>
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Feet


According to the project civil engineers, Smith Young & Associates, Kawainui Stream has sufficient capacity to accommodate the project-related runoff, if the stream and berm at the mouth of the stream at Kailua Bay are properly controlled and maintained by the City and County of Honolulu.

The project's civil engineers calculated the runoff for 100-year storm conditions. According to Smith Young & Associates, the difference in calculated runoff between a 10-year storm and 100-year storm is slight. The rainfall intensity is calculated differently for the 10-year and 100-year storms. For the 10-year storm, following the procedure set forth in the Storm Drainage Standards of the City and County of Honolulu, the intensity (inches of rainfall per hour) is multiplied by time of concentration factor (calculations are included in the revised drainage report, to be included in final EIS). The resulting intensity, used previously, was 3.5 inches per hour. The intensity of a 100-year storm of one hour duration, according to the Rainfall Frequency Study for Oahu, 1984, is also 3.5 inches per hour.

Further investigation into the Kawainui Stream and drainage basin performed by the project civil engineers revealed that the controlling factor which determines the 100-year flood plain elevation is the sand berm at the mouth of Kaelepulu Stream at Kailua Beach. This is a naturally occurring berm formed of sand deposited by the waves, and is occasionally removed by the City and County of Honolulu. The 100-year flood plain elevation is determined by the berm level at the mouth of Kaelepulu Stream, not by the amount of flow into Kawainui Stream.

Calculations cannot be made to determine the increase in the 100-year flood plain elevation. The flood plain elevation calculations start with the water surface elevation at the mouth of Kaelepulu Stream. The water surface elevation varies with the tides and the elevation of the sand berm which is under the control of the City and County of Honolulu. However, the development will have some effect on the flood plain which can be expressed logically, if not numerically.

Fill will be placed on the makai development site to raise it out of the 100-year flood plain. The existing elevation is close to 5 feet above MSL. Removing approximately 2 acre-feet from a flood plain with a capacity of several hundred acre-feet will not raise the flood plain elevation significantly.

Since the Coconut Grove area is upstream of the project site, it should not be affected by runoff from the proposed development if Kawainui Stream is maintained and the berm at the stream mouth appropriately controlled by the City and County of Honolulu. The residential areas along Kawainui Stream will not be adversely affected by the increased runoff if the dredged stream is maintained at design capacity and allowed to flow out to Kailua Bay. According to the project civil engineers, although it is anticipated that runoff flows to Kaelepulu Pond will increase as a result of the proposed project, residences along the pond's edge should not be adversely affected if the outlet to Kailua Bay is properly maintained.

The makai development area will be filled to the required 6-foot base flood elevation (approximately 1 foot +/- above existing grade). According to the City's topographic photo contour map (Sheet No. 592-78) the elevation of the homes along Akoakoa Street bordering the site is 10 feet above mean sea level (MSL). The development area, therefore, will be at a lower elevation than the adjacent Akoakoa Street homes. The makai development area will be designed to comply with the Drainage Standards of Honolulu, which requires that the existing natural grade of adjoining properties be maintained (Section 23-3.2 Special Requirements, Paragraph A).

The elderly affordable housing will be built according to base flood elevations as specified in the Flood Insurance Rate Maps and according to the City's Land Use Ordinance. The Department of Public Works will review detailed drainage plans prior to commencement of any construction.

Stormwater runoff will likely be regulated under Section 402 of the Clean Water Act through the National Pollutant Discharge Elimination System permit program late in 1992. The proposed permanent drainage system will be designed and constructed to contain adequate retention and sedimentation capacity, to comply with the Clean Water Act. Stormwater management plans include structural measures to decrease peak discharges, trap and retain suspended sediments, and treat pollutants in urban runoff. These measures will be more precisely determined as specific plans are developed for the overall project. There is not sufficient detail at this preliminary stage to identify which elements will be included in the management of the stormwater runoff. Temporary erosion control measures installed prior to construction are dependent on the total construction contract time, the time of year the grading operations occur, and the phasing of the project.

Civil defense tsunami evacuation maps for the Waimanalo-Kailua area (produced by the Joint Institute for Marine and Atmospheric Research, University of Hawaii, in cooperation with the State of Hawaii Civil Defense System) indicates that the evacuation area is located makai of the confluence of Kawainui Stream and Kaelepulu Stream. It also notes that the rise in Kaelepulu Stream within the evacuation area is estimated at four feet and that the Enchanted Lake area is not in danger. It is the opinion of the Oahu Civil Defense Agency that there would be no significant rise in the level of Kawainui Stream in the vicinity of Akoakoa Street due to a tsunami (personal communication, Frank Apel, Oahu Civil Defense Agency, May 6, 1992).

6.5 Solid Waste

Civil engineering reports were prepared by Smith Young & Associates. The solid waste report is summarized below, and is found in its entirety in Appendix G.

Existing Conditions

Solid waste in the Kailua area is collected by the City and County of Honolulu, Refuse Collection and Disposal Division or by private collection companies and transported to the Kapaa Transfer Station and thence to the Honolulu Program of Waste Energy Recovery (H-POWER) facility where it is converted to electricity. This station has the capacity to transfer 500 tons per day of refuse. There is also a school drop-in recycling program currently in effect in Kailua.

Potential Impacts Mitigation Measure

Construction of the project will generate some solid waste. Reduction measures include composting the grub material and the use of locally-produced greenwaste compost in landscaping.

The study conservatively estimates that approximately 4,000 pounds of solid waste will be generated per day by the proposed project (two-occupant senior housing, commercial area and medical facilities). Medical facilities will comply with the City and County of Honolulu, Refuse Collection and Disposal Division medical waste disposal regulations.

The development will have no significant impact on the operations of the Kapaa Transfer Station. The capacity of Kapaa Transfer Station is 500 tons per day. The proposed project will generate less than one-half of one percent (two tons) of the total capacity of the transfer station. The majority of the refuse will be converted to electricity and will not be deposited in landfills.

Since the project will be a cluster development, there will be an opportunity to provide convenient recycling centers on site. Newspapers, glass and aluminum can be deposited in designated bins and transported to local recycling centers. Another waste reduction strategy is the allocation of material storage in the multi-family units. The applicant will consider the use of paving materials made in part from recycled glass in road construction throughout the development, if feasible and appropriate.

6.6 Schools and Libraries

Public schools serving the area include Kailua Elementary, Kaelepulu Elementary, Enchanted Lake Elementary, Kailua Intermediate, and Kailua High School. There are currently no school-aged children living on the subject property.

The proposed project is not expected to generate a population of school-aged children, since the residential units would be occupied by adults of retirement age or older, and thus, will have no impact on public schools in the area.

Kailua Public Library is located on Kuulei Road, approximately 1/2 mile from the project site.

6.7 Recreational Facilities

Public parks in the area include Kailua Beach Park, Kalama Beach Park, and Kailua Field. The private Mid-Pacific Country Club is also within the vicinity of the project. The DP Public Facilities Map shows a small parcel across Kailua Road from the project area as programmed within the next six years for a park. The State plans to develop part of the site as a wildlife sanctuary and part as an interpretive center through the Department of Land and Natural Resources.

The development of the retirement community and elderly affordable housing will be required to comply with the City's Park Dedication Ordinance No. 4621. The project will be designed to include active and passive recreation areas and facilities. These private park facilities will be used to comply with the Park Dedication Ordinance requirements. According to the Department of Parks and Recreation, the addition of 650 residents to Kailua will not overtax existing public parks.

6.8 Police Protection

Existing Conditions

The Kailua Police Station is located on Kuulei Road, approximately 1/2 mile from the project site. It falls under the Windward Command (District IV Regional Patrol Bureau), and serves the area from Waimanalo (Makapuu Point) to the entrance to Kaneohe Marine Corps Air Station (H-3 Freeway). There are 8 to 11 officers assigned to the patrol on duty at one time, or a total of about 60 officers assigned to the area. There are normally 2 officers patrolling the beat, which stretches from Keolu Hills to

Coconut Grove (including the project area), on a 9-hour watch (Personal communication with Major Richard Fuji, 22 August 1991).

Impacts and Mitigation Measures

According to the Police Department, the project should have minimal impact on the delivery of police services in the area. It does not foresee a substantive increase in calls for service and the need for additional manpower or resources. Adequate security measures will be taken during the construction phase of the project to avoid exposing the surrounding neighbors to construction hazards. The project will be designed with appropriate security features, such as adequate lighting in public spaces and access control.

6.9 Fire Protection

The Kailua Fire Station is located approximately 1/2 mile from the project site, at the corner of Kuulei Road and Kainalu Drive. The station houses an engine company (1,500 gallons per minute pumper) and a ladder company, with 18 firefighters assigned to each. There is a total of 12 personnel on duty for each 24-hour shift. Olomana Fire Station, located about 1.5 miles from the project site on Kalaniana'ole Highway, and Aikahi Fire Station, located near the entrance to Kaneohe Marine Corps Air Station about 2.5 miles from the project site, would also respond to a fire in Kailua, if necessary. The Olomana station has an engine company and 5 firefighters on each shift, as well as a battalion chief and driver.

There is also a City and County ambulance service located in back of the Kailua Fire Station. The fire department responds to medical calls if the ambulance service is more than 3 minutes away from call (Personal communication with Chief Attilio Leonardi, 22 August 1991).

Impacts and Mitigation Measures

The Fire Department indicated that it has no objections to the proposed project providing that certain conditions are complied with, including compliance with Article 10 of the Uniform Fire Code. The project designers will work with the Fire Department to ensure that the water system and fire apparatus access roads comply with the standards of Article 10 of the Uniform Fire Code. Construction plans will be submitted to the building and fire departments for permit review and approval prior to the commencement of the project.

6.10 Power and Communication

Existing Conditions

Electrical Power. There are three Hawaiian Electric Company (HECO) 12.47 KV feeders in the vicinity of the proposed project. The Kailua Substation Kailua Feeder No. 1 is an underground feeder located on Kanehe Street. The Keolu Substation Enchanted Lakes Feeder is an overhead feeder, which traverses a portion of the wetland area mauka of Hamakua Drive from the bridge over Kawainui Stream to Hahani Street. The Pohakupu Substation Kailua Feeder is an overhead feeder which comes down from the Pali along Kailua Road.

Telephone. GTE Hawaiian Tel maintains overhead and underground cable facilities along Kailua Road and Hamakua Drive. The system is currently adequate to serve the area.

Cable. Oceanic Cable presently has cable service in close proximity of the project area and does not foresee any problems in meeting service requirements.

Gas. The Gas Company determined that the project area is currently clear of all gas utility facilities.

Impacts and Mitigation Measures

Electrical power. Two 12.47 KV circuits will be required to serve the Kailua Gateway Development. The primary feeder will be the Kailua Substation Kailua Feeder No. 1. It can be tapped at the Hamakua Drive entry to the project site. The backup feeder will be the Keolu Substation Enchanted Lakes Feeder which is accessible right on the development site. There is expected to be sufficient capacity on these feeders to serve this load by the project's earliest completion date of 1995.

The maximum demand for all the project facilities will be approximately three megawatts. The anticipated energy consumption is expected to be about 600,000 kilowatt-hours per month.

Efforts to conserve energy will include extensive use of dimming, selection of energy efficient light sources, and the use of photocells or automatic timing devices to turn off lights when not needed. High efficiency motors and chillers, a heat recovery system, and energy-saving metal halide and fluorescent lamps and ballasts are among the energy-saving devices that may be employed. Where feasible, lights and motors will be energized at higher voltages to minimize line losses. Capacitors will be applied at VAR producing loads to improve voltage regulation and distribution efficiency.

Utility companies may be implementing demand-side management programs, which may require efficiency devices to be installed in developments. The developer will continue to consult with the utility companies on their requirements as the project moves into more detailed design phases.

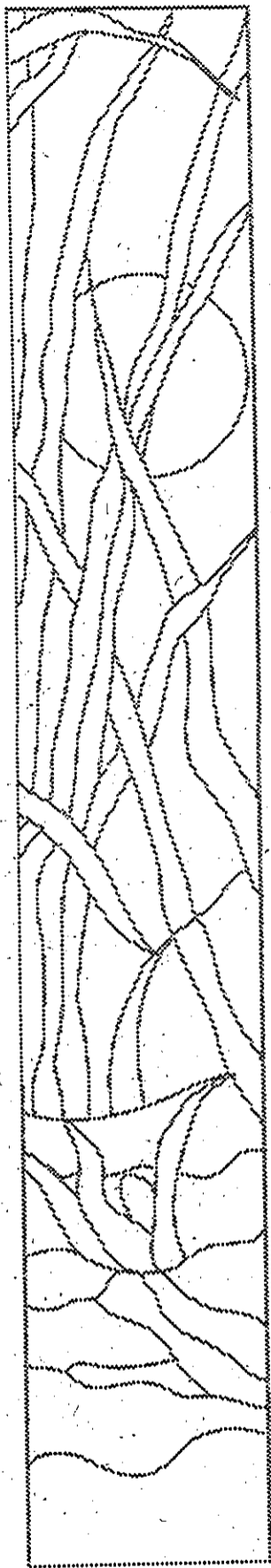
Telephone. Telephone service would be available at the project site from GTE Hawaiian Tel. The service point will be made from Kailua Road.

The proposed project will probably require the provision of relief service by GTE Hawaiian Tel through additional cable from the central office (switching center) at Kuulei Road and Maluniu Avenue.

6.11 Health Care Facilities

Castle Hospital is the nearest full service hospital to the project site, located approximately one mile to the west. There are other medical facilities located within the downtown Kailua area. City and County emergency ambulance service is located behind the Kailua Fire Station.

Chapter VII



Alternatives to the Proposed Action

CHAPTER VII ALTERNATIVES TO THE PROPOSED ACTION

Chapter 200 of Title 11, Environmental Impact Statement Rules, requires a discussion of "any known alternatives...which could feasibly attain the objectives of the action." The rules further specify that the alternatives be explored and evaluated in light of enhancement to environmental quality or the avoidance or reduction of adverse environmental effects. As stated in Section 2.5, the objective of the action is to allow the development of a lifecare retirement community, affordable rental housing for the elderly, a community center, and the expansion of an existing commercial area on the subject property.

7.1 Alternatives Which Could Feasibly Attain the Objectives of the Action

Two alternatives would reasonably achieve the objectives as stated in Section 2.5. They include (1) "development only on the mauka parcels" and (2) "low-rise alternative". They are discussed below.

7.1.1 Mauka Area Development

This alternative would develop all the elements entirely on the 89-acre parcel mauka of Hamakua Drive. The makai triangular parcel would remain undeveloped. This alternative was rejected because it would increase the amount of traffic entering the mauka project area, and reduce the developable land area available for the lifecare facility and community center. The resulting structures would be higher and closer together than in the proposed plan, further affecting views of the hillside. The triangular parcel is also in the State Land Use Urban district, and could be available for affordable housing development much earlier than the mauka parcel. The developer is currently working with the Salvation Army in pursuing development of this parcel for elderly affordable housing as early as possible.

7.1.2 Low-Rise Alternative (under 25 feet)

This alternative would involve the development of the same number of dwelling units entirely in low-rise structures, with a maximum height of 25 feet. Since it is highly desirable for lifecare units to be accessible without going up or down stairs, attached 4-story units (with a 40-foot height limit) can be made accessible with several strategically placed elevator cores. A 25-foot height limit would result in a proliferation of 2-story buildings on the site, with elevator access to upper units becoming less practical. (The present conceptual plan includes single-story duplex units in the southern half of the application area). This would also result in greater footprint coverage of the project site, leaving less area for open, unobstructed green space. Furthermore, this alternative would result in a greater percentage of the property being covered by impermeable surfaces, which would contribute to additional runoff from the site.

7.2 Alternatives Which Would Not Attain the Objectives of the Action

Alternatives to the proposed action which would not attain the objectives of the action include: (1) "no action" (no amendment to the existing land use classifications at either the State or City level); (2) "single-family residential" development; (3) townhome development; (4) commercial and mixed use development; (5) "lower-density alternative"; (6) "high-density" alternative; and (7) "development on alternative sites". These alternatives are discussed below.

7.2.1 No Action Alternative

This alternative would retain the existing conditions on the property for the present time or allow a portion of the property (currently zoned P-2 General Preservation) to be developed with the following permitted uses: aquaculture, cemeteries and columbaria, crop production, forestry, golf courses, game preserves, livestock grazing, public uses and structures, outdoor recreation facilities, telecommunications antennas, and utility installations. The advantage of this alternative would be that no further expenditure of resources by the applicant would be required, and there would be no impacts to existing infrastructure. The no action alternative would eliminate the potential for providing a community center for Kailua and needed senior housing, both subsidized and market-priced. This alternative would not attain the objectives of the action.

7.2.2 Single-Family Residential Alternative

A previous proposal considered by the landowner in the early 1980s was a single-family residential community. A variation of this plan was considered during the present planning process, which included approximately 100 single-family lots in the project area. This alternative would be compatible with the surrounding low-rise, low-density land uses in the area, and provide a product for which there is a great demand. However, traffic impacts during peak hours would likely be greater than the proposed senior-oriented proposal, as residents of this type of residential development would generally commute to work or school.

This action would not attain the objectives of the action being sought as the target market would be families in the general population, and would not provide housing specifically for senior citizens. It would also exclude the development of affordable rentals for seniors and a community center.

7.2.3 Townhome Alternative

The development of approximately 200 townhome units was also considered, which included a linear park fronting the wetlands and improvements to the existing commercial area. This alternative would also fit into the low-rise atmosphere of the surrounding area and provide a product for which there is a large market.

The community advisory committee was more receptive to this alternative, possibly because the development was perceived as targeted to middle-income or first-time buyers, and thus, would increase the inventory of affordable housing. Concerns regarding this alternative centered on impacts to infrastructure and traffic volumes generated during peak hours. A previous proposal for 160 townhome units was rejected by the City Department of General Planning in 1983.

7.2.4 Commercial and Mixed Use Alternative

A commercial and mixed use alternative was also considered for the property. This alternative proposed different activity nodes on the property: a waterfront village consisting of restaurants, shops and condominiums, improvements to the existing commercial area, a retirement community, a church or day care center, and a performing arts center. The advisory committee expressed support for the proposals for the retirement community, daycare center and performing arts center as activities needed in the Windward Oahu area. It was determined that the most appropriate use of

the property would be to concentrate on providing housing for the elderly, as well as accessory community and commercial facilities.

7.2.5 Lower-Density Alternative

The proposed lifecare retirement center is an integrated facility consisting of independent living units, personal care units and a skilled nursing facility. Based on previous experience and actuarial analysis, in order to construct and operate each of the components in a financially and logistically efficient manner, the developer determined that 300-450 independent living units must be developed. Therefore, the development of fewer than 300 independent dwelling units would render the project fiscally unfeasible.

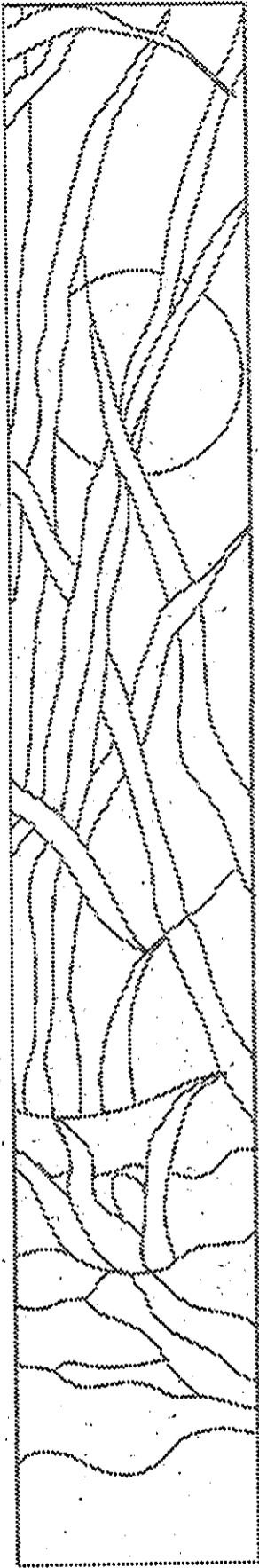
7.2.6 Higher-Density Alternative

At the request of the National Audubon Society, a higher-density development was examined, based on the 90 units per acre medium-density apartment areas identified in the Koolaupoko DP Special Provisions. A total of 2,880 units would result if the entire 32 acres being sought for redesignation to Medium-Density Apartment were developed at this density. This would result in an unacceptable level of adverse impacts to traffic facilities, infrastructure, runoff and sedimentation levels, and views of the hillside. In addition, the lifecare facility would not operate at an optimum level, since the desired development program consists of 300-450 independent living units.

7.2.7 Development on Alternative Sites

There are no other sites under the landowner or developer's control in the Kailua area appropriate for the proposed development.

Chapter VIII



Irreversible and Irretrievable Commitments of Resources

**CHAPTER VIII IRREVERSIBLE AND IRRETRIEVABLE
COMMITMENTS OF RESOURCES**

Chapter 200 of Title 11, Environmental Impact Statement Rules (11-200-17 (k)) requires the "identification of unavoidable impacts and the extent to which the action makes use of non-renewable resources during phases of the action, or irreversibly curtails the range of potential uses of the environment...."

The construction and operation of the proposed project will result in an irreversible and irretrievable commitment of capital, labor, land, and energy for the design and development of the project.

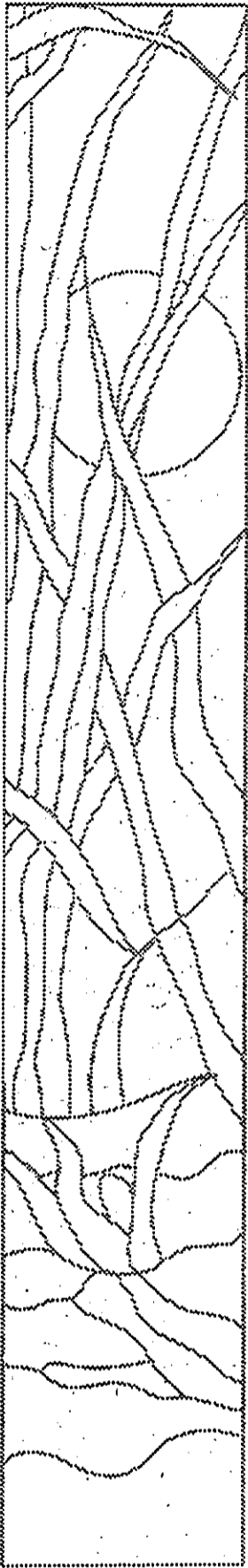
The land is currently in open space, which will be altered by the presence of physical structures. Of the 33-acre area of application, about 21% will be covered with physical structures, the tallest of which will be 4 stories. This area represents about 7% of the entire 97-acre project area. The current plan proposes to maintain landscaped open spaces between structures and low-rise clusters of buildings.

Views of part of the Puu O Ehu hillside will also be altered, although the ridgeline and most of the upper slopes is not expected to be impaired by the development. Views of Mount Olomana will not be affected.

Other unavoidable impacts include the removal of some scrub vegetation, increases in traffic, potable water demand, and the need for wastewater and solid waste disposal.

The project will not adversely curtail the range of potential uses of the environment, since the other development alternatives considered would contribute similar environmental impacts without addressing the special housing needs of the elderly.

Chapter IX



**Relationship Between Local Short-Term Uses of
the Environment and Maintenance and
Enhancement of Long-Term Productivity**

**CHAPTER IX RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF
THE ENVIRONMENT AND MAINTENANCE AND
ENHANCEMENT OF LONG-TERM PRODUCTIVITY**

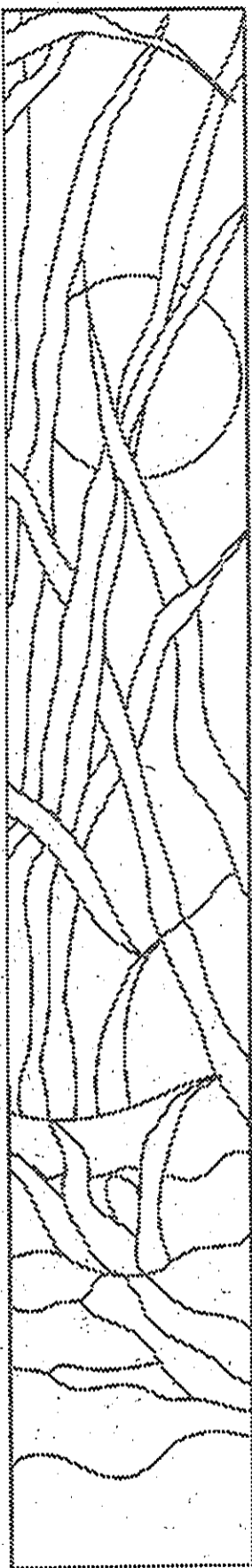
Chapter 200 of Title 11, Environmental Impact Statement Rules (11-200-17 (j)) requires a brief discussion of the "extent to which the proposed action involves tradeoffs between short-term losses and long-term losses or vice-versa, and a discussion of the extent to which the proposed action forecloses future options, narrows the range of beneficial uses of the environment, or poses long-term risks to health or safety...."

Short-term tradeoffs related to the proposed action are associated with the development of urban uses on the property. The project area currently consists of mostly vacant land, and provides open space and the potential for alternative future uses. The proposed action will commit the site to a particular urban use thereby potentially "narrowing the range of [potential] beneficial uses" and possibly foreclosing future options. However, the options of market single-family or cluster housing development at the site were previously denied by the City Department of General Planning in part because they did not sufficiently support General Plan objectives. The proposed project will provide both elderly affordable housing as well as elderly housing with a guaranteed health care component, thereby addressing housing needs for a growing segment of the population.

The construction and operational phases of development will contribute greater environmental impacts than those currently generated at the site (e.g. increased water demand, traffic impacts, and demand for wastewater treatment). The development will also reduce the amount of open space provided at the site. A preliminary building footprint estimate for the lifecare center, community center, elderly affordable housing, and the commercial area expansion shows a total building lot coverage of about 21% of the 33-acre area of application (not included in this calculation are paved surfaces such as roadways, parking lots, etc.)

Long-term productivity of the project site will be enhanced by the proposed lifecare facility, elderly affordable rentals, community center, and expanded commercial area by providing housing and accessory facilities beneficial to both the project's residents and to the Kailua community at large.

Chapter X



**Consulted Parties and Participants in the
DEIS Preparation Process**

CHAPTER X CONSULTED PARTIES AND PARTICIPANTS IN THE DEIS PREPARATION PROCESS

10.1 Participants in the Draft EIS Preparation Process

The DEIS was prepared for Kaneohe Ranch by Helber Hastert & Fee, Planners. The following list identifies individuals and organizations who were involved in the preparation of the DEIS and their respective contributions.

Helber Hastert & Fee, Planners

Mark H. Hastert (Principal-in-charge and Project Manager)
Gail M. Uyetake (Project Planner and Principal Author)

Technical Consultants

AECOS, Inc. (Water Quality)
Char and Associates (Flora)
Phillip L. Bruner (Fauna)
B.D. Neal & Associates (Air Quality)
International Archaeological Research Institute, Inc. (Archaeology)
Julian Ng, Incorporated (Traffic)
Smith Young & Associates (Civil Engineering)

10.2 Consulted Parties During the Preparation of the Draft EIS

The Department of General Planning (accepting authority) determined that the proposed development may have a significant effect on the environment. On October 18, 1991, an Environmental Impact Statement Preparation Notice (EISPN) was filed with the Office of Environmental Quality Control (OEQC) and notice of the determination was subsequently published in the November 8, 1991 OEQC Bulletin. The publication of the notice of determination began a 30-day public review period which ended on December 8, 1991. A copy of the EISPN was mailed to 77 agencies, organizations, and individuals listed below. The list contains parties believed to have an interest in the project or who requested consulted party status.

By January 8, 1992, a total of 33 agencies, organizations or individuals responded in writing. The parties who responded to the EISPN are identified by an asterisk (*) and their respective comments are reproduced in Chapter 11.

An amended Application for DP Amendment and Environmental Assessment was filed with DGP on January 8, 1992 for the expanded application area. As was the case with the original application, DGP determined that the revised DP amendment request required the preparation of an Environmental Impact Statement. Notice of this determination was published in the January 23, 1992 OEQC Bulletin. This publication began a 30-day public review period, which ended on February 22, 1992. A copy of the amended EISPN was sent to the same 77 organizations or individuals listed below. By February 26, 1992, a total of 22 agencies, organizations or individuals responded in writing. The parties who responded to the amended EISPN are identified by a pound sign (#). Their comment letters are reproduced in Chapter 11, along with the applicant's responses.

Federal Agencies

- **# U.S. Department of Agriculture, Soil Conservation Service
- * U.S. Army Engineer District, Honolulu
- * U.S. Department of Housing and Urban Development
- **# U.S. Coast Guard, Aids to Navigation Branch
- U.S. Dept. of the Interior, Fish and Wildlife Service

State Agencies

- **# Department of Accounting and General Services
- Department of Agriculture
- Department of Business, Economic Development & Tourism
- **# Department of Education
- **# Department of Health
- * Department of Human Services
- **# Department of Land and Natural Resources
- * Department of Transportation
- **# Division of Forestry and Wildlife, DLNR
- **# Executive Office on Aging
- **# Housing Finance and Development Corporation
- **# Land Use Commission
- * Oahu Metropolitan Planning Organization
- **# Office of Environmental Quality Control
- * Office of State Planning
- **# State Historic Preservation Division
- University of Hawaii, Environmental Center

City and County of Honolulu

- * Board of Water Supply
- **# Building Department
- Department of Finance
- * Department of Parks and Recreation
- * Department of General Planning
- **# Department of Transportation Services
- **# Fire Department
- **# Police Department
- **# Department of Land Utilization
- **# Department of Public Works
- # Department of Human Resources
- Department of Housing and Community Development

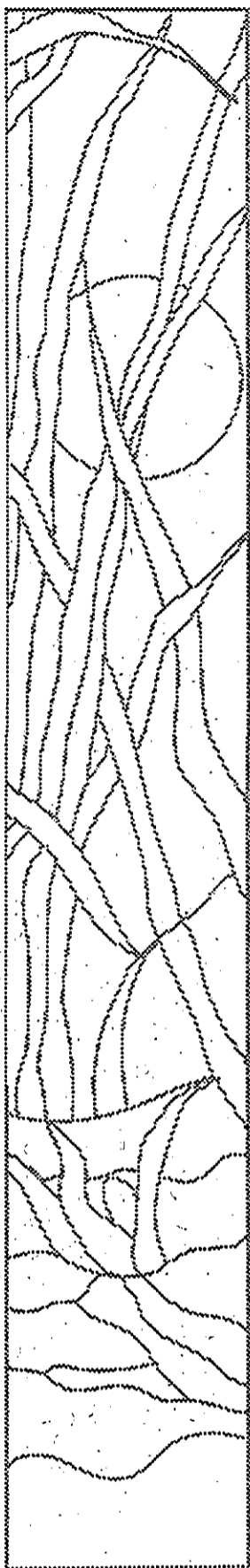
Public Utilities

- **# Gasco
- # GTE Hawaiian Telephone Company, Inc.
- Hawaiian Electric Company, Inc.
- * Oceanic Cablevision

Community Organizations/Individuals

Affordable Housing Alliance
American Association of University Women, Windward Branch
American Lung Association
John Clear, Century 21
Laverne Clement
Enchanted Lakes Community Association
Exchange Club of Kailua
Councilmember John Henry Felix
Mike and Nat Gorelangton
Ed Gorman, Realtor Associate, Worrall-McCarter, Inc.
Councilmember Steve Holmes
Kailua Chamber of Commerce
Kailua Community Council
Kailua Hawaiian Civic Club
Kailua Neighborhood Board
Olomana Community Association
Kailua Senior Citizens
Kailua Town Reunion
Kawai Nui Heritage Foundation
Kiwanis-Windward
* Kuulei Community Association
Lanikai Community Association
Lani-Kailua Business and Professional Women
Lani-Kailua Outdoor Circle
Maunawili Community Association
National Audubon Society
Oahu Hawaiian Canoe Racing Association
Olomana Community Association
Pali Seniors Club
Pohakupu-Kukanono Community Association
Rotary Club of Windward Oahu
Sierra Club
James A. Slavish, Jack Wolfe Insurance
*# Cynthia Thielen
Ginny Waracka
* Eric A. Weiss
Windward Soroptimist Club
* Windward Coalition of Churches
Windward Community Arts Council

Chapter XI



Comments and Responses Received During
Preparation of the DEIS

**CHAPTER XI COMMENTS AND RESPONSES RECEIVED DURING
PREPARATION OF THE DEIS**

This section contains reproductions of comment letters regarding the both the original EISPN (November 8, 1991 publication) and the amended EISPN (January 23, 1992 publication) as well as the applicant's responses to those comments. Chapter 10 contains a list of the parties to whom the EISPN was sent. This list indicates which parties responded in writing to the EISPN.

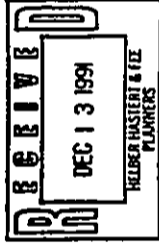
UNITED STATES
DEPARTMENT OF
AGRICULTURE

SOIL
CONSERVATION
SERVICE

P. O. BOX 50004
HONOLULU, HAWAII
96850

Helber Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813
Attention: Gail Uyetake

December 6, 1991



Dear Mr. Uyetake:

Subject: Environmental Impact Statement Preparation Notice (EISP) -
Kailua Gateway Development, Kailua, Oahu, HI

We have reviewed the Kailua Gateway Development Environmental Impact
Statement Preparation Notice (EISP) and like to offer the following
comments.

As described in the EISP, the proposed project borders Kaelepulu Stream
and corresponding wetland areas. It is Soil Conservation Service policy to
assist in the protection of our nation's wetlands. We therefore support
the implementation of protective measures that would avoid or reduce any
potentially adverse impacts to the wetland by this project.

The EISP does not address the potential water quality impacts of the
proposed project. Being so close to the stream and wetlands, construction
activities could have adverse impacts on the water quality of these areas.
The erosion and sediment control plan for this project should specifically
describe the treatment measures to be installed and maintained in order to
minimize any adverse impacts of the construction.

Thank you for the opportunity to comment on this proposed project. We
would appreciate reviewing the draft Environmental Impact Statement when it
is completed.

Sincerely,

WARREN M. LEE
State Conservationist

Helber Hastert
Planners

December 18, 1991

Mr. Warren M. Lee
State Conservationist
U.S. Department of Agriculture
Soil Conservation Service
P.O. Box 50004
Honolulu, HI 96850

Dear Mr. Lee:

Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolahooko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter
dated December 6, 1991. We have reviewed your letter and offer the following
responses to your comments.

1. The Draft Environmental Impact Statement (DEIS) will discuss the potential
impacts of the project on the wetland and possible mitigative measures.
2. The DEIS will include a water quality impact assessment for the proposed
development.

Your letter will be reproduced in the Draft Environmental Impact Statement in its
entirety.

Again, thank you for your input into this process.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

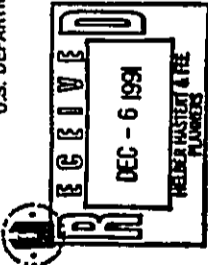
Helber Hastert & Fee
Conservation Center, PHH Tower

711 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Telephone: 268-515-2015
Telex: 268-515-2015

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

Honolulu Office
Seven Wilshire Plaza, Suite 500
507 Ala Moana Boulevard
Honolulu, HI 96813



DEC 4 1991

Ms. Gail Uyetake
Project Planner
Helmert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, HI 96813

Dear Ms. Uyetake:

SUBJECT: Kailua Gateway Development
Environmental Impact Statement Preparation Notice
(EISPN)

This responds to your transmittal dated November 8, 1991, regarding the proposed action that requests the Department of General Planning to consider a change in the Development Plan Designation of 21 acres in Kailua from current Preservation designation to the Medium-Density Apartment and Commercial designation.


We have reviewed this project and submit the following comments that should be considered if the Department of Housing and Urban Development programs or assistance is contemplated.

1. A full Environmental Impact Statement (EIS) would not be required by HUD.
2. Any HUD-assisted project located in a floodplain must comply with Executive Order 11988, Floodplain Management. Similar projects located in or affecting a designated wetland must comply with Executive Order 11990, Protection of Wetlands. HUD will assume the responsibility for complying with these Executive Orders.
3. The State Historic Preservation Officer must be consulted and given an opportunity to comment on the potential effect the proposed action may have on historic properties per 36 CFR Part 800.
4. Noise generated by vehicular traffic on Hamakua Drive should be evaluated for compliance with 24 CFR Part 51 Subpart B; Noise Abatement and Control.

- 2
5. The design of residential units should be consistent with 24 CFR Part 8: Nondiscrimination Based on Handicap in Federally Assisted Programs and Activities of the Department of Housing and Urban Development (HUD) and the Uniform Federal Accessibility Standards.

If you have any questions, please do not hesitate to call Frank Johnson at (808) 541-1327.

Very sincerely yours,


Patty A. Nicholas
Director
Community Planning and
Development Division

Helber Haster
Planners

December 18, 1991

Ms. Patty A. Nicholas, Director
Community Planning and Development Division
U.S. Department of Housing and Urban Development
Seven Waterfront Plaza, Suite 500
500 Ala Moana Boulevard
Honolulu, HI 96813

Dear Ms. Nicholas:

Environmental Impact Statement Preparation Notice
Kaliua Gateway Development
Koolaunoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated December 4, 1991. We have reviewed your letter and offer the following responses to your comments.

The developer will comply with the conditions enumerated in your letter should the Department of Housing and Urban Development programs or assistance be sought for the project.

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Again, thank you for your input into this process.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

Helber Haster & Fee
Environmental Planners, 1981 Tower

211 Bishop Street, Suite 2700
Honolulu, Hawaii 96813

Telephone: 808-537-2073
Telex: 808-537-2070

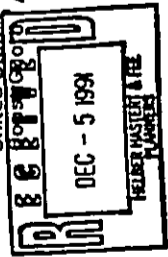
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

U.S. Department
of Transportation



Commander (assn)
Fourteenth Coast Guard District

Prince Kahanui
Federal Building
300 Ala Moana Blvd.
Honolulu, Hawaii 96850-4922
Phone: (808) 531-2315



16590
Serial 32577
3 DEC 1991

Ms. Gail Uyetake, Project Planner
Helber Hastert & Fee, Planners
Grosvenor Center, FRI Tower
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

We have reviewed the Application for Development Plan Amendment and Environmental Assessment concerning the Kailua Gateway Development which you provided to us for comments under your 8 November 1991 letter. The section within the application which discusses U. S. Coast Guard permitting of bridges is correct. At this time it is too early to determine if your project includes navigable waters or if a U. S. Coast Guard Bridge Permit will be required.

When your zoning issues have been resolved and your project moves into a more specific level of planning, please contact us if your plans include the construction of a bridge over navigable waters. We can then make a navigability determination if necessary and decide what degree of permitting is required. Should you have any additional questions, please contact LT Michael Swegles at 541-2319.

Sincerely,

D. J. SOBECK
Lieutenant Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
Fourteenth Coast Guard District
By direction of the District Commander



December 18, 1991

LTCDR D. J. Sobeck
Chief, Aids to Navigation Branch
Fourteenth Coast Guard District
300 Ala Moana Boulevard
Honolulu, HI 96813

Dear LTCDR Sobeck:

Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koahauoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated December 3, 1991. We have reviewed your letter and offer the following responses to your comments.

We will continue to be in contact with the Aids to Navigation Branch as the project moves into more specific levels of planning, particularly concerning details of any proposed bridge.

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Again, thank you for your input into this process.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

Helber Hastert & Fee
Grosvenor Center, FRI Tower

211 Bishop Street, Suite 2700
Honolulu, Hawaii 96813

Telephone: (808) 531-2955
Facsimile: (808) 531-2956

Helbert Hastert
Planners

November 21, 1991

Mr. Teuane Tominaga
State Public Works Engineer
State of Hawaii
Department of Accounting and General Services
Division of Public Works
P.O. Box 119
Honolulu, Hawaii 96810

Dear Mr. Tominaga:

Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauapoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated November 20, 1991 (Letter No. P2264.1). Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Again, thank you for your input into this process.
Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

Helbert Hastert & Fee
Planners
211 Bishop Street, Suite 2200
Honolulu, Hawaii 96811

Helbert Hastert & Fee
Planners
211 Bishop Street, Suite 2200
Honolulu, Hawaii 96811



STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
DIVISION OF PUBLIC WORKS
P. O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO. (P) 2264.1

MUSSEL'S BAGATA
CHAMPAGNE
ROBERT P. TARDIF
SHIPPY COMPANY
HONOLULU, HAWAII

NOV 20 1991

Helbert, Hastert and Fee, Planners
Grosvenor Center, PRI Tower
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Attention: Ms. Gail Uyetake

Gentlemen:

Subject: Kailua Gateway Development
Koolauapoko, Oahu, Hawaii
EIS Preparation Notice

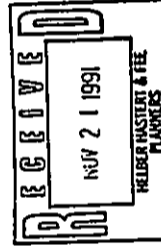
Thank you for the opportunity to review the subject document. We have no comments to offer.

Should there be any questions, please have your staff contact Mr. Ralph Yukumoto of the Planning Branch at 586-0488.

Very truly yours,

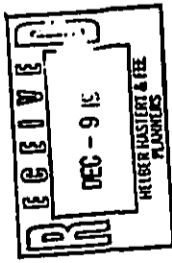
Teuane Tominaga
TEUANE TOMINAGA
State Public Works Engineer

RY:jk
cc: Office of Environmental Quality Control



NOV 21 1991 10 57 AM

JOHN WALKER
DIRECTOR



STATE OF HAWAII
DEPARTMENT OF EDUCATION
P. O. BOX 2288
HONOLULU, HAWAII 96810

CHARLES T. TOGUCHI
SUPERINTENDENT

OFFICE OF THE SUPERINTENDENT

November 22, 1991

Ms. Gail Uyetake
Project Planner
Helber Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

SUBJECT: Environmental Impact Statement Preparation
Notice (EISP/N), Kailua Gateway Development
Koolauapoko, Oahu, Hawaii
TMK: 4-2-01: 1.55: 4-2-03: 17.29

Our review of the subject EISP/N indicates that the proposed
lifecare retirement community will have no impact on the
public schools in the area.

Thank you for the opportunity to comment.

Sincerely,

Charles T. Toguchi

Charles T. Toguchi
Superintendent

CTT:jl

cc: A. Suga
S. Loo

HELBER HASTERT
& FEE, PLANNERS

December 9, 1991

Mr. Charles T. Toguchi, Superintendent
State of Hawaii
Department of Education
P.O. Box 2360
Honolulu, HI 96804

Dear Mr. Toguchi:

Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauapoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter
dated November 22, 1991. We acknowledge your determination that the proposed
lifecare retirement community will have no impact on the public schools in the
area.

Your letter will be reproduced in the Draft Environmental Impact Statement in its
entirety.

Again, thank you for your input into this process.

Sincerely,

HELBER HASTERT & FEE, PLANNERS

Gail Uyetake

Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

Helber Hastert & Fee,
Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

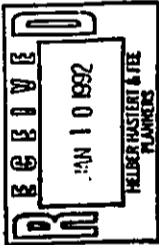
Telephone: (808) 531-2900
Fax: (808) 531-2901

JOHN WILKIE
DIRECTOR OF HEALTH



STATE OF HAWAII
DEPARTMENT OF HEALTH

P. O. BOX 3115
HONOLULU, HAWAII 96811



JOHN C. LEVIN, M.D.
DIRECTOR OF HEALTH

Ms. Gail Uytake
January 7, 1992
Page 2

91-426

In reply, please refer to:
91-426/epo

January 7, 1992

Ms. Gail Uytake
Project Planner
Heibert Hebert & Fee, Planners
Governor Center, PVI Tower
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uytake:

Subject: Environmental Impact Statement Preparation Notice (EISP/N)
Kaliua Gateway Development
Koolauoko, Oahu, Hawaii
TRK: 4-2-01:1, 55; 4-203:17, 29

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

Wastewater

Wastewater generated at the project site will be conveyed to and treated at the Kaliua Wastewater Treatment Plant (WWTP). No other means of wastewater treatment and disposal is acceptable to the Department.

If you should have any questions on this matter, please contact Ms. Lori Kajiwara of the Wastewater Branch at 586-4290.

Solid Waste

The environmental assessment fails to address the generation and diversion of solid waste, commenting only on disposal. In order to meet the State and City of County waste reduction goals (State: 25 percent by 1995 and 50 percent by 2000; County: 30 percent by 1995 and 75 percent by 2000), the EIS should propose solutions to waste reduction and diversion, both during construction and after occupation of the project. Construction waste reduction, including composting of the grub material; use of locally-produced greenhouse compost in landscaping; allocation of space for material storage in multi-family units; and the provision of facilities for drop-off of recyclables are options which should be discussed.

If you should have any questions on this matter, please call Mr. John Harder of the Solid Waste Office at 586-4227.

Noises

- Noises from stationary equipment such as air conditioning units, refrigeration compressors, and exhaust fans must be attenuated to comply with the provisions of the Department of Health's Administrative Rules, Chapter 11-43, "Noise Control for Oahu."
- The project must be designed so that noise emanating from activities associated with the proposed commercial area will not adversely impact the residents of the planned project.

3. Construction activities must comply with the provisions of the Department of Health's Administrative Rules, Chapter 11-43, "Community Control for Oahu."

- 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.
- Construction equipment and on-site vehicles requiring an exhaust of gas or air must be equipped with mufflers.
- The contractor must comply with the requirements specified in the regulations and conditions issued with the permit.

4. Traffic noise from heavy vehicles travelling to and from the construction site must be minimized near existing residential areas and must comply with the provisions of the Department of Health's Administrative Rules, Chapter 11-43, "Vehicular Noise Control for Oahu."

Soil Runoff

Measures should be taken to prevent soil runoff into Kaelepu Stream during construction and to prevent urban/surface runoff directly into Kaelepu Stream after the project is completed.

Very truly yours,

John C. Levin
JOHN C. LEVIN, M.D.
Director of Health

c: Wastewater Branch
Noise and Radiation Branch
Solid Waste Office

Helder Hastert
Planners

January 16, 1992

John C. Lewin, M.D., Director
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, HI 96801

Dear Dr. Lewin:

Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koalaupoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated January 7, 1991 (your reference number 91-426/epo). We have reviewed your letter and offer the following responses to your comments.

Wastewater

A wastewater plan has been prepared for the project, and will be included in the Draft Environmental Impact Statement (DEIS). Wastewater generated at the project site will be conveyed to and treated at the Kailua Wastewater Treatment Plant.

Solid Waste

A solid waste report has been prepared for the project and will be included in the DEIS. An estimated 4,000 pounds/day of solid waste will be generated by the proposed project. This amount constitutes less than one-half of the one percent of the total capacity of the Kapaa Transfer Station, and will not have a significant impacts on its operations.

The solid waste reduction options included in your letter will be considered by the developer and the contractor as the project progresses. Since the project will be a cluster development, there will be an opportunity to provide convenient recycling centers on site.

Noise

Noise from stationary equipment will be attenuated to comply with the provisions of the Department of Health's Administrative Rules, Chapter 11-43, "Noise Control for Oahu."

The project will be designed so that noise emanating from activities associated with the proposed commercial area will not adversely impact the residents of the planned project.

Helder Hastert & Fee, Planners
1110 Kapiolani Blvd., Suite 420
Honolulu, Hawaii 96813

1110 Kapiolani Blvd., Suite 420
Honolulu, Hawaii 96813

Helder Hastert
Planners

John C. Lewin, M.D.
January 16, 1992
Page 2

Construction activities will comply with the provisions of the Department of Health's Administrative Rules, Chapter 11-43, "Community Control for Oahu."

Traffic noise from heavy vehicles traveling to and from the construction site will be minimized near existing residential areas and will comply with the provisions of the Department of Health's Administrative Rules, Chapter 11-43, "Vehicular Noise Control for Oahu."

Soil Runoff

A water quality impact study was completed for the project, and will be included in the DEIS. Impacts to Kaelepu Stream from storm runoff and sedimentation during the construction phase will be reduced by the construction of a berm at the wetlands boundary and a drainage swale above the berm which will drain runoff into sedimentation basins. Overflow water from the sedimentation basins which has lost most of its sediment load will flow to the northeast corner of the project area and enter Kaelepu Stream near Kailua Road. Sedimentation impacts from construction will be further reduced by sodding and planting exposed areas as soon as grading is completed.

After project completion, runoff will flow from the site through three storm drains, which will eventually reach Kaelepu Stream. Runoff from about one-third of the mauka site will be diverted into a storm drain which eventually empties into Kaelepu Pond (Enchanted Lake). Kaelepu Stream presently collects urban runoff from the Coconut Grove area and the Kailua business district, makai of the stream.

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Again, thank you for your input into this process.

Sincerely,

HELDER HASTERT & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

Helber Hastert
Planners

December 20, 1991

Ms. Winona E. Rubin, Director
State of Hawaii
Department of Human Services
P.O. Box 339
Honolulu, HI 96809

Dear Ms. Rubin:

Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauloaha, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated December 3, 1991. We have reviewed your letter and offer the following responses to your comments.

1. The Draft Environmental Impact Statement (DEIS) will provide as much information on the eligibility requirements for low-income senior, their access to the supportive services planned and anticipated costs in as much detail as is available at the time of publication.
2. It is noted that any adult day care or child care facility included in the development would be subject to Department of Human Services licensing requirements.

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Again, thank you for your input into this process.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uycetake
Gail Uycetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

Helber Hastert & Fee
Government Center, 1101 Kalia

211 Hildrey Street, Suite 2701
Honolulu, Hawaii 96813

Telephone: 808-533-2411
Facsimile: 808-533-2420



JOHN WAINI
Director of Natural Resources



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. BOX 51
HONOLULU, HAWAII 96813

WILLIAM W. PAFF, CHAIRPERSON
Board of Land and Natural Resources

MEMBERS

- MARKUS TACOMON
- Dan I. Kechi
- Occupational Development
- Public Works
- ADRIAN K. BROWN
- Conservation and
- Development
- Commercial Affairs
- Construction
- Environment
- Health Services
- Human Resources
- Land Management
- State Parks
- Water and Land Development

Ms. G. Uyetake

-2-

File No.: 92-277

REF:OCEA:SKK

FILE NO.: 92-282
DOC. NO.: 2259E

DEC 23 1991

Ms. Gail Uyetake
Helbert, Haster & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

SUBJECT: Environmental Impact Statement Preparation Notice (EISP/N)
for the Kailua Gateway Development at Koolaupoko, Oahu,
Hawaii

Thank you for giving our Department the opportunity to review this
EIS Preparation Notice. Our comments are as follows:

Project Description:

The project involves development of 21 acres of land adjacent to
Kawaiui Marsh and requires zoning redesignation from County
Preservation to Medium-Density Apartment and Commercial. Kaneohe
Ranch has an unofficial Agreement with Ducks Unlimited to improve
the suitability of the wetlands within the project areas for
waterbirds, after which the property would be transferred to the
State. These wetlands will retain Preservation status. An
industrial area will be developed adjacent to the improved
wetlands. Also, a portion of the project would require a State
Land Use Commission boundary amendment from the Conservation
district to the Urban district.

DIVISION OF AQUATIC RESOURCES COMMENTS:

We have concerns about increased sediment loads and toxic urban runoff in Kaelepu Stream and Kailua Bay as a result of the project, as well as the compatibility of the improved wetlands with the planned adjacent industrial area. A thorough biological reconnaissance, including aquatic insects and other invertebrates, of the stream and estuary should be performed as part of the environmental impact study. The simple listing of aquatic species in the assessment document is inadequate and incomplete. A thorough evaluation of the impact of the entire project on these biota, the stream habitat, and the nearshore marine resources is needed. We are also uncertain whether the area is adequately above the 100-year flood plain. The consequences of construction of housing in flood-prone areas, and the considerable environmental damage it causes, was dramatically evidenced in the infamous New Year's flood in Kailua.

DIVISION OF STATE PARKS COMMENTS:

Reference to a "park" on the Kawaiui Marsh side of Kailua Road across from the project may mislead the reader. Buffer lands surrounding the marsh are not intended to be used as an inland community park as one might infer, but rather to help to portray the natural/cultural scenic resource values inherent in the marsh and its undeveloped environs.

The project may include "town homes". It is unclear from the write up as to the degree of relevance such construction has with the rest of the project. Is it intended to make the project economically viable? If not, would it not be better to reserve the area for future expansion of the lifecare facility?

HISTORIC PRESERVATION DIVISION COMMENTS:

We note that the developer will be contracting for an archaeological inventory survey prior to preparation of the Draft Environmental Impact Statement. The developer should insure that the archaeological consultant explores the potential of the wetlands within the project area to contribute to an understanding of the history of vegetation change in the vicinity related to prehistoric human occupation. Typically, this is accomplished through the extraction of cores with either a Livingstone or Russian corer and an analysis of the nature and pollen content of the soils in the cores.

92-282-2259E-2

Ms. G. Uyetake

-3-

File No.: 92-277

DIVISION OF WATER RESOURCE MANAGEMENT COMMENTS:

The EA should address drainage and sediment control measures to be undertaken during clearing and construction operations. Also in need of addressing is the project's relationship to the stream alteration requirements of the State Water Code.

DIVISION OF LAND MANAGEMENT COMMENTS:

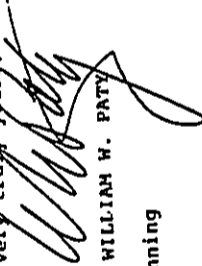
DLM requests that appropriate action be taken by the applicant to insure protection of the flora and fauna within the adjoining wetland area and further, that no structures exceed two stories to blend into the ridge side.

OFFICE OF CONSERVATION AND ENVIRONMENTAL AFFAIRS COMMENTS:

How does the applicant intend to maintain the ecological integrity of the Marsh and surrounding areas? What would be the effect of this development on hydrological processes in and around the wetland? What mitigation measures, if any, could be implemented and enforced to rectify any land use incompatibilities and/or environmental impacts stemming from urbanization. We would expect these and other related issues to be assessed and resolved in the forthcoming Environmental Impact Statement.

Thank you for your cooperation in this matter. Please feel free to call me or Sam Lemmo at our Office of Conservation and Environmental Affairs, at 587-0377, should you have any questions.

Very truly yours,


WILLIAM W. PATY

cc: OEQC/Dept. of General Planning



January 3, 1992

Mr. William W. Paty
Chairperson
Board of Land and Natural Resources
P.O. Box 621
Honolulu, HI 96809

Dear Mr. Paty:

Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauopoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated December 23, 1991. We have reviewed your letter and offer the following responses to your comments.

Division of Aquatic Resources

A water quality study has been completed for the proposed project, which examined possible impacts on Kawaiwi Stream and Kaiua Bay. This report will be summarized and included in the Draft Environmental Impact Statement (DEIS). A survey of the avifauna and mammals on the project site was also conducted and will be included in the DEIS.

Division of State Parks

It will be noted in the DEIS that the area designated as "Park" in the City and County Development Plan Public Facilities Map for Koolauopoko on the Kawaiwi Marsh side of Kailua Road is intended to be used as a wildlife sanctuary and interpretive center.

All of the residential units on the mauka side of Hamakua Drive will be part of the lifecare facility. The townhomes referred to in the EIS Preparation Notice will not be developed as a separate project; rather, the lifecare center will include some units in duplex or townhome arrangements as well as in apartment-type structures.

Historic Preservation Division

The archaeological survey and assessment performed by the archaeological consultant is a two-phase project, which is intended to comply with the State Historic Preservation Division's requirements for permitting actions. The Draft and Final Environmental Impact Statements will include data and analysis from the first phase, which involves full archaeological surface coverage of the project area and a review of existing literature and archival documents. The second phase

William W. Paty
Chairman, Board of Land and Natural Resources

211 Hahaione Street, Suite 2700
Honolulu, Hawaii 96815

Telephone: 587-1111
Facsimile: 587-2424

JOHN WILKIE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

WILLIAM W. FEE, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

SERVICES
KEVIN W. ANGE
MALLORY TADONOH
BOB T. BROWN

ARCHAEOLOGICAL DEVELOPMENT
PLANNING
ARCHAEOLOGICAL RESEARCH
CONSERVATION AND
RESTORATION
CULTURAL RESOURCE MANAGEMENT
CONSERVATION
PLANNING AND DESIGN
ARCHAEOLOGICAL RESEARCH
PLANNING
STATE HISTORIC PRESERVATION

November 19, 1991

Gail Uyetake
Project Planner
Helder Hastert & Fee
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

LOG NO: 4072
DOC NO: 0440T

Dear Ms. Uyetake:

SUBJECT: Environmental Impact Statement Preparation Notice
(EISP), Kailua Gateway Development
Kailua, Ko'olaupoko, O'ahu
TRK: 4-2-01: 1, 55: 4-2-3: 17, 29

Thank you for the opportunity to comment on this EISP. We note that you will be contracting for an archaeological inventory survey prior to preparation of the Draft Environmental Impact Statement. Please insure that your archaeological consultant explores the potential of the wetlands within your project area to contribute to an understanding of the history of vegetation change in the vicinity. Typically, this is accomplished through the extraction of cores with either a Livingston or Russian corer and an analysis of the nature and pollen content of the soils in the cores.

Please call Tom Dye at 587-0014 if you have any questions.
Sincerely,

DON HIBBARD, Administrator
State Historic Preservation Division

TD:jle

Helder Hastert
/Hastert

December 5, 1991

Mr. Don Hibbard, Administrator
State Historic Preservation Division
State of Hawaii
Department of Land and Natural Resources
33 South King Street, 6th Floor
Honolulu, HI 96813

Dear Mr. Hibbard:

Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Ko'olaupoko, O'ahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated November 19, 1991. We have reviewed your letter and offer the following responses to your comments.

The archaeological survey and assessment performed by the archaeological consultant is a two-phase project, which is intended to comply with the State Historic Preservation Division's requirements for permitting actions. The Draft and Final Environmental Impact Statements (EIS) will include data and analysis from the first phase, which involves full archaeological surface coverage of the project area and a review of existing literature and archival documents. The second phase will include whatever additional investigations are determined necessary to complete the assessment process.

According to a discussion with Mr. Tom Dye of the State Historic Preservation Division, the coring analysis recommended in your letter would be required if the project involved any intrusion into or reconfiguration of the wetlands. The applicant is committed to having this investigation conducted by the archaeological consultant, if so required by the State Historic Preservation Division. Mr. Dye stated that it would be acceptable to conduct this investigation during the second phase of the archaeological assessment, in which case the results of the coring analysis would not be included in the environmental impact statement.

Your letter will be reproduced in the Draft EIS in its entirety.

Again, thank you for your input into this process.

Sincerely,

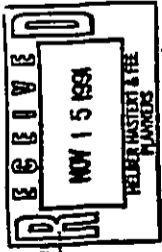
HELDER HASTERT & FEE, Planners

Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

Helder Hastert & Fee
Commerce Center, PMB 1000
Honolulu, Hawaii 96813

11/19/91
12/5/91



STATE OF HAWAII
 DEPARTMENT OF LAND AND NATURAL RESOURCES
 DIVISION OF FORESTRY AND WILDLIFE
 1151 PUNCHBOWL STREET
 HONOLULU, HAWAII 96813

November 14, 1991

Ms. Gail Uyetake
 Project Planner
 Helber Hastert and Fee, Planners
 733 Bishop Street, Suite 2590
 Honolulu, Hawaii 96813.

WILLIAM W. PATT, CHAIRPERSON
 BOARD OF LAND AND NATURAL RESOURCES
 MEMBERS
 KEITH W. JAMES
 JAMES H. HARRIS
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 CONSTRUCTION AND
 CONSERVATION AND
 MANAGEMENT
 FACILITY AND WILDLIFE
 LAND MANAGEMENT
 STATE HISTORIC PRESERVATION
 STATE RECORDS MANAGEMENT

Dear Gail:

This responds to your letter of November 8, 1991 regarding the E.I.S. for the Kailua Gateway Development.

Generally, the application/ assessment is complete and accurate. However, I have a few comments:

1. Although the maps are clear as far as they go, it would be very helpful in the E.I.S. if the outline of the "area of application" were superimposed over the informational figures (elevations, soils, slope, land use controls, flood zones, etc.). Otherwise it will be difficult for reviewers and decision makers to visualize the relationships.
2. The issue of runoff should be more fully addressed. This will be of major concern and a more detailed explanation of how it will be handled or mitigated should be included. With slopes severe, soils impermeable and a wetland adjacent to the subject area, this may be a point of contention in the request to amend the Development Plan designation. (A suggested solution is to divert all drainages on the contour, laterally to Kailua Road and Hamakua Drive storm culverts).
3. A clearer discussion of the width and composition of the buffer zone between the proposed development and the wetland is in order. As depicted in the assessment, the area of application abuts directly on the wetland.
4. There is frequent mention of a "park" for the area across Kailua road from the project site. More accurately, the State plans to develop a portion of the site as a wildlife sanctuary and a portion for an interpretive center.
5. On page 31 (h. Open Space) it is a bit misleading to state that the "structures will be limited to 40 feet in height, the

same as the surrounding Kailua business community " in view of the fact that they will be at a higher elevation than the business area along Hamakua Drive.

6. As you know, we have serious reservations about constructing a bridge across the wetlands and I suspect others will question its' appropriateness. I suggest you provide a little more detail in terms of the design and how you proposed to mitigate this intrusion in the middle of a wildlife sanctuary.

Thank you for allowing me to review the plan/assessment. I would like to work closely with you on this project, which is dear to my heart. Call me if you have any questions (587-0166)

Aloha,

Sincerely Yours,

Ronald L. Walker

CC: Oahu District
 Administrator
 Ducks Unlimited



Hilbert Hastert
Planners

December 10, 1991

Mr. Ronald L. Walker
Wildlife Program Manager
State of Hawaii
Department of Land and Natural Resources
Division of Forestry and Wildlife
1151 Punchbowl Street, Room 325
Honolulu, HI 96813

Dear Mr. Walker:

Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauloko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated November 12, 1991. We have reviewed your comments and offer the following responses:

1. The informational maps contained in the Draft Environmental Impact Statement (DEIS) will indicate the area of application.
2. A drainage plan for the proposed development is being prepared by the engineering consulting firm, Smith Young & Associates. This report will be summarized and reproduced in the DEIS.
3. The DEIS will include a description of the proposed buffer between the urban development and the wetlands.
4. The DEIS will indicate that the State intends to develop a portion of the park site identified in the Development Plan Public Facilities Map as a wildlife sanctuary and a portion of this site as an interpretive center.
5. The description of the height of the proposed development will be clarified in the DEIS.
6. Although specific design details of the proposed bridge are not available at this preliminary stage of development, a general description and a discussion of mitigative measures will be included in the DEIS.

Hilbert Hastert & Associates, Inc. 211 Hahaione Street, Suite 200A Honolulu, Hawaii 96815
Telephone: (808) 941-1111 Fax: (808) 941-1111

Hilbert Hastert
Planners

Mr. Ronald L. Walker
December 10, 1991
Page 2

Your letter will be reproduced in the DEIS in its entirety.

We appreciate your personal interest in this project and look forward to your continued involvement. Your comments to date have been most helpful, and we thank you for this input into the EIS process.

Sincerely,

HILBERT HASTERT & FEE, Planners

Gail Uyeiako
Gail Uyeiako
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham





STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
Room 104, Old Federal Building
335 Merchant Street
Honolulu, Hawaii 96813
Telephone: 541-4411

RECEIVED
NOV 25 1991
HELDER HASTERT & FEE
PLANNERS

November 18, 1991

Ms. Gail Uyetake
Helber, Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

Subject: Environmental Impact Statement Preparation Notice (EISP/N) for Kailua Gateway Development, Koolauloko, Oahu, Hawaii, TRK Nos.: 4-2-01:1, 55; 4-2-03:17, 29

The Department of Business, Economic Development and Tourism has referred your letter dated November 8, 1991 to our office for response.

We have reviewed the EISP/N for the subject Kailua Gateway Development project and confirm that it is designated within the State Land Use Urban and Conservation Districts. Based on the EISP/N, we understand that a petition for reclassification of the subject property will be filed with the Land Use Commission in the future.

We note that there is a map of land use controls showing the State Land Use and County Zoning designations on page 19 of the EISP/N (figure 8). We suggest that the draft EIS include a more detailed map of the proposed Kailua Gateway Development project in relation to the State Land Use Districts.

We have no other opportunity to offer at this time. We appreciate the opportunity to comment on this matter.

If you have any questions, please call me or Bert Saruwatari of our office at 587-3822.

Sincerely,

ESTHER UEDA
Executive Officer

EU:to

CC: DBED

Helber Hastert & Fee
Planners

November 25, 1991

Ms. Esther Ueda
Executive Officer
Department of Business, Economic Development and Tourism
Land Use Commission
Room 104, Old Federal Building
335 Merchant Street
Honolulu, Hawaii 96813

Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauloko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated November 18, 1991. We have reviewed your letter and offer the following responses.

The map showing State and County Zoning Designations included in the Draft Environmental Impact Statement will show the proposed Kailua Gateway Development in relation to the State Land Use Districts, as requested in your letter.

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Again, thank you for your input into this process.

Sincerely,

HELDER HASTERT & FEE, Planners

Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

Helber Hastert & Fee
Professional Center 400 Pali Place

11 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Telephone: 587-3120
Telex: 587-3120

NOV 25 1991 10 50 AM



OFFICE OF STATE PLANNING

Office of the Governor

MAILING ADDRESS: 410 SOUTH KING STREET, 2ND FLOOR
HONOLULU, HAWAII 96813-2000
TELEPHONE: (808) 527-3000

FULL SERVICE COPY: 527-3000
FAX: 527-3000

Ref. No. P-2564

November 27, 1991

Ms. Gail Uyetake
Project Planner
Helber Haster & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

Subject: Environmental Impact Statement Preparation Notice
(EISP), Kailua Gateway Development, Koolauopoko, Oahu
TMK 4-2-01: 1, 55; 4-2-03: 17, 29

We have reviewed the proposed project and have the following comments to offer. The document does not indicate the drainage characteristics of the site. We are concerned that the water quality of Kawaiwi canal and marsh may be adversely affected from overland flow draining from the development. The mitigation measures to prevent the degradation of water quality should be described in the Draft Environmental Impact Statement.

Thank you for allowing us the opportunity to review this document. If there are any questions, please contact the Coastal Zone Management Program at 587-2879.

Sincerely,

Harold S. Masumoto
Harold S. Masumoto
Director

Helber Haster
Planners

December 10, 1991

Mr. Harold S. Masumoto
Director
Office of State Planning
Office of the Governor
P.O. Box 3540
Honolulu, HI 96811-3540

Dear Mr. Masumoto:

Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauopoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated November 27, 1991. We have reviewed your letter and offer the following responses to your comments.

The Draft Environmental Impact Statement for the proposed project will include a discussion of the existing and proposed drainage systems at the site, potential water quality impacts of the project on the adjacent wetlands and stream, and possible mitigation measures.

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Again, thank you for your input into this process.

Sincerely,

HELBER HASTER & FEE, Planners

Gail Uyetake
Project Planner

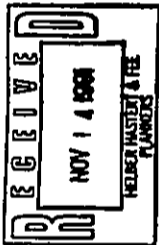
cc: Randy Moore
Tony Garcia
Don Graham

Helber Haster & Fee
Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Telephone: (808) 527-3000
Facsimile: (808) 527-3000

OMPO

Suite 1509
1164 Bishop Street
Honolulu, Hawaii 96813



Oahu
Metropolitan
Planning
Organization

(808) 587-2015
(808) 523-4178
(808) 587-2018 FAX

November 21, 1991

Mr. Gordon G.W. Lum
Executive Director
Oahu Metropolitan Planning Organization
Suite 1509
1164 Bishop Street
Honolulu, Hawaii 96813

Ms. Gail Uyetake
Project Planner
Helber Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

EISPN Review for Kailua Gateway Development

We have reviewed the Environmental Impact Statement Preparation Notice (EISPN) for the Kailua Gateway Development and note that a traffic study will be conducted. We would like to be informed of the study's results.

Thank you for the opportunity to review the EISPN.

Sincerely,

Gordon G.W. Lum
Executive Director



Helber Hastert & Fee
Planners

Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Kaohupoako, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated November 13, 1991. A traffic impact analysis report is being prepared for the proposed project and will be summarized and reproduced in the Draft Environmental Impact Statement (DEIS).

Your letter will be reproduced in the DEIS in its entirety.

Again, thank you for your input into this process.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

Helber Hastert & Fee
Planners
1164 Bishop Street, Suite 1509
Honolulu, Hawaii 96813

Telephone: (808) 523-4178
Facsimile: (808) 587-2018

1164 BISHOP STREET SUITE 1509 HONOLULU, HAWAII 96813

JOHN WAIKAE
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

NOV 29 1991

EDWARD Y. HIRATA
DIRECTOR
DEPUTY DIRECTORS
AL PANG
JOYCE I. OHANE
KAZUAKI N. SCHWARTZ
CALVIN M. TSUDA
WIRELESS REFER TO
HWY-PS
2,9938

Helber Hastert
Planners

December 18, 1991

Mr. Rex Johnson, Director
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813-5097

Dear Mr. Johnson:

Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolaulouko, Oahu, Hawaii

Thank you for your department's review of the above-referenced document and letter dated November 29, 1991 (your reference number HWY-PS 2,9938).

A copy of the traffic impact analysis report for the proposed project will be forwarded to you when completed. This report will be summarized in and included as an appendix to the Draft Environmental Impact Statement (DEIS).

Your letter will be reproduced in the DEIS in its entirety.

Again, thank you for your input into this process.

Sincerely,

HELBER HASTERT & FEE, Planners

Helber Hastert
Helber Hastert & Fee
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

Ms. Gail Uyetake, Project Planner
Helber Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

Environmental Impact Statement Preparation Notice
(EISPN), Kailua Gateway Development [Kaneohe Ranch],
Koolaulouko, Oahu, THK: 4-2-01: 1, 55; 4-2-03: 17, 29

Thank you for your letter of November 8, 1991, requesting our review of the subject EISPN.

We will comment on this proposal after we have received and reviewed the Traffic Impact Analysis Report for this project.

Very truly yours,

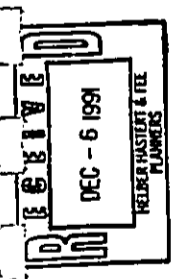
Edward Y. Hirata
Edward Y. Hirata
Director of Transportation

Helber Hastert & Fee
Planners

733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Helber Hastert & Fee
Planners

733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813



STATE OF HAWAII
 OFFICE OF ENVIRONMENTAL QUALITY CONTROL
 278 SOUTH KING STREET
 FOURTH FLOOR
 HONOLULU, HAWAII 96813

November 29, 1991

City and County of Honolulu
 Department of General Planning
 650 South King Street
 Honolulu, HI 96813

Attention: Mr. Melvin Murakami

Subject: Environmental Impact Statement Preparation Notice
 Kailua Gateway Development
 Koolaupoko, Oahu, Hawaii
 TMK: 4-2-01:1, 55: 4-2-03:17, 29.

Dear Mr. Murakami:

We have reviewed the above document and have the following comments to offer:

1. The location of the project in a Special Management Area adjacent to wetlands warrants special considerations. In a development of this size, located on a steep slope with low permeability soil, the additional water run-off caused by the project could seriously upset the delicate wetland ecosystem (pp. 16, 19).
2. Please consider the potential impacts on wildlife, particularly endangered birds in the area, in your plans to construct a footbridge across the wetland area. Could you provide a map showing the habitats of different species within the wetland area, and the more specific layout of the development, including the footbridge, the fenced-in area, walkways, and any planned alterations in the landform to provide better configuration for development (p. 15).
3. In your biological survey of the area, please include the impact of construction activities near this endangered species habitat (p. 9).

4. In regards to your planned elderly community for about 1,000 people, please consider contacting the State Executive Office of Aging, Office of the Governor, for their input.

5. Please include a clear legend on the map on page 32.

Thank you for the opportunity to develop comments regarding the effects on the environment of the proposed action.

Sincerely,

Brian J. J. Choy

BRIAN J. J. CHOY
 Director

c: Kaneohe Ranch
 1199 Aulua Road
 Kaneohe, HI 96734

Attention: Mr. Randy Moore

Helber, Hastert & Fee, Planners
 733 Bishop Street, Suite 2590
 Honolulu, HI 96813

Attention: Ms. Gail Uyetake

JOHN WAINKE
DIRECTOR



STATE OF HAWAII
EXECUTIVE OFFICE ON AGING
OFFICE OF THE GOVERNOR
325 MERCANTILE STREET, ROOM 311
HONOLULU, HAWAII 96813

JEANETTE TAKAMURA, PH.D.
DIRECTOR

TELEPHONE 808
342 7402

FAXED
1-8-92

Ms. Uyetake
Page 2
January 6, 1992

- prevent and/or delay the need for institutional care; and
- promote partnerships within and among the public and the private sectors and elder consumers and their families.

The State recognizes that new services and programs are drastically needed to respond to the improvements in longevity and increased incidence of chronic illnesses. The basic issue is to help older adults avoid undesired institutionalization and to support the efforts of informal caregivers of older adults. Policy recommendations address three major areas: the stimulation of community-based and home care services, quality of care, and financing of long term care.

The proposed development is intended to appeal to the senior housing market. As presented in the Application for Development Plan Amendment and Environmental Assessment, "it is likely that residents of this project will be present Windward Oahu residents or individuals who have children or other family members in the area" and that "the facility is not intended to draw its residents from out-of-state or overseas". Yet, it is unclear whether this type of facility will indeed attract a new population of users. Most older adults prefer to remain in their own homes for as long as possible. Currently, home care services, including home health care, personal care, and homemaker services are available to residents in their homes, including condominiums.

Equity, quality of care, personnel, affordability, financing and continuity of care are issues which require critical examination in the development of new services and programs for older adults. Given the materials provided us, we are unable to adequately assess this proposed development regarding affordability and fiscal stability, enhancement of quality of life, and cost containment and rising long term care cost concerns. Of particular concern is that relating to financial viability. No actuarial-based financial strategy has been presented for review.

The Executive Office on Aging appreciates the opportunity to review and provide comments. Please do not hesitate to call us for further information.

Sincerely,

Jeanette Takamura

Jeanette C. Takamura, Ph.D.
Director, Executive Office on Aging

SK/CS/JT:sk

January 6, 1992

Ms. Gail Uyetake
Project Planner
Hilber Hastert and Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, HI 96813

Dear Ms. Uyetake:

We write in response to your December 17, 1991 letter regarding Environmental Impact Statement Preparation Notice, Kailua Gateway Development, Koolauopoko, Oahu, HI TMK: 4-2-01:1, 55; 4-2-03:17, 29. Thank you for affording us the opportunity to share some perspectives.

Kaneohe Ranch "proposes to develop a lifecare retirement community (consisting of 300 independent apartments, 20 personal care units and 60 skilled nursing beds), 50-80 low-income elderly housing units, and a senior citizens' community center/daycare center on the subject property." It is our understanding that entering the lifecare facility and system, a non-profit entity, "requires a contractual arrangement between the individual and the foundation to provide services over the individual's lifetime. A one-time entry fee is assessed, which is approximately 60% of the unit's construction cost. Residents are assessed a monthly maintenance fee which covers meals, housekeeping, maintenance, and health care."

Our response relating to the lifecare facility is based on policy statements and recommendations found in the Comprehensive Master Plan for the Elderly and the Long Term Care Plan for Hawaii's Older Adults and initiatives undertaken by the Executive Office on Aging to pursue those recommendations.

There are broad themes which serve as the foundation for the State's long term care policies. These are that policies must:

- be client-centered and family supportive;
- assure dignity, self-determination, and independence to the maximum extent possible for all older persons;

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU HAWAII 96813



FRANK FASI Mayor
WALTERO WALTON, JR. Chairman
MAURICE H. THAMMARTO Vice Chairman
JOHN W. ANDERSON, JR.
SAM CALLEJO
KEE D. JOHNSON
MELISSA T. LUI
KAZU HAYASHIDA
Manager and Chief Engineer

December 23, 1991

Ms. Gail Uyetake
Helber, Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

Subject: Your Letter of November 8, 1991 Regarding the Environmental Impact Statement Preparation Notice for the Proposed Kailua Gateway Development. TMK: 4-2-01: 1 and 55, 4-2-03: 17 and 29

Thank you for the opportunity to review and comment on the EISP/N for the proposed lifecare retirement community, elderly and multi-family housing, and community/daycare center for senior citizens. We have the following comments:

1. There is no existing water service to the proposed project site.
2. A water master plan should be submitted for our review and approval.
3. If a three-inch or larger meter is required, the construction drawings showing the installation of the meter should be submitted for our review and approval.
4. The service limit for the area is at the 172-foot elevation.
5. The proposed development will be subject to BWS cross-connectional control requirements prior to the issuance of the building permit.

If you have any questions, please contact Bert Kuiuoka at 527-5235.

Very truly yours,

Kazu Hayashida
KAZU HAYASHIDA
Manager and Chief Engineer

Helber, Hastert
Planners

January 3, 1992

Mr. Kazu Hayashida, Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, HI 96813

Dear Mr. Hayashida:

Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolaula, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated December 23, 1991. We have reviewed your letter and offer the following responses to your comments.

1. It is noted that there is no existing water service to the proposed project site. A water supply report has been prepared and will be summarized and included in the Draft Environmental Impact Statement (DEIS).
2. According to Mr. Barry Usagawa of the Board of Water Supply, a water master plan would be required for review and approval only if the water system for the development is installed and dedicated to the BWS.
3. It is also noted that the service limit for the area is at the 172-foot elevation and that the proposed development will be subject to BWS cross-connectional control requirements. As development plans for the project progress, the applicant will verify requirements for the proposed water system with the BWS.

Your letter will be reproduced in the DEIS in its entirety.

Again, thank you for your input into this process.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham
Tom Walsh

Helber, Hastert & Fee
Environmental Planners, Inc. 1981 Hawaii

211 Bishop Street, Suite 2700
Honolulu, Hawaii 96813

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BUILDING DEPARTMENT
CITY AND COUNTY OF HONOLULU
HONOLULU MUNICIPAL BUILDING
150 SOUTH KING STREET
HONOLULU HAWAII 96813

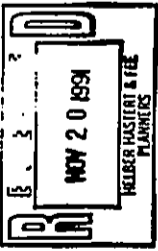
FRANK J. PARI
DIRECTOR



HERBERT K. MURAOKA
DIRECTOR AND BUILDING SUPERINTENDENT

PB 91-1338

November 15, 1991



Helber Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Attn: Gail Uyetake

Gentlemen:

Subject: Kailua Gateway Development

This is in response to your letter dated November 8, 1991.

We have reviewed the Environmental Impact Statement Preparation Notice for the subject project and have no comments to offer.

Very truly yours,

HERBERT K. MURAOKA
Director and Building Superintendent

cc: J. Harada

Helber Hastert
Planners

November 21, 1991

Mr. Herbert K. Muraoka
Director and Building Superintendent
Building Department
City and County of Honolulu
630 South King Street
Honolulu, Hawaii 96813

Dear Mr. Muraoka:

Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauloko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated November 15, 1991. Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Again, thank you for your input into this process.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

Helber Hastert & Fee
Planners
150 South King Street
Honolulu, Hawaii 96813

711 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Telephone: 965-3151, 2933
Facsimile: 965-3151, 2934

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

FRANK P. FASO
MAYOR



WALTER M. OZAWA
DIRECTOR
ALVIN C. AU
DEPUTY DIRECTOR

Ms. Gail Uyetake
Page 2
November 19, 1991

Should you have any questions, please contact Jason Yuen
of our Advance Planning Branch at 527-6315.

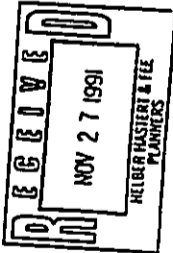
Thank you for the opportunity to review the EISPN.

Sincerely,

WALTER M. OZAWA, Director

WHO:el

November 22, 1991



Ms. Gail Uyetake
Helber Hastert & Fee
Grosvonor Center, PRI Tower
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

Subject: Environmental Impact Statement Preparation
Notice (EISPN)
Kailua Gateway Development - Kailua
Tax Map Key 4-2-01: 1 & 55 and 4-2-03: 17 & 29

We have reviewed the EISPN for consideration to amend the
Koolauopoko Development Plan to redesignate lands in
Kailua from Preservation to Medium Density Apartment and
Commercial and offer the following comments and
recommendations.

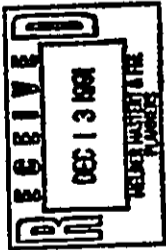
The recreational needs of the proposed project have been
addressed with the proposal for a senior citizen
community and day-care center within the project site.
The development of the retirement community, elderly
housing and possibly townhouses will be required to
comply with the City's Park Dedication Ordinance No.
4621.

We recommend that the applicant contact the Department of
Parks and Recreation to discuss the project's
recreational needs and park dedication requirements as
more planning details become available.

We wish to clarify that the City has no plans for a park
on the site across Kailua Road as shown on the
Development Plan Public Facilities Map.

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813



BENJAMIN B. LEE
CHIEF PLANNING OFFICER
BENJAMIN B. LEE
CHIEF PLANNING OFFICER
MH 11/91-3489

December 11, 1991

Ms. Gail Uyetake, Project Planner
Helber Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

Kailua Gateway Development
Koolaupoko Development Plan Land Use Map Amendment
from Preservation to Medium Density Apartment
and Commercial

THK 4-2-3: 17 (por) and 29 (por)
Folder No. 92/KP-1

The Department of General Planning has reviewed the applications for Development Plan Amendment and Environmental Assessment for the Kailua Gateway Development, dated September 1991, prepared by your firm for Kaneohe Ranch.

The summary sheet on page 34 provides information for the entire property. It should be rewritten to focus on only that portion of the property that is the subject of the amendment proposal. The tax map key, existing conditions, present plan and zoning designation need to be revised to reflect only the amendment area rather than the entire property.

The elevation and soil maps on page 5 should delineate only the subject area proposed for the amendment. Acres and percentages of each category of soils and elevation should also be indicated for this area in order to provide a clearer picture as to probable environmental impacts.

Ms. Gail Uyetake, Project Planner
Helber Hastert & Fee, Planners
December 11, 1991
Page 2

Your submittal alludes to a proposed subdivision, which would establish the boundaries of wetlands within the amendment area. The status of this subdivision should be indicated.

If you have any questions, please contact Melvin Murakami of our staff at 527-6020.

Sincerely,

BENJAMIN B. LEE
Chief Planning Officer

BBL:lh

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

HONOLULU MUNICIPAL GOV. BLDG.
630 SOUTH KING STREET
HONOLULU HAWAII 96813



JOSEPH M. MAGALDI, JR.
DIRECTOR
ANAS SAPPAL
DEPUTY DIRECTOR

TE-5836
PL91.1.387

December 17, 1991

Ms. Gail Uyetake, Project Planner
Helber Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

Subject: Kailua Gateway Development
Environmental Impact Statement Preparation
Notice (EISP) and Environmental Assessment (EA)
TMK: 4-2-01: 1, 55; 4-2-03: 17 and 29

This is in response to your letter of November 8, 1991 requesting our comments on the subject EISP and EA.

Based on our review, we have the following comments:

1. A preliminary site plan showing driveway widths and locations should be provided.
2. The ownership of streets surrounding the subject parcels should be specified.
3. A 30-foot property line radius should be provided at the southwest corner of the Kailua Road/Hamakua Drive intersection in addition to a 24-foot road widening fronting Hamakua Drive. Full frontage improvements should be provided along the new property line.

Additional concerns regarding the driveway connections will be addressed when the site plan and traffic study is available.

Ms. Gail Uyetake
Page 2
December 13, 1991

Should you have any questions, please contact Lance Watanabe of my staff at 523-4199.

Sincerely,


JOSEPH M. MAGALDI, JR.
Director

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

1433 SOUTH KEELEMAN STREET, ROOM 305
HONOLULU, HAWAII 96813



FRANK F. ZANI
CHIEF



LIONEL KIMURA
FIRE CHIEF
DONALD S. H. CHANG
DEPUTY FIRE CHIEF


Ms. Gail Uyetake

-2-

December 2, 1991

Should additional information or assistance be required, please contact
Captain Michael Chung of our Fire Prevention Bureau at 523-4186.

Very truly yours,


DONALD S. H. CHANG
Fire Deputy Chief

DSHC/MC:tc

December 2, 1991

Ms. Gail Uyetake, Project Planner
Heiber Hastert & Fee, Planners
733 Bishop Street, Suite 259D
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

Subject: Environmental Impact Statement Preparation Notice (EISPN)
Kaliua Gateway Development
Koolau, Oahu, Hawaii
Tax Map Key: 4-2-01: 1, 55; 4-2-03:17, 29

We have reviewed the application and made an on-site assessment of the above subject request, and have no objections to the proposal providing the following conditions are complied with prior to subdivision approval. Compliance with Article 10 of the Uniform Fire Code should also be made, but not limited to the following:

1. Provide a private water system where all appurtenances, hydrant spacing and fire flow requirements meet Board of Water Supply standards.
2. Provide a fire access road to within 150 feet of the first floor of the most remote structure. Such access shall have a minimum vertical clearance of 13 feet 6 inches, be constructed of an all-weather driving surface of not less than 20 feet in unobstructed width shoulder to shoulder capable of supporting the minimum 60,000 pound weight of our fire apparatus and with a gradient not to exceed 20%. All dead-end fire apparatus access roads in excess of 150 feet in length shall be provided with an approved turnaround having a radius of not less than 35 feet.
3. Submit construction plans to the building and fire departments for permit review and approval prior to commencement of the project.

Helber Hastert
Planners

December 10, 1991

Mr. Donald S.M. Chang
Fire Deputy Chief
Fire Department
City and County of Honolulu
1455 South Beretania Street, Room 305
Honolulu, HI 96814

Dear Chief Chang:

Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolahaupoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated December 2, 1991. We have reviewed your letter and offer the following responses to your comments.

The project designers will work with the Fire Department to ensure that the water system and fire apparatus access roads comply with the standards of Article 10 of the Uniform Fire Code, as set forth in your letter. Construction plans will be submitted to the building and fire departments for permit review and approval prior to the commencement of the project.

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Again, thank you for your input into this process.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham
Tom Walsh

Helber Hastert & Fee
Construction Center, 1911 Kamehameha

211 Hahaione Street, Suite 2700
Honolulu, Hawaii 96811

Telephone: 808-535-2655
Facsimile: 808-535-2670



CITY AND COUNTY OF HONOLULU

POLICE DEPARTMENT

1435 SOUTH BERKELEY STREET
HONOLULU, HAWAII 96814 • OFFICE: (808) 535-3111



FRANK P. PASI
MAYOR

OUR REFERENCE: RF-LK

November 29, 1991

MICHAEL S. NAKAMURA
CHIEF

DONALD M. WAKEMAN
DEPUTY CHIEF

Helber Hastert
Planners

December 18, 1991

Mr. Michael S. Nakamura
Chief of Police
Police Department
City and County of Honolulu
1435 South Beretania Street
Honolulu, HI 96814

Dear Chief Nakamura:

Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauloko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated November 29, 1991. We have reviewed your letter and offer the following responses to your comments.

Adequate security measures will be taken during the construction phase of the project to avoid exposing the surrounding neighbors to construction hazards. The project will be designed with appropriate security features, such as adequate lighting in public spaces and access control.

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Again, thank you for your input into this process.

Sincerely,

HELDER HASTERT & FEE, Planners

gjh
Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

Helber Hastert & Fee
Law Office, 1111 Tower
211 Bishop Street, Suite 2700
Honolulu, Hawaii 96811

Telephone: (808) 535-3111
Facsimile: (808) 535-3114

Ms. Gail Uyetake
Project Planner
Helber Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

Subject: Kailua Gateway Development, Koolauloko, Oahu, Hawaii
IHK: 4-2-01:1, 55: 4-2-03:1, 79

We have completed our review of the above-referenced project and would like to provide the following comments:

1. The project should have minimal impact on the delivery of police services in the area. We do not foresee a substantive increase in calls for service and the need for additional manpower or resources at this time.
2. We recommend that adequate security measures be taken during the construction phase to ensure public safety since one side of the proposed site is adjacent to single-family residences. We are concerned that inquisitive youngsters may wander into the construction area, thereby jeopardizing their personal safety.
3. We also recommend that the proposed project be designed and constructed with security in mind and that the proposed parking areas and grounds be well lit at night.

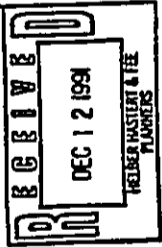
Thank you for providing us the opportunity to comment.

Sincerely,

MICHAEL S. NAKAMURA
Chief of Police

By *Michael S. Nakamura*
CHESTER E. HUGHES
Assistant Chief of Police
Support Services Bureau

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
430 SOUTH KING STREET
HONOLULU, HAWAII 96813 • PHONE 533-4422



DONALD A. CLEGG
DIRECTOR
LORETTA L. CHENE
DEPUTY DIRECTOR
LU11/91-8839 (JM)

Ms. Uyetake
Page 2

December 10, 1991

Helbert Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Attn: Ms. Gail Uyetake
Dear Ms. Uyetake:

Environmental Impact Statement Preparation Notice (EISPN)
Kailua Gateway Development
Koolaupoko, Oahu, Hawaii
TMK: 4-2-01: 01 and 4-2-03: 17 & 29

Thank you for providing us with the opportunity to comment on your Application for a Development Plan Amendment and Environmental Impact Statement Preparation Notice for the Kailua Gateway Project.

Our Department has reservations regarding the scope and siting of the proposed development. As you discussed, this project will require a Special Management Area Permit. As part of this process, you should address issues related to the Special Management Area in the EIS. Failure to address these issues during this process will result in a requirement to prepare an Environmental Assessment pursuant to Chapter 33. Among the issues which need to be thoroughly examined is the relation of the project to the adjacent wetlands, endangered species and habitats, the effects of the project on receiving waters, and the relationship of the project to archaeological sites.

The specific boundaries of the existing wetland should be precisely delineated. The wetland should be identified on the basis of the publication, "Classification of Wetlands and Deepwater Habitats in the United States". Wetland replacement plans should also be explained in as much detail as possible.

The Environmental Impact Statement should include a thorough study of the impact of the proposed development in the area. The inventory of birds, and nesting habitat should be completely inventoried and described.

The EISPN notes that storm runoff from the project will drain into the wetlands area. The environmental analysis in the Environmental Impact Statement should examine the possible impacts of this increased waterflow into the wetlands area.

The EISPN describes the potential impacts of increased noise on the surrounding communities, but discusses wetlands only as buffer areas to protect existing residential areas. The impacts of increased noise in the wetlands environs, both short and long term, should be thoroughly discussed in the Environmental Impact Statement.

If you have any questions, please call John Morihara of our staff at 527-5349.

Very truly yours,

DONALD A. CLEGG
Director of Land Utilization

DAC:cct

kailgtvy-jem

Heller Haster
Planners

December 19, 1991

Mr. Donald A. Clegg
Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Clegg:

Environmental Impact Statement Preparation Notice
Kailua Gaiway Development
Koolaloa, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated December 10, 1991 (your reference number LU11/91-8839 JMJ). We have reviewed your letter and offer the following responses to your comments.

1. The Draft Environmental Impact Statement (DEIS) will include discussion of issues related to the Special Management Area, as listed in your letter. Among these issues are the relation of the project to the adjacent wetlands, endangered species and habitats, the effects of the project on receiving waters, and the relationship of the project to archaeological sites.
2. Wetland boundaries, as delineated by a U.S. Army Corps of Engineers field survey, will be indicated on maps included in the DEIS. The wetland boundaries shown on the National Wetlands Inventory Map prepared by the U.S. Department of the Interior, Fish and Wildlife Service will also be shown. Identification of the wetlands on this map was based on vegetation, visible hydrology, and geology in accordance with the publication, "Classification of Wetlands and Deep-Water Habitats of the United States." Information on the wetland improvements and mitigation measures relating to potential impacts on the wetlands will be provided in as much detail as is available.
3. A faunal survey and impact analysis has been conducted for this project. The results of this study will be summarized and included in the DEIS.
4. A drainage plan for the project will be summarized and included in the DEIS.

Your letter will be reproduced in the DEIS in its entirety.

Heller Haster & Co.
Government Center, 1710 Towers

2311 Hahaione Street, Suite 2701
Honolulu, Hawaii 96811

Telephone: 808-533-2111
Facsimile: 808-533-2124

Heller Haster
Planners

Mr. Donald A. Clegg
December 19, 1991
Page 2

Again, thank you for your input into this process.
Sincerely,

HELBER HASTERT & FEE, Planners

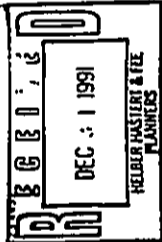
Gail Uyei
Gail Uyei
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham



DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU

150 SOUTH KING STREET
HONOLULU HAWAII 96813 • 19001



DONALD A. CLEGG
DIRECTOR
LORETTA C. CHEE
DEPUTY DIRECTOR
LUL11/91-8839 (JM)

Ms. Gail Uyetake
Page 2

field survey as part of the SMA application. Identification should be completed at a level of detail sufficient to allow for the submittal of a wetland map at a scale of 1 inch equals 200 feet.

We hope that this additional information assists you in the preparation of your Environmental Impact Statement. If you have any questions, please call John Morihara of our staff at 527-5349.

Very truly yours,

DONALD A. CLEGG
Director of Land Utilization

DAC:cct

December 27, 1991

Ms. Gail Uyetake
Helbert Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

Kailua Gateway Development
Koolaupoko, Oahu, Hawaii
THX: 4-2-01: 01: 4-2-03: 17 & 29

We are aware that you are preparing the Draft Environmental Assessment for the Kailua Gateway Project. The project proposes a substantial development upon property in close proximity to an existing wetland. In recent conversations with our staff, you have indicated that the delineation of the wetlands areas has proved to be somewhat problematic. This letter is intended to clarify our position regarding the definition and delineation of wetlands.

As you are aware, we have recently proposed amendments to the City's Special Management Area Ordinance. These amendments are intended to provide landowners with special regulations regarding development within or in close proximity to wetlands within the Special Management Area.

In the amendments, we have proposed to the City Council that "wetlands" shall be defined on the basis of the definition found in the publication "Classification of Wetlands and Deepwater Habitats of the United States" (Cowardin et al, 1979). Our definition of what constitutes a "wetland" embraces the broadest definition used by Federal or State agencies. In making our initial assessment, we intend to solicit the assistance of the Department of Land and Natural Resources, the U.S. Corps of Engineers, and the U.S. Department of Fish and Wildlife.

At the initial stages of your analysis, the USFWS National Wetlands Inventory Maps (1984) may be utilized for the identification of general wetland areas. However, wetlands should be identified by

dstfth.lm

Heller Hasterbert
Planners

January 3, 1992

Mr. Donald A. Clegg
Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Clegg:

Kaliua Gateway Development
Koolunoko, Oahu, Hawaii

Thank you for your letter dated December 27, 1991 regarding the above-referenced project. We note that at this stage, the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory Maps may be utilized for the identification of general wetland areas. According to verification by the USFWS Regional Wetlands Coordinator, the most current Wetlands Inventory Map for the subject area is one using aerial photography from 1978, and not 1984 as indicated in your letter. Information from this map will be included in the Draft Environmental Impact Statement (DEIS). At the time of the Special Management Area application, the applicant will identify wetlands according to the requirements of the amended SMA ordinance.

Thank you for your additional comments. Your letter will be reproduced in the DEIS.

Sincerely,

HELLER HASTERBERT & FEE, Planners

Gilly Uyetake
Gilly Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham



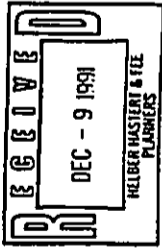
Heller Hasterbert & Fee
Government Center, 1101 Tower

215 Bishop Street, Suite 2700
Honolulu, Hawaii 96811

Telephone: 808 535 2655
Facsimile: 808 535 2624

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
830 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK P. HASTERT
PLANNER



SAM CALLEJO
DIRECTOR AND CHIEF ENGINEER
C. MICHAEL STREET
DEPUTY DIRECTOR
ENV 91-251

December 4, 1991

Ms. Gail Uyetake
Helber Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

Subject: Environmental Impact Statement Preparation Notice
(EISP/N) - Kailua Gateway Development
TMK: 4-2-01:1. 55: 4-2-03:17. 29

We have reviewed the subject EISP/N and have the following comments:

1. We have no objections to the proposed project in Kailua.
2. The municipal sewer system in the area is available and adequate to support the proposed development.
3. A drainage report should be submitted to our Drainage Section, Division of Engineering, for review and approval.

Very truly yours,

C. Michael Street
C. MICHAEL STREET
DIRECTOR AND CHIEF ENGINEER

Helber Hastert
Planner

December 9, 1991

Mr. Sam Callejo
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
630 South King Street
Honolulu, HI 96813

Dear Mr. Callejo:

Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauloaha, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated December 4, 1991. We have reviewed your letter and offer the following responses to your comments.

1. We note that the Department of Public Works (DPW) has no objections to the proposed project. We also note that DPW has determined that the sewer system in the area is available and adequate to support the proposed development.
2. A drainage report will be submitted to the Drainage Section, Division of Engineering for review and approval when it is available from the consulting engineers.

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Again, thank you for your input into this process.

Sincerely,

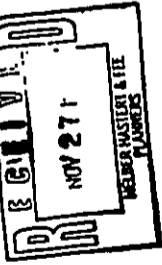
HELBER HASTERT & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

Helber Hastert & Fee
Engineering Center, 1410 Iolani
Honolulu, Hawaii 96813
Telephone: (808) 521-2100
Facsimile: (808) 521-2100

The Gas Company
515 Kamehameha Street
P.O. Box 3379 Honolulu, Hawaii 96842
Phone: (808) 547-3379
Fax: (808) 547-3361



November 25, 1991

Helber Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Attention: Ms. Gail Uyetake

Dear Ms. Uyetake:

Subject: Draft Environmental Assessment for
Kailua Gateway Development

We refer to your letter of November 8, 1991, regarding our review
of the assessment for the subject project.

Based on our review of the information provided with your letter,
it has been determined that the project area is currently clear
of all gas utility facilities.

We thank you for the opportunity to comment on the proposed
improvement project. Should there be any questions, or if
additional information is desired, please call me at 547-3574.

Very truly yours,

Edwin N. Sawa, P.E.
Manager, Engineering

ENS:glk
11/27

Helber Hastert & Fee
Planners

November 27, 1991

Mr. Edwin N. Sawa, P.E.
Manager, Engineering
The Gas Company
515 Kamehameha Street
P.O. Box 3379
Honolulu, Hawaii 96842

Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolahaupoko, Oahu, Hawaii

Dear Mr. Sawa:

Thank you for your review of the above-referenced document and your letter
dated November 25, 1991. We acknowledge that the project area is currently clear
of all gas utility facilities and appreciate your efforts in making this
determination.

Your letter will be reproduced in the Draft Environmental Impact Statement in its
entirety.

Again, thank you for your input into this process.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

Helber Hastert & Fee
Planners
1111 Bishop Street, Suite 2590
Honolulu, Hawaii 96813
Telephone: 547-3379
Telex: 547-3361



Helber Hastert
Planners

December 10, 1991

Ms. Lucille Gibson
Kuulei Community Association
169 Kuupua Street
Kailua, HI 96734

Dear Ms. Gibson:

Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolahaoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated December 1, 1991. Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Again, thank you for your input into this process.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

Helber Hastert & Fee
Executive Center, 1710 Konoa
211 Bishop Street, Suite 220
Honolulu, Hawaii 96811
Telephone: 808-515-2011
Facsimile: 808-515-2020

Kuulei Community Association
c/o Lucille Gibson
169 Kuupua St.
Kailua, HI., 96734
Dec. 1, 1991

Helber Hastert & Fee, Planners
c/o Gail Uyetake
733 Bishop St., Suite 2590
Honolulu, HI., 96813

Dear Ms. Uyetake:

Thank you for a copy of the "Application for Development Plan Amendment and Environmental Assessment" for Kailua Gateway Development.

I have read every page and am duly impressed with the detail and thoroughness of this report.

You have my approval and I have no questions at this time.

Very truly yours,

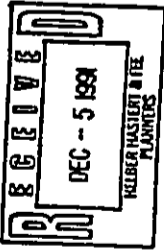
Lucille B. Gibson

**CYNTHIA
THEILEN**

ATTORNEY AT LAW

145 Queen Street
Suite 200
Honolulu, Hawaii
96813

Telephone
608/579 0111
Facsimile
608/709 4644



December 3, 1991

Director Brian J.J. Choy
Office of Environmental Quality
Control
220 South King Street
Central Pacific Plaza, 4th Floor
Honolulu, HI 96813

Melvin Murakami
City and County of Honolulu
Department of General Planning
650 South King Street
Honolulu, HI 96813

Randy Moore
Kaneohe Ranch
1199 Auloa Road
Kailua, HI 96734

Gail Uyetake
Helbert, Mastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, HI 96813

Re: Kailua Gateway Development Project
THK: 4-2-3: 17 (por) and 29 (por)

Dear Director Choy, Messers Murakami and Moore and Ms. Uyetake:

I represent KBC Partners and am submitting comments on its behalf regarding the above-referenced proposed development.

Kaneohe Ranch is requesting the Department of General Planning ("DGP") to amend the Koolauoko Development Plan ("DP") to change the DP designation of 21 acres which presently are in Preservation at the entrance to Kailua. Specifically, the applicant is requesting that 20 acres be changed from Preservation to Medium-Density Apartment designation and one acre be changed from Preservation to Commercial.

This project may have the following significant effects on the environment, which list is not all inclusive:

1. Impact upon the heretofore undisturbed wetland area which abuts the project site.
2. Spot zoning.

3. Traffic impact at the single road entrance to Kailua town.
4. Impact upon sewer facilities which presently are inadequate to handle existing sewage in Kailua.
5. Irretrievable removal of avian habitat, and impact upon the avian population which has been identified as using the site.

KBC Partners comments are addressed to the proposed change from Preservation to Commercial designation and related environmental impacts.

The General Plan of the City and County of Honolulu ("City") sets forth the objectives and policies guiding the planning process of the City. Kailua town, located in Koolaupeke, is classified as Urban-Fringe on the General Plan. Koolaupeke's projected residential population for the Year 2010 has been adjusted downward from the 2005 Year figure. The downward adjustment implements Policy 3 of Objective C of the General Plan:

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 population densities are consistent with the character of development and environmental qualities desired for such areas.

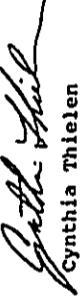
The gateway to Kailua is blighted with spot commercial sites. The proposed one acre commercial expansion would further exacerbate commercialization at the entrance to Kailua. The present land designation of Preservation protects the adjacent wetland and provides visual, aesthetic and environmental protection to Kailua's gateway.

The City has not permitted other applicants with commercial projects to encroach into residential areas in Kailua. Such applications have been denied as the antithesis of sound land use planning. In this instance, the applicant proposes a more major change from Preservation (not Residential) to Commercial. It is bad policy to remove land from Preservation for the purpose of commercializing the site, and such reclassification would negatively impact the adjacent Preservation land.

The applicant has not demonstrated there is a need for additional commercial sites in Kailua. The applicant should provide detailed information about occupancies/vacancies in existing commercial buildings, number of commercial buildings on line to be built and expected impact from that construction on vacancy rates.

Through this letter, I request to be a consulted party pursuant to the Environmental Impact Statement Rules, Chapter 200, of Title 11, Administrative Rules.

Very truly yours,


Cynthia Thielen

CT/sn
cc: KBC Partners

Helber Haster
Planners

December 20, 1991

Ms. Cynthia Thielen, Attorney at Law
345 Queen Street, Suite 700
Honolulu, HI 96813

Dear Ms. Thielen:

Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauloko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated December 3, 1991. We have reviewed your letter and offer the following responses to your comments.

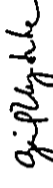
1. A faunal survey and impact analysis, traffic impact analysis report, and wastewater report were conducted for the proposed development and will be summarized and included in the Draft Environmental Impact Statement (DEIS), along with a review of applicable government plans and policies.
2. The Development Plan (DP) Commercial designation being sought as a part of the subject DP amendment application involves the expansion of the existing commercial parcel along Kailua Road, and consists of an area of approximately one acre. The expansion is not intended to encroach into what has been designated as wetlands by the U.S. Army Corps of Engineers as a result of a recent field survey. Preliminary plans for the commercial area expansion will be discussed in the DEIS. The applicant intends to redevelop the area and put it into a use which would both complement the planned improvements to the adjacent wetlands as well provide a more aesthetic entrance to Kailua town.

Your letter will be reproduced in the DEIS in its entirety. We will make every effort to address all of your concerns in the DEIS and will look forward to your comments on that publication.

Again, thank you for your input into this process.

Sincerely,

HELBER HASTER & FEE, Planners


Gail Uyetake
Project Planner

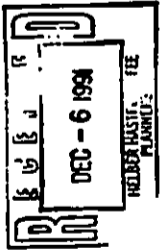
cc: Randy Moore
Tony Garcia
Don Graham

Helber Haster & Fee
Government Center, 1911 Tower

211 Bishop Street, Suite 2504
Honolulu, Hawaii 96813

Telephone: 808-533-2033
Fax: 808-533-2020





Eric A. Weiss
Box 557
Kailua, HI 96734
(808) 263-0630

December 4, 1991

Heilber Hastert & Fee, Planners
735 Bishop Street, Suite 2590
Honolulu, HI 96813
Attention: Gail Uyetake

Gentlemen:

This is in regard to the Environmental Impact Statement Preparation Notice (EISPN), Kailua Gateway Development, Koolaupoko, Oahu, Hawaii, TMK: 4-2-01:1, SS: 4-2-03:17, 29, dated September 1991 which you sent me with your letter of November 14, 1991. (I note in passing that the actual title of the document is "Application for Development Plan Amendment and Environmental Assessment, 1992 Annual Review, Kailua Gateway Development, Koolaupoko, Oahu.")

Here are my comments and questions which I would like to have addressed in the Environmental Impact Statement.

A key feature of the proposal is expressed on page 9. "Maanoohe Ranch has an unofficial agreement with the national non-profit wetlands preservation group, Ducks Unlimited, to make improvements to the wetlands on the property." However, at several points the proposal points out that these wetlands are not part of the proposal, the boundaries having been drawn to exclude them. But it is these wetlands and how they are managed that is most important to the condominium owners of Windward Cove and Windward Harbor since they border on our property. (See Conceptual Plan, Figure 5, page 7). I suggest that the proposal be amended to include these wetlands as an integral part of the proposal and that the EIS make definite, firm, and binding statements about how the wetlands are to be handled, including, if necessary, Ducks Unlimited, as a party to the EIS.

By copy of this letter, I suggest to the Honolulu Department of General Planning that they recognize the significance to the proposal of the management of these wetlands and that they require the proposal to address the matter more clearly and conclusively than is done in the current document where most statements about the wetlands are associated with a disclaimer of responsibility for them.

Paragraph V. A. 1 on page 24 estimates the addition of "1,000 senior residents." The statement should make an estimate of "total additional residents."

The statements in the current document concerning the nature of

the proposed buildings, (V.C and V.E.3), are vague. The statement should describe all the proposed buildings, of whatever nature, in more detail, giving specific locations, heights, areas covered, building uses, and number of tenants.

The statement should include specific estimates of the project's impact on area traffic.

The statement should include an estimate of the impact of the project on the present wastewater treatment system.

The statement should include specific estimates as to the amount and rate of runoff into the wetland area and Kaelepulu Stream, with special attention to the possibility of over-running the wetlands and the stream during flood conditions.

The statement should include a statement from the Honolulu Fire Department concerning the dangers of the single-entry to the Retirement Community.

The statement should include an estimate of the impact of the project on the water quality of the stream and Kailua Bay, into which it drains.

Very truly,

Eric A. Weiss

Eric A. Weiss

cc: Melvin Murakami

Heller HASTERT
Planners

Heller HASTERT
Planners

December 20, 1991

Mr. Eric A. Weiss
Box 537
Kailua, HI 96734

Dear Mr. Weiss:

Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauoko, Oahu, Hawaii



Thank you for your review of the above-referenced document and your letter dated December 4, 1991. We have reviewed your letter and offer the following responses to your comments.

1. Although the 97-acre project area includes area which has been identified by the U.S. Army Corps of Engineers as wetlands, these wetlands are not included in the portion of the site for which an amendment to the Koolauoko Development Plan (DP) is being sought. The amendment application requests that the DP designation for the area of application be changed from Preservation to Medium-Density Apartment and Commercial. These DP designations would not be appropriate for the wetland areas as they are proposed to undergo improvements which would enhance their value as a waterbird habitat. Because the proposed development is adjacent to the wetland area, potential impacts to this area due to the development are being addressed in the Draft Environmental Impact Statement (DEIS).
The proposed improvements to and planned management of the wetlands will be discussed in the DEIS in as much detail as is available.
2. The DEIS will indicate that the residents of the proposed development will be in addition to the present Kailua population.
3. The DEIS will include a description of the preliminary site plan for the project, as well as approximate heights, uses, number of tenants, and locations of the buildings. It should be noted that at this stage of the development process, specific information on buildings and placement is preliminary.
4. Traffic impact analysis, wastewater system, drainage system, and water quality reports have been conducted for the project and will be summarized and included in the DEIS.
5. The Honolulu Fire Department provided comments on the EIS Preparation Notice. These comments will be included and addressed in the DEIS.

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Heller HASTERT & Co.
Environmental Center, 1941 Thayer

2411 Kalia Street, Suite 2200
Honolulu, Hawaii 96815

Telephone: (808) 515-2655
Facsimile: (808) 515-2648

Mr. Eric A. Weiss
December 20, 1991
Page 2

Again, thank you for your input into this process.

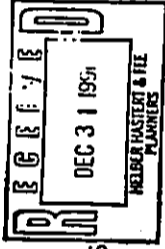
Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

WINDWARD COALITION OF CHURCHES



539 B Keolu Drive
Kailua HI 96734
December 26, 1991

Helber Wastert & Fee, Planners
Grosvenor Center, PFI Tower
733 Bishop Street Suite 2590
Honolulu, HI 96813

Aloha:

I hope it is not too late to include our comment on the DP Amendment and Environmental Assessment for the Kailua Gateway Development. Our Coalition speaks from 30 years' concern and advocacy for senior housing.

We concur with most of the other Advisory Committee members' concerns for environmental and scenic protection and for provision of space for community functions. Our churches' meeting rooms are constantly in use by community groups so we are aware of this need. In support of the DP amendment we hope for some enforceable commitment to actual development in line with the usage we all intend, not a "bait and switch" eventuality.

Regarding the senior housing, we especially support affordable space adapted to the needs of seniors for comfortable, non-spacious, non-luxurious affordable studios and one bedroom apartments. For instance, senior singles and couples do not need central air conditioning (too cold for old bones and ceiling fans are just fine), dishwashers (not enough to wash daily), spas (unhealthful for tired hearts), swimming pools, jacuzzis, etc (dangerous). They do need hand grips, call buttons and program and meeting places. We realize your planners are probably aware of all this, but there must be a great temptation for them to add costly style and glitz to make the property look more saleable. Past results of this has been to make luxurious, absentee-owned investment properties out of seniors' affordable price range.

We hope our comments are helpful in your efforts to add a valuable asset to Kailua.

Sincerely,
Hope Morley Miller
Hope Morley Miller, Secretary



January 3, 1992

Ms. Hope Morley Miller, Secretary
Windward Coalition of Churches
539 B Keolu Drive
Kailua, HI 96734

Dear Ms. Miller:

Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolahouko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated December 26, 1991. We have reviewed your letter and offer the following responses to your comments.

1. The proposed development will seek to minimize its impact on the environment, including the adjacent wetlands. The development plan for the property includes a community activity center. Although detailed plans for this facility are not yet available, potential uses include community meeting space, day care center, or venue for performing arts.
2. The proposed development includes both an elderly affordable rental component and a lifecare retirement community. Residents of the affordable housing component will likely be subject to federal or state income criteria. These rental units will be constructed to meet federal or state standards regulating senior housing.

Residents of the lifecare facility will not enter into a real estate transaction. Rather, they will have a guarantee for living quarters, full health care, meals, and housekeeping and other services in exchange for an initial entry fee and monthly maintenance fees. The lifecare facility will offer a range of housing types for its residents. In addition to the residential apartments which will vary in size and price, there will be two other levels of living offered within the lifecare contract: personal care units (health care aide-assisted) and a skilled nursing facility. These facilities can be used by the residents as the need arises, without additional cost.

The information you provided on desirability of amenities will be forwarded to the developer and project architect. Since the lifecare facility will not involve ownership of real estate, the problem of absentee-ownership for investment purposes will be avoided. The project is intended to accommodate the growing demand for senior housing in Hawaii for its residents.

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.



Helber Haster
Planners

Ms. Hope Moricy Miller
January 3, 1992
Page 2

Again, thank you for your input into this process.
Sincerely,

HELBER HASTERT & FEE, Planners


Gail Uyciak
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham
Tom Walsh

Helber Haster
Planners



February 26, 1992

Mr. Warren M. Lee
State Conservationist
U.S. Department of Agriculture
Soil Conservation Service
P.O. Box 50004
Honolulu, HI 96850

Dear Mr. Lee:

Amended Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated February 21, 1992. We offer the following responses to your comments.

1. The Draft Environmental Impact Statement (DEIS) will discuss the potential impacts of the project on the wetland and possible mitigation measures.
2. A water quality impact study was prepared by AECOS, Inc. and will be summarized and included in the DEIS. A grading and construction activities plan was prepared by Smith Young & Associates and will be summarized and included in the DEIS. This plan describes recommended mitigation measures to minimize any adverse impacts of construction on the water quality of Kawainui Stream.

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTER & FEE, Planners

Gail Uyetake
Project Planner

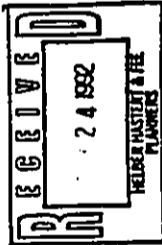
cc: Randy Moore
Tony Garcia
Don Graham

P. O. BOX 50004
HONOLULU, HAWAII
96850

SOIL
CONSERVATION
SERVICE

UNITED STATES
DEPARTMENT OF
AGRICULTURE

February 21, 1992



Helber Haster & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Attention: Ms. Gail Uyetake

Dear Mr. Uyetake:

We have reviewed the Kailua Gateway Development Amended Environmental Impact Statement Preparation Notice (EISP) and like to offer the following comments:

Our concerns about the protection of the wetlands and the prevention of nonpoint source pollution remain the same as those expressed in the original EISP. They are:

As described in the EISP, the proposed project borders Kaelepu Stream and corresponding wetland areas. It is the Soil Conservation Service's policy to assist in the protection of our nation's wetlands. We therefore support the implementation of protective measures that would avoid or reduce any potentially adverse impacts to the wetland by this project.

The EISP does not address the potential water quality impacts of the proposed project. Being so close to the stream and wetlands, construction activities could have adverse impacts on the water quality of these areas. The erosion and sediment control plan for this project should specifically describe the treatment measures to be installed and maintained in order to minimize any adverse impacts of the construction.

Thank you for the opportunity to comment on this proposed project. We would appreciate reviewing the draft Environmental Impact Statement when it is completed.

Sincerely,

WARREN M. LEE
State Conservationist

Helber Haster & Fee
Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813
Telephone: 808-537-2015
Facsimile: 808-537-2020

Helber Haster & Fee
Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

U.S. Department
of Transportation
United States
Coast Guard



Commander (usa)
Fourteenth Coast Guard District

Prince Kolanisole
Federal Building
300 Ala Moana Blvd.
Honolulu, Hawaii 96830-4982
Phone: (808) 541-7315

Hilber HASTERT
Planners

16590/SF
Serial 32041
6 FEB 1992

Ms. Gail Uyetake, Project Planner
Heiber HASTERT & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

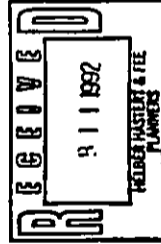
Dear Ms. Uyetake:

In regards to your letter of 23 January 1992, we have no additional comment to make concerning the Kailua Gateway Development Environmental Impact Statement.

Thank you for the opportunity to provide comments.

Sincerely,

D. J. SOBECK
Lieutenant Commander, U. S. Coast Guard
Chief, Aids to Navigation Branch
Fourteenth Coast Guard District
By direction of the District Commander



February 11, 1992

LTCDR D.J. Sobeck
Chief, Aids to Navigation Branch
Fourteenth Coast Guard District
U.S. Department of Transportation
United States Coast Guard
300 Ala Moana Boulevard
Honolulu, HI 96830-4982

Dear LTCDR Sobeck:

Amended Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated February 6, 1992 (your reference number 16590/SF Serial 32041).

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thank you again for your review and input.

Sincerely,

HEIBER HASTERT & FEE, Planners

Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

Hilber HASTERT & Fee
Planners

733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Telephone: (808) 541-7315
Facsimile: (808) 541-7315

RECEIVED
5 1992
HELBER HASTERT & FEE
PLANNERS



STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
DIVISION OF PUBLIC WORKS
P. O. BOX 111, HONOLULU, HAWAII 96810

LETTER NO. P11085.2

RUSSEL S. HIGATA
COMPTROLLER
NONRESIDENT EMPLOYER
OFFICE OF THE COMPTROLLER

FEB 3 1992

Helber, Hastert and Fee, Planners
Grosvenor Center, PRI Tower
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Attention: Ms. Gail Uyetake
Gentlemen:

Subject: Kailua Gateway Development
Koolauapoko, Oahu, Hawaii
Amended EIS Preparation Notice

Thank you for the opportunity to review the subject document. We have no comments to offer.

Should there be any questions, please have your staff contact Mr. Ralph Yukumoto of the Planning Branch at 586-0488.

Very truly yours,

Teuane Tomimaga
TEUANE TOMINAGA
State Public Works Engineer

RY:jk

Helber, Hastert & Fee, Planners

February 3, 1992

Mr. Teuane Tomimaga
State Public Works Engineer
State of Hawaii
Department of Accounting and General Services
Division of Public Works
P.O. Box 119
Honolulu, HI 96810

Dear Mr. Tomimaga:

Amended Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauapoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated February 3, 1992 (your reference number (P)1085.2).

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thank you again for your review and input.
Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

Helber, Hastert & Fee
Grosvenor Center, PRI Tower
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

File # 1085.2
Date Rec'd 02/03/92

JOHN WILLIAMS
SECRET



STATE OF HAWAII
DEPARTMENT OF EDUCATION
P. O. BOX 1209
HONOLULU, HAWAII 96813

OFFICE OF THE SUPERINTENDENT

CHARLES T. TOGUCHI
Superintendent

February 4, 1992

Helber Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Attention: Gail Uyetake
Dear Ms. Uyetake:

SUBJECT: Amended Environmental Impact Statement Preparation
Notice (EISP/N), Kailua Gateway Development
Koolaupoko, Oahu, Hawaii
TRK: 4-2-91: 1, 55; 4-2-93: 17, 29

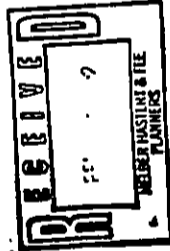
Our review of the subject EISP/N indicates that the proposed
lifecare retirement community will have no impact on the
public schools in the area.

Thank you for the opportunity to comment.

Sincerely,
Charles T. Toguchi
Charles T. Toguchi
Superintendent

CTT:jl

cc: A. Suga
J. Sosa



February 14, 1992

Mr. Charles T. Toguchi
Superintendent
State of Hawaii
P.O. Box 2360
Honolulu, HI 96804

Dear Mr. Toguchi:

Amended Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolaupoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter
dated February 4, 1992.

Your letter will be reproduced in the Draft Environmental Impact Statement in its
entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

Helber Hastert & Fee
Environmental Planners, P.H.I. Times

711 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Telephone: (808) 531-2000
Facsimile: (808) 531-2000

JOHN WALKER
DIRECTOR OF HEALTH



STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 339
HONOLULU, HAWAII 96801

JOHN C. LEWIN, M.D.
DIRECTOR OF HEALTH

In reply, please refer to:

91-426/epo

February 10, 1992

Ms. Gail Uyetake
Project Planner
Helber Haster & Fee, Planners
Crosvenor Center, PRI Tower
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

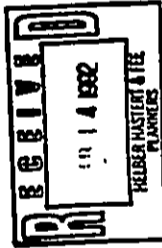
Subject: Amended Environmental Impact Statement
Preparation Notice (EISPN)
Kailua Gateway Development, Koolupoko, Oahu, Hawaii
THK: 4-2-01: por. 1, por. 55; 4-2-03: por. 17, por. 29

This is in response to your letter of January 23, 1992 regarding the above-mentioned project.

We have no additional comments to offer on the amended EISPN for the Kailua Gateway Development. We will look forward to reviewing the draft Environmental Impact Statement. Thank you for giving us the opportunity to comment on the amended EISPN.

Very truly yours,

John Walker
JOHN C. LEWIN, M.D.
Director of Health



February 14, 1992

Mr. John C. Lewin, M.D.
Director
State of Hawaii
Department of Health
P.O. Box 3378
Honolulu, HI 96801

Dear Dr. Lewin:

Amended Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolupoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated February 10, 1992 (your reference number 91-426/epo).

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTER & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham



1-800-368-5555
1-800-368-5555

711 Hades Street, Suite 200
Honolulu, Hawaii 96813

Helber Haster & Fee
Project Planner, P.O. Box 3378
Honolulu, HI 96801

1-800-368-5555
1-800-368-5555

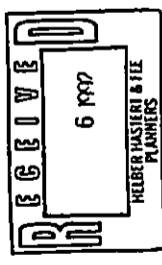
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1-800-368-5555

FORM 100-101
COPY MADE BY MAIL



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
1151 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

WILDLIFE DIVISION
1151 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

February 4, 1992

Ms. Gail Uyetake
Project Planner
Helber Hastert and Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Gail:

This responds to your letter of January 23, 1992 requesting comments on the Amended Application for Development Plan Amendment and Environmental Assessment, 1992 Annual Review for the Kailua Gateway Development.

I have nothing to add to my comments of November 14, 1991 (copy enclosed) in that I could find no further clarifications in the 1992 version which addressed the concerns I raised. Of major concern is the question of how runoff will be handled. Reference to consultation with the DPW Drainage Section is not specific enough to address the environmental impacts. The same is true of referring to "appropriate buffers" for wetland protection. Although there is brief mention of a bridge which is to cross the wetlands from Hamakua Drive at Hekili Street, no details are given as to type (pedestrian, vehicular), design or impacts on the wetland. I note also that there continues to be a reference to a "park" at the old ITT site (wildlife sanctuary and interpretive center).

If I can be of further help, please advise.

Aloha,
Sincerely Yours,
Ronald L. Walker
Ronald L. Walker
Wildlife Program Manager



February 11, 1992
Mr. Ronald L. Walker
Wildlife Program Manager
State of Hawaii
Department of Land and Natural Resources
Division of Forestry and Wildlife
1151 Punchbowl Street, Room 325
Honolulu, HI 96813

Dear Ron:

Amended Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauloaha Oahu, Hawaii

Thank you for your review of the above-referenced document and the comments contained in your letter dated February 4, 1992. We offer the following responses to your comments.

1. A drainage plan, which addresses the issue of stormwater runoff, has been prepared for the proposed development and will be summarized and included in the Draft Environmental Impact Statement (DEIS). A water quality impact study was also prepared, and will be included in the DEIS.
2. The plan includes a permanent berm and swale along the mauka boundary of the wetland, to prevent runoff from the urban development from flowing directly into the wetland. Preliminary design studies for the development identify a buffer area, a minimum of 50 feet in width, to be retained between the wetland and the proposed lifecare structures. This buffer would include vegetation to provide an auditory and visual screen between the wetland habitat and the urban development.
3. The proposed bridge will provide vehicular and pedestrian access to the lifecare facility, and is planned as a two-lane structure spanning the wetlands and Kawaiwai Stream. Specific design details of the bridge have not yet been determined at this preliminary stage of development, although we are recommending that approximately 4-foot high concrete walls be placed on both sides to minimize sound and light transmission to the wetlands below. According to the faunal study prepared by Phillip L. Bruner, waterbirds can habituate to a limited amount of disturbance in areas where they forage, as would be contributed by the proposed bridge; they are usually not as tolerant when it comes to nesting and resting sites. However, the bridge is proposed to be located near the north end of the wetland, and would leave the greatest part of the wetland undisturbed. Furthermore, the bridge would be used by local traffic only, unlike the highly-traversed Hamakua Bridge near the south end of the wetland.

Helber Hastert & Fee
1151 Bishop Street, Suite 2590
Honolulu, Hawaii 96813
Telephone: 808-531-2100
Facsimile: 808-531-2104

Hilbert H-1011
P. 1011

Mr. Ronald L. Walker
February 11, 1992
Page 2

4. The "park" site identified in the Development Plan Public Facilities Map for Koolapoko will be specifically identified as a wildlife sanctuary and interpretive center in the DEIS.

The comments provided in your letter of November 14, 1991 will also be addressed in the DEIS. Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thank you again for your review and input.

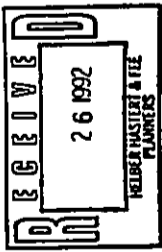
Sincerely,

HELBERT HASTERT & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

LOWE INKLINE
COPYRIGHT © 1992



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

WELLBORN ARTS DEVELOPMENT
DIVISION OF LAND AND NATURAL RESOURCES
HONOLULU
JACK P. ELLIOTT, II
DONALD M. BISHOP
AGRICULTURE DEVELOPMENT
PROGRAM
ADULTIC RESOURCES
CONSERVATION AND
ENVIRONMENTAL AFFAIRS
CONSERVATION AND
RECREATION DIVISION
CONSERVATION
FORWARD PLANNING
DIVISION
LAND MANAGEMENT
DIVISION
STATE PARKS
DIVISION
WATER AND LAND DEVELOPMENT
DIVISION

LOG NO: 4542
DOC NO: 0587T

February 21, 1992

Gail Uyetake
Project Planner
Helber Hastert & Fee
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

SUBJECT: Amended Environmental Impact Statement Preparation
Notice for Kailua Gateway Project
Kailua, Ko'olaupoko, O'ahu
TRK: 4-2-03: por. 17, por. 29; 4-2-01: por. 1 & 55

An archaeological inventory survey report for this project is being prepared. We will review the report when it is submitted. The increased area covered by the amended EISP may require a concomitant expansion of the inventory survey boundaries. We look forward to reviewing the inventory survey report.

Sincerely,

DON HIBBARD, Administrator
State Historic Preservation Division

TD:jen

Helber Hastert & Fee
Planners

February 27, 1992

Mr. Don Hibbard, Administrator
State Historic Preservation Division
State of Hawaii
Department of Land and Natural Resources
33 South King Street, 6th Floor
Honolulu, HI 96813

Dear Mr. Hibbard:

Amended Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauloko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated February 21, 1992 (your reference number 0587T).

International Archaeological Research Institute, Inc. prepared the inventory survey report, and verified that the original field survey covered all of the expanded project area. The archaeological consultant advised that Phase I of the two-phase survey does not require any further fieldwork, and no changes in findings presented in the report are required.

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

Helber Hastert & Fee
Government Center, 1101 Third

741 Bishop Street, Suite 2700
Honolulu, Hawaii 96813

Telephone: (808) 533-2055
Facsimile: (808) 533-2050

ESTHER UEDA
EXECUTIVE OFFICER



STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
Room 104, Old Federal Building
335 Merchant Street
Honolulu, Hawaii 96813
Telephone: 541-4411

RECEIVED
JAN 29 1992
HELDER HASTERT & FEE
PLANNERS

February 11, 1992

Ms. Esther Ueda, Executive Officer
State of Hawaii
Department of Business, Economic Development and Tourism
Land Use Commission
Room 104, Old Federal Building
335 Merchant Street
Honolulu, HI 96813

Ms. Gail Uyestake
Helder, Haster & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

January 28, 1992

Dear Ms. Uyestake:

Subject: Amended Environmental Impact Statement Preparation Notice
(EISRN) for Kailua Gateway Development, Koolauopoko, Oahu,
Hawaii, TRK Nos.: 4-2-01: 1 (Por.), 55 (Por.); 4-2-03: 17
(Por.); 29 (Por.)

We have reviewed the amended EISRN for the subject Kailua Gateway Development project and, as stated in our letter dated November 18, 1991, confirm that it is designated within the State Land Use Urban and Conservation Districts. Based on the amended EISRN, we understand that a petition for reclassification of the subject property will be filed with the Land Use Commission in the future.

We note that the amended EISRN contains a map of the subject project in relation to the State Land Use Districts on page 24 (figure 10). It appears that this map does not accurately represent the Urban/Conservation boundaries as they are delineated on the State Land Use official map. We therefore suggest that clarification with respect to the location of the district boundaries be obtained from our office so that an accurate representation of the boundaries is included in the draft EIS.

We have no other comments at this time. If you have any questions, please call me or Bert Saruwatari of our office at 587-3822.

Sincerely,
Esther Ueda
ESTHER UEDA
Executive Officer

Helder Haster & Fee, Planners



Dear Ms. Ueda:

Amended Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauopoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated January 28, 1992.

As suggested in your letter, we obtained a copy of the section of the State Land Use official map for the subject property from Bert Saruwatari of your office in order to clarify the location of the Urban/Conservation district boundaries. A corrected map showing the district boundaries will be included in the Draft Environmental Impact Statement (DEIS).

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thank you again for your review and input. We also appreciate the assistance your staff provided us in obtaining the correct information.

Sincerely,
HELDER HASTERT & FEE, Planners
Gail Uyestake
Gail Uyestake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

EU:to

Helder Haster & Fee, Planners
211 Bishop Street, Suite 2590
Honolulu, Hawaii 96813
Telephone: 587-3822
Fax: 587-3822

Helber Haster & Fee
Planners



February 27, 1992

Mr. Brian J. J. Choy
Director
State of Hawaii
Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, HI 96813

Dear Mr. Choy:

Amended Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolaouoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated February 24, 1992.

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTER & FEE, Planners

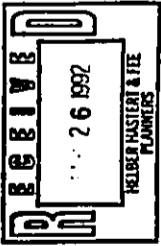
Gail Uyciake
Gail Uyciake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

Brian J. J. Choy
Director



STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
728 SOUTH KING STREET
FOURTH FLOOR
HONOLULU, HAWAII 96813
TELEPHONE 348-1188
February 24, 1992



Mr. Melvin Murakami
Department of General Planning
City and County of Honolulu
650 South King Street, 8th Floor
Honolulu, Hawaii 96813

Dear Mr. Murakami:

Subject: Amended Environmental Impact Statement Preparation Notice
for the Kailua Gateway Development

Thank you for the opportunity to review the subject document. We have no comments to offer.

Sincerely,

Brian J. J. Choy
Brian J. J. Choy
Director

c: Kaneohe Ranch
Helber, Haster & Fee

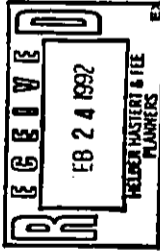
File # 200-117-2055
Invoice # 200-117-2050

211 Bishop Street, Suite 2500
Honolulu, Hawaii 96813

Helber Haster & Fee
Consumer Center, 1911 Kono



JOHN WILKINSON
SECRETARY



STATE OF HAWAII
EXECUTIVE OFFICE ON AGING
OFFICE OF THE GOVERNOR
328 WINDWARD STREET, ROOM 211
HONOLULU, HAWAII 96813

JEANETTE TAKAMURA, Ph.D.
DIRECTOR
TELEPHONE NO.
340-2706

Uyetake
Page 2
February 20, 1992

containment and rising long term care costs are particular areas of concern and should be addressed in the Environmental Impact Statement.

Sincerely,

Jeanette C. Takamura, Ph.D.
Director, Executive Office on Aging

SK/CS/JT:sk

February 20, 1992

Ms. Gail Uyetake
Herbert Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, HI 96813

Dear Ms. Uyetake:

We write in response to your January 23, 1992 letter regarding Amended Environmental Impact Statement Preparation Notice, Kailua Gateway Development, Koolauoko, Oahu, HI TRK: 4-2-01: por. 1, por. 55; 4-2-03: por.17, por. 29. Thank you for the opportunity to comment.

Kaneohe Ranch proposes "to develop retirement community, affordable elderly housing, community center, and expansion of existing commercial area. The project will provide 50-80 units of affordable elderly housing, 333 units of independent retirement housing, 20 personal care units, and 60 skilled nursing beds. The retirement project will be marketed primarily to present Windward Oahu residents, and is expected to be occupied predominantly by Hawaii residents."

The Executive Office on Aging would like to see Kaneohe Ranch respond to the issues raised in our previous correspondence. A copy of our January 6, 1992 letter is attached. Affordability and fiscal stability, enhancement of quality of life, and cost



STATE OF HAWAII
 EXECUTIVE OFFICE ON AGING
 OFFICE OF THE GOVERNOR
 11 MANAMA STREET, ROOM 211
 HONOLULU, HAWAII 96813

JEANETTE TAKAMURA, Ph.D.
 DIRECTOR
 TELEPHONE NO. 535-2111
 FAX NO. 535-2112

Ms. Uyetake
 Page 2
 January 6, 1992

- prevent and/or delay the need for institutional care; and
- promote partnerships within and among the public and the private sectors and elder consumers and their families.

The State recognizes that new services and programs are drastically needed to respond to the improvements in longevity and increased incidence of chronic illnesses. The basic issue is to help older adults avoid undesired institutionalization and to support the efforts of informal caregivers of older adults. Policy recommendations address three major areas: the stimulation of community-based and home care services, quality of care, and financing of long term care.

The proposed development is intended to appeal to the senior housing market. As presented in the Application for Development Plan Amendment and Environmental Assessment, "it is likely that residents of this project will be present Windward Oahu residents or individuals who have children or other family members in the area" and that "the facility is not intended to draw its residents from out-of-state or overseas". Yet, it is unclear whether this type of facility will indeed attract a new population of users. Most older adults prefer to remain in their own homes for as long as possible. Currently, home care services, including home health care, personal care, and homemaker services are available to residents in their homes, including condominiums.

Equity, quality of care, personnel, affordability, financing and continuity of care are issues which require critical examination in the development of new services and programs for older adults. Given the materials provided us, we are unable to adequately assess this proposed development regarding affordability and fiscal stability, enhancement of quality of life, and cost containment and rising long term care cost concerns. Of particular concern is that relating to financial viability. No actuarial-based financial strategy has been presented for review.

The Executive Office on Aging appreciates the opportunity to review and provide comments. Please do not hesitate to call us for further information.

Sincerely,

Jeanette Takamura

Jeanette C. Takamura, Ph.D.
 Director, Executive Office on Aging

SK/CS/JT:sk

January 6, 1992

Ms. Gail Uyetake
 Project Planner
 Helber Hastert and Fee Planners
 733 Bishop Street, Suite 2590
 Honolulu, HI 96813

Dear Ms. Uyetake:

We write in response to your December 17, 1991 letter regarding Environmental Impact Statement Preparation Notice, Kailua Gateway Development, Koolauopoko, Oahu, HI TMK: 4-2-01:1, 55; 4-2-03:17, 29. Thank you for affording us the opportunity to share some perspectives.

Kaneohe Ranch "proposes to develop a lifecare retirement community (consisting of 300 independent apartments, 20 personal care units and 60 skilled nursing beds), 50-80 low-income elderly housing units, and a senior citizens' community center/daycare center on the subject property." It is our understanding that entering the lifecare facility and system, a non-profit entity, "requires a contractual arrangement between the individual and the foundation to provide services over the individual's lifetime. A one-time entry fee is assessed, which is approximately 60% of the unit's construction cost. Residents are assessed a monthly maintenance fee which covers meals, housekeeping, maintenance, and health care."

Our response relating to the lifecare facility is based on policy statements and recommendations found in the Comprehensive Master Plan for the Elderly and the Long Term Care Plan for Hawaii's Older Adults and initiatives undertaken by the Executive Office on Aging to pursue those recommendations.

There are broad themes which serve as the foundation for the State's long term care policies. These are that policies must:

- be client-centered and family supportive;
- assure dignity, self-determination, and independence to the maximum extent possible for all older persons;

Helber HASTERT
Planners

February 26, 1992

Ms. Jeannette Takamura, Ph.D.
Director
State of Hawaii Executive Office on Aging
Office of the Governor
335 Merchant Street, Room 241
Honolulu, HI 96813

Dear Dr. Takamura:

Amended Environmental Impact Statement Precaution Notice
Kaliua Gateway Development
Koolahouko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated February 20, 1992. We offer the following responses to your comments.

The Draft Environmental Impact Statement will describe the lifecare program concept in terms of financial requirements of the residents, types of residential accommodations and criteria for admission. The skilled nursing and medical components of the lifecare program will utilize Medicare funds and a tax-deductible self-insurance pool to keep out-of-pocket medical costs affordable to the residents.

The residents will be able to utilize on-site recreation and social facilities, as well as a planned community center adjacent to the lifecare site. The project site is highly accessible to shopping areas, professional services, public recreation facilities, and public transportation facilities. The proposed lifecare community is located adjacent to a wetland area, which is intended to be improved and maintained as a waterbird conservation area.

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners

Helber H. Hastert
Gail Oyelakel
Project Planner

cc: Randy Moore
Tony Garcia

Helber H. Hastert & Fee
Planners
1111 Kalia Road, Suite 2100
Honolulu, Hawaii 96813

1111 Kalia Road, Suite 2100
Honolulu, Hawaii 96813

Telephone: 808-515-2015
Telex: 808-515-2015



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



HERBERT K. MURAOKA
DIRECTOR AND BUILDING SUPERINTENDENT

RECEIVED
JAN 31 1992
HELBER HASTERT & FEE
PLANNERS

PB 92-103

January 30, 1992

Helber Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Attn: Gail Uyetake

Gentlemen:

Subject: Kailua Gateway Development
Amended Environmental Impact Statement
Preparation Notice (EISPN)

This is in response to your letter dated January 23, 1992.
We have reviewed the amended EISPN for the subject project
and have no comments to offer.

Very truly yours,

Herbert K. Muraoka
HERBERT K. MURAOKA
Director and Building Superintendent

cc: J. Harada

Helber Hastert
Planners

January 31, 1992

Mr. Herbert K. Muraoka
Director and Building Superintendent
Building Department
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Muraoka:

Amended Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated January 30, 1992.

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham



Helber Hastert & Fee
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813
Telephone: 535-2155
Facsimile: 535-2121

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

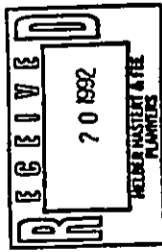
HONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU, HAWAII 96813



JOSEPH M. MAGALDI, JR.
DIRECTOR
AMARSEPPAL
PLANNING DIVISION

TE-0375
PL92-1.030

February 13, 1992



Ms. Gail Uyetake
Helber Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

Subject: Kailua Gateway Development
Amended Environmental Impact Statement
Preparation Notice (EISP)
TMK: 4-2-01: 1, 55: 4-2-03: 17, 29

This is in response to your letter of January 23, 1992 requesting our review and comments on the amended EISP.

Our concerns are as follows:

1. The preliminary site plan that will be included in the Draft Environmental Impact Statement (DEIS) should show the widths and locations of the driveways servicing the proposed development.
2. The 30-foot property line radius at the Kailua Road/Hamakua Drive Intersection and the 24-foot road widening setback along Hamakua Drive has been verified. Full frontage improvements should be provided with respect to the new property line.
3. A traffic analysis should be prepared and included as part of the DEIS.

Should you have any questions, please contact Lance Watanabe of my staff at 523-4199.

Sincerely,

JOSEPH M. MAGALDI, JR.
Director

Helber Hastert
Planners

February 27, 1992

Mr. Joseph M. Magaldi, Jr.
Director
Department of Transportation Services
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Magaldi:

Amended Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated February 13, 1992 (your reference number TE-0375 PL92.1.030). We offer the following responses to your comments.

1. A preliminary site plan will be included in the Draft Environmental Impact Statement (DEIS), which will indicate the approximate locations of any proposed driveways.
2. It is noted that a 30-foot property line radius at the Kailua Road/Hamakua Drive intersection and the 24-foot road widening setback along Hamakua Drive have been verified, and that full frontage improvements should be provided with respect to the new property line.

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake
Project Planner

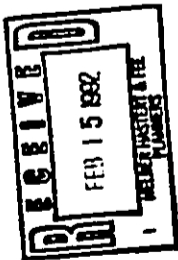
cc: Randy Moore
Tony Garcia
Don Graham

Helber Hastert & Fee
Commerce Center, PH1 Tower
Honolulu, Hawaii 96813

Telephone: 523-2055
Facsimile: 523-2070

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
1455 SOUTH BERESIANA STREET ROOM 305
HONOLULU HAWAII 96814

FRANK P. PANI
MAYOR



LIONELLE CAMARA
FIRE CHIEF
DONALD S. M. CHANG
DEPUTY FIRE CHIEF

February 14, 1992

Ms. Gail Uyetake, Project Planner
Helber Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

Subject: Amended Environmental Impact Statement Preparation Notice (EISP)
Kaliua Gateway Development - Koolauapoko, Oahu, Hawaii
TRK: 4-2-01; por. 1, por. 55; 4-2-03; por. 17, por. 29

We have reviewed the application and have no objections to the proposal providing the following conditions are complied with prior to subdivision approval. Compliance with Article 10 of the Uniform Fire Code should also be made, but not limited to the following:

1. Provide a private water system where all appurtenances, hydrant spacing and fire flow requirements meet Board of Water Supply standards.
2. Provide a fire access road to within 150 feet of the first floor of the most remote structure. Such access shall have a minimum vertical clearance of 13 feet 6 inches, be constructed of an all-weather driving surface of not less than 20 feet in unobstructed width shoulder to shoulder capable of supporting the minimum 60,000 pound weight of our fire apparatus and with a gradient not to exceed 20%. All dead-end fire apparatus access roads in excess of 150 feet in length shall be provided with an approved turnaround having a radius of not less than 35 feet.

Should additional information or assistance be required, you may contact Captain Michael Chung of our Fire Prevention Bureau at 523-4186.

Very truly yours,

DONALD S. M. CHANG
Fire Deputy Chief

DSMC/MC:jmc

Helber Hastert & Fee, Planners

February 17, 1992

Mr. Donald S.M. Chang
Fire Deputy Chief
Fire Department
City and County of Honolulu
1455 South Beresiana Street, Room 305
Honolulu, HI 96814

Dear Chief Chang:

Amended Environmental Impact Statement Preparation Notice
Kaliua Gateway Development
Koolauapoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated February 14, 1992.

As stated in our letter of December 10, 1991, the project designers will work with the Fire Department to ensure that the water system and fire apparatus access roads comply with the standards of Article 10 of the Uniform Fire Code, as set forth in your letter.

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

Helber Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813
Telephone: 523-4186
Facsimile: 523-4186



POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
1435 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96814



GROUP 1 - EXEMPT
FOIA CODE

MICHAEL S. NAKAMURA
Chief
POLICE DEPARTMENT
DEPUTY CHIEF

REFERENCE SG-LX

February 12, 1992

Ms. Gail Uyetake
Project Planner
Helber Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

Subject: Amended Environmental Impact Statement Preparation
Notice (EISP/N), Kailua Gateway Development,
Koolauopoko, Oahu, Hawaii, TRK: 4-2-01: por. 1, por. 55;
4-2-01: por. 17, por. 29

We have reviewed the above-referenced amendment and have no
objections to the changes.

We do not anticipate the revised development program will have an
impact on calls for police services in the area.

Thank you for the opportunity to provide comments.

Sincerely,

MICHAEL S. NAKAMURA
Chief of Police

By *[Signature]*
CHESTER E. HUGHES
Assistant Chief of Police
Support Services Bureau

Helber Hastert
Planners

February 17, 1992

Mr. Michael S. Nakamura
Chief of Police
Police Department
City and County of Honolulu
1435 South Beretania Street
Honolulu, HI 96814

Dear Chief Nakamura:

Amended Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauopoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter
dated February 12, 1992.

We acknowledge your assessment that you do not expect the revised development
program to have an impact on calls for police services in the area.

Your letter will be reproduced in the Draft Environmental Impact Statement in its
entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners

[Signature]
Gail Uyetake
Project Planner

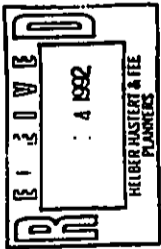
cc: Randy Moore
Tony Garcia
Don Graham

Helber Hastert & Fee
Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Telephone: 288-1111
Telex: 288-1111

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU

630 SOUTH KING STREET
HONOLULU, HAWAII 96813 • PHONE 533-4433



FRANK P. ZASI
REGISTERED
PLANNER

DONALD A. CLEGG
DIRECTOR

LORETTA C. CHIE
DEPUTY DIRECTOR

LU2/92-485 (JH)

February 21, 1992

Ms. Gail Uyetake
Helbert Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

Kailua Gateway Development
Koolaupoko, Oahu, Hawaii
Tax Map Key: 4-2-01; 01; 4-2-03: 17 & 29

We have reviewed your Revised Application for a Development Plan (DP) Amendment and Environmental Assessment for the Kailua Gateway Project. You have proposed several significant changes to your original proposal. As discussed in your letter of January 23, 1992, the changes involve an increase in the area proposed for DP amendment from 21 acres to 33 acres. Of the twelve additional acres, you are proposing to convert an additional eleven acres of preservation land to medium-density apartment, and one acre of preservation land to commercial. These changes are intended to create an adequate buffer between the development and the wetlands.

It is unclear as to whether the town houses have been deleted from the project. References made to the town houses in your original environmental assessment have been deleted from sections of the application, however, pages number 30 and 32 of your amended application still refer to them as if they were part of the plan. This should be clarified in the Draft EIS.

The application implies that the involvement of Ducks Unlimited in the planning and management of the wetlands will assure that the wetlands will not be adversely impacted by the proposed development. The plan for managing the wetlands and mitigating negative development impacts will still need to be thoroughly discussed during the EIS process.

While this is a positive approach, we are also concerned that you propose to buffer the wetlands by increasing the size of the proposed project and moving it uphill, onto steeper slopes where

Ms. Gail Uyetake
Page 2

runoff may be a problem. The Draft EIS should contain specific design plans and information relating to drainage runoff, down slope sedimentation and mitigation of potential impacts on the wetland areas.

Your amended application also states that four acres of marsh will be converted for commercial use. Please be advised that this action may be contrary to the Special Management Area Ordinance which allows wetland losses only where all practicable measures have been applied to reduce those losses and that the losses are unavoidable and in the public interest.

We hope that this additional information assists you in the preparation of your Environmental Impact Statement. We recognize that you are making efforts to mitigate the negative impacts of the project through this revised application. However, due to the environmentally sensitive nature of the affected wetlands, we must reiterate our comments of December 10, 1991; our Department continues to have reservations regarding the scope and siting of this project. If you have any questions, please call John Morihata of our staff at 527-5349.

Very truly yours,

DONALD A. CLEGG
Director of Land Utilization

DAC:cct

att:llm,jm

15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

Helder Haster & Fee
Planners

February 26, 1992

Mr. Donald A. Clegg
Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Clegg:

Amended Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolaupoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated February 21, 1992 (your reference number LU2/92-485 [JM]). We offer the following responses to your comments.

1. The townhomes referenced in the amended environmental assessment are no longer proposed for development. The proposed life-care facility does include independent living units in one-story duplex arrangements as well as in multi-story apartment buildings. This will be clarified in the Draft Environmental Impact Statement (DEIS).
2. The DEIS will contain possible measures for mitigating adverse impacts on the wetlands from the proposed urban development. The description of the involvement of Ducks Unlimited in the planning and management of the wetlands was not meant to imply that the wetlands will not be adversely impacted by the proposed development. Ducks Unlimited is committed to pursuing the wetland improvements apart from the subject Development Plan amendment application. Ducks Unlimited is aware of the development proposal for the adjacent mauka area, and will provide more detailed information on mitigation measures as specific information on the site and building design become available.
3. A drainage plan was prepared for the proposed project and will be summarized and included in the DEIS.
4. The amended application states that the area of application contains four acres of soils which have been classified by the U.S. Department of Agriculture Soil Conservation Service as Marsh soils. It should be noted that the presence of Marsh soils does not constitute a corresponding presence of wetlands, as defined by the U.S. Army Corps of Engineers. Furthermore, although the proposed commercial area expansion includes a small portion (less than one acre) of Marsh soils, no fill or development is proposed for the 27 acres identified by the Corps of Engineers as wetlands.

Helder Haster & Fee
Circulation Center, 1981 Tower

711 Unalua Street, Suite 2204
Honolulu, Hawaii 96813

Telephone: 833-2115
Facsimile: 833-2124

Helder Haster
Planners

Mr. Donald A. Clegg
February 26, 1992
Page 2

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thank you again for your review and input. We appreciate the efforts your department has made to keep us aware of pertinent land use controls and issues.

Sincerely,

HELDER HASTERT & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

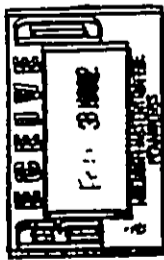
DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
808 SOUTH KING STREET
HONOLULU, HAWAII 96813



SAM CALLEJO
DIRECTOR AND CHIEF ENGINEER
C MICHAEL STREET
DEPUTY DIRECTOR
ENV 92-25

January 29, 1992

FRANK PARI
-4000



Ms. Gail Uyetake
Project Planner
Helber Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

Subject: Amended Environmental Impact Statement Preparation
Notice - Kailua Gateway Development, TMK:4-2-01:Por. 1,
POR. 55: 4-2-03:Por. 17, Por. 29

We have reviewed the amended Environmental Impact Statement
Preparation Notice for the subject project and have no additional
comments to offer at this time.

Very truly yours,
C. Michael Street
SAM CALLEJO
Director and Chief Engineer

February 3, 1992

February 3, 1992

Mr. Sam Callejo
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Callejo:

Amended Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauloko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter
dated January 29, 1992.

Your letter will be reproduced in the Draft Environmental Impact Statement in its
entirety.

We thank you again for your review and input.

Sincerely,

HELDER HASTERT & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

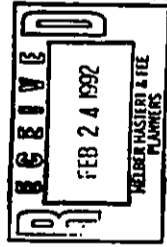
cc: Randy Moore
Tony Garcia
Don Graham

211 Bishop Street, Suite 2790
Honolulu, Hawaii 96813
Tel: (808) 535-2020
Fax: (808) 535-2020

211 Bishop Street, Suite 2790
Honolulu, Hawaii 96813
Tel: (808) 535-2020
Fax: (808) 535-2020

211 Bishop Street, Suite 2790
Honolulu, Hawaii 96813
Tel: (808) 535-2020
Fax: (808) 535-2020

DEPARTMENT OF HUMAN RESOURCES
CITY AND COUNTY OF HONOLULU
HONOLULU MUNICIPAL BUILDING
450 SOUTH KING STREET
HONOLULU HAWAII 96813 - 10001337-3311



RECEIVED
FEB 24 1992
HELBER HASTERT & FEE
PLANNERS

FRANKIE FASH
MAIL ROOM



February 21, 1992

Ms. Gail Uyetake, Project Planner
Helber Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Subject: Amended Environmental Impact Statement Preparation Notice
Kailua Gateway Development: Koolauopoko, Oahu, Hawaii
TKH: 4-2-011, pOF. 1, pOF. 55; 4-2-03; pOF. 17, pOF. 29

Dear Ms. Uyetake:

The Department of Human Resources has reviewed the subject matter cited above and does not have any comments pertaining to the amended preparation notice for the Kailua Gateway Development project.

The lifecycle retirement community proposed by Kaneohe Ranch will provide much needed housing, services, and programs for Oahu's senior citizens.

Thank you very much.

Sincerely,

RUDY PACARRO
Acting Director
Department of Human Resources

Helber Hastert
Planners

February 27, 1992

Mr. Rudy Pacarro
Acting Director,
Department of Human Resources
City and County of Honolulu
650 South King Street, 6th Floor
Honolulu, HI 96813

Dear Mr. Pacarro:

Amended Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauopoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated February 21, 1992.

We appreciate your comments and acknowledge your assessment that the proposed lifecycle retirement community will provide much needed housing, services, and programs for Oahu's senior citizens.

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyciack
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

Helber Hastert & Fee
Executive Center, 11th Floor

211 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

File # - 1992-011-001
Case # - 1992-011-001

The Gas Company
315 Kamehame Street
P.O. Box 3379 Honolulu, Hawaii 96847
Telephone (808) 547-3333
Fax (808) 547-3000 547-3561



February 10, 1992

Ms. Gail Uyetake
Project Planner
Helber Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

Subject: Amended Environmental Impact Statement Preparation Notice (EISPN)
Kailua Gateway Development, Koolauapoko, Oahu, Hawaii
TMK: 4-2-01: por. 1, por. 55; 4-2-03: por. 17, por. 29

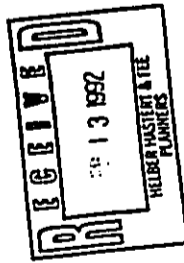
This is in response to your letter dated January 23, 1992. We do not have any comments to the subject project.

Thank you for the opportunity to review and comment on the revised development plan.

Very truly yours,

Edwin N. Sawa, P.E.
Manager, Engineering

/ENS
v2.110



Helber Hastert
Planners

February 13, 1992

Mr. Edwin N. Sawa, P.E.
Manager, Engineering
The Gas Company
P.O. Box 3379
Honolulu, HI 96842

Dear Mr. Sawa:

Amended Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauapoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated February 10, 1992.

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

Thank you again for your review and input.

Sincerely,

HELDER HASTERT & FEE, Planners

Gail Uyetake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham



Helber Hastert & Fee
211 Bishop Street, Suite 2590
Honolulu, HI 96813

Helber Hastert & Fee
211 Bishop Street, Suite 2590
Honolulu, HI 96813

Helber Hastert & Fee
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211 Bishop Street, Suite 2590
Honolulu, HI 96813

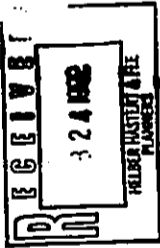
Helber Hastert & Fee
211 Bishop Street, Suite 2590
Honolulu, HI 96813

Helber Hastert & Fee
211 Bishop Street, Suite 2590
Honolulu, HI 96813

GTE Hawaiian Tel

Beyond the call

February 21, 1992



Ms. Gail Uyetake, Planner
HELBER HASTERT & FEE, Planners
Grosvenor Center, PRI Tower
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Amended Environmental Impact Statement
Preparation Notice (EISP), Kailua Gate-
way Development, Koolauoko, Oahu, Hawaii
TMK: 4-2-01:POR.1, POR.55; POR.17, POR.29

Thank you very much for the opportunity to comment on the above
referenced EISP.

The only comment we have concerns Page 29, item 10. Utilities, c.
Telephone, last paragraph: We would prefer that the connection
to the project area be made from the Kailua Road side of the
development since our facilities on Hamakua extend only to Aoloo
Street.

Should there be a need to discuss this further, please call Nils
Ito at 834-6245.

Sincerely,

Jon Uyebara
for Jon Uyebara
Acting Operations Manager-
OSP Engineering

Helber Hastert
Planners

February 27, 1992

Mr. Jon Uyebara
Acting Operations Manager
OSP Engineering
GTE Hawaiian Telephone Company, Inc.
P.O. Box 2200
Honolulu, HI 96841

Dear Mr. Uyebara:

Amended Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter
dated February 21, 1992.

The Draft Environmental Impact Statement will note GTE Hawaiian Tel's
preference that the telephone system connection to the project area be made from
the Kailua Road side of the development. The developer will continue to consult
with GTE Hawaiian Tel as the planning for the project proceeds.

Your letter will be reproduced in the Draft Environmental Impact Statement in its
entirety.

Thank you again for your review and input.

Sincerely,

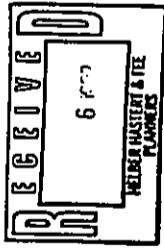
HELBER HASTERT & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

cc: Randy Moore, Kanohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell
Timothy Stcinberger, Smith Young & Associates

Helber Hastert & Fee
Planners
211 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Telephone: 808-535-2111
Facsimile: 808-535-2120



CYNTHIA THIELEN / LAURA THIELEN • ATTORNEYS AT LAW

165 Queen Street
Suite 700
Honolulu, Hawaii
96813

February 5, 1992

Telephone
808/599-4141
Facsimile
808/599-4444

Director Brian J.J. Choy
Office of Environmental Quality
Control
220 South King Street
Central Pacific Plaza, 4th Floor
Honolulu, HI 96813

Melvin Murakami
City and County of Honolulu
Department of General Planning
650 South King Street
Honolulu, HI 96813

Randy Moore
Kaneohe Ranch
1199 Auloea Road
Kailua, HI 96734

Gail Uyetake
Helbert, Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, HI 96813

Re: Kailua Gateway Development Project
THK: 4-2-3: 17 (por) and 29 (por)

Dear Director Choy, Messers Murakami and Moore and Ms. Uyetake:

I represent KBC Partners and am submitting comments to be addressed by the Draft Environmental Impact Statement ("DEIS") for the above-referenced proposed development.

The comments submitted by this office in Cynthia Thielen's December 3, 1991 letter are hereby incorporated in this letter and we request that they be addressed in the DEIS. We recently received a response from Ms. Uyetake stating the planners will be addressing some of those comments in the DEIS. However Ms. Uyetake's letter failed to mention a few items, which I will include with our other comments addressed below.

First, the commercial portion of the project is the only portion of the proposed development which is directly adjacent to Kaelepulu Stream. That area of the proposed development lies in the flood zone. Moreover, the Stream itself is the main waterway for the wetlands and empties into the adjacent marsh. Any proposed commercial development so close to the main water course and in the flood zone must be carefully and independently addressed for its impact on the fragile environmental and ecosystem.

Second, the DEIS must address the increased traffic impact due to the commercial portion of the project at the single road

Page -2-
February 5, 1992

entrance to Kailua Road.

Third, the DEIS must address the impact of decreasing open view plains and preservation area in order to increase the commercial area in Kailua. As was stated in our December letter, the General Plan and Development Plan call for a decrease in the overall population in the area, and therefore there is no need to increase the commercial zoning in Kailua. Moreover, the applicants have not demonstrated any need to increase the commercial area. The amended application to the Development Plan admits that the commercial portion of the proposed project will block the very view plain which is specifically protected by the Development Plan. Unless there is a demonstrated need for increasing the commercial area in Kailua, there is no justification to permit a development which contradicts the stated purpose of the Development Plan Special Provisions. Thus, the DEIS should include an assessment of the following:

- A. The occupancy/vacancy rates in the existing commercial buildings in Kailua;
- B. The number of commercial buildings which are currently planned;
- C. Expected impact from the proposed construction on the vacancy rates in Kailua's existing commercial buildings.

Fourth, the DEIS should address the issue of spot-zoning and its impact. The January Gateway Community Advisory Report states the commercial portion of the proposed project has been initiated to legitimize the illegal encroachment of commercial use into the preservation area. The planners confess that the existing commercial uses at the entrance to Kailua have illegally encroached and expanded on to preservation land. A Development plan should not be amended as a reward for illegitimate activities. The expansion of the use was unjustified and unplanned. Any change to the Development plan must be justified and assessed for its impact on the environment and on the DP itself. The DP change to commercial essentially is spot zoning, and sends a message that illegal encroachments will be rewarded.

I look forward to receiving a copy of the DEIS soon.

Sincerely,

LAURA THIELEN



Helder Haster
Planners

February 25, 1992

Ms. Laura Thielen
Law Offices of Cynthia Thielen
345 Queen Street, Suite 700
Honolulu, HI 96813

Dear Ms. Thielen:

Amended Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated February 5, 1992. We offer the following responses to the comments contained in your letter.

1. A water quality impact study was completed by AECOS Inc. and will be summarized in the Draft Environmental Impact Statement (DEIS). This study included data on estimated stormwater runoff impacts on the stream from both the proposed lifecare retirement development and the proposed commercial area expansion.
2. A traffic impact analysis report was completed for the DEIS, and will include the traffic impacts of the commercial area expansion. This report will be summarized and included in the DEIS.
3. The DEIS will include a discussion of the impacts of the proposed development (including the commercial development) on the views of Puu O Ehu. The proposed commercial development is intended to be kept low-rise in height (one- or two-stories), and is not expected to impair views of the Puu O Ehu ridge line or Mount Olomana from the intersection of Kailua Road and Hamakua Drive. Thus, the commercial area expansion will not contradict the stated purpose of the Development Plan Special Provisions.

Since the entire area being proposed for commercial use is already being utilized for those purposes, there will be no actual expansion of commercial space within the project area. Thus, there should be no impact from the proposed development on vacancy rates in Kailua's existing commercial buildings.

4. The one-acre area for which a DP amendment is being sought to change the designation from Preservation to Commercial is contiguous to an existing Commercial area, and does not constitute "spot-zoning." While it is true that the existing users have encroached onto currently non-commercial zoned property, legitimizing this existing use has never been the primary reason for the proposed expansion. The rationale for expanding and improving this area is to provide an aesthetic entrance to Kailua town, while also providing

Helder Haster & Co.
Environmental Planners, PPH 1000

111 Hahaione Street, Suite 2200
Honolulu, Hawaii 96811

Telephone: 808-515-2015
Facsimile: 808-515-2014

Helder Haster
Planners

Ms. Laura Thielen
February 25, 1992
Page 2

commercial operations complementary to the proposed development. The area proposed for Commercial redesignation was identified based on topography, relationship to the existing commercial area, and usable land configuration.

The uses which encroach on non-commercial zoned land to the east of the existing commercial parcel began when the area in question was zoned B-2 Community Business District. The encroaching uses to the west and south began when the area was in the Land Use Urban District. The landowner has allowed the lessee to use the non-commercial zoned property under the condition that it was permitted by the Department of Land Utilization.

Your letter will be reproduced in the Draft Environmental Impact Statement in its entirety.

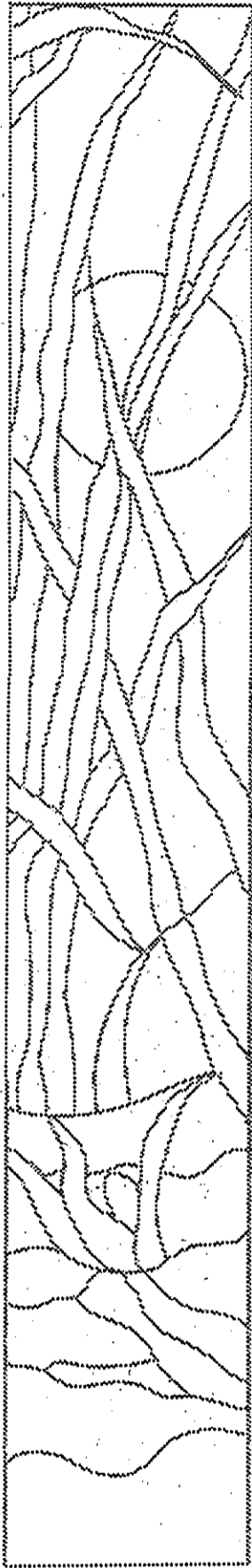
Thank you again for your review and input.

Sincerely,

HELDER HASTER & FEE, Planners

Gail Uyclake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham



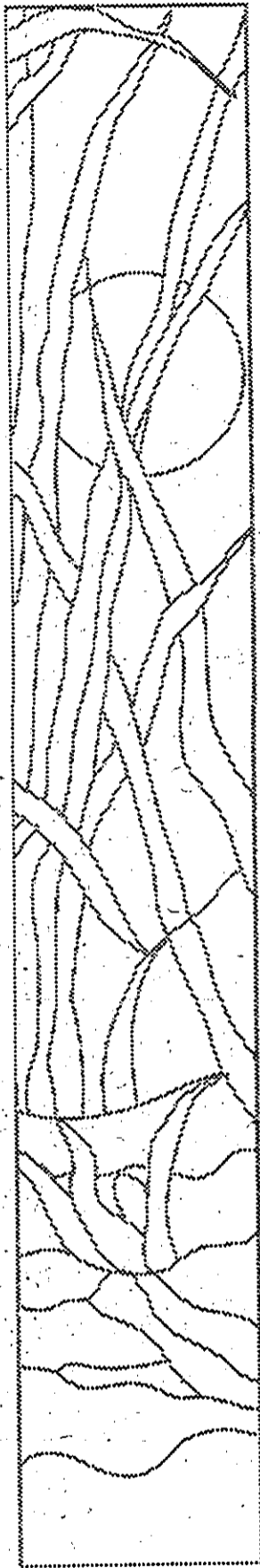
Chapter XII

References

CHAPTER XII REFERENCES

- AECOS, Inc. Water Quality and Biological Studies of Kawainui Stream Relative to the Kailua Gateway Project Development. Prepared for Helber Hastert & Fee, Planners. April 1992.
- AM Partners, Inc. Final Environmental Impact Statement for Kailua Elderly Housing Project, Kailua, Koolaupoko, Oahu. Prepared for City and County of Honolulu, Department of Housing and Community Development. May 1991.
- B.D. Neal & Associates. Air Quality Study for the Proposed Kailua Gateway Project, Kailua Oahu, Hawaii. Prepared for Helber Hastert & Fee, Planners. January 1992.
- Bruner, Phillip L. Survey of the Avifauna and Feral Mammals at Hamakua Marsh, Kawainui Stream and Surrounding Lands for the Kailua Gateway Project, Oahu. Prepared for Helber Hastert & Fee, Planners. 13 December 1991.
- Char & Associates. Botanical Survey Kailua Gateway Project, Koolaupoko District, Oahu. Prepared for Helber Hastert & Fee, Planners. December 1991.
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- International Archaeological Research Institute. Archaeological Inventory Survey, Phase I, Kailua Gateway Development, Kailua, Oahu, Hawaii. Prepared for Helber Hastert & Fee, Planners. April 1992.
- Lacayo Planning, Inc. Final Environmental Impact Statement Hale O Malia at Waiialae-Kahala. May 1991.
- Julian Ng, Incorporated. Traffic Impact Analysis Report Kailua Gateway, Kailua, Oahu, Hawaii. Prepared for Kaneohe Ranch and Helber Hastert & Fee, Planners. November 1991.
- M&E Pacific, Inc. Kawainui Marsh Flood Damage Mitigation Project. Prepared for City and County of Honolulu, Department of Public Works, Division of Engineering. June 1990.
- Smith, Young & Associates. Civil Engineering Reports for the Environmental Impacts Statement for Kailua Gateway Development. Prepared for Kaneohe Ranch. December 1991.
- United States. Department of Commerce. Bureau of the Census. General Population Characteristics - Hawaii, 1980 Census of Population. July 1982.
- United States. Department of Commerce. Bureau of the Census. Summary Tape File 1A, Census of Population and Housing. September 1991.
- United States. Federal Emergency Management Agency. Flood Insurance Rate Map, Community-Panel #150001 0095 B. Revised September 4, 1987.
- United States. Department of Agriculture. Soil Conservation Service. Soil Survey of Islands of Kauai, Oahu, MBA, Molokai, and Lanai, State of Hawaii. August 1972.



Chapter XIII

Comments and Responses Received During Preparation of the FEIS

CHAPTER XIII CONSULTED PARTIES AND PARTICIPANTS IN THE FEIS PREPARATION PROCESS

13.1 Participants in the Final EIS Preparation Process

This report was prepared for Kaneohe Ranch by Helber Hastert & Fee, Planners. The following list identifies individuals and organizations who were involved in the preparation of the report and their respective contributions.

Helber Hastert & Fee, Planners

Mark H. Hastert (Principal-in-charge and Project Manager)
Gail M. Uyetake (Project Planner and Principal Author)

Technical Consultants

AECOS, Inc. (Water Quality and Biological Studies)
Char and Associates (Flora)
Phillip L. Bruner (Fauna)
B.D. Neal & Associates (Air Quality)
International Archaeological Research Institute, Inc. (Archaeology)
Julian Ng, Incorporated (Traffic)
Smith Young & Associates (Civil Engineering)

13.2 Consulted Parties During the Preparation of the Final EIS

Notice of the Draft EIS was published in the March 8, 1992 OEOC Bulletin. Copies of the DEIS were distributed to 68 public agencies, organizations and libraries. The deadline for comments was April 22, 1992. A total of 36 written comments were received by May 7, 1992. The agencies, organizations and individuals who responded are identified below. All the comments were responded to, and both comments and responses are reprinted on the following pages. Comments received in response to the Amended EIS Preparation Notice that was published in the January 23, 1992 OEOC Bulletin but received after the end of the comment period (February 26, 1992) and responses to those comments are also included. These are noted by an asterisk (*).

Federal Agencies

Naval Base, Pearl Harbor
Soil Conservation Service
* U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service

State Agencies

Office of Environmental Quality Control
Department of Accounting and General Services
Department of Defense
Department of Health
* Department of Land and Natural Resources
DLNR State Historic Preservation Office
* Department of Transportation
DBED State Energy Office

DLNR Division of Forestry and Wildlife
Land Use Commission
Oahu Metropolitan Planning Organization
Department of Human Services

University of Hawaii

Environmental Center

City and County of Honolulu

- * Board of Water Supply
- Department of General Planning
- * Department of Parks and Recreation
- * Department of Public Works
- Department of Transportation Services
- Fire Department
- Police Department
- Department of Land Utilization

Public Utilities

Hawaiian Electric Company

Other Agencies, Organizations and Individuals

National Audubon Society
Kailua Neighborhood Board (unsigned comments received and discounted by
DGP)
Kawai Nui Heritage Foundation
Carl Honig (for Kawai Nui Heritage Foundation)
Pohakupu Community Association
Hawaii's Thousand Friends
Ralph and Scarlet Aviles
Masayoshi and Helen Wakai
Larry L. and Patricia Cundiff
Leonard A. Freed and Rebecca L. Cann
Cherry, David and Trenton Jeong



DEPARTMENT OF THE NAVY
 COMMANDER
 NAVAL BASE PEARL HARBOR
 BOX 110
 PEARL HARBOR, HAWAII 96860-5020

REPLY REFER TO
 11011
 Ser 00F2/1272
 21 MAR 1992

Mr. Melvin MuraKami
 Department of General Planning
 650 South King St., 8th Floor
 Honolulu, HI 96813

Dear Mr. MuraKami:

KAILUA GATEWAY

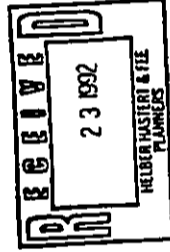
We have reviewed the subject Draft Environmental Impact Statement (DEIS) and have no comments to offer. Since we have no further use for the DEIS, it is being returned to the Office of Environmental Quality Control.

Thank you for the opportunity to review the draft.

Sincerely,

W.K. Liu
 Commander
 Naval Base Pearl Harbor

Copy to:
 Kaneohe Ranch
 (Attn: Mr. Randy Moore)
 Helbert Hastert & Fee, Planners
 (Attn: Ms. Gail Uyetake)
 OEQC (w/DEIS)



March 31, 1992

Mr. W.K. Liu
 Assistant Base Civil Engineer
 Department of the Navy
 Commander
 Naval Base Pearl Harbor
 Box 110
 Pearl Harbor, HI 96860-5020

Dear Mr. Liu:

Draft Environmental Impact Statement (DEIS)
 Kailua Gateway Development
 Koolauapoko, Oahu, Hawaii

Thank you for your review of the subject DEIS and your letter of March 17, 1992 (your reference number 11011 Ser 00F2/1272). Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake
 Project Planner

cc: Randy Moore, Kaneohe Ranch
 Tony Garcia, Episcopal Homes of Hawaii, Inc.
 Don Graham, Graham Murata Russell

Helber Hastert & Fee
 1111 Bishop Street, Suite 2000
 Honolulu, Hawaii 96813
 Tel: (808) 535-2100
 Fax: (808) 535-2104

UNITED STATES
DEPARTMENT OF
AGRICULTURE

SOIL
CONSERVATION
SERVICE

P. O. BOX 50004
HONOLULU, HAWAII
96850

April 14, 1992

Mr. Melvin Murakami
Department of General Planning
650 South King Street, 8th Floor
Honolulu, Hawaii 96813

Dear Mr. Murakami:

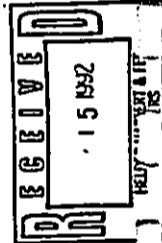
We have reviewed the Kailua Gateway Development Draft Environmental Impact Statement (DEIS) and our concerns about the protection of the wetlands and the prevention of nonpoint source pollution remain the same as those expressed in the EISPW. We have no additional comments at this time.

Thank you for the opportunity to comment on this proposed project. We would appreciate reviewing the Final Environmental Impact Statement (FEIS) when it is completed.

Sincerely,

Warren M. Lee
WARREN M. LEE
State Conservationist

cc: Mr. Randy Moore, Kameohe Ranch, 1199 Auloea Road, Kailua, HI 96734
Ms. Gail Uyetake, Helber Hasterert & Fee, Planners, 733 Bishop St.,
Ste. 2590, Honolulu, HI 96813



Helber Hasterert
Planners

April 17, 1992

Mr. Warren M. Lee
State Conservationist
U.S. Department of Agriculture
Soil Conservation Service
P.O. Box 50004
Honolulu, HI 96850

Dear Mr. Lee:

Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolauloko, Oahu, Hawaii

Thank you for your review of the subject DEIS and your letter of April 14, 1992.

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERERT & FEE, Planners

guyetake
Gail Uyetake
Project Planner

cc: Randy Moore, Kameohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell



Helber Hasterert & Fee, Planners
215 Bishop Street, Suite 2590
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Honolulu, Hawaii 96813
Telephone: (808) 531-2111



DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
BUILDING 230
FT SHAFTER, HAWAII 96848-5440

February 25, 1992

REPLY TO
ATTENTION OF

Planning Division

Helber Hastert & Fee
Attention: Ms. Gail Uyetake
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Sir or Madam:

Thank you for the opportunity to review and comment on the amended Environmental Impact Statement Preparation Notice (EISPNI) for the proposed Kailua Gateway Development, Koolauloko, Oahu, Hawaii (TMK 4-2-01: por. 1, por. 55; and 4-2-03: por. 17, por. 29). The following comments are provided pursuant to Corps of Engineers authorities to disseminate flood hazard information under the Flood Control Act of 1960 and to issue Department of the Army (DA) permits under the Clean Water Act; the Rivers and Harbors Act of 1899; and the Marine Protection, Research and Sanctuaries Act.

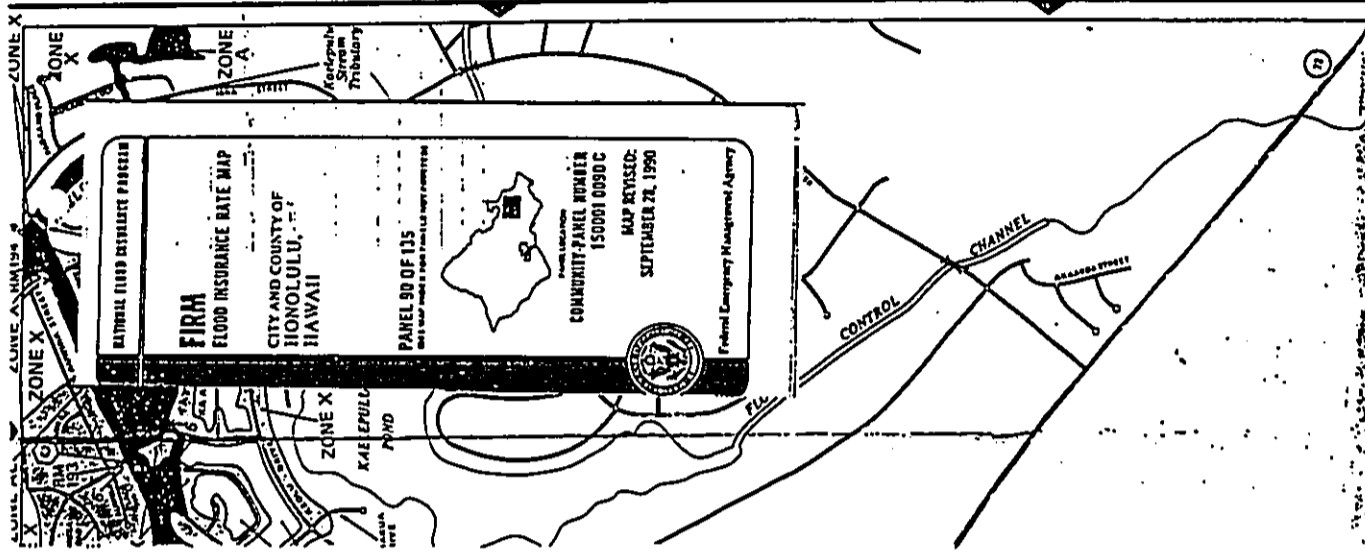
a. During pre-application meetings with Operations Division, the applicant and the applicant's agents indicated an awareness of requirements for compliance with Section 404(b) (1) of the Clean Water Act. During these meetings Operations Division advised that the placement of fill in Kaelepu Stream or adjacent wetlands, as well as any construction in the waters of the United States, will require a DA permit. A jurisdictional determination will be made when development plans are submitted to the Operations Division for review.

b. According to the Federal Emergency Management Agency's Flood Insurance Rate Map, Panel 150001-0090-C, dated September 28, 1990 (copy enclosed), the proposed site is located in the following zones: the floodway area and Zone AE (areas inundated by the 100-year flood with a base flood elevation of 6.0 feet above mean sea level); Zone X - shaded (areas inundated by the 500-year flood); and Zone X - unshaded (areas determined to be outside the 500-year flood plain).

Sincerely,

Roy A. Kisuok
Kisuok Cheung, P.E.
Director of Engineering

Enclosure



LEGEND

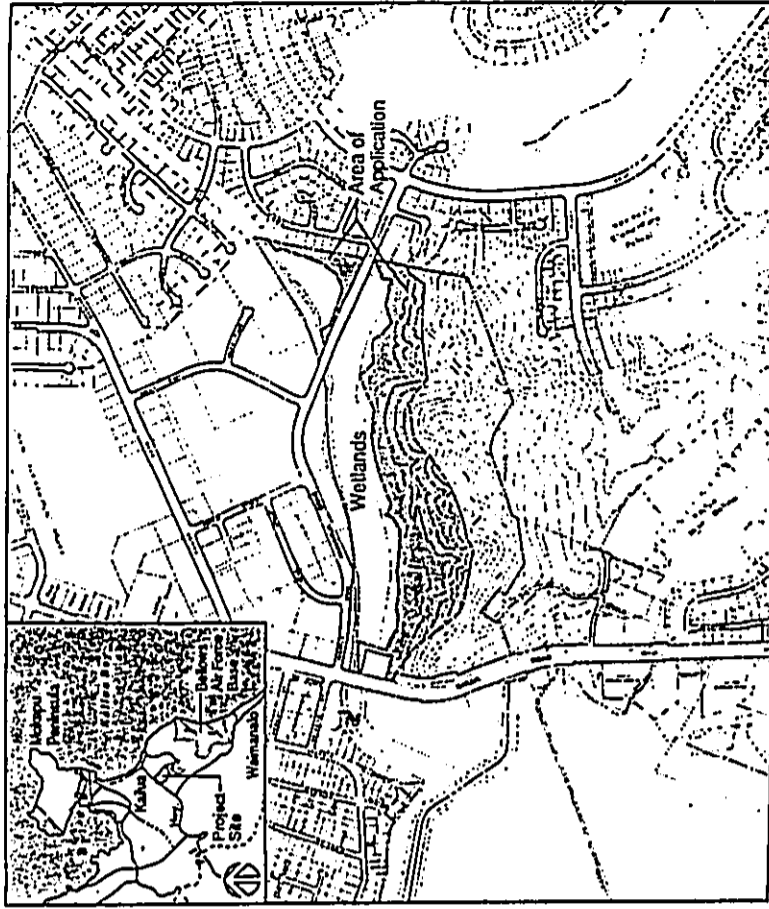
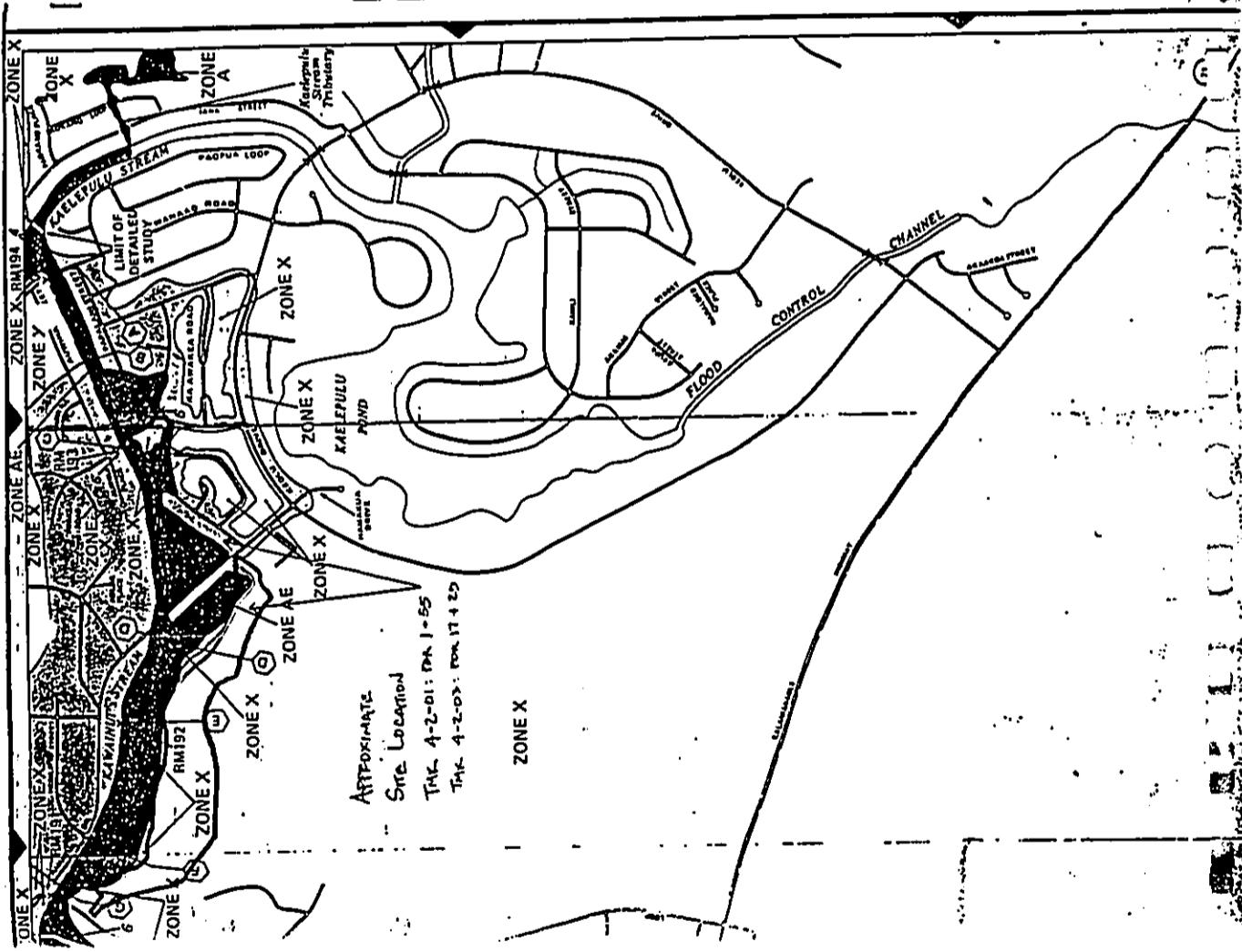
SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD
 ZONE A Base flood elevations determined.
 ZONE AE Base flood elevations determined.
 ZONE AH Flood depths of 1 to 3 feet (usually based on ponding); base flood elevations determined.
 ZONE AD Flood depths of 1 to 3 feet (usually about 1 foot above mean sea level); base flood elevations determined. For areas of limited flood depth, velocities are determined.
 ZONE A99 To be protected from 100-year flood by construction to base flood elevation determined.
 ZONE V Coastal flood with velocity hazard (base action); no base flood elevations determined.
 ZONE VE Coastal flood with velocity hazard (base action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS
 ZONE X Areas of 500-year flood; area of inundation with depths of less than 1 foot and velocities less than 1 square mile; and areas protected by levees from 100-year flood.
 OTHER AREAS
 ZONE X Areas determined to be outside 500-year flood plain.
 ZONE D Areas in which flood hazards are undetermined.

Flood Boundary
 Floodway Boundary
 Zone D Boundary
 Zone A Boundary
 Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.
 Base Flood Elevation Line; Elevation in Feet
 Cross Section Line
 Base Flood Elevation in Feet Where Uniform Within Zone
 Elevation Reference Mark

NOTES
 This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage basins of small size, or all pluvial waters outside Special Flood Hazard Areas.
 Areas of Special Flood Hazard (100-year flood) include Zones A, AE, V, AL, AH, AD, A99, V, V1, 30, and VE.
 Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.
 Boundaries of the floodways were computed at cross sections and are not necessarily shown. Cross sections. The floodway were based on hydrologic computations and are subject to requirements of the Federal Emergency Management Agency.
 Floodway widths in some areas may be too narrow to show in scale. Floodway widths are provided in the Flood Insurance Study Report.
 Coastal base flood elevations apply only landward of the shoreline.
 Elevation reference marks are depicted in the Flood Insurance Study Report.



Location Map

KAILUA GATEWAY

Prepared for: Kaeohe Ranch Company, Limited
Prepared by: Haber Hartel & Fee, Planners

Figure

1

Helber Hastert
Planners

March 10, 1992

Mr. Kisuk Cheung, P.E.
Director of Engineering
Planning Division
Department of the Army
U.S. Army Engineer District, Honolulu
Building 230
Fort Shafter, HI 96858-5440

Dear Mr. Cheung:

Amended Environmental Impact Statement Preparation Notice
Kaliua Gateway Development
Koolauapoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated February 25, 1992. We offer the following responses to your comments.

1. The applicant is aware that the placement of fill in Kaelepu Stream or adjacent wetlands, as well as any construction in the waters of the United States, will require a Department of the Army permit. The Draft Environmental Impact Statement (DEIS) includes a discussion of the Department of the Army permit program regulating development in wetland areas.
2. The DEIS includes a map summarizing the flood zone boundaries with respect to the area of application. This map reflects the boundary information provided by the copy of Flood Insurance Rate Map, Panel 150001-0090-C (September 28, 1990) enclosed with your letter.

Your letter was postmarked and received after the end of the EIS Preparation Notice public comment period, and will be reproduced in its entirety in the Final EIS.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners

Gary Uyciak
Gary Uyciak
Project Planner

cc: Randy Moore, Kaneohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell

Helber Hastert & Fee
Government Center, PNH Tower

734 Bishop Street, Suite 2500
Honolulu, Hawaii 96813

Telephone: 808-515-2155
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Helber Haster
Planners

May 7, 1992

Mr. Kisuk Cheung, P.E.
Director of Engineering
Department of the Army
U.S. Army Engineer District, Honolulu
Building 230
Fort Shafter, HI 96858-5440

Dear Mr. Cheung:

**Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolaupoko, Oahu, Hawaii**

Thank you for your review of the subject DEIS and your letter of April 20, 1992. We have reviewed your letter and offer the following responses.

- a. Your previous comments concerning the need for a Department of the Army permit will be addressed in the final EIS (FEIS).
- b. The Zone AH designation cited on page VI-9 of the DEIS will be corrected to Zone AE in the FEIS. The flood hazard information provided in your February 25, 1992 letter will also be included in the FEIS.
- c. A revised stormwater runoff and drainage report has been prepared by the project civil engineers, Smith Young & Associates, and will be summarized and included in the FEIS. Runoff from the entire 97-acre site is projected to increase from 166 cubic feet per second (cfs) to 204 cfs, for a 10-year storm. According to the project civil engineers, Smith Young & Associates, Kawaiinui Stream has sufficient capacity to accommodate the project-related runoff, if the stream and berm at the mouth of the stream at Kailua Bay are properly controlled and maintained by the City and County of Honolulu.

Further investigation into the Kawaiinui Stream and drainage basin performed by the project civil engineers, Smith Young & Associates, revealed that the controlling factor which determines the 100-year flood plain elevation is the sand berm at the mouth of Kaelepu Stream at Kailua Beach. This is a naturally occurring berm formed of sand deposited by the waves, and is occasionally removed by the City and County of Honolulu. The 100-year flood plain elevation is determined by the berm level at the mouth of Kaelepu Stream, not by the amount of flow into Kawaiinui Stream.

Calculations cannot be made to determine the increase in the 100-year flood plain elevation. The flood plain elevation calculations start with the water surface elevation at the mouth of Kaelepu Stream. The water surface elevation varies with the tides and the elevation of the sand berm which is under the control of the City and County of Honolulu. However, the development will have some effect on the flood plain which can be expressed logically, if not numerically.

Helber Haster
Planners

Mr. Kisuk Cheung, P.E.
May 7, 1992
Page 2

The proposed development will decrease the amount of runoff entering the wetlands, thereby decreasing the likelihood of flooding the wetlands. The runoff from the developed area will be piped around the wetlands. Some of the flow will enter the existing storm drain line under Hamakua Drive and thence, to Kaelepu Pond. The rest of the flow will be piped around the wetlands and released into Kawaiinui Stream.

The City and County of Honolulu is planning to dredge Kawaiinui and Kaelepu Streams to improve the drainage characteristics and decrease the risk of flooding. Kawaiinui Stream will be dredged to approximately (-)7 feet (MSL), with the Coconut Grove end of the stream slightly higher. Kaelepu Stream will be dredged to approximately (-)8 feet (MSL). Kawaiinui Stream does not connect to Kawaiinui Channel. All flow in Kawaiinui Stream is directed to Kaelepu Stream and thence, to the ocean.

According to the Environmental Assessment for the Kaelepu and Kawaiinui Streams Maintenance Dredging, "there have been instances of stream overflow due to the sediment overload in the stream bed; however, there have been no recorded instances of property damage, and this dredging will relieve this potential risk." The proposed dredging will "restore the design capacity" of the streams. No supporting calculations were provided in this report.

Fill will be placed on the two acre makai development site to raise it out of the 100-year flood plain. The existing elevation is close to 5 feet (MSL). Removing 2 acre-foot +/- from a flood plain with a capacity of several hundred acre-feet will not raise the 100-year flood plain elevation significantly.

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTER & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

cc: Randy Moore, Kaneohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell
Timothy Steinberger, Smith Young & Associates, Inc.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Office
P.O. Box 50167
Honolulu, Hawaii 96850



APR 24 1992

Mr. Melvin Murakami
Department of General Planning
630 South King Street, 8th Floor
Honolulu, HI 96813

Re: Draft Environmental Impact Statement, Kailua Gateway Development,
Kailua, Oahu

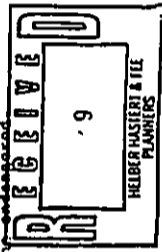
Dear Mr. Murakami:

The U.S. Fish and Wildlife Service (Service) has reviewed the referenced Draft Environmental Impact Statement (EIS) for the proposed Kailua Gateway Development and offers the following comments for your consideration.

General Comments

The biological importance of the Hamakua Canal wetland for the endangered Hawaiian Stilt (*Himantopus mexicanus knudseni*), Hawaiian Moorhen (*Gallinula chloropus sandvicensis*), Hawaiian Duck (*Anas wyvilliana*), and Hawaiian Coot (*Fulica americana alai*) is well recognized (Shallenberger 1977, Conant 1981, Nagata 1983, and U.S. Fish and Wildlife Service 1985). This wetland, in association with Kawaiui Marsh, is identified in the Waterbird Recovery Plan as essential to the recovery of the endangered Hawaiian waterbirds (U.S. Fish and Wildlife Service 1985). Nesting in the Hamakua Canal wetland by the four species of endangered waterbirds has been reported (U.S. Fish and Wildlife Service 1 October 1981 Biological Opinion). Nesting by the endangered Hawaiian Moorhen in the Hamakua Canal wetland was intensively studied in 1979 - 1980 (Nagata 1983). The Hawaiian Coot, Hawaiian Duck, Hawaiian Stilt, and Hawaiian Moorhen have been routinely observed in this wetland since 1987 by Service biologists. The survey conducted for the Draft EIS reported 14 Hawaiian Stilts, 2 Hawaiian Ducks, 8 Hawaiian Coots, and 2 Hawaiian Moorhens (Bruner 1991). In addition, migratory shorebirds including the Pacific Golden Plover (*Pluvialis fulva*), Wandering Tattler (*Heteroscolus incanus*), and Ruddy Turnstone (*Arenaria interpres*) are seasonal migrants that are observed at the Hamakua Canal wetland.

The Service recognizes the positive efforts of Kaneohe Ranch to convey the Hamakua Canal wetland to Ducks Unlimited as a wildlife preserve. The proposed transfer by Kaneohe Ranch and the restoration and management of the Hamakua Canal wetland by Ducks Unlimited and the Hawaii Department of Land and Natural Resources will be an important contribution to the recovery of the endangered Hawaiian waterbirds. However, the proposed construction of a large urban development on the uplands adjacent to the wetland, the increased levels of human disturbance from the operation of the development, the construction and use of the bridge at the northern end of the wetland, and the degradation of the water source for the wetland from increased urban run-off would diminish the value of the Hamakua Canal wetland as breeding habitat for the endangered Hawaiian waterbirds.



Specific Comments

a. Wetland Improvements. II-8, Physical Environment. III-3, State Recreational Functional Plan. III-4 and General Plan. III-7. The Draft EIS states that "As part of the proposed project, the wetland improvements will support the objectives" of the Hawaii State Plan by providing enhanced wetland habitat for the four species of endangered Hawaiian waterbirds and the "The proposed project would make available to the State an improved wetland habitat." The Draft EIS also states that "The proposed project also includes improvements to the wetlands found on the project area." However, the Service understands that the wetland restoration work proposed by Ducks Unlimited is a separate action from the proposed urban development. We understand that the wetland restoration work by Ducks Unlimited and the management by the Hawaii Department of Land and Natural Resources of the Hamakua Canal wetland is independent of the approval or denial of the proposed changes in land use designation from Preservation to Medium-Density Apartment and from Preservation to Commercial. Thus, the restoration and management of the Hamakua Canal wetland will occur regardless of the outcome of the proposed land use change allowing urban development on the surrounding uplands. The EIS should clarify the relationship, if any, between the wetland restoration project and the proposed urban development. Since the proposed development may be independent of the wetland restoration work and the proposed development may result in the degradation of the wetland, the project may not comply with the applicable sections of the Hawaii State Plan, State Functional Plans, and the City and County of Honolulu General Plan regarding environmental protection.

b. Wetland Improvements. II-8 and Hakai Development. IV-16. The Draft EIS states that the "project includes improvements to the wetlands found on the project area." We understand that the proposed restoration work by Ducks Unlimited applies to the approximately 22 acres of wetlands west of Hamakua Drive. The 5 acres of wetlands on the triangular-shaped parcel east of Hamakua Drive is not part of the Ducks Unlimited project. The EIS should include a detailed discussion of the proposed improvements to the 5-acre wetland parcel including the location of the buffer zone.

c. Relationship of the Proposed Project to Existing Public Plans, Policies, and Controls. 3.1. Federal. III-1. The section of the Draft EIS that discusses federal authorizations should be expanded to include the relevant application of the Endangered Species Act of 1973, as amended (Act). The issuances of Department of the Army and Coast Guard Bridge permits will require consultation with the Service under Section 7 of the Act if the proposed action may affect listed species. Through this consultation, the Service will prepare a Biological Opinion for the federal action agency which will determine whether the proposed federal and interdependent actions will jeopardize the continued existence of endangered species or result in the destruction or adverse modification of critical habitat.

The Biological Opinion may also include an incidental take statement and reasonable and prudent measures to minimize the taking of endangered species under Section 9 of the Act. Section 9 of the Act prohibits the taking (harm, harass, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species without special authorization. Harm is defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass means an intentional act or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering.

The construction and operation of the proposed urban development may result in the taking of endangered Hawaiian waterbirds through harm and harassment by the disruption of breeding and nesting behavior. The taking of these species may include, but is not limited to, the abandonment of nests from construction-related disturbances, failure to nest because of increased human disturbances, and flooding of nests by increased run-off and flooding in the wetland. The taking of endangered species may be authorized by the incorporation into the appropriate federal permit of the mandatory terms and conditions developed by the Service in the incidental take statement. In the case that a federal action is not necessary, the taking of endangered species on private lands would require authorization under Section 10 of the Act. The Section 10 permit would authorize the taking of endangered species provided the applicant institutes appropriate conservation measures for habitat maintenance, enhancement, and protection coincident with the development. The development of a habitat conservation plan for a Section 10 permit is designed to reduce conflicts between endangered species and private development. The issuance of the Section 10 permit requires compliance by the Service with the provisions of the National Environmental Policy Act.

d. Soils. IV-1, Drainage. VI-8, and Appendix G. Civil Engineering Reports. The proposed urbanization of 31 acres of the 97-acre project site will increase stormwater run-off by approximately 19% for the 10-year storm. Under project conditions, the stormwater run-off will increase from 147 cubic feet per second (cfs) to approximately 204 cfs. During construction, the developer proposes to intercept overland run-off by constructing a berm and swale between the boundary of the wetland and the construction area. Stormwater run-off would be conveyed by the swale to detention basins and discharged into Kawaiinui Stream. Stormwater collected in the easternmost detention basin would have to be pumped to the next settling basin for disposal. Under project conditions, the settling basins would be abandoned and overland run-off would be captured by an internal drainage system and by the berm and swale in the buffer zone. Run-off from the western end of the primary project site would discharge into Kawaiinui Stream. Run-off from the eastern end of the primary project site would discharge into Kaelepuu Pond through an existing storm drain outlet. Stormwater run-off from the development parcel on the eastern side of Hamakua Drive would discharge into Kawaiinui Stream.

4

The Draft EIS does not provide adequate information to determine the adequacy of the proposed erosion control plan and drainage system in preventing the further degradation of water quality in Kawaiinui Stream and the Hamakua Canal wetland. In particular, the Draft EIS does not include the dimensions of the swale, berm, and detention basins, effects of the detention basin on peak discharges, retention times for the settling basins, predicted changes in water surface elevations in Kawaiinui Stream and the Hamakua Canal wetland from the point discharge of stormwater run-off, and predicted run-off values for a range of storm recurrence intervals. For example, the information on post-project peak discharges and changes in water surface elevations in the wetland would be used to evaluate potential impacts to nesting waterbirds. While the wetland is probably maintained primarily by periodic inundation from Kawaiinui Stream, the role of overland run-off in maintaining the wetland is not discussed in the Draft EIS. The Draft EIS should include a discussion of the potential role of overland run-off in maintaining the wetland and potential impacts to the wetland by the diversion of the run-off away from the wetland.

Stormwater run-off will likely be regulated under Section 402 of the Clean Water Act through the National Pollutant Discharge Elimination System permit program late in 1992. Stormwater management plans that include structural measures to decrease peak discharges, trap and retain suspended sediments, and treat pollutants in urban run-off, should be discussed in the EIS. Stormwater management plans that prevent the further degradation of water quality in Kawaiinui Stream should be an integral feature of the proposed development.

f. Fauna. IV-10. The adequacy of the 50-foot wide buffer zone between the urban development and the Hamakua Canal wetland and the magnitude of adverse impacts to endangered waterbirds from the proposed bridge at the northern end of the project are unresolved issues. An adequate buffer is critically important in resolving the taking of endangered species from the construction and operation of the proposed development. Because the project would be built above the wetland on hillside lands with slopes of 10% - 20%, the proposed heights of the buildings, and the proximity of the development to nesting habitat for endangered Hawaiian waterbirds, the proposed 50-foot wide buffer may be inadequate. In the case of the West Loch Estates Housing project, the buffer between the urban development and the western boundary of the Pearl Harbor National Wildlife Refuge is 250 feet. Within the buffer zone, the developer is also planting a 100-foot wide thicket of hau (*Hibiscus tiliaceus*). The development of recommendations for a buffer zone between the development and the nesting habitat for the endangered waterbirds would require site-specific evaluations of the project area.

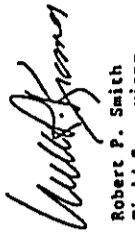
The proposed location of the bridge is approximately 100 feet north of open water habitats where nesting by the endangered Hawaiian Moorhen has been documented (Magata 1983). Endangered Hawaiian Stilts have also been observed on the wetland that flanks the existing low berm that dissects the northern end of the Hamakua Canal wetland and is presumably the location of the bridge.

Summary Comments

The Service recommends that the EIS not be accepted by the Department of General Planning because the document does not adequately disclose and evaluate adverse impacts to endangered Hawaiian waterbirds and less environmentally damaging alternatives. The Service also recommends that the proposed amendments to the existing land use designations for the project area be held in abeyance until the issues regarding the potential adverse impacts to endangered waterbird habitats from the planned urban development have been resolved. The unresolved issues include the adequacy of the buffer zone between the development and the wetland, the potential reduction in nesting activity by endangered Hawaiian waterbirds from construction-related impacts, the location of the bridge near nesting habitat for endangered waterbirds, the degradation of the water supply for the wetland, and cumulative impacts of urban development on wetlands in the region. For further coordination, please contact staff biologist Andrew Yuen (541-2749).

We appreciate the opportunity to comment.

Sincerely,


SM Robert P. Smith
Field Supervisor
Pacific Islands Office

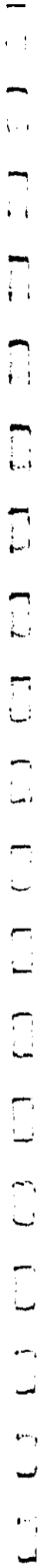
cc: DU
/HHK
OFQC
DLHR - DOFAW
Kaneohe Ranch

The construction of the bridge and the use of the bridge by vehicular and pedestrian traffic may reduce breeding and nesting activities of the Hawaiian Moorhen in the northern end of the wetland. Access alternatives that do not cross the wetlands and endangered waterbird habitats should be described in the EIS.

For development projects adjacent to both the Pearl Harbor and James Campbell National Wildlife Refuges, certain construction activities have been prohibited during the nesting season of the endangered Hawaiian Stilt. We have generally recommended that certain construction activities be suspended between March and August for the Hawaiian Stilt. Nesting by the endangered Hawaiian Moorhen apparently occurs throughout the year with peak activity between March through August (Shallenberger 1977). Nesting by the Hawaiian Moorhen at the Hamakua Canal wetland has been reported for January, February, April, June, July, and November (Nagata 1983). The Draft EIS states that as a mitigation measure, "Construction should be timed to avoid breeding and nesting periods." The EIS should be amended to reflect the time periods that construction activities would be regulated to avoid disturbances to breeding endangered waterbirds at the Hamakua Canal wetland.

g. Hakai area development. IV.16. This section states that housing may be partially placed on piers over the wetland if authorized by the applicable authority. The Service recommends the developer contact the U.S. Army Corps of Engineers regarding the application of Section 404 of the Clean Water Act to the use of pillings to construct multi-family housing projects. We understand that construction projects where pillings serve essentially the same function as solid fill will be regulated by the U.S. Army Corps of Engineers (U.S. Army Corps of Engineers 1991). In this case, the U.S. Army Corps of Engineers would consult with the Service under the Endangered Species Act and Fish and Wildlife Coordination Act for an evaluation of impacts to fish and wildlife resources prior to making a decision on the issuance or denial of the Department of the Army permit. The Service would look unfavorably upon the construction of multi-family housing on pillings in the wetland.

h. The context of cumulative encroachment of urban development within and around wetlands in the Kaelepu, Kawaiui Stream, and Kawaiui wetlands should be discussed in the EIS. Historically, there has been a significant cumulative loss of wetlands in the Kailua area. For example, Kaelepu Pond was once surrounded by approximately 200 acres of wetlands (Shallenberger 1977). We now estimate that only 15 acres of wetlands remain along the southwestern shoreline of Kaelepu Pond. The cumulative loss and degradation of wetlands and their effect on the recovery of the endangered Hawaiian waterbirds should be an important factor in the review of the proposed land use change for the project area.



Heller Hanert
Planners

References Cited

- Bruner, P.L. 1991. Survey of the Avifauna and Feral Mammals at Hamakua Marsh, Kawaiwi Stream, and Surrounding Lands for the Kailua Gateway Project, Oahu. 16 pp.
- Conant, S. 1981. A Survey of the Waterbirds of Kawaiwi Marsh. prepared for the Hawaii Department of Planning and Economic Development. 63 pp.
- Shallenberger, R.J. 1977. An Ornithological Survey of Hawaiian Wetlands. prepared for the U.S. Army Engineer District, Honolulu. 406 pp.
- Nagata, S.E. 1983. Status of the Hawaiian Gallinule on Lotus Farms and a Marsh on Oahu, Hawaii. Master of Science Thesis. Colorado State University. 87 pp.
- U.S. Army Corps of Engineers: 22 January 1991. Regulatory Guidance Letter RGL 90-08. Federal Register 56(14):2413-2416.
- U.S. Fish and Wildlife Service. 1 October 1981. Biological Opinion for PODCO-O 1611-S, Extension of Hamakua Drive, Oahu. 5 pp.
- U.S. Fish and Wildlife Service. 1985. Hawaiian Waterbirds Recovery Plan. 99 pp.



May 5, 1992

Mr. Robert P. Smith
Field Supervisor
Pacific Islands Office
U.S. Department of the Interior
Fish and Wildlife Service
P.O. Box 50167
Honolulu, HI 96850

Dear Mr. Smith:

Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolaupoko, Oahu, Hawaii

Thank you for your review of the subject DEIS and your letter of April 24, 1992. We have reviewed your letter and offer the following responses.

- a. Wetland Improvements. II-8, Physical Environment. III-3, State Recreational Functional Plan. III-4 and General Plan. III-7. The final EIS will clarify the relationship between the wetlands restoration project and the proposed urban development. The draft EIS does state that the wetland area is not included in the application area for Development Plan (DP) amendment and will retain the preservation designation (p. II-8). The applicant is committed to pursuing the wetlands restoration project with Ducks Unlimited (DU) regardless of the outcome of the DP amendment application. However, the wetlands restoration project should be considered part of the master plan for the entire 97-acre project area, which was formulated as a result of community-based input over the past two years. The applicant initiated these improvements as a component of the overall master plan. The restoration project is included in the EIS because it will be impacted by the proposed development and, in turn, impacts the development with respect to design and access. The applicant has conscientiously sought input from DU in designing the development and identifying mitigation measures to potential wetland impacts. While the wetland improvements are the subject of separate permitting actions, they should nonetheless be considered part of the overall master plan and an educational resource for future residents of the project and the general public.
- b. Wetland Improvements. II-8 and Makai Development. IV-16. The restoration and management plan by DU describes improvements to the mauka area wetlands. The restoration of the 5-acre makai wetland may be the subject of a separate resubdivision action and transaction to DU, with a separate restoration and management plan prepared accordingly. The proposed improvements will likely be of the same general nature as the mauka wetland improvements: vegetation removal, construction of a barrier or moat for protection from land predators, and auditory and visual screening from the surrounding developments.

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Heller Haster
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Mr. Robert P. Smith
May 5, 1992
Page 2

c. Relationship of the Proposed Project to Existing Public Plans, Policies, and Controls. 3.1. Federal. III-1. The final EIS will include a discussion of the Endangered Species Act of 1973, as amended, and the permits which may be required under the Act.

d. Soils. IV-1, Drainage. VI-8, and Appendix G. Civil Engineering Reports. The stormwater runoff and drainage plan has been revised and will be summarized and appended in the final EIS. The runoff from the undeveloped area upslope of the development will be piped under the development and released into the wetlands. The total projected runoff flowing directly into the wetlands was calculated at 124 cubic feet per second (cfs) for 10-year storm conditions. The urban runoff will be directed around the wetland to Kawaiui Stream (59 cfs) and to Kaelepu Pond through an existing storm drain (21 cfs). This would result in a net decrease of 42 cfs reaching the wetland via overland runoff (the revised drainage report calculates existing runoff from the 97-acre site at 166 cfs). According to the DU Draft Wetland Restoration and Management Recommendations for the Hamakua Marsh (discussed in the draft EIS, page II-8), runoff from the land is regulated by the tide, downstream blockages at the mouth of the stream, and flood control gates in Coconut Grove. The net change in runoff reaching either the stream or wetland is an increase of 17 cfs (124 cfs to wetlands, 59 cfs to stream). The impacts of the changes in runoff on the wetland habitat will be discussed as an unresolved issue in the final EIS.

The final EIS will indicate that the proposed permanent drainage system will be designed and constructed to contain adequate retention and sedimentation capacity, to comply with the Clean Water Act. These measures will be determined as more specific plans are developed for the overall project. There is not sufficient detail at this preliminary stage to identify which elements will be included in the management of the stormwater runoff. Temporary erosion control measures installed prior to construction are dependent on the total construction contract time, the time of year the grading operations occur, and the phasing of the project. It would be difficult at this time to present any more design information.

The applicant is aware of the requirement for a NPDES permit for stormwater runoff from the Department of Health.

f. Fauna. IV-10. The final EIS will include a discussion of the proposed buffer zone and the impacts to endangered waterbirds as unresolved issues. The proposed buffer, as currently designed, widens from 50 feet to over 200 feet in some areas. As noted in your letter, site-specific evaluations of the project area are necessary to determine the exact dimensions and design details of the buffer, as there is no standard adequate width established by statute or guideline. The applicant has, and will continue to work with DU in establishing the most appropriate buffer.

The draft EIS discusses the potential impacts of the proposed bridge on the wetlands and waterbirds in terms of effects on foraging, nesting, and resting (page IV-12). The final EIS will note that breeding may also be impacted. It should be noted that the nesting activities currently occurring at the site take place without any auditory or visual screening from the pastureland, traffic along Hamakua Drive, and the commercial and industrial operations adjacent to the stream.

Heller Haster
Planners

Mr. Robert P. Smith
May 5, 1992
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Access alternatives that do not cross the wetland will be discussed in the final EIS. One alternative would be to direct all project traffic through the driveway on Hamakua Drive, at the south end of the property. Another alternative would be to provide another access point from Kailua Road, with a right turn-in, right turn-out movement only. Consideration of traffic engineering and pedestrian circulation has determined that neither alternative is desirable.

The final EIS will note the documented nesting periods, as cited in your letter, with the recommendations that construction activity not take place during these periods. The State Department of Health has requested that grading activities take place during the dry season (April through October) in order to prevent sedimentation problems. The timing of construction activities will have to balance the recommendations of the various government agencies.

g. Makai area development. IV-16. The applicant will consult with the Corps of Engineers regarding the application of Section 404 of the Clean Water Act to the use of pilings to construct multi-family housing.

h. The proposed project will not contribute to the loss of wetlands. The development does not include fill of any wetlands or their conversion to urban uses. The final EIS will include the following discussion on the cumulative loss of wetlands, as taken from Ducks Unlimited's Draft Restoration and Management Plan for the Hamakua Marsh wetlands.

"Nearly 70% of Hawaii's natural lowland wetlands have been filled or converted to other land uses such as agriculture and urban expansion. Despite the loss, many of Hawaii's wetland adapted plants and animals have been able to survive. The remaining wetlands on Oahu's windward coast are small and isolated. Most are closely associated with human communities. Long-term protection of the remaining wetlands are essential to ensure the stability of native endemic waterbirds, hydrologic cycles, ground water recharge, and aesthetic values. Hamakua Marsh is an urban wetland, but still has intrinsic values that make it an important area for wildlife and wildlife interpretation and education."

Summary Comments

The draft EIS included a full disclosure of the potential impacts of the proposed development to the endangered waterbirds and appended the full avifauna and mammal survey report conducted by the project biological consultant, Phillip L. Bruner. The draft EIS also included a discussion of other development alternatives, including a no-action alternative. The final EIS will also include discussion of low-rise and low-density alternatives, as well as alternative access plans.

Although the amount of urban runoff into Kawaiui Stream will increase as a result of this development (and will be noted in the final EIS), it will not flow directly into the wetland. Runoff from the developed area will be captured by a piped storm drain system and released directly into Kawaiui Stream and the storm drain pipe under

Helber Haster
Planners

Mr. Robert P. Smith
May 5, 1992
Page 4

Hamakua Drive. As you are aware, Kawaiui Stream is a drainage canal constructed for the specific purpose of draining developed areas.

It should be noted that the applicant has made its development plans available to DU from the outset and has worked to accommodate their requirements for the restoration and protection of the wetlands in the project's plans and designs. DU is proceeding with the full knowledge of the project's proposals and understanding of its potential impacts to the wetlands, and the State DLNR has tentatively expressed a willingness to accept the improved habitat with the understanding that this project may be its neighbor.

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTER & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

cc: Randy Moore, Kaneohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell



STATE OF HAWAII
 OFFICE OF ENVIRONMENTAL QUALITY CONTROL
 729 SOUTH KING STREET
 FOURTH FLOOR
 HONOLULU, HAWAII 96813
 TELEPHONE 808 586-4185

BRIAN J. CHOY
 Director

April 20, 1992

Mr. Melvin Murakami
 Department of General Planning
 City and County of Honolulu
 650 South King Street, 8th Floor
 Honolulu, Hawaii 96813

Dear Mr. Murakami:

Subject: Draft Environmental Impact Statement for the Kailua Gateway Development

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

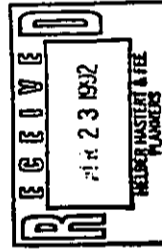
1. The Department of Public Works, City and County of Honolulu recently prepared an environmental assessment for the Kaelepulu and Kawaiuli Streams Maintenance Project. The notice of availability of the environmental assessment was published on the March 23, 1992, OEQC Bulletin. Please consult the Department of Public Works with regard to any consequence of their maintenance project on the Kailua Gateway Development.

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

Sincerely,

Brian J. Choy
 Brian J. J. Choy
 Director

c: Kaneohe Ranch
 Helber, Hastert & Fee



Helber Hastert & Fee
 Planners

May 6, 1992

Mr. Brian J. J. Choy
 Director
 Office of Environmental Quality Control
 State of Hawaii
 220 South King Street, Fourth Floor
 Honolulu, HI 96813

Dear Mr. Choy:

Draft Environmental Impact Statement (DEIS)
 Kailua Gateway Development
 Koolaupeke, Oahu, Hawaii

Thank you for your review of the subject DEIS and your letter of April 20, 1992. We have reviewed your letter and offer the following responses.

The project civil engineers, Smith Young & Associates, have been in consultation with the Department of Public Works regarding their Kaelepulu and Kawaiuli Streams Maintenance Dredging Project. Information on this dredging project with respect to the Kailua Gateway development will be discussed in the final EIS.

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyeiaka
 Gail Uyeiaka
 Project Planner

cc: Randy Moore, Kaneohe Ranch
 Tony Garcia, Episcopal Homes of Hawaii, Inc.
 Don Graham, Graham Murata Russell
 Timothy Steinberger, Smith Young & Associates

Helber Hastert & Fee
 Commerce Center, PHH Tower

211 Bishop Street, Suite 2100
 Honolulu, Hawaii 96813

Telephone: 808 515 2115
 Facsimile: 808 515 2124



Helber Hastert
Planners

April 17, 1992

Mr. Teuane Tominaga
State Public Works Engineer
Department of Accounting and General Services
State of Hawaii
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Tominaga:

Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolauapoko, Oahu, Hawaii

Thank you for your review of the subject DEIS and your letter of April 14, 1992
(your reference number [P]1341.2).

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

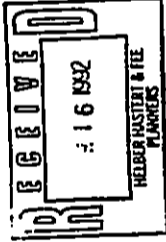
HELBER HASTERT & FEE, Planners

Gail Uycata
Gail Uycata
Project Planner

cc: Randy Moore, Kaneohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell

(P)1341.2

APR 14 1992



City and County of Honolulu
Department of General Planning
650 South King Street
Honolulu, Hawaii 96813

Gentlemen:

Subject: Kailua Gateway
Koolauapoko, Oahu
Draft Environmental Impact Statement

Thank you for the opportunity to review the subject document. We have no comments to offer.

Should there be any questions, please have your staff contact Mr. Ralph Yukumoto of the Planning Branch at 586-0488.

Very truly yours,

Teuane Tominaga
TEUANE TOMINAGA
State Public Works Engineer

RY:jnt
cc: Kaneohe Ranch
Helber Hastert & Fee
OEGC

Helber Hastert & Fee
Planners
211 Bishop Street, Suite 2100
Honolulu, Hawaii 96811
Telephone: 586-4120
Facsimile: 586-4120



STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3101 DUNCAN FIELD ROAD, HONOLULU, HAWAII 96813

EDWARD B. MURAKAMI
ADJUTANT GENERAL
MELVIN MURAKAMI
PROJECT PLANNER

March 19, 1992

LTCOL Jerry M. Matsuda
State of Hawaii
Department of Defense
Office of the Adjutant General
3949 Diamond Head Road
Honolulu, HI 96816-4495

Dear LTCOL Matsuda:

Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolauloko, Oahu, Hawaii

Thank you for your review of the subject DEIS and your letter of March 17, 1992 addressed to Melvin Murakami of the Department of General Planning.

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners

Jerry M. Matsuda
Gail Uycatake
Project Planner

cc: Randy Moore, Kaneohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell

March 17, 1992

Engineering Office

Melvin Murakami
Department of General Planning
650 South King Street
Honolulu, Hawaii 96813

Subject: Kailua Gateway

Dear Mr. Murakami:

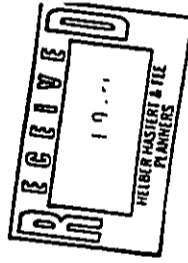
Thank you for providing us the opportunity to review the above mentioned Kailua Gateway.

We have no comments to offer at this time regarding the project.

Sincerely,

Jerry M. Matsuda
Jerry M. Matsuda
Lieutenant Colonel
Hawaii Air National Guard
Contracting and Engineering Officer

Enc.



NATIONAL GUARD
America's Best Air Force

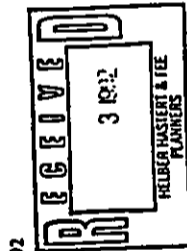
HELBER HASTERT & FEE, Planners
1000 Kalia Road, Suite 1000
Honolulu, Hawaii 96813
Phone: (808) 943-1111
Fax: (808) 943-1112

JOHN C. LEWIN, M.D.
DIRECTOR OF HEALTH



STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3223
HONOLULU, HAWAII 96813

IN REPLY, PLEASE REFER TO:
91-426/epo



Mr. Melvin Murakami
Department of General Planning
City and County of Honolulu
650 South King Street, 8th Floor
Honolulu, Hawaii 96813

Dear Mr. Murakami:

Subject: Draft Environmental Impact Statement (EIS)
Kaliua Gateway Development
Koolauapoko, Oahu, Hawaii
TMK: 4-2-01:1, 55; 4-2-03:17, 29

Thank you for allowing us to review and comment on the subject project. In addition to the comments regarding EIS Preparation Notice which were addressed in our letter of January 7, 1992, we have the following comments to offer:

Clean Water

1. The proposed wetland enhancement project may require a Department of Army (DA) permit issued by the U.S. Army Corps of Engineers (COE), Honolulu District. The applicant should contact the COE for details.
2. A Section 401 Water Quality Certification may be required from the Department of Health (DOH) if a DA permit (either individual, regional general or nationwide) is required.
3. The subject project involves land disturbance of five (5) acres or more. Therefore, an application for a storm water runoff (NPDES) is required from the DOH. The deadline to submit an NPDES permit application is October 1, 1992 or 90 days prior to the commencement date of the project, whichever is later. The applicant is encouraged to contact the Engineering Section of the Clean Water Branch at 586-4309 for further information.
4. To mitigate the potential impact from the increased runoff and suspended solids being diverted directly into the Kawahuli Stream, the proposed permanent drainage system must be designed and constructed to contain adequate retention and sedimentation capacity.

If you should have any questions on this matter, please contact Mr. Edward Chen of the Clean Water Branch at 586-4309.

Mr. Melvin Murakami
April 21, 1992
Page 2

91-426

Solid Waste

The proposed development adequately address the issue of recycling and landfill diversion. We would like to suggest, however, that road construction throughout the development include the use of paving materials made in part from recycled glass.

If you should have any questions on this matter, please call Mr. John Harder of the Solid Waste Section at 586-4240.

Nonpoint Source Concerns

1. Land Grading
Due to the proximity to water resources, extra care needs to be taken to prevent sedimentation problems during construction.
 - Grading activities should be conducted during the dry season (April through October).
 - Sodded slopes need to be maintained to ensure adequate ground cover is achieved. Topsoil should be spread over exposed subsoil. Grass seedlings require irrigation and fertilizer to become well-established.

2. Urban Runoff

- Because increased stormwater runoff entering the stream can lead to stream bank erosion, which adds to the sedimentation problem, we recommend that urban runoff be minimized.
 - Consider using permeable construction materials to pave roads and driveways.
- Install water retention systems to allow for more uniform runoff volumes.

If you should have any questions on this matter, please contact Ms. Lauren Bjorkman of the Environmental Planning Office at 586-4337.

Very truly yours,

John C. Lewin

JOHN C. LEWIN, M.D.
Director of Health

- cc: Clean Water Branch
Solid and Hazardous Waste Branch
Environmental Planning Office
Kaneohe Ranch
Helbert Hastert & Fee, Planners
Office of Environmental Quality Control

Heller Haster
Planners

John C. Lewin, M.D.
April 24, 1992
Page 2

Nonpoint Source Concerns

1. The project's current development timetable has the commencement of site construction taking place in mid-1993, which would be during the dry season.
2. All slopes and exposed areas shall be sodded or planted as soon as final grades have been established. Once planted, the sodded slopes will be maintained to ensure adequate ground cover.
3. The applicant will consider the use of permeable construction materials to pave roads and driveways to minimize urban runoff. The preliminary plans include green open space and landscaped areas which would also serve to minimize urban runoff into the stream.

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

HELDER HASTERT & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

cc: Randy Moore, Kanoche Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell
Timothy Steinberger, Smith Young & Associates



Heller Haster
Planners

April 24, 1992

John C. Lewin, M.D.
Director
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, HI 96801

Dear Dr. Lewin:

Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolauapoko, Oahu, Hawaii

Thank you for your review of the subject DEIS and your letter of April 21, 1992 (your reference number 91-426/epo). We have reviewed your letter and offer the following responses.

Clean Water

1. The proposed wetland improvements will be performed by Ducks Unlimited, a national wetlands conservation organization. Ducks Unlimited will apply for a Nationwide Permit No. 27 (for restoration of altered and degraded wetlands and the creation of wetlands on private lands) from the Department of the Army (DA), issued by the U.S. Army Corps of Engineers, Honolulu District. This will be noted in the final EIS.
2. The final EIS will also note that a Section 401 Water Quality Certification may be required from the Department of Health if a DA permit is required.
3. Thank you for informing us of the requirement for a storm water runoff permit (NPDES) from the DOH. This information will be included in the final EIS.
4. The proposed permanent drainage system will be designed and constructed to contain adequate retention and sedimentation capacity. This will be reflected in the utility systems plans as they move into more detailed stages of design.

Solid Waste

1. The applicant will consider the use of paving materials made in part from recycled glass in road construction throughout the development, if feasible and appropriate.

211 Bishop Street, Suite 2701
Honolulu, Hawaii 96811
Telephone: 935-3151, 3152
Facsimile: 935-3151, 3150

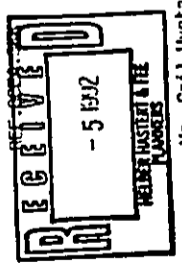
Heller Haster & Fee
Environmental Planners, 1911 Leeway

WILLIAM W. PATRICK, COMMISSIONER
DEPARTMENT OF LAND AND NATURAL RESOURCES

John P. Keppeler, II
Donna L. Hanaike



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 151
HONOLULU, HAWAII 96813



FILE NO.: 92-478
DOC. ID.: 285

MAR 3 1992

Ms. Gail Uyetake, Project Planner
Helber, Hastert and Fee Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

SUBJECT: Amended Environmental Impact Statement Preparation Notice for
Kailua Gateway Development - Kailua, Oahu, Hawaii (ref. 92-282)

Thank you for giving our department the opportunity to review this revised
EIS Preparation Notice.

Brief Description:

The project originally involved development of 21 acres of land adjacent
to Kawaihi Marsh and required zoning redesignation from Preservation to
Medium-Density Apartment and Commercial. Kameohe Ranch has an unofficial
agreement with Ducks Unlimited to improve the suitability of wetlands
within the project area for waterbirds, after which the property would be
transferred to the State. These wetlands will retain Preservation
status. An industrial area will be developed adjacent to the improved
wetlands. The amended EIS Preparation Notice increases the land area
proposed for DP amendment to 33 acres due in part to an effort to create
an adequate buffer between the development and wetlands.

Division of Aquatic Resources Comments:

We have concerns about increased sediment loads and toxic urban runoff in
Kaelepu Stream and Kailua Bay as a result of the project, as well as the
compatibility of the improved wetlands with the planned adjacent
Industrial area. A thorough biological reconnaissance (that is, a
qualitative descriptive survey of occurrence and distribution with only
rough approximations of relative abundance), including aquatic insects and
other invertebrates, of the stream and estuary should be performed as part
of the environmental impact study. The simple listing of aquatic species
in the assessment document is inadequate and incomplete. A thorough

Mr. G. Uyetake

-2-

File No.: 92-478

evaluation of the impact of the entire project on these biota, the stream
habitat, and the nearshore marine resources is needed. We are also
uncertain whether the area is adequately above the 100-year flood plain.
The consequences of construction of housing in flood-prone areas, and the
considerable environmental damage it causes, was dramatically evidenced in
the infamous New Year's flood in Kailua.

Division of Water Resource Management Comments:

State Water Code Permit Requirements. Chapter 174C, the State Water Code
and its implementing rule, Chapter 13-169, HRR, regulate the withdrawal of
water from streams by surface diversion or by depletion of streamflow by
well pumpage. The Code also regulates the alteration of stream channels,
as well as the design, construction, and modification of diversion works.

Accordingly, the applicant will be required to comply with State Water
Code permit requirements if the project will involve any diversion of
water from the stream or withdrawal of ground water by wells, or the
alteration of the stream channels or contiguous wetlands. The applicant
should be advised to contact the Commission on Water Resource Management
staff to review the Water Code permit requirements. State Water code
permit requirements should also be addressed in the EIS.

Historic Preservation Division Comments:

We commented previously that an archaeological inventory survey report for
this project is being prepared, and that we will review the report when it
is submitted. The increased area covered by the amended EISPN may require
a concomitant expansion of the inventory survey boundaries. We look
forward to reviewing the inventory survey report.

Office of Conservation and Environmental Affairs Comments:

Our previous (attached) comments remain applicable.

Thank you for your cooperation in this matter. Please feel free to call
Sam Lemmo at our Office of Conservation and Environmental Affairs, at
587-0377, should you have any questions.

Very truly yours,

[Signature]
JULIAN W. PATY

Attachment

cc: DLU

March 31, 1992

Mr. William W. Paty
Chairperson
State of Hawaii
Board of Land and Natural Resources
P.O. Box 621
Honolulu, HI 96809



Dear Mr. Paty:

Amended Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauloko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated March 3, 1992 (your reference File No. 92-478, Doc. ID 245). We offer the following responses to the comments contained in your letter.

The description of the project contained in your letter incorrectly states that an industrial area will be developed adjacent to the improved wetlands. It should be noted that the project proposes to expand an existing commercial area along Kailua Road by about one acre; no industrial uses are proposed for the development.

Division of Aquatic Resources

A water quality study has been completed for the project, which examined possible impacts on Kawaiwi Stream and Kailua Bay. This report is summarized and included in the Draft Environmental Impact Statement (DEIS). The water quality consultant, AECOS, Inc., communicated with Mr. Bill Devick of your department in January regarding the biological reconnaissance recommended in your previous letter. The applicant will provide the required information in the Final EIS.

Division of Water Resource Management

The DEIS contains a discussion of the State Water Code Stream Channel Alteration Permit. The applicant has contacted the Commission on Water Resource Management staff to review the Water Code permit requirements. The applicant will comply with any applicable State Water Code permit requirements.

Historic Preservation Division

As noted in our letter of February 27 to the State Historic Preservation Division, International Archaeological Research Institute, Inc. prepared the inventory survey for the project, and verified that the original field survey covered all of the expanded project area. The archaeological consultant has advised us that Phase I of the two-phase survey does not require any further fieldwork, and no changes in findings presented in the report are required.

Heller-Hastert & FEE, Inc.
1115 Bishop Street, Suite 1200
Honolulu, Hawaii 96813
Telephone: (808) 531-2100
Facsimile: (808) 531-2104

Mr. William W. Paty
March 31, 1992
Page 2

Office of Conservation and Environmental Affairs

The comments provided earlier are addressed in the DEIS.

Your letter was received after the end of the EISPN comment period and after the DEIS was submitted for printing, and therefore will be reproduced in the Final EIS.

Thank you again for your review and input.

Sincerely,

HELDER HASTERT & FEE, Planners

Gail Uyeake
Gail Uyeake
Project Planner

cc: Randy Moore
Tony Garcia
Don Graham

1115 Bishop Street, Suite 1200
Honolulu, Hawaii 96813
Telephone: (808) 531-2100
Facsimile: (808) 531-2104

DIVISION OF AQUATIC RESOURCE COMMENTS

We have concerns about increased sediment loads on Iryia Water runoff in Kaula's Stream and Kaula Bay as a result of the project, as well as the compatibility of the proposed wetlands with the planned adjacent industrial area. A thorough biological assessment, including aquatic insects and other invertebrates, of the stream and estuary should be performed as part of the environmental impact study. The simple listing of aquatic species in the assessment document is inadequate and incomplete. A thorough evaluation of the impact of the entire project on these biota, the stream habitat, and the hostalere native resource is needed. We are also uncertain whether the site is adequately protected from 100-year flood plain. The consequences of construction of housing in flood-prone areas, and the consideration of construction damage it causes, was dramatically evidenced in the infamous New Year's flood in Kaula.

DIVISION OF STAFF COMMENTS

Reference to a "park" on the Kaula's Marsh side of Kaula Bay access from the project may mislead the reader. Further, since surrounding the marsh are not intended to be used as an inland community park or for light infer, but rather to help to restore the natural/cultural scenic resource values inherent in the marsh and its undeveloped environs.

The project may include "town homes". It is unclear from the write up as to the degree of relevance such construction has with the rest of the project. Is it intended to make the project economically viable? If not, would it not be better to remove the area for future expansion of the lifecare facilities?

BIOTOPIC PRESERVATION DIVISION COMMENTS

We note that the developer will be contracting for an archaeological inventory survey prior to preparation of the Draft Environmental Impact Statement. The developer should ensure that the archaeological consultant explores the potential of the wetlands within the project area to contribute to an understanding of the history of vegetation change in the vicinity related to prehistoric human occupation. Typically, this is accomplished through the extraction of cores with either a Livingston or Ponter corer and an analysis of the nature and pollen content of the soils in the cores.

PPF:CCF:SRK

DEC 23 1991

PIIP NO.: 92-447
DOC. NO.: 22592

Mr. Gail Nyetake
Bellert, Hestert & Peo, Planners
723 Bishop Street, Suite 259C
Honolulu, Hawaii 96813

Dear Ms. Nyetake:

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for the Kaula Gateway Development at Koolaupoko, Oahu, Hawaii

Thank you for giving our Department the opportunity to review this EIS Preparation Notice. Our comments are as follows:

Project Description:

The project involves development of 21 acres of land adjacent to Kaula's Marsh and requires zoning re-designation from County Preservation to Medium-Density Apartment and Commercial. Kaula's Marsh has an unofficial Agreement with Ducks Unlimited to improve the suitability of the wetlands within the project areas for waterbirds, after which the property would be transferred to the State. These wetlands will retain Preservation status. An industrial area will be developed adjacent to the improved wetlands. Also, a portion of the project would require a State Land Use Commission boundary amendment from the Conservation District to the Urban District.

DIVISION OF WATER RESOURCE MANAGEMENT COMMENTS:

The PA should address drainage and sediment control measures to be undertaken during clearing and construction operations. Also in need of addressing is the project's relationship to the stream alteration requirements of the State Water Code.

DIVISION OF LAND MANAGEMENT COMMENTS:

DLM requests that appropriate action be taken by the applicant to insure protection of the flora and fauna within the adjoining wetland area and further, that no structures exceed the structure to blend into the ridge side.

OFFICE OF CONSERVATION AND ENVIRONMENTAL AFFAIRS COMMENTS:

How does the applicant intend to maintain the ecological integrity of the Marsh and surrounding areas? What would be the effect of this development on hydrological processes in and around the wetland? What mitigation measures, if any, could be implemented and enforced to rectify any land use incompatibilities and/or environmental impacts stemming from urbanization. We would expect these and other related issues to be assessed and resolved in the forthcoming Environmental Impact Statement.

Thank you for your cooperation in this matter. Please feel free to call me or Sam Iemmo at our Office of Conservation and Environmental Affairs, at 587-0377, should you have any questions.

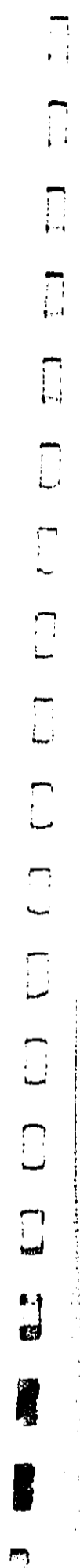
Very truly yours,
/S/ WILLIAM W. PATY

WILLIAM W. PATY

cc: OFCC/Dept. of General Planning

WCC: DAP, WTP, DIX, DSG, POWFP

SL
ET
EWA



JOHN WILKIE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
PO BOX 111
HONOLULU HAWAII 96813

REF: OCEA:SKK

APR 13 1992

FILE NO.: 92-580
DOC. ID.: 521

WILLIAM W. PAIT, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
OFFICES
2001 K STREET, S.W.
WASHINGTON, D.C. 20006
AGRICULTURE DEVELOPMENT
AND FORESTRY
CONSERVATION AND
RECREATION
DEPARTMENT OF LAND AND NATURAL RESOURCES
CONSERVATION
DIVISION
1001 K STREET, S.W.
WASHINGTON, D.C. 20006
STATE PLANS
DIVISION
1001 K STREET, S.W.
WASHINGTON, D.C. 20006

The Honorable Benjamin Lee, Director
Department of General Planning
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Lee:

SUBJECT: Draft Environmental Impact Statement for the
Kailua Gateway Project, Kailua, Oahu, Hawaii

Thank you for giving our department the opportunity to comment on this matter. We have reviewed the Kailua Gateway DEIS and have the following comments.

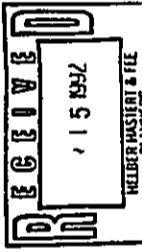
We apologize for incorrectly stating that an industrial area would be constructed near the wetlands. According to the DEIS, an existing commercial area along Kailua Road would be expanded. No industrial uses are proposed for the development. Thank you for clarifying this for us.

Brief Discussion:

The project involves development of a lifecare retirement community, elderly affordable housing, community center, and expansion of an existing commercial area.

Division of Aquatic Resources Comments:

Concerns were expressed in previous comments on the project about increased sediment loads and toxic urban runoff in Kaelepu Stream and Kailua Bay as a result of the project, as well as the compatibility of the improved wetlands with the planned adjacent commercial area. These were addressed in the draft EIS. A qualitative biological reconnaissance, including aquatic insects and other invertebrates of the stream and estuary which was previously recommended was not carried out. The draft EIS shows that the project will affect these habitats but fails to identify the organisms which are present. The biological reconnaissance still needs to be performed to allow proper evaluation of the potential impacts of the project.



Mr. B. Lee

-2-

File No.: 92-580

Division of Forestry and Wildlife Comments:

We have previously provided comments directly to the consultant for Kaneohe Ranch on the subject of the DEIS, and for the most part concerns which were raised have been addressed.

Information provided on wildlife resources and impacts are adequate except for one statement on Page IV-11 which says that this Division performs waterbird surveys on a quarterly basis. Such surveys are carried out twice a year. Also (on the same page), the site supports indigenous species of birds as well as endemic and migratory birds.

Many of the statements in the document refer to what "could" and "may be" done as mitigation for some of the impacts. On page IV-12 (middle of the 2nd paragraph), it is stated that "Regular monitoring of the wetland for chemical contamination can also be performed" without any reference as to who would do it, or whether the project includes such monitoring.

Finally, the depiction in Figure 4 (Preliminary Site Plan) shows a pedestrian trail directly adjacent to the edge of the wetland. In terms of preventing disturbance to endangered waterbirds, such a trail should be above the screening vegetation (buffer zone). Pedestrian traffic in the proposed alignment could have negative impacts on wildlife not described in the DEIS.

Our Department's Historic Preservation Division will respond to the County in a separate letter.

Thank you for your cooperation in this matter. Please feel free to call Sam Lomo at our Office of Conservation and Environmental Affairs, at 587-0377, should you have any questions.

Very truly yours,

John P. Keppeler
JOHN P. KEPELER
WILLIAM W. PAIT

cc: Gail Uyetake
Randy Moore

Herbert H. Haster
Planners

Mr. William W. Paty
April 17, 1992
Page 2

Thank you again for your review and input.
Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

cc: Randy Moore, Kaneohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell



Herbert H. Haster
Planners

April 17, 1992

Mr. William W. Paty
Chairperson
State of Hawaii
Board of Land and Natural Resources
P.O. Box 621
Honolulu, HI 96809

Dear Mr. Paty:

Draft Environmental Impact Statement (DEIS)
Kaliua Gateway Development
Koolauoko, Oahu, Hawaii

Thank you for your review of the subject DEIS and your letter of April 13, 1992 (your reference number File No. 92-580 Doc. I.D. 521). We have reviewed your letter and offer the following responses.

1. A biological reconnaissance report is being prepared and will be included as a revision to the water quality assessment for the project. The revised report, including the biological information, will be included and summarized in the final EIS.
2. We received comments on the DEIS directly from the Division of Forestry and Wildlife, and have responded directly to the Wildlife Program Manager. Our response was as follows:

The information on the frequency of waterbird surveys performed by the Division will be revised to state that they are carried out twice a year.

The final EIS will specifically note that the site supports indigenous species of birds as well as endemic and migratory birds.

According to Ducks Unlimited Project Biologist, Andrew Engilis, Jr., the final restoration and management plan for the wetland will include the recommendation that regular monitoring of the wetland water quality be performed by the entity responsible for its long-term management. This recommendation will be included in the final EIS.

The precise location of the pedestrian trail shown in the preliminary site plan will be determined in coordination with Ducks Unlimited. The pedestrian trail will be separated from the wetland habitat by screening vegetation. According to Andrew Engilis, the scrub Indian Ficus along the edges of the wetland will be maintained, and will provide a layer of vegetative screening between the wetland and pedestrian trail.

Herbert Haster & Fee
Environmental Services, PLLC
2110 Bishop Street, Suite 2200
Honolulu, Hawaii 96811
Tel: (808) 531-2000
Fax: (808) 531-2000

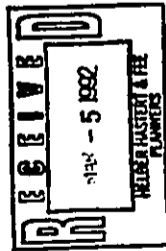


JOHN WAZEE
CONTRACT

REID JOHNSON
DIRECTOR
DEPARTMENT OF
TRANSPORTATION
SERVICES DIVISION
ALFANG
JEANNE K. SCHULTZ
CALVIN M. ISUDA
MURPHY/REITER



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097
March 3, 1992



Ms. Gail Uyetake, Project Planner
Helber Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

Amended Environmental Impact Statement
Preparation Notice (EISP-N), Kailua Gateway
Development (Kaneohe Ranch), Kailua, Oahu,
TKM: 4-2-01: por. 1, por. 55;
4-2-03: por. 17, por. 29

Thank you for your letter of January 23, 1992, notifying us of the
amended EISP-N and transmitting the project Traffic Impact Analysis
Report (TIAR).

We have the following comments:

1. The development's construction plans for its access on Kailua Road should provide enough details to show that it conforms to applicable design standards with respect to sight distances.
2. Additional roadway mitigation measures should be evaluated to improve the future Level-of-Service (LOS) "E" condition for the Kailua Road/Hamakua Drive/Kainehe Street intersection.
3. The internal roadway circulation pattern for the proposed commercial area and retirement community should be designed to prevent/minimize vehicle backup onto Kailua Road.
4. Roadway plans for construction work within the State highway right-of-way must be submitted for our review and approval.

Sincerely,

Rex Johnson

Mr. Rex D. Johnson
Director of Transportation

Helber Hastert & Fee
Planners

March 10, 1992
Mr. Rex D. Johnson, Director
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813-5097

Dear Mr. Johnson:

Amended Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated March 3, 1992 (your reference number HWY-PS 20965). We offer the following responses to your comments.

The construction plans for the project's access on Kailua Road will be developed to conform to applicable design standards with respect to sight distances.

The applicant will pursue the evaluation of additional roadway mitigation measures to improve the future Level-of-Service "E" condition for the Kailua Road/Hamakua Drive/Kainehe Street intersection.

The internal roadway circulation pattern for the proposed commercial area and retirement community will be designed to prevent or minimize vehicle backup onto Kailua Road.

Any roadway plans for construction work within the State highway right-of-way will be submitted to your department for review and approval.

Your letter was received after the end of the Environmental Impact Statement (EIS) Preparation Notice comment period and after the Draft EIS was submitted for printing. Therefore, your letter will be reproduced in its entirety in the Final EIS.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, PLANNERS

Gail Uyetake

Gail Uyetake
Project Planner

cc: Randy Moore, Kaneohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell
Julian Ng, Incorporated

Helber Hastert & Fee
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Telephone: 808-515-2075
Facsimile: 808-515-2076



JOHN MARDEE
CONFIDENTIAL

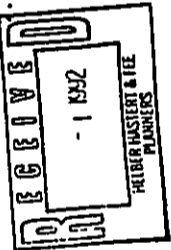


STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

30

READ KAWAII
PROJECT
SUPERVISOR
JOYCE I. QUINE
AL PANG
JEANNE K. SCHULTZ
CALVIN TSUDA
REPLY REFER TO

HWY-PS
1.1709



Ms. Gail Uyetake, Project Planner
Helber Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96818

Dear Ms. Uyetake:

Amended Environmental Impact Statement Preparation Notice,
Kailua Gateway Development, Koolauoko, Oahu, Hawaii

Thank you for your response of March 25, 1992, addressing our
comments on the subject project.

We do not agree with your rationale for discounting alternative
mitigation measures to improve the LOS at the Kailua Road/Hamakua
Drive/Kainehe Street intersection.

The purpose of a traffic impact analysis report is to identify the
roadway deficiencies that will be in existence at the time of
project completion; and if necessary, to identify appropriate
mitigation measures. It is inappropriate to recommend an
improvement that does not adequately address the congestion
problem.

Your comment that more effective alternatives would be very costly
and should not be the responsibility of the developer (given the
magnitude of the project's impact) is well taken. But this is a
funding issue and should be addressed separately. It should not
preclude our pursuing the appropriate improvements to correct the
deficiencies.

This matter should be further coordinated with our Highways
Division. Please contact Ron Tsuzuki of our Planning Branch at
587-1830.

Very truly yours,

T. Harano
T. HARANO
Chief
Highways Division

Helber Hastert
Planners

May 6, 1992

Mr. Rex D. Johnson, Director
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813-5097

Dear Mr. Johnson:

Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolauoko, Oahu, Hawaii

Thank you for your review of the subject DEIS and your letter of April 30, 1992 (your reference number
HWY-PS 2.1709). We have reviewed your letter and offer the following responses.

The project traffic engineer, Julian Ng, Incorporated, consulted with Ron Tsuzuki of your Planning
Branch regarding alternative mitigation measures to improve the Level of Service (LOS) at the Kailua
Road/Hamakua Drive/Kainehe Street intersection. As requested, additional analyses have been done to
identify an appropriate improvement for the intersection in question. The November 1991 Traffic Impact
Analysis Report discussed an alternative which was found to improve future PM Peak Hour conditions to
Level of Service E; the Highways Division indicated that an appropriate improvement would provide
LOS D.

The attached letter describing the findings of the analyses will be included in the final EIS. In summary,
improvement of the intersection of Kailua Road and Hamakua Drive/Kainehe Street to current highway
design standards would provide added capacity and, along with changes in signal phasing, permit the
intersection to serve future traffic at an acceptable overall level of service (LOS D). This improvement
would require that the Kawainui Bridge (eastbound) on Kailua Road be widened. The further addition of
a right turn lane on the northbound Hamakua Drive would provide for LOS D conditions on each
approach. Due to the existing relationship between the centerlines of Hamakua Drive and Kainehe
Street, any widening for additional approach lanes on Hamakua Drive should be on the east side.
Additional traffic due to the proposed project will increase delays, but LOS D would continue to describe
conditions for each approach.

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake

Gail Uyetake
Project Planner

Enclosure

cc: Randy Moore, Kaneohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell

Helber Hastert & Fee
211 Hildene Street, Suite 2590
Honolulu, Hawaii 96815
Tel: phone: 587-1830
Fax: 587-1830

Julian Ng, Incorporated

Ms. Gail Uyetake
April 30, 1992
Page 2

Analysis

The signalized intersection operational analysis described in the *Highway Capacity Manual* was used to identify average delays of vehicles using the intersection. Qualitative "levels of service" based on these average delays are used to describe intersection conditions: delays between 25.1 and 40 seconds would be described as LOS D, while 40.1 to 60 seconds would be LOS E, and greater than 60 seconds would be LOS F. In addition to traffic volumes, other factors are considered in the analysis, such as intersection geometry, traffic conditions, and signal phasing. Changes in any of these factors could change the findings of the analysis.

In the analysis for the traffic study, the "existing" and the "future without project" cases were based on an estimate of existing timing at the signal. The intersection was reanalyzed with the timing modified by providing additional green time for Kailua Road to decrease the overall future average delay, thereby obtaining a best case for future conditions without the project (technical note: the future calculated "X" or volume-to-capacity ratio for each approach was maintained at 1.1 or less). In addition, a higher "peak hour factor" (reflecting less variation in traffic demand over the peak hour) of 0.95 is used for future conditions instead of the existing 0.92. Table 1 compares the findings of the traffic study and this new analysis.

Table 1
Comparison of Findings

PM Peak Hour	Average Delay (seconds) and Level of Service					
	Kailua Road		Hamakua		Kaineha	
	WB	Dr. (NB)	Dr. (NB)	Sl. (SB)	Overall	
Existing (TIAR) modified timing	37.5 D	20.9 C	54.0 E	58.6 E	38.6 D	39.1 D
Future without project (TIAR) modified timing	73.1 F	22.2 C	70.2 F	72.3 F	62.1 F	51.7 E

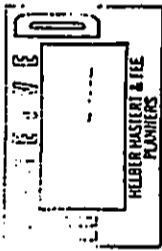
(TIAR = Traffic Impact Analysis Report, November 1991)

Even with the modified signal timing and other adjustments to maximize capacity at the intersection, volume would be about seven percent over capacity and calculated average delays would exceed 60 seconds on the cross-street approaches. Overall intersection condition would be LOS E, which is not acceptable.

The improvements described earlier, providing separate left and right turn lanes for the eastbound Kailua Road approach and changing the signal phasing, would increase capacity for an overall LOS D condition for the 1996 PM Peak Hour traffic volumes without the proposed project. While each approach will have an average delay in the LOS D range, individual lane groups would have average delays exceeding 40 seconds, i.e., conditions would be LOS E. Provision of a separate right turn lane on the northbound Hamakua Drive

Julian Ng, Incorporated

Engineering Consulting Services
P.O. Box 816 Kaneohe, Hawaii 96744-0816
(808) 236-4325



April 30, 1992

Ms. Gail Uyetake, Project Planner
Heiber Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Subject: Supplemental Findings to Traffic Impact Analysis Report for Kaitua Gateway
Intersection of Kailua Road/Hamakua Drive/Kaineha Street
Kailua, Oahu, Hawaii

Dear Gail:

As requested by the State Department of Transportation, Highways Division, additional analyses have been done to identify an appropriate improvement for the intersection of Kailua Road and Hamakua Drive/Kaineha Street. The November 1991 Traffic Impact Analysis Report discussed an alternative which was found to improve future PM Peak Hour conditions to Level of Service E; the Highways Division has stated that an appropriate improvement would provide Level of Service (LOS) D.

Appropriate Improvements

The traffic study found that additional capacity at the intersection is needed as traffic increases, with or without the proposed project, and intersection conditions become LOS F. Alternatives for signal phasing are limited because of the misalignment of Kaineha Street and Hamakua Drive and the lack of adequate turning lanes from Kaitua Road.

Improvements are needed at the existing intersection to meet current highway design standards; these include the provision of adequate turn lanes for eastbound traffic. The Hawaii *Statewide Uniform Design Manual for Streets and Highways*, approved by the State Department of Transportation and adopted by the City and County of Honolulu in October 1980, states that a median left turn lane should be "provided at intersections ... where there is a high volume of left turns." Further, the manual states that the "median left turn lane should be sufficiently long to store the number of vehicles likely to accumulate during a critical period." A guideline for the storage length is given for signalized intersections: "one-and one-half to 2 times the average number of vehicles that would store per cycle."

For the existing signal phasing (30 cycles per hour) and left turn volume (170 vehicles per hour), a minimum storage for nine vehicles (200-225 feet) should be provided. Similarly, the existing 550 vehicles per hour turning right from eastbound Kailua Road to Hamakua Drive should have a separate turn lane. The addition of these lanes will require widening of the eastbound Kawaihi Bridge from two to four lanes (other improvements, such as a longer westbound left turn lane and larger turn radii, may also be needed). With separate turn lanes on the eastbound approach, six-phase operation of the signal, with protected left-turns (left on arrow only) from Kailua Road, should be implemented. A new controller and additional signal equipment may be needed.

Julian Ng, Incorporated

Ms. Gail Uyetake
 April 30, 1992
 Page 3

approach would allow retiming for LOS D or better on every lane group. Table 2 summarizes the analyses findings.

Table 2
 Analyses Findings

PM Peak Hour	Average Delay (seconds) and Level of Service			
	Kailua Road EB	Hamakua Dr. (NB)	Kainehe St. (SB)	Overall
Existing	33.8 D	19.1 C	65.6 F	70.8 F
Future without project and eastbound turn lanes plus turn lane on Hamakua	50.7 E	20.7 C	76.0 F	84.8 F
Future with project and eastbound turn lanes plus turn lane on Hamakua	30.9 D	37.5 D	39.5 D	37.4 D
	25.2 D	27.8 D	32.3 D	37.4 D
	33.5 D	37.8 D	40.4 E	48.4 E
	27.4 D	28.1 D	36.6 D	39.5 D
				39.2 D
				32.3 D

Conclusions

Improvement of the intersection of Kailua Road and Hamakua Drive/Kainehe Street to current highway design standards would provide added capacity and, along with changes in signal phasing, permit the intersection to serve future traffic at an acceptable overall level of service (LOS D). This improvement would require that the Kawaihi Bridge (eastbound) on Kailua Road be widened. The further addition of a right turn lane on the northbound Hamakua Drive would provide for LOS D conditions on each approach. Due to the existing relationship between the centerlines of Hamakua Drive and Kainehe Street, any widening of additional approach lanes on Hamakua Drive should be on the east side. Additional traffic due to the proposed project will increase delays, but LOS D would continue to describe conditions for each approach.

The foregoing is a brief analysis of future conditions at the intersection, prepared for your use in responding to comments on the proposed project. As with any roadway improvement, additional studies may be necessary to establish design parameters, identify impacts, or evaluate alternatives. These studies are usually done by the responsible agency. Should there be any questions, please contact me.

Very truly yours,
 JULIAN NG, INC.

Julian Ng
 Julian Ng, P. E.
 President



**DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM**

ENERGY DIVISION, 335 MERCHANT ST., RM. 118, HONOLULU, HAWAII 96813 PHONE (808) 547-3400 FAX (808) 547-3420

JOHN WADSWORTH
Governor
MURRAY E. EDWARDS
Director
BARBARA ISAACSON
Deputy Director
KYLE EGGER
Deputy Director
LUCY WOODWARD
Deputy Director

Mr. Melvin Murakami
Page Two
April 10, 1992

92:1072e

April 10, 1992

Department of General Planning
City & County of Honolulu
650 South King Street, 8th Floor
Honolulu, Hawaii 96813

Attention: Mr. Melvin Murakami

Dear Mr. Murakami:

Subject: Draft Environmental Impact Statement (DEIS) for Kailua Gateway

Thank you for the opportunity to comment on the subject DEIS. The project is a proposed amendment to the Koolauapoko Development Plan to permit the development of a lifecare retirement community, elderly affordable housing, community center, and the expansion of an existing commercial area in Kailua, Koolauapoko, Oahu.

Draft Environmental Impact Statements should comply with the requirements found in State laws for evaluating any energy impacts that the project will have. The mandate for such an evaluation is found in Chapter 344, HRS ("State Environmental Policy") and Chapter 226, HRS ("Hawaii State Planning Act"). In particular Chapter 226-18 (a) (2) and (c) (3); 226-52 (a) and (b) (2) (D); and 226-103 (f) (1) and (2) should be considered.

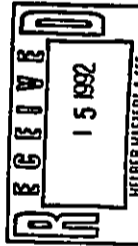
We note that the DEIS omits any reference to Section 226-18 HRS and has given little attention to the State Energy Functional Plan. Therefore, we would like to request that the developer explain, in as much detail as possible, the project's energy impacts and the use of energy-efficient design/technologies that will be used to help meet its energy requirements. There are efficient energy-saving technologies which can be used in the facility's air conditioning, water heating, and lighting systems. High efficiency motors and chillers, a heat recovery system, and energy-saving metal halide and fluorescent lamps and ballasts are among the items we would like to have considered and specified in the EIS.

We would also like to bring to the developer's attention the possibility that the utilities will be implementing demand-side management (DSM) programs in the near future which may have a direct impact on the project.

Sincerely,

Clifford A. King
Clifford A. King
Maurice H. Kaya
Energy Program Administrator

MHK/LU:db
cc: Mr. Randy Moore
Ms. Gail Uyetake
OEQC



Helder Haster
Planner

Helder Haster
Planner

April 20, 1992



Mr. Maurice H. Kaya
April 20, 1992
Page 2

Mr. Maurice H. Kaya
Energy Program Administrator
Energy Division
Department of Business, Economic Development and Tourism
State of Hawaii
335 Merchants Street, Room 110
Honolulu, HI 96813

Your letter will be reproduced in the Final EIS in its entirety.
Thank you again for your review and input.
Sincerely,

HELDER HASTER & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

cc: Randy Moore, Kaneohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell

Draft Environmental Impact Statement (DEIS)
Kaliua Gateway Development
Koolapoko, Oahu, Hawaii

Thank you for your review of the subject DEIS and your letter of April 10, 1992. We have reviewed your letter and offer the following responses.

1. As requested in your letter, the final EIS will include a discussion of the project's energy impacts and the use of energy-efficient design/technologies that will be used to help meet its energy requirements.

The maximum energy demand for all the project facilities is estimated to be approximately three megawatts. The anticipated energy consumption is expected to be about 600,000 kilowatt-hours per month.

We appreciate the suggestions provided in your letter for the use of energy-efficient design/technologies. Efforts to conserve energy that will be considered in the more detailed design phase of the development include extensive use of dimming, selection of energy efficient light sources, and the use of photocells or automatic timing devices to turn off lights when not needed. High efficiency motors and chillers, a heat recovery system, and energy-saving metal halide and fluorescent lamps and ballasts are among the energy-saving devices and strategies that may be employed. Where feasible, lights and motors will be energized at higher voltages to minimize line losses. Capacitors will be applied at VAR producing loads to improve voltage regulation and distribution efficiency.

2. Thank you for bringing to our attention the possibility that the utility companies will be implementing demand-side management programs, which may require efficiency devices to be installed in developments. The developer will continue to consult with the utility companies on their requirements for the development as it moves into more detailed design phases.

JOHN WALKER
CONSULTANT



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
1151 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

03/12-931

WILLIAM W. PATZ, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

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RESOURCES ENFORCEMENT
CONTRACTS
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION PROGRAM
LAND MANAGEMENT
STATE PLANTS

Mr. Melvin Kurakami
Department of General Planning
City and County of Honolulu
650 South King St.
Honolulu, Hawaii 96813

March 17, 1992

Dear Mr. Kurakami:

This provides comments on the "Draft Environmental Impact Statement for the Kailua Gateway Development".

I have previously provided comments directly to the consultant for Kaneohe Ranch on the subject of the DEIS, and for the most part concerns which were raised have been addressed.

Information provided on wildlife resources and impacts are adequate except for one statement on Page IV-11 which says that this Division performs waterbird surveys on a quarterly basis. Such surveys are carried out twice a year. Also (on the same page), the site supports indigenous species of birds as well as endemic and migratory birds.

Many of the statements in the document refer to what "could" and "may be" done as mitigation for some of the impacts. On page IV-12 (middle of the 2nd paragraph), it is stated that "Regular monitoring of the wetland for chemical contamination can also be performed" without any reference as to who would do it, or whether the project includes such monitoring.

Finally, the depiction in Figure 4 (Preliminary Site Plan) shows a pedestrian trail directly adjacent to the edge of the wetland. In terms of preventing disturbance to endangered waterbirds, such a trail should be above the screening vegetation (buffer zone). Pedestrian traffic in the proposed alignment could have negative impacts on wildlife not described in the DEIS.

Thank you for the review opportunity.

Sincerely yours,

Ronald L. Walker
Ronald L. Walker
Wildlife Program Manager



William Walker
Wildlife Program Manager

April 10, 1992

Mr. Ronald L. Walker
Wildlife Program Manager
State of Hawaii
Department of Land and Natural Resources
Division of Forestry and Wildlife
1151 Punchbowl Street
Honolulu, HI 96813

Dear Mr. Walker:

Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolaulou, Oahu, Hawaii

Thank you for your review of the subject DEIS and your letter of March 17, 1992 addressed to the Department of General Planning. We have reviewed your letter and offer the following responses.

1. The information on the frequency of waterbird surveys performed by the Division will be revised to state that they are carried out twice a year. The Final EIS will specifically note that the site supports indigenous species of birds as well as endemic and migratory birds.
2. According to Ducks Unlimited Project Biologist, Andrew Engilis, Jr., the final restoration and management plan for the wetland will include the recommendation that regular monitoring of the wetland water quality be performed by the entity responsible for its long-term management. This recommendation will be included in the Final EIS.
3. The precise location of the pedestrian trail shown in the preliminary site plan will be determined in coordination with Ducks Unlimited. The pedestrian trail will be separated from the wetland habitat by screening vegetation. According to Andrew Engilis, the scrub Indian Fleabane along the edges of the wetland will be maintained, and will provide a layer of vegetative screening between the wetland and pedestrian trail.

Your letter will be reproduced in the Final EIS in its entirety.

William Walker
Wildlife Program Manager

211 Hukilau Street, Suite 200
Honolulu, Hawaii 96813

Telephone: 268-5155
Fax: 268-2070

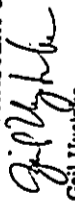
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Mr. Ronald L. Walker
April 10, 1992
Page 2

Thank you again for your review and input.

Sincerely,

HELBERT HASTERT & FEE, Planners


Gail Uyelake
Project Planner

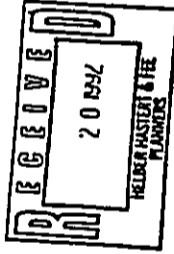
cc: Randy Moore, Kanocho Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell





STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
Room 404, 4th Floor
315 North King Street
Honolulu, Hawaii 96813
Telephone: 587-3322

ESTHER UEDA
EXECUTIVE OFFICER



April 16, 1992

Mr. Benjamin B. Lee
Chief Planning Officer
Department of General Planning
650 South King Street, 8th Floor
Honolulu, Hawaii 96813

Dear Mr. Lee:

Subject: Draft Environmental Impact Statement (DEIS) for the Kailua Gateway Development, Koolauopoko, Oahu, Hawaii, TMK Nos.: 4-2-D1; por. 1, por. 55; 4-2-03; por. 17, Por. 29

We have reviewed the DEIS for the subject Kailua Gateway Development project and have the following comments.

- 1) We confirm that a State Land Use District Boundary Amendment will be required for portions of the proposed development. Specifically, a Boundary Amendment would be necessary for areas of the proposed development that are currently located within the State Land Use Conservation District.
- 2) Section 2.8 Project Phasing and Cost (p. II-10), does not clearly indicate when a Boundary Amendment would be pursued. We suggest that this Section be revised in the Final EIS to include more detailed information on what permits are required and their approximate timetable.
- 3) We also confirm that the proposed elderly affordable housing site, as shown on Figure 4 (p. II-7), and discussed in this Section, is located within the State Land Use Urban District.
- 3) The DEIS states that the proposed DP Amendment area contains 20 acres of State Land Use Conservation District and 13 acres of State Land Use Urban District lands. We note that these acreage figures are only approximate. Precise acreage figures should be included in the petition for the Boundary Amendment to the Commission.

Mr. Benjamin B. Lee
April 16, 1992
Page 2

4) Chapter XI indicates that the State Land Use District and SMA Boundaries map, Figure 5 (p. III-6) of the DEIS, was corrected pursuant to our written comments dated January 28, 1992 on the Amended EIS Preparation Notice. However, Figure 5 still does not accurately represent the Urban/Conservation boundaries as delineated on the State Land Use official map (specifically, along Puu o Ehu ridge, Kailua Road, and the boundaries of Kaelepulu Pond).

We suggest that Figure 5 be revised in the Final EIS to accurately reflect the official State Land Use District Boundaries.

5) Section 2.1 Location describes the tax map parcels involved for the proposed Project, but does not include a map or maps that illustrate(s) the proposed Project in relation to existing tax map key parcels.

We suggest that the Final EIS include a representation of the proposed Project on tax maps.

6) Section 3.2 State describes the Hawaii State Plan goals, objectives and policies addressed by the proposed Project without reference to sections, sub-sections, or enumeration.

We suggest that this Section of the Final EIS include references to the specific goals, objectives, and policies which are being cited.

We have no other comments to offer at this time.

Thank you for the opportunity to comment on this matter. If you have any questions, please call me or Steve Tagawa of our office at 587-3822.

Sincerely,

ESTHER UEDA
Executive Officer

EU:fl

cc: Randy Moore
Gail Uyetake

Heller Haster
Planners

Heller Haster
Planners

April 22, 1992

Ms. Esther Ueda, Executive Officer
State of Hawaii
Department of Business, Economic Development and Tourism
Land Use Commission
Room 104, Old Federal Building
335 Merchant Street
Honolulu, HI 96813



Ms. Esther Ueda
April 22, 1992
Page 2

Dear Ms. Ueda:

Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolaupeke, Oahu, Hawaii

HELBER HASTERT & FEE, Planners

Gail Uyekake
Gail Uyekake
Project Planner

Thank you for your review of the subject DEIS and your letter of April 16, 1992. We have reviewed your letter and offer the following responses.

1. The final EIS will include more detailed information on the approximate timetable of the application for the various permits required by the development as follows.

Development Plan Land Use Map Amendment	in progress
State Land Use Boundary Amendment	summer 1992
Zone Change	1993
Special Management Area Permit	1993
Conditional Use Permit	1994
Subdivision Application	1994
Building Permit	1994

2. The final EIS will note that the proposed DP amendment area contains approximately 20 acres of State Land Use Conservation District and 13 acres of State Land Use Urban District lands. (More precise figures will be provided to the State Land Use Commission with our petition later this year.)

3. Figure 5 will be corrected to reflect the Urban/Conservation boundaries as delineated on the State Land Use official map (specifically, along Puu o Ehu ridge, Kailua Road, and the boundaries of Kaelepu Pond).

4. The final EIS will include a representation of the DP amendment area in relation to existing tax map parcels.

5. The final EIS will include references to the specific goals, objectives and policies of the Hawaii State Plan which are being cited.

Your letter will be reproduced in the Final EIS in its entirety.

Heller Haster & Fee
Greenway Center, PIII Tower
Honolulu, Hawaii 96813

Telephone: 208 515 2055
Facsimile: 208 515 2050



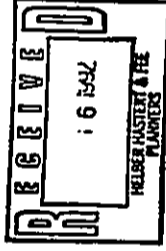
OMPO

Suite 1509
1164 Bishop Street
Honolulu, Hawaii 96813

Oahu
Metropolitan
Planning
Organization

(808) 587-2015
(808) 523-4178
(808) 587-2018 FAX

April 15, 1992



Mr. Melvin Murakami
Department of General Planning
650 South King Street, 8th Floor
Honolulu, Hawaii 96813

Dear Mr. Murakami:

Kailua Gateway Development DEIS

We have reviewed the above-mentioned DEIS and have no comments to offer.

Thank you for the opportunity to review the traffic assessment of the Kailua Gateway Development. We note that some street widenings and improvements are identified. We wish to be informed if additional major roadway improvements are recommended as a result of the proposed project.

Sincerely,

Gordon G.W. Lum
Gordon G.W. Lum
Executive Director

c: OEQC
Kaneohe Ranch
Helber Hastert & Fee, Planners

1509-1510-1511

Helber Hastert
Planners



April 17, 1992

Mr. Gordon G.W. Lum
Executive Director
Oahu Metropolitan Planning Organization
Suite 1509
1164 Bishop Street
Honolulu, HI 96813

Dear Mr. Lum:

Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolaupoko, Oahu, Hawaii

Thank you for your review of the subject DEIS and your letter of April 15, 1992.

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyciack
Gail Uyciack
Project Planner

cc: Randy Moore, Kaneohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell

Helber Hastert & Fee
1164 Bishop Street, Suite 1509
Honolulu, Hawaii 96813
Telephone: (808) 523-4178
Facsimile: (808) 587-2018

JOHN WAIKEE
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES

Planning Office
P.O. Box 339
Honolulu, Hawaii 96809

April 15, 1992

Mr. Melvin Murakami
City and County of Honolulu
Department of General Planning
650 South King Street, 8th Floor
Honolulu, Hawaii 96813

Dear Mr. Murakami:

Subject: DEIS Kailua Gateway, Koolaupoko, Oahu
TMK 4-2-1: por. 1 & 55, and 4-2-3: por. 17 and por. 29

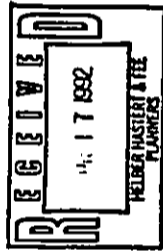
We have reviewed the draft environmental impact statement for the Kailua Gateway. On page II-6, medical screening of prospective residents includes the phrase "the expectation that applicants will be ambulatory and capable of independent living at the time of admission". We are concerned that this requirement may unfairly exclude persons who are capable of independent living without being ambulatory. We suggest that this policy be reviewed by the Commission On Persons with Disabilities to avoid potential violations of Section 36.301 of Title III Americans with Disabilities Act.

Thank you for the opportunity to provide comments. Should there be any questions on this matter, please contact our Planning Office at 586-5114.

Sincerely,

Winona E. Rubin
Winona E. Rubin
Director

cc: Kaneohe Ranch
Helber Hastert & Fee, Planners
DOH, Commission on Persons with Disabilities
FASDA, FASD-AS, FASD-PO, PERS(Civil Rights)



WINONA E. RUBIN
DIRECTOR
LYNN H. FALLON
DEPUTY DIRECTOR
LESLIE S. MATSUBARA
DEPUTY DIRECTOR



Hilber, Hastert & Fee
Planners

April 22, 1992

Ms. Winona E. Rubin
Director
State of Hawaii
Department of Human Services
Planning Office
P.O. Box 339
Honolulu, HI 96809

Dear Ms. Rubin:

Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolaupoko, Oahu, Hawaii

Thank you for your review of the subject DEIS and your letter of April 15, 1992. We have reviewed your letter and offer the following responses.

It is not the intent of the developer and operator of the proposed life care facility to unfairly exclude persons who are capable of independent living without being ambulatory. The description of the medical screening of prospective residents will be revised in the final EIS to read "medical screening is predicated on the expectation that applicants will be capable of independent living at the time of admission." We also consulted with Ms. Francine Lee, Executive Director of the Department of Health, Commission on Persons with Disabilities, who confirmed that this revised description of the admissions policy would be acceptable with respect to the Americans with Disabilities Act.

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, PLANNERS

Gail Uytack
Gail Uytack
Project Planner

cc: Randy Moore, Kaneohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell

Hilber, Hastert & Fee
Planners
211 Bishop Street, Suite 2201
Honolulu, Hawaii 96813
Tel: 535-2000
Fax: 535-2000

Hilber, Hastert & Fee
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211 Bishop Street, Suite 2201
Honolulu, Hawaii 96813
Tel: 535-2000
Fax: 535-2000

STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES



University of Hawaii at Manoa

Environmental Center
A Unit of Water Resources Research Center
Crawford 317 - 2530 Campus Road - Honolulu, Hawaii 96822
Telephone: (808) 956-2341

April 22, 1992
RE:0603

Mr. Melvin Murakami
Department of General Planning
City and County of Honolulu
650 South King Street, 8th Floor
Honolulu, Hawaii 96813

Dear Mr. Murakami:

**Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolaupeke, Oahu**

Kaneohe Ranch is applying for an amendment to the Koolaupeke Development Plan (DP) Land Use Map to redesignate approximately 32 acres of land from Preservation to Medium Density Apartment, and 1 acre from Preservation to Commercial. The proposed retirement community will include 333 independent living units, 20 personal care units, and a 60-bed skilled nursing center.

The Environmental Center has reviewed the above mentioned DEIS with the assistance of Paul Ekern (Emeritus), Henry Gee, Edwin Murabayashi, and Yu-Si Fok, Water Resources Research Center; Christine Woolaway, Sea Grant; George Taoka, College of Engineering; and Alex Buttaro, Environmental Center.

Alternative Energy Considerations

Alternative energy resources should be considered to reduce the electricity demand which is already at capacity in many areas. We note that many power plants are presently overburdened as evidenced by the rolling blackouts recently experienced in Hilo (Honolulu Advertiser, April 21, 1992, page A2) and the major power outage on Oahu last year. This DEIS should discuss the various alternative energy resources such as the use of solar hot water heaters.

Paper Conservation

While we commend the preparers of this document for using single rather than double spacing in the text, we note that significantly less paper would have been needed if the text had been printed on both sides of each page.

Mr. Melvin Murakami
April 22, 1992
Page 2

Incorporating this suggested format in the EIS would significantly reduce the bulk of the document require less filing space, reduce final EIS production costs, and would provide a less formidable, reader-friendly document.

Soils (Section 4.3)

This EIS does not adequately discuss the properties of Papaa soils and their poor suitability for construction purposes. Because they expand and contract as a result of wetting and drying processes and are a slide hazard, Papaa soils are a poor choice for a foundation and should be described accordingly (Footnote et al, Soil Survey of Hawaii, page 110; and Table 3, page 194).

Drainage and Storm Water Runoff

Our reviewers were surprised at the statement in the Civil Engineering Report that "the overall increase in storm water runoff will be only 39%" (Appendix G, page 3). We note that the adjective "only" may inappropriately trivialize a significant increase in runoff (39%), which may have serious environmental implications at this particular location or other highly flood-prone areas in the same proximity.

Sedimentation

Kawaluu Marsh and its feeder streams have a long history of eutrophication as a result of sediment loading. To what extent will this project contribute to the sediment loading of Kawaluu Stream, Kawaluu Marsh, and Kailua Bay, and what potential environmental impacts can be anticipated as a result of such sedimentation?

Transportation (Section 6.1)

The DEIS states that the present conditions are expected to worsen for both pedestrians and drivers (LOS E) at the Hamakua Drive-Ke'iki Street intersection, and "the intersection should be designed for the future installation of traffic signals, including the provision of underground conduits" (section 6.1, page VI-6). What criteria will be used to determine when the signalization need is sufficient? Will the developer be required to provide signals so as to mitigate the significant burden that is expected to be placed on present levels of service at this intersection? Our reviewers suggest that traffic signals be installed immediately following the completion of the project to mitigate the additional burden this project will place on already poor traffic conditions.

Mr. Melvin Murakami
April 22, 1992
Page 3

The Transportation section neither quantitatively nor qualitatively discusses how this project is expected to contribute to overall traffic at each of the intersections discussed, and within the adjacent and outlying areas both in Kailua and in places such as Kaneohe, Kaneohe, and the Fall Highway. To what extent (ie percentage, LOS) will this project directly and indirectly contribute to the traffic load in each of the above mentioned areas? To what degree will this project combined with others planned for the windward side, cumulatively contribute to present traffic levels? If potentially significant impacts are anticipated, how will they be mitigated?

Archaeological Resources (Section 4.10)

What criteria will be used to determine the need to implement the specific archaeological recommendations described on pages IV-18 thru IV-19? If a need to implement the recommendations exists, is the developer prepared to do so? Are any other mitigative measures under consideration? If yes, what criteria will determine their implementation?

Scenic and Visual Resources (Section 4.9)

Does this project have the potential to negatively affect the mauka or makai viewshades of Kawaihuli Marsh or the makai views from the Koolaus? If yes, which ones?

The black and white "computer images" (page IV-15) are of very limited use in assessing the scenic and visual impacts. Photos of the area with overlays of the proposed structures would be decidedly more informative in conveying the visual impacts of the project.

Economic Affordability Issues (Section 2.6)

How is the term "affordable" defined in the various contexts that apply to this development? What criteria will be used to determine the specific "affordable" parameters with regard to pricing and quality of design? Will the nature of this project's "affordable" component change if the developer cannot obtain supplemental government funding? Does the geographic isolation and the exclusion of meal and healthcare provisions for the low-income residents exacerbate the potential for social disharmony between "low" and higher income residents as a result of a socially stratified community structure?

Relationship of the Proposed Project to Existing Public Plans, Policies and Controls (Section 3.0)

Why did the DEIS neglect discussion of this project's relationship to the Kawaihuli Marsh Resource Management Plan? Because Kawaihuli Marsh is directly adjacent to the project area, the EIS should more thoroughly discuss this project's potential impacts upon the objectives of the Kawaihuli Marsh Resource Management Plan. This Plan seeks to protect compatible natural, cultural, and economic resources through management and control of existing and potential resources of the Marsh; to provide for public use and enjoyment of the existing and potential resources of the Marsh; and to provide for a centralized and consistent means for reviewing and regulating land use and development in the primary study area.

Mr. Melvin Murakami
April 22, 1992
Page 4

Our reviewer's note that the discussion of the relationship of the proposed project to existing public plans, policies and controls was limited to a discussion of only the "positive" aspects. Are there any potential conflicts that may arise between the effects of the proposed project and existing plans?

Summary

While we note that this document adequately addresses many of the potential environmental impacts that can reasonably be anticipated, our reviewers expressed serious concern with regard to what may be inadequate descriptions of traffic impacts, suitability of soil for construction, the project's relationship to policies and plans, the "affordable" component, and archeological and visual impacts. We also urge that proposed mitigative strategies be considered as requisites in the issuance of permits. The Final EIS should more thoroughly describe these areas of concern in order to meet the requirements specified by Title 11 EIS Rules, Sections 11-200-14, 11-200-16, and 11-200-17, which require that relevant data be obtained, necessary studies be conducted, and all relevant and feasible consequences and implications of an action be disclosed and evaluated.

Thank you for the opportunity to review this document and we hope our comments are helpful.

Sincerely,

John T. Harrison

John T. Harrison, M.D.
Environmental Coordinator

cc: Randy Moore, Kaneohe Ranch
Gail Byetake, Helber, Huestert & Fee
Roger Fujioka
Edwin Murabayashi
Yu-Si Fok
Henry Gee
Paul Ekern
Christine Woolaway
George Tooka
Alex Buttaro

Heller Hinstert
Planners

May 5, 1992

John T. Harrison, Ph.D.
Environmental Coordinator
University of Hawaii at Manoa
Environmental Center
Crawford 317
2550 Campus Road
Honolulu, HI 96822

Dear Mr. Harrison:

**Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolaupoko, Oahu, Hawaii**

Thank you for your review of the subject DEIS and your letter of April 22, 1992 (Re:0603). We have reviewed your letter and offer the following responses.

Alternative Energy Considerations

The final EIS will include a discussion of alternative energy resources such as the use of solar hot water heaters.

Paper Conservation

Thank you for your suggestion on printing the document on both sides of the page. As you probably noted, the draft EIS appendices in which the original documents were both reduced to half-size and printed on both sides of the page. The same was true for the comment letters and responses to the EIS preparation notice. As for printing the text on two sides, we opted to print on one side due to issues of production time, costs, logistics, and opacity of the paper. We plan to continue both practices in the final EIS.

Soils

The information found in Foote et al. Soil Survey of Hawaii, page 110 and Table 3, page 194 will be included in the final EIS.

Drainage and Storm Water Runoff

The word "only" will be deleted from the description of the drainage and storm water runoff in the final EIS.

Sedimentation

Kawainui Stream, which forms the maikai boundary of the project area, does not drain Kawainui Marsh, nor does it connect to Onoawa Channel, which does drain the marsh. Therefore, the project will not affect the sediment loading in Kawainui Marsh.

Heller Hinstert & Inc.
Environmental Center, 1711 Ewing

211 Bishop Street, Suite 2701
Honolulu, Hawaii 96811

File phone: 535-2655
Fax number: 535-2650

Heller Hinstert
Planners

Mr. John T. Harrison, Ph.D.
May 5, 1992
Page 2

As stated in the water quality study prepared by AECOS, Inc. in the draft EIS, short term impacts from the project will be primarily from runoff and sedimentation which may occur during construction. Because of the planned mitigation measures (use of sedimentation basins and immediate sodding and planting of exposed areas), the report concluded that any impacts on Kawainui Stream from project construction sedimentation should be moderate and of short duration. The report further states that the primary cause of Kawainui Stream's eutrophic conditions is its limited flow. Because of the closed character of the system, the waterborne materials from the project's runoff that reach Kawainui Stream will likely accumulate within the stream bed as long as the stream continues to be non-flowing. Because of the existing degraded condition of the stream, it is unlikely that the existing stream biota will be further degraded by sedimentation or nutrient enrichment from the increased runoff from the Kailua Gateway development. It is possible that stream quality can be improved by the intermittent increased runoff and improvement of the wetland, and a healthier biological community may result.

Also according to AECOS, Kaelepu Pond and Kailua Beach are too far from the project to be affected by sedimentation from the project. It is very unlikely that any effects can extend below the confluence of Kawainui Stream with Kaelepu Stream.

Transportation

As described on page 9 of the Traffic Impact Analysis Report, traffic signal installations should meet one or more of the signal warrants described by the Federal Highway Administration in the Manual on Uniform Traffic Control Devices. While common practice is to use traffic counts to evaluate if the criteria are met, projections of future traffic or pedestrian volumes may be used; the determination is made by the responsible agency, in this case the City and County of Honolulu Department of Transportation Services.

The Traffic Impact Analysis Report discusses qualitatively (pages 7 through 10) and quantitatively (Tables 2, 3 and 4) the expected traffic impact of the proposed project. Significant impact to other, more remote intersections are not expected.

Archaeological Resources

The draft EIS contained the findings from Phase I of a two-phase archaeological survey. Phase II of the survey will involve detailed site descriptions, mapping, subsurface testing, and possibly paleoenvironmental investigations of the wetlands, as recommended in the Phase I report. This phase will also assess the significance of the four sites according to existing federal and state criteria. These assessments will be submitted to the State Historic Preservation Division for review and approval. Objectives and mitigation measures for protecting archaeological resources on the project site will be determined during Phase II when more detailed information on the sites is available.

Helber Hinstert
Planners

Mr. John T. Harrison, Ph.D.
May 5, 1992
Page 3

Scenic and Visual Resources

This project does not have the potential to affect the mauka or makai viewplanes of Kawaiunui Marsh or the makai views from the Koolaus.

The scaled computer generated perspective drawings included in the draft EIS shows the heights of the proposed structures in relation to the hillside. Photographs of the hillside overlaid with the proposed structures may show the hillside in more detail, but the scale of the objects would be difficult to determine and would be unlikely to show accurate relationships between the height of the buildings with respect to the ridgeline.

Elderly Affordable Housing

The eligibility requirements for the proposed elderly affordable rental housing will be based on income limits set by federal or city housing programs utilized for the project, generally those households earning up to 120% of the median income for the appropriate household size. The city may require that a percentage of the units be set aside for "very low" income (incomes less than 50% of median) and "lower" income (incomes less than 80% of median) households. The affordable elderly rentals will be designed to be compatible with the other activities in the project. The applicant is committed to developing affordable elderly rentals as part of the entire development, with or without supplemental government funding.

The lifecare facility is more than a housing alternative for seniors; it is a contract between the resident and operator (in this case, the non-profit entity, Episcopal Homes of Hawaii, Inc.) in which the resident is guaranteed housing, meals, and medical care for the extent of his/her life in exchange for an entry fee and monthly maintenance fees. The elderly affordable housing is planned as a rental project only, and the residents will not be required to pay an entry fee or monthly maintenance fee. There is an existing meal program for the elderly in Kailua, which will relocate in mid-1993 to the City's elderly housing project, currently under construction. The developer has found, through past experience with lifecare project in Northern California, that separate facilities are generally preferred in order to protect the dignity of the lower-income residents.

Relationship of the Proposed Project to Existing Public Plans, Policies and Controls

The policies of the Kawaiunui Marsh Resource Management Plan apply principally to the primary area, which is bounded by Kapea Quarry Road on the west and north, Oneawa Channel on the east, and Kailua Road (from the bridge crossing the canal to its junction with Kapea Quarry Road) on the south. The project area is located within the secondary area, within the Kawaiunui Watershed. The objectives of the Management Plan cited in your letter appear to be the objectives for the Economic Resources component of the plan, the other components being Ecological Resources and Cultural Resources, which contain additional objectives. Because the project area is not in the primary area, some of the objectives are not applicable. The following discussion

Helber Hinstert
Planners

Mr. John T. Harrison, Ph.D.
May 5, 1992
Page 4

addresses the objectives which specifically refer to the secondary area and will be included in the final EIS.

Cultural Resources

Objective: "Protect and preserve identified historic and pre-historic sites and districts within the primary and secondary areas which are listed or eligible for listing on the National and State registers."

Discussion: The phase II of the archaeological survey, as described above, will assess the significance of the four sites identified in the first phase, according to existing federal and state criteria.

Objective: "Identify, enhance, and preserve aesthetic qualities of the primary and secondary areas, including vistas, view planes and site-specific features and elements."

Discussion: The project will alter the view of the Puu O Ehu hillside, when viewed from portions of Hamakua Drive and at the approach to the intersection of Hamakua Drive from Kailua Road. The project will not affect any views of Kawaiunui Marsh.

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake

Gail Uyetake
Project Planner

cc: Randy Moore, Kaneohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
639 SOUTH BERETANIA STREET
HONOLULU HAWAII 96813



COPY


THANKS FOR YOUR
WALTERO WATSON JR. Chairman
MAUREE H. TALLSATO Vice Chairman
SUSIEN M. LARVIN ANCHON, O.S.F.
JOHN W. ANDERSON, JR.
REED JOHNSON
MELISSA T. LUU
KAZU HAYASHIDA
Manager and Chief Engineer

April 9, 1992

Mr. Benjamin B. Lee
Page 2
April 9, 1992

TO: BENJAMIN B. LEE, DIRECTOR
DEPARTMENT OF GENERAL PLANNING

ATTN: MELVIN MURAKAMI

FROM: KAZU HAYASHIDA, MANAGER AND CHIEF ENGINEER 
BOARD OF WATER SUPPLY

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) FOR THE
PROPOSED KAILUA GATEWAY DEVELOPMENT, TMK: 4-2-01: PORS. 1
AND 55 AND TMK: 4-2-03: PORS. 17 AND 29; KAILUA ROAD AND
HAMAKUA DRIVE

We have the following comments on the DEIS for the proposed Kailua Gateway Development which would include a lifecare retirement community affordable elderly housing, community/daycare center for senior citizens, and wetlands improvement:

1. There are no existing water services to the proposed project site.
2. The availability of water will be confirmed when the building permits are submitted for our review and approval. If water is made available, the applicant will be required to pay the prevailing Water System Facilities Charges.
3. If a three-inch or larger meter is required, the construction drawings showing the installation of the meter should be submitted for our review and approval.
4. The service limit for the area is the 172-foot elevation.
5. The proposed development will be subject to Board of Water Supply (BWS) cross-connectional control requirements prior to the issuance of the building permits.

6. On Page VI-6, Section 6.2, and in the Smith Young & Associates report in Appendix G, it should be stated that the BWS plans to construct a water reservoir at the top of the hill on the west end of the project adjacent to the abandoned reservoir. The reservoir, which is tentatively scheduled for construction in fiscal year 1994-95, is required to bring water storage capacity for the Kailua area up to BWS standards. The feasibility study and EIS are presently being formulated.

7. A drainage easement will be required to accommodate the proposed Kailua 272-foot reservoir.

If you have any questions, please contact Bert Kuiuoka at 527-5235.

cc: Kaneohe Ranch
Helber, Haster & Fee, Planners

11-11-11 HASTERT



April 15, 1992

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:

Draft Environmental Impact Statement (DEIS)
Kaliua Gateway Development
Koolau, Oahu, Hawaii

Thank you for your review of the subject DEIS and your memorandum to the Department of General Planning of April 9, 1992. We appreciate the information provided in your letter and will forward it to the project civil engineering consultant, Smith Young & Associates. The information will be incorporated in the Final EIS.

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

cc: Randy Moore, Kanohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell
Timothy Steinberger, Smith Young & Associates

Helber HASTERT & FEE, Planners
211 Bishop Street, Suite 2700
Honolulu, Hawaii 96811
Tel: (808) 531-2655
Fax: (808) 531-2624

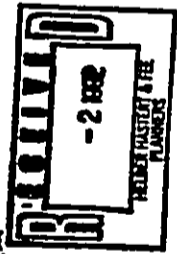
11-11-11 HASTERT

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETAMA STREET
HONOLULU, HAWAII 96843



February 27, 1992

FRANK F. FASI, Mayor
WALTER O. WATSON, JR., Chairman
MAURICE H. YAMASAKI, Vice Chairman
JOHN W. ANDERSON, JR.
SAM CALLEJO
FRED JOHNSON
MELISSA Y. J. LUM
KAZU HAYASHIDA
Manager and Chief Engineer



Ms. Gail Uyetake
Helber, Hastert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

Subject: Your Letter of January 23, 1992 Regarding the Amended Environmental Impact Statement Preparation Notice (EISPN) for the Proposed Kailua Gateway Development, TMK: 4-2-01: Pors. 1 and 55, 4-2-03: Pors. 17 and 29

Thank you for the opportunity to review and comment on the amended EISPN for the proposed lifecare retirement community (consisting of 333 apartments, 20 personal care units and 60 skilled nursing beds), 80-unit low income elderly housing, and community/daycare center for senior citizens. We have the following comments:

1. There are no existing water services to the proposed project site.
2. The availability of water will be confirmed when the building permits are submitted for our review and approval. If water is made available, the applicant will be required to pay the prevailing Water System Facilities Charges.
3. If a three-inch or larger meter is required, the construction drawings showing the installation of the meter should be submitted for our review and approval.
4. The service limit for the area is the 172-foot elevation.
5. The proposed development will be subject to Board of Water Supply (BWS) cross-connectional control requirements prior to the issuance of the building permits.



Ms. Gail Uyetake
Page 2
February 27, 1992

6. A drainage easement will be required to accommodate the BWS's proposed Kailua 272' Reservoir. The reservoir is needed to bring water storage capacity for the Kailua area up to BWS standards.

If you have any questions, please contact Bert Kuiuoka at 527-5235.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

Helber Haster
Planners

Mr. Kazu Hayashida
March 10, 1992
Page 2

Thank you again for your review and input.

Sincerely,

HELBER HASTER & FEE, Planners

Gail Uyetake

Gail Uyetake
Project Planner

cc: Randy Moore, Kaneohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell
Tim Steinberger, Smith Young & Associates



Helber Haster
Planners

March 10, 1992

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:

Amended Environmental Impact Statement Preparation Notice
Kauiua Gateway Development
Koolauoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter dated February 27, 1992. We offer the following responses to your comments.

1. It is noted that there are no existing water services to the proposed project site.
2. The applicant acknowledges that the availability of water will be confirmed when the Board of Water Supply (BWS) reviews and approves building permits for the project.
3. If a three-inch or larger meter is required, the construction drawings showing the installation of the meter will be submitted for BWS review and approval.
4. It is noted that the service limit for the area is the 172-foot elevation.
5. The applicant will comply with BWS cross-connectional control requirements.
6. The applicant is aware of the BWS's requirement for a drainage easement to accommodate the proposed Kauiua 272' Reservoir. The exact location of this proposed easement will be negotiated between the BWS and the property owner.

Your letter was postmarked and received after the EIS Preparation Notice public comment period and after the Draft EIS was submitted for printing. Therefore, your letter will be reproduced in its entirety in the Final EIS.

Helber Haster & Fee
Planners

711 Hahaione Street, Suite 200
Honolulu, HI 96813

Telephone: 808-515-2155
Facsimile: 808-515-2070

11

1991 10 26 10:10 AM HONOLULU MAILING UNIT 10/26/91

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
838 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813



December 30, 1991

FRANK F. FASI, Mayor
WALTER O. WATSON, JR., Chairman
LAURENCE H. YAMASATO, Vice Chairman
JOHN W. ANDERSON, JR.
SAM CALLEJO
FRED O. JOHNSON

JAN - \$ 1897 AT 2.10M
KAZU HAYASHIDA
Manager and Chief Engineer

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Mr. Libby Stoddard
Smith, Young & Associates, Inc.
501 Sumner Street, Suite 502
Honolulu, Hawaii 96817

Dear Mr. Stoddard:

Subject: Your Letter of November 12, 1991 Regarding the Proposed Kailua Gateway
Development. IMK: 4-2-01: 1, 55; 4-2-03: 17, 29; and 4-2-38: 24

Thank you for your letter regarding the proposed Kailua Gateway development.

The existing water system is presently adequate to accommodate the proposed development.

The availability of water will be confirmed when the building permits are submitted for our review and approval. If the development plan requires action by the Department of Land Utilization, the plan should first be approved by that department before we take action on the proposed development. When water is made available, the applicant will be required to pay our Water System Facilities Charges for source, transmission and daily storage.

If a three-inch or larger meter is required, the construction drawings showing the installation of the meter should be submitted for our review and approval.

If you have any questions, please contact Albert Koge at 527-6123.

Very truly yours,

FOR KAZU HAYASHIDA
Manager and Chief Engineer

10. Compatibility with Land Use Plans and Policies

The FEIS should discuss the objectives of the current preservation designation for the subject parcel and should indicate why this designation should be modified to be compatible with city land use policies.

The EIS should provide a in-depth discussion of existing commercial uses in the Kailua area, including supply and demand factors affecting commercial space absorption rates.

There needs to be a fuller discussion of the project's population impact, especially as compared to the General Plan guidelines. Justifications should be provided for exceeding these guidelines.

11. Buffer Area

a. The DEIS states that the increase in the amendment area is due, in part, to an effort to create and adequate buffer between the development and the adjacent wetlands and the desire to keep the structures low-rise and depressed in character. If this explains in part what the increase is for, what are some of the other reasons for expanding the area? Why wasn't the original 21 acre proposal maintained by leaving the buffer area in preservation?

b. The EIS identifies jogging and walking paths as part of the buffer area. The implication that these uses serve as buffers between urban and preservation areas should be explained. What is the impact of jogging and walking paths on flora and fauna?

c. The EIS should also discuss why a buffer is not needed in the makai area.

12. The EIS should provide further details on the Ducks Unlimited organization. It should also include documentation to establish Ducks Unlimited's willingness to assume the project and the State's willingness to accept conveyance of lands and responsibility for management in perpetuity.

13. The description of existing and surrounding land uses should be clarified to indicate that the amendment area is bounded mostly by vacant and agricultural lands and Kawaiinui Stream.

14. The EIS should discuss in greater detail the impact on scenic and visual resources. This should also include a discussion of the loss of open space and public views of Puu O Ehu from Kaelepu Pond.

15. The EIS should discuss more fully the soils types and slopes on the site, including the extent of cut and fill (grading) anticipated. The discussion under topography seems to indicate that the project site is predominantly 10 to 20% slopes, whereas the topographic map shows that most of the site has slopes in excess of 30%. There should also be a discussion on the suitability of the soils and slopes for construction of the proposed structures.

16. The EIS should provide a clearer discussion on the impacts of diverting runoff into Kawaiinui Stream rather than into the wetland area.

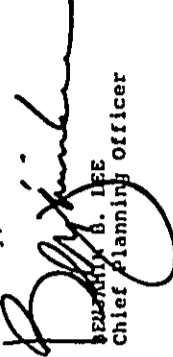
17. The EIS should provide a clearer discussion on the impacts on the water quality of Kawaiinui Stream and Kaelepu Pond as a result of the project. The EIS should also justify its conclusion that the proposed project will have an insignificant impact on water quality. In particular, the findings of the water quality study by the University of Hawaii Water Resources Research Center which indicate excessive bacterial contaminants in Kawaiinui Stream should be discussed in terms of this project's impact on water quality within the Stream and Kailua Bay.

18. The EIS should address the potential impacts of development over the former quarry site.

The information that is being requested should be summarized in the body of the report within the most appropriate sections. Other related sections should be revised as necessary to assure internal consistency.

Should you should have any questions, please call Mel Murakami of our staff at 527-6020.

Sincerely,


Elizabeth D. IFE
Chief Planning Officer

BBL:ft

May 7, 1992

Mr. Benjamin B. Lee
Chief Planning Officer
Department of General Planning
City and County of Honolulu
650 South King Street
Honolulu, HI 96813



**Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolaupoko, Oahu, Hawaii**

Dear Mr. Lee:

Thank you for your review of the subject DEIS and your letter of April 22, 1992 (your reference number MM 3/92-749). We have reviewed your letter and offer the following responses.

1. The final EIS will clarify the total number of units proposed for the development in development summary (Section 1.2). The proposed development consists of a lifecare retirement community (consisting of 333 independent living units, 20 personal care beds and 60 skilled nursing beds); 70 elderly affordable housing units; a community center and the expansion of an existing commercial area. A total of 403 dwelling units is proposed (333 lifecare retirement units and 70 elderly affordable housing units).

2. The final EIS will identify the developers, managers and potential users of the elderly affordable housing, community center and commercial components of the development, as requested in your letter. The following summarizes this information.

Elderly Affordable Housing
Developer: Episcopal Homes of Hawaii, Inc.
Manager: Episcopal Homes of Hawaii, Inc.
User: Low-income elderly on rental basis

Community Center
Developer: Episcopal Homes of Hawaii, Inc.
Manager: Episcopal Homes of Hawaii, Inc.
User: Kailua community

Commercial Area
Developer: Castle Estate/undecided
Manager: Kaneohe Ranch
User: Kailua community

3. The relationships between the various proposed uses will be clarified in the final EIS. The commercial area will be contiguous to but not part of the lifecare center.

Holtek-Bentley, Inc. 211 Bishop Street, Suite 2700 Honolulu, Hawaii 96813
Telephone: 535-2015
Facsimile: 535-2024

Mr. Benjamin B. Lee
May 7, 1992
Page 2

Although the community center will be developed by the developers of the lifecare center, it will be available for use by the entire Kailua community.

4. The eligibility requirements for the proposed elderly affordable housing will be based on income limits set by federal or city housing programs utilized for the project, generally those households earning up to 120% of the median income for the appropriate household size. The city may require that a percentage of the units be set aside for "very low" income (incomes less than 50% of median) and "lower" income (incomes less than 80% of median) households. Specific eligibility requirements will be determined by the appropriate government agency.

5. The project's civil engineering consulting firm, Smith Young & Associates, calculated the runoff for 100-year storm conditions. According to Smith Young & Associates, the difference in calculated runoff between a 10-year storm and 100-year storm is slight. The rainfall intensity is calculated differently for the 10-year and 100-year storms. For the 10-year storm, following the procedure set forth in the Storm Drainage Standards of the City and County of Honolulu, the intensity (inches of rainfall per hour) is multiplied by time of concentration factor (calculations are included in the revised drainage report, to be included in final EIS). The resulting intensity, used previously, was 3.5 inches per hour. The intensity of a 100-year storm of one hour duration, according to the Rainfall Frequency Study for Oahu, 1984, is also 3.5 inches per hour.

Since the Coconut Grove area is upstream of the project site, it should not be affected by runoff from the proposed development if Kawai'i Stream is maintained and the berm at the stream mouth appropriately controlled by the City and County of Honolulu. The Department of Public Works' dredging plan for Kawai'i and Kaelepu Streams will improve the drainage characteristics of the stream. According to the Environmental Assessment for the Kaelepu and Kawai'i Streams Maintenance Dredging, "there have been instances of stream overflow due to the sediment overload in the stream bed; however, there have been no recorded instances of property damage, and this project will relieve this potential risk." The residential areas along Kawai'i Stream will not be adversely affected by the increased runoff if the dredged stream is maintained at design capacity and allowed to flow out to Kailua Bay. According to the project civil engineers, although it is anticipated that runoff flows to Kaelepu Pond will increase as a result of the proposed project, residences along the pond's edge should not be adversely affected if the outlet to Kailua Bay is properly maintained.

6. The proposed berm between the wetlands and the developed area will be under 5 feet high and less than 12 feet wide. It will be landscaped with ground cover appropriate to its proximity to the wetlands. This description will be included in the final EIS.

7. The most important wildlife habitat at this site are the wetlands. There is no net loss of wetland habitat anticipated by the proposed project. In fact, the wetlands restoration and management plan proposed by Ducks Unlimited will create a more protected and valuable wetland habitat than currently exists. This is due, in part, to the clearing of invasive vegetation, the removal of cattle/pasture operations, and the

Mr. Benjamin B. Lee
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elimination of land predators (with a protective moat), all of which have reduced the habitat available to native waterbirds.

The faunal habitat for aquatic organisms will be described in the final EIS. No loss of habitat for aquatic organisms should result from the project.

Some pasture and brushy vegetation habitat will be lost due to the proposed development. A small decline in introduced species such as cardinals, doves and mynahs could be expected if the pasture-type vegetation is replaced by residential uses.

Although none of the following species were sighted during the survey of mammals and avifauna conducted by Phillip L. Bruner, individual Hawaiian Owls, Pacific Golden Plovers, and pheasants are known to utilize pasture-type land, and may be displaced by the conversion of the area of application from pastureland to residential.

8. The final EIS will include the following discussion of the low-density alternatives suggested in your letter.

Low-rise alternative (under 25 feet). This alternative would include the development of the same number of dwelling units entirely in low-rise structures, with a maximum height of 25 feet. Since it is highly desirable for life-care units to be accessible without going up or down stairs, attached 4-story units (with a 40-foot height limit) can be made accessible with several strategically placed elevator cores. A 25-foot height limit would result in a proliferation of 2-story buildings on the site, with elevator access to upper units becoming less practical. (The present conceptual plan includes single-story duplex units in the southern half of the application area). This would also result in greater footprint coverage of the project site, leaving less area for open, unobstructed green space. Furthermore, this alternative would result in a greater percentage of the property being covered by impermeable surfaces, which would contribute to additional runoff from the site.

Low-density alternative. The proposed life-care retirement center is an integrated facility consisting of independent living units, personal care units and a skilled nursing center. Based on previous experience and actuarial analysis, in order to construct and operate each of the components in a financially and logistically efficient manner, the developer determined that 300-450 independent living units must be developed. Therefore, the development of fewer than 300 independent dwelling units would render the project fiscally unfeasible.

Development on alternative sites. There are no other sites under the landowner or developer's control in the Kailua area appropriate for the proposed development.

9. The section on historical and archaeological resources will be clarified in the final EIS to indicate that Appendix E contains the full report on Phase I of the archaeological survey and assessment, as requested in your letter.

Phase II of the survey will involve detailed site descriptions, mapping, subsurface testing, and possible paleoenvironmental investigations of the wetlands, as recommended in the Phase I report. This phase will also assess the significance of the

Mr. Benjamin B. Lee
May 7, 1992
Page 4

four sites according to existing federal and state criteria. These assessments will be submitted to the State Historic Preservation Division for review and approval. Objectives and mitigation measures for protecting archaeological resources on the project site will be determined during Phase II when more detailed information on the sites is available. Phase II will be conducted in coordination with city and state development permitting processes. A specific commencement date for Phase II has not yet been identified.

10. The subject parcel currently has a Development Plan "Preservation" designation. The Development Plan Common Provisions (Section 32-1.3(11)) describes the types of lands included in preservation areas. The following is a partial list of preservation area land characteristics, as described in the Common Provisions. Some of these characteristics are applicable to the subject parcel. The development proposal recognizes the environmental constraints and offers measures which will mitigate, as much as feasible, impacts that may change the land's usefulness in carrying out the objectives of the preservation designation. These proposed mitigation measures and rationale follow each land type item.

Section 32-1.3(11)(A) Lands necessary for protecting watersheds, water resources and water supplies.

Discussion: The water quality assessment for the project concluded that the additional runoff from the proposed development will not have a significant impact on the water quality of Kawaiwi Stream, and will not negatively impact Kailua Bay or the nearshore marine environment. The water in Kawaiwi Stream is not currently used for either potable or irrigation purposes.

Section 32-1.3(11)(B) Lands necessary for the conservation, preservation and enhancement of sites with scenic, historic, archaeological or ecologic significance.

Section 32-1.3(11)(G) Lands with general slopes of 20 percent or more which provide for open space amenities and/or scenic values.

Discussion: The project will obscure portions of the lower slopes of Puu O Ehu as seen from some sections of Hamakua Drive. However, the applicant is committed to designing the project to preserve as much open space and views of Puu O Ehu as is feasible, as well as to incorporate design elements, construction materials and landscaping compatible with its surroundings.

Section 32-1.3(11)(C) Lands necessary for providing and preserving park lands, wilderness and beach reserves, and for conserving natural ecosystems of endemic plants, fish and wildlife, for forestry, and other related activities to these uses.

Discussion: Because the project site is adjacent to the wetland habitat, the applicant has been in consultation with the Ducks Unlimited, a non-profit organization that will restore the wetlands and create a permanent plan for its management and protection. The applicant has agreed to provide a buffer area

Mr. Benjamin B. Lee
May 7, 1992
Page 5

between the urban development and the wetland based on discussions with Ducks Unlimited. The design of the project reflects a conscientious attempt to minimize potential impacts to the wetlands. Such design elements include locating entry roads at the extreme south end of the parcel and at the north end of the parcel over a section of the wetlands which predominantly supports upland vegetation uncharacteristic of wetland habitat. Proposed mitigation measures for the bridge roadway include solid railing walls to decrease light and sound transmission.

The proposed project will support the following General Plan policies.
Housing

Objective A, Policy 12: Encourage the production and maintenance of affordable rental housing.

Discussion: The elderly affordable housing component of the proposed development will provide 70 rental units to be made available to low income seniors, whose eligibility will be determined by federal or city income limit guidelines.

Objective A, Policy 13: Encourage the provision of affordable housing designed for the elderly and the handicapped.

Discussion: The proposed lifecare facility will provide both housing and health care for its residents, which is guaranteed to continue throughout the individual's life. This growing segment of the population has special housing and health care needs, both of which will be addressed by the lifecare program and facility.

Health and Education

Objective A, Policy 1: Encourage the provision of health-care facilities that are accessible to both employment and residential centers.

Discussion: The proposed lifecare facility includes personal care and skilled nursing components located on-site. The project site is located near the Kailua business district as well as neighboring residential subdivisions, of both single-family and apartment dwelling types.

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 wetland improvements proposed by the project will provide a more protected and valuable habitat for the four species of endangered Hawaiian birds now found in the wetlands.

Mr. Benjamin B. Lee
May 7, 1992
Page 6

Objective B, Policy 4: Provide opportunities for recreational and educational use and physical contact with Oahu's natural environment.

Discussion: The proximity of the wetland habitat to Kailua Town will provide an opportunity for observation by the public, while at the same time being protected from intruders and predators.

The additional one acre which is proposed for redesignation from Preservation to Commercial is presently being used for commercial purposes, and there is no anticipated increase in the commercial use of the property. Therefore, there should be no impact to existing commercial uses or commercial space absorption rates in the Kailua area.

The project will result in an estimated 650 additional residents in the Koolauoko District. According to the Department of General Planning's Development Plan Status Review (September 1, 1991), the Year 2010 Population Capacity for the Koolauoko District (121,300) is slightly under the maximum population allowed by the General Plan for the Year 2010 (121,900). The addition of the estimated 650 residents associated with the proposed Kailua Gateway development would result in the total Koolauoko District population exceeding the Year 2010 population guideline by 50 persons, or 0.04%.

Despite its contribution to the Koolauoko population exceeding General Plan population guidelines by an estimated 0.04%, the project responds to and supports other General Plan objectives and policies. These, as discussed above, include the provision of affordable housing, special needs housing for the elderly, and the protection of the natural environment.

11.a. The land being proposed as a buffer between the proposed project and the wetland was retained in the land area included in the application to maintain flexibility in its planning and design and because its specific design has not yet been determined. The applicant is working with Ducks Unlimited to create a buffer which will provide adequate protection for the wetland habitat from predators, auditory impacts, and visual impacts, as well as to provide controlled educational opportunities for the public. The buffer was also retained in order to avoid the creation of a split-zoned lot, partly in the Preservation District and partly in the Medium-Density Apartment District.

The additional acreage requested in the amended application was the result of more detailed design studies which were completed after the submittal of the original application. The revised application includes a workable site plan and accommodated the buffer. The revised design attempts to keep the structures low-rise (under 40 feet) in character, yet clustered in the pockets of land located between the ridges. In addition, the preservation of a buffer area will encompass 4-5 acres of the most developable land within the application area. In order to compensate for this loss, developable area located further mauka was necessary. A simple replacement of 5 mauka acres for the buffer acreage could not be accomplished due to the site's topography. The resulting site plan attempts to concentrate the structures in the pockets of gentler slopes between

Mr. Benjamin B. Lee
May 7, 1992
Page 7

the ridges. Consequently, the configuration of the structures required additional acreage for roadways to access these areas efficiently and less obtrusively.

b. According to Andrew Engilis, Jr., project biologist with Ducks Unlimited and preparer of the wetlands restoration and management plan, a border of existing vegetation will be preserved around the wetland perimeter, within the boundaries of the wetland. A moat will be constructed between the wetland and buffer area to provide protection from predators. Auditory and visual screening in the form of existing trees and vegetation will further protect the wetland habitat. The proposed pedestrian path contained within the buffer area will be screened from the wetlands, with one or more viewing stations located along the path, possibly equipped with interpretive kiosks. Access to these viewing stations would be controlled. According to Ducks Unlimited, these pedestrian paths are not expected to have significant impact on the wetland waterbirds, which will be provided more private and secure resting and nesting areas with the wetland restoration improvements. The jogging path will not have a significant impact on the botanical resources on the site as it will mainly replace introduced species. The buffer area may be landscaped with native coastal shrubs, in an effort to outcompete the exotic flora, by having the native species push out the exotics.

c. The triangular portion of the property, located east of Hamakua Drive, is presently of limited value to waterbirds due to the dense mangrove thickets and an absence of any sizeable open water habitat. If the area is conveyed to Ducks Unlimited, a buffer area will probably be provided within the boundaries of the wetlands, in order to maintain sufficient developable area for the elderly affordable housing. Although the wetlands at this site are of little present value as a wetland habitat, it is hoped that these wetlands will also support native waterbirds. Even with these improvements, it is unlikely that they will be as well utilized as the mauka wetlands.

12. Ducks Unlimited, Inc. (DU) is a private, national nonprofit organization dedicated to conserving wetland habitat for waterbirds and other wildlife. DU was incorporated in 1937 and has a current membership of more than one-half million. Its conservation projects originally focused on Canada, but are also located in the U.S. and Mexico. DU currently has projects in all fifty states.

Two documents will be included in the final EIS (enclosed with this letter) which indicate DU's willingness to assume the project and the State's willingness to accept conveyance of lands and responsibility for management in perpetuity. The first document is a letter from DU to Kanohe Ranch, dated February 5, 1992 and an inter-office DU memorandum containing a status report on the project. The second document is a letter from the U.S. Fish and Wildlife Service to the Board of Land and Natural Resources, dated March 12, 1992 confirming the availability of 1992 National Coastal Wetlands Conservation grant funds for the project.

13. The description of the existing and surrounding land uses will be clarified to indicate that the amendment area is bounded mostly by vacant and agricultural lands and Kawaiunui Stream. However, it will also be noted that the land uses surrounding

Mr. Benjamin B. Lee
May 7, 1992
Page 8

the tax map parcels on which the area of application is located include residential (both single- and multi-family) commercial, industrial, and public facilities uses.

14. The draft EIS contains a discussion of the heights of the proposed structures in relation to the hillside, as well as information on footprint coverage of the structures. The draft EIS also includes a preliminary perspective drawing (to scale) showing the heights of the proposed structures in relation to the hillside. As shown in the perspectives, portions of the lower one-third of the hillside will be obstructed by the buildings. A ridge in the northern sector of the property will remain unobscured by the development as will a ridge near the center of the property.

Section 32-6.2(a)(1) of the Special Provisions for Koolauoko (Specific Urban Design Considerations) states that the "visibility, preservation, enhancement and accessibility of open space areas as defined in Section 32-1.4 of the development plan common provisions shall be given high priority in the design of adjacent and nearby developments in Koolauoko. These areas include...Puu O Ehu...". The applicant recognizes the open space value of Puu O Ehu and is committed to designing the development to minimize visual and scenic impacts and the loss of open space. The structures will be clustered and generally located in the lower third of two sectors of the property. Heavy landscaping with complementary vegetation will be included in the development.

Section 32-6.2(a)(2), Public Views, states that "panoramic views of the Pali and views of Puu O Ehu ridge and Olomana from Kaelepu Pond area" are important public views and shall be protected whenever possible. The proposed development will not impact panoramic views of the Pali and views of Puu O Ehu ridge or Olomana from the Kaelepu Pond area. In most areas around Kaelepu Pond, only the west (mauka) side of Puu O Ehu is visible. When the east (makai) side is visible, only the southern portion of the hillside can be seen, and the surrounding residential developments and landscaping obscure at least the lower one-half of the hillside. The proposed development along the southern portion of the application area will not be visible from the Kaelepu Pond area, as the structures will be located along the lower one-third of the hillside.

15. The soils on the area of application are briefly described in the draft EIS. Additional information on the soils will be included in the final EIS. While no soils engineering studies have been performed for the site, surrounding developments on these soil types indicate that they are developable when properly graded. The Hokulani in Kailua and Windward Cove condominium projects are constructed on Marsh soils; the homes at 1005 Kailua Road on the northwest side of Puu O Ehu, and some homes on Hamakua Place, Alihi Place, Akiohala Place and Akiohala Street are constructed on Papua Clay, 20-35% (PYE) soils; and an abandoned 0.3 million gallon concrete reservoir is located on Papua Clay, 35-70% (PYF) soils. A steel 1.5 million gallon reservoir existed previously on the ridge on PYF soils, and the Board of Water Supply is planning a 4-million gallon reservoir also to be located along the ridge on PYF soils. The existing commercial area is constructed over PYE, PYF and Marsh soils.

The development will require some grading of the site, although the extent to which grading will occur is difficult to calculate due to the preliminary nature of the plans to

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United States Department of the Interior
FISH AND WILDLIFE SERVICE

911 N.E. 11th Avenue
Portland, Oregon 97232-4181

In Reply Refer To:
FWS/AFF/FA

12 1992

RECEIVED

William V. Paty, Chairperson
Board of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96813

92 MAR 19 AM 57

FOR THE DIRECTOR

Dear Mr. Paty:

This letter confirms that Fiscal Year 1992 National Coastal Wetlands Conservation grant funds will be made available in the amount of \$100,000 for your "Hamakua Wetlands" project. Please submit an Application for Federal Assistance and a Project Agreement to describe the acquisition and expected costs to Donald Friberg, Deputy Assistant Regional Director, Fisheries and Federal Aid, at the above address.

If you have questions about preparation of the documents or the process, please call Kahler Martinson at 503-231-6128.

Sincerely,

William E. Martin
Acting Regional Director

Enclosures

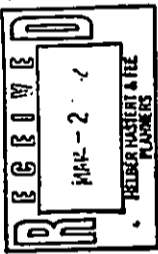
DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU

450 SOUTH KING STREET
HONOLULU, HAWAII 96813



FRANKIE PARI
MAYOR

WALTER HASTERT
DIRECTOR
HELBER HASTERT & FEE, INC.



February 26, 1992

Ms. Gail Uyetake
Helber Hastert & Fee
Crosvenor Center, PFI Tower
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

Subject: Review of Amended Application for Development Plan
Amendment and Environmental Assessment

The Kailua Gateway development for Kailua, Oahu appears to be
a viable project suitable for the Preservation District.

One of our main concerns regarding this project is the affect
upon the wetland area abutting Hamakua Drive and how grading
of this relatively steep terrain development area is handled.
Kailua Beach Park and ultimately Kailua Bay is affected since
this stream runs into Kaelepu Stream. It has been recently
stated that the pollution of Kailua Bay has worsened due to
runoff from streams such as Kaelepu--both containing
coliform, silt and other debris. It would be very important
to create silting basins to intercept runoff from the slopes,
and grading should take place during the dry months of the
year to minimize runoff.

Thank you for the opportunity to review this project.

Sincerely,

Walter H. Ozawa
WALTER H. OZAWA, DIRECTOR

WMO:ei

Helber Hastert
Planners

March 10, 1992

Mr. Walter M. Ozawa, Director
Department of Parks and Recreation
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Ozawa:

Amended Environmental Impact Statement Preparation Notice
Kailua Gateway Development
Koolauoko, Oahu, Hawaii

Thank you for your review of the above-referenced document and your letter
dated February 26, 1992. We offer the following responses to your comments

1. The applicant acknowledges your assessment that the proposed development
appears to be a viable project suitable for the Preservation District
2. A water quality impact report was prepared for the project by AECOS, Inc.,
and is summarized and included in the Draft Environmental Impact
Statement (DEIS). A grading and construction activities plan was prepared
by Smith Young & Associates for the project, and is also summarized and
included in the DEIS. The grading and construction activities plan proposes
the construction of settling basins, a drainage swale and a berm to be
constructed between the wetlands and the development area during project
construction to protect the wetlands from construction runoff.

Your letter was postmarked and received after the end of the EIS Preparation
Notice public comment period and after the DEIS was submitted to be printed.
Therefore, your letter will be reproduced in the Final EIS in its entirety

Thank you again for your review and input

Sincerely,

HELBER HASTERT & FEE, PLANNERS

Gail Uyetake
Gail Uyetake
Project Planner

cc: Randy Moore, Kancoke Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc
Don Graham, Graham Murata Russell

Helber Hastert & Fee
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813
Tel: (808) 531-2000
Fax: (808) 531-2001

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU

04/92 - 1393

HONOLULU HAWAII 96813



FRANK FASI
DIRECTOR

WALTER M. OZAWA
DIRECTOR

April 20, 1992

TO: BENJAMIN B. LEE, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

FROM: WALTER M. OZAWA, DIRECTOR
DEPARTMENT OF PARKS AND RECREATION

SUBJECT: REVIEW COMMENTS FOR DRAFT ENVIRONMENTAL
IMPACT STATEMENT (EIS)
KAILUA GATEWAY DEVELOPMENT

This project is aimed primarily at filling the housing needs of the older sector of the general population. The anticipated population of some 650 people would not overtax the existing parks and recreation areas in Kailua.

We do, however, recommend the incorporation of some on-site passive and active recreational amenities to comply with the City's Park Dedication Ordinance No. 4621.

Thank you for allowing us to review this project.

Walter M. Ozawa
WALTER M. OZAWA, Director

HMO:ei

Heller Hirstert
Planner

May 6, 1992

Mr. Walter M. Ozawa, Director
Department of Parks and Recreation
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Ozawa:

Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolaupoko, Oahu, Hawaii

Thank you for your review of the subject DEIS and your memorandum of April 20, 1992. We have reviewed your letter and offer the following responses.

The proposed development incorporates on-site passive and active recreational amenities. The final design will comply with the City's Park Dedication Ordinance No. 4621.

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners

Helber Hastert

Gail Uyclake
Project Planner

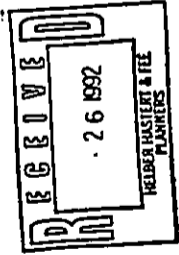
cc: Randy Moore, Kancohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell

Heller Hirstert
Planner

711 Kooloa Street
Honolulu, Hawaii 96813

Telephone: 268-5111, 2615
Fax: 268-5111, 2620

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
610 SOUTH KING STREET
HONOLULU HAWAII 96813



SAM CALLEJO
DIRECTOR AND CHIEF ENGINEER
C. MICHAEL STREET
PROJECT DIRECTOR
ENV 92-48

February 18, 1992

Ms. Gail Uyetake
Project Planner
Helber Hastert & Fee
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Dear Ms. Uyetake:

Subject: Environmental Impact Statement Preparation Notice (EISPN)
Kailua Gateway Development-Drainage Report
TMK: 4-2-01: POR. 1 & 55: 4-2-03: POR. 17 & 29

We have reviewed the subject drainage report and have the following comments:

1. Page 2, Table I, third column: Please verify the computation of 204 cfs.
2. In Figure C: Check if the existing 36-in. drain pipe at the intersection of Akoakoa Street and Hamakua Drive will be able to handle the additional inflows from tributary areas of 9 acres and 17 acres.

Very truly yours,

C. Michael Street
SAM CALLEJO
Director and Chief Engineer

4 4 11 1992



April 3, 1992
Mr. C. Michael Street
Acting Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Street:

Kailua Gateway Development
Koolaupoko, Oahu, Hawaii
Drainage Report

In response to your letter of February 18, 1992 (your reference number ENV 92-48) regarding the subject drainage report, we offer the following.

We are attaching a revised Drainage and Stormwater Runoff report for the proposed development, along with supporting calculations verifying the computation of the projected post-development runoff of 204 cfs.

Runoff from the 9-acre area in the southern portion of the development site can be accommodated by the existing storm drain line under Hamakua Drive. Additional runoff from the 17 acres of undeveloped hillside originally planned to be directed into this drain line will instead be directed into inlets which will be piped under the development to avoid contamination and then released into the wetlands. This drainage pattern will preserve the natural flushing of the wetlands as it exists today.

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input. Please contact us if you need further information or have other questions.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

Enclosure

cc: Randy Moore, Kaneohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell

HEBER HASTERT & FEE, PLANNERS

1111 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Telephone: 835-1111
Telex: 835-1111

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
430 SOUTH KING STREET
HONOLULU HAWAII 96813

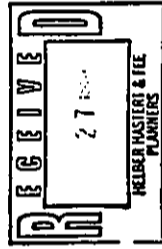


FRANK FASI
MAYOR

C. MICHAEL STREET
Acting Director and Chief Engineer

ENV92-78

April 22, 1992



MEMORANDUM

TO: MR. BENJAMIN LEE, CHIEF PLANNING OFFICER
ATTENTION: MELVIN MURAKAMI
FROM: C. MICHAEL STREET, ACTING DIRECTOR AND CHIEF ENGINEER
SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (DBIS) KAILUA GATEWAY
TMK:4-2-1:POR. 1 & 55: 4-2-3:POR. 17 & 29

C. Michael Street
C. MICHAEL STREET
Acting Director and Chief Engineer

Mr. Benjamin Lee
April 22, 1992
Page 2

3. The capacity of the existing 36-in drain line located at the Akoako Street/Hamakua Drive intersection should be verified to ensure that existing drain pipe can accommodate the additional flows from the western mauka system.

cc: Kaneohe Ranch (Randy Moore) ✓
Helber Hastert & Fee, Planners (Gail Uyetake) ✓

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

1. The existing municipal sewer system is currently adequate to support the proposed wastewater requirements. However, as noted in our sewer connection approval dated November 18, 1991, all wastewater flows must be directed to the Kailua Road Wastewater Pump Station.
2. Under Section 6.3 (Page VI-7), Existing Condition:
Since the existing sanitary sewer system in Kailua is not currently operating over capacity and the Kailua Wastewater Treatment plant currently has adequate capacity to support the proposed project, the first two sentences, "The existing... the Kailua Wastewater Treatment plant will be completed." should be deleted.

Helber HASTERT
Planners

May 6, 1992

Mr. C. Michael Street
Acting Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Street:

**Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolaupoko, Oahu, Hawaii**

Thank you for your review of the subject DEIS and your memorandum of April 22, 1992 to the Department of General Planning. We have reviewed your letter and offer the following responses.

1. The final EIS will indicate that all wastewater flows will be directed to the Kailua Road Wastewater Pump Station.
2. Section 6.3 will be revised according to your instructions.
3. Calculations submitted with the revised drainage report verify that the existing drain pipe at the Akoakoa Street/Hamakua Drive intersection can accommodate the additional flows from the western mauka system according to City drainage standards.

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyeiaka
Gail Uyeiaka
Project Planner

cc: Randy Moore, Kaneohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell
Timothy Steinberger, Smith Young & Associates

Helber HASTERT & FEE
Planners

211 Hukou Street, Suite 200
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DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

HONOLULU MUNICIPAL BUILDING
630 SOUTH KING STREET
HONOLULU, HAWAII 96813

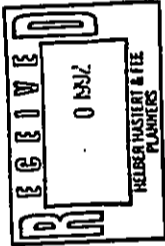


FRANK PASTOR
CHIEF

JOSEPH M. MAGALDI, JR.
DIRECTOR
PLANNING
HONOLULU

TE-1056
PL92.1.083

April 27, 1992



MEMORANDUM

TO: BENJAMIN B. LEE, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

FROM: JOSEPH M. MAGALDI, JR., DIRECTOR

SUBJECT: KAILUA GATEWAY DEVELOPMENT
DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)
TRK: 4-2-01: PORTION 1 AND PORTION 55;
4-2-03: PORTION 17 AND PORTION 29

This is in response to the DEIS submitted to us for review on March 9, 1992, by the Office of Environmental Quality Control.

Based on our review, we have the following comments:

1. The property line radii should be adjusted to 30 feet at the southwest corner of the Kailua Road/Hamakua Drive intersection in addition to a 24-foot road widening fronting Hamakua Drive. Full frontage improvements should be provided with respect to the new property line.
2. Modifications to the Hamakua Drive/Kainehe Street intersection should be provided to accommodate two east-bound lanes from Kainehe Street to Hamakua Drive.
3. Signalization of the Hekili Street/Hamakua Drive intersection should be provided.
4. A curbed cut driveway, opposite of Hekili Street, should be provided for access to the retirement community. All other vehicular access points along Hamakua Drive should be constructed as standard City dropped driveways.
5. Standard wheelchair ramps should be provided on both corners of the curbed cut driveway servicing the retirement community.

Benjamin B. Lee
Page 2
April 27, 1992

6. Preliminary plans indicating the roadway improvements should be provided to our department.

Should you have any questions, please contact Lance Watanabe of my staff at local 4199.

cc: Helber Hastert & Fee, Planners
Kaneohe Ranch
Office of Environmental Quality Control

JOSEPH M. MAGALDI, JR.

101/92-1174

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

1435 SOUTH BERETANIA STREET, ROOM 305
HONOLULU, HAWAII 96814



LEONIE CHANG
DIRECTOR
DONALD S. M. CHANG
ACTING FIRE CHIEF

Apr 11 9, 1992

TO : BENJAMIN B. LEE, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

FROM : DONALD S.M. CHANG, ACTING FIRE CHIEF

SUBJECT: PROPOSED KAILUA GATEWAY ENVIRONMENTAL IMPACT STATEMENT (EIS)
KAMEOHE RANCH, KOOLAUPOKO, OAHU
THK: 4-2-01: por. 1 and por. 55; 4-2-03: por. 17 and por. 29

We have reviewed the application and made an on-site assessment of the above subject request, and have no objections to the proposal.

Should additional information or assistance be required, please call Captain Michael Chung of our Fire Prevention Bureau at 523-4186.

Donald S. M. Chang
DONALD S. M. CHANG
Acting Fire Chief

DSMC/MC:kc

RECEIVED
APR 11 1992

Heller Haster
Planners

May 6, 1992

Mr. Donald S. M. Chang
Acting Fire Chief
Fire Department
City and County of Honolulu
1455 South Beretania Street, Room 305
Honolulu, HI 96814

Dear Chief Chang:

Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolaupoko, Oahu, Hawaii

Thank you for your review of the subject DEIS and your memorandum of April 9, 1992 to the Department of General Planning.

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

HELBERT HASTERT & FEE, Planners

Gail Uyeake
Gail Uyeake
Project Planner

cc: Randy Moore, Kameohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell



Heller Haster & Fee
Planners
1111 Bay Street, Suite 200
Honolulu, Hawaii 96813

Telephone: 968-5152
Facsimile: 968-5152

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU

1435 SOUTH BERTLAND STREET
HONOLULU, HAWAII 96813 - AREA CODE: (808) 534-3111



FRANK P. PAI
Mayor

MICHAEL S. NAKAMURA
Chief
HAROLD W. HANSEN
Deputy Chief

OUR REFERENCE MS-LK

April 10, 1992

TO: BENJAMIN B. LEE, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

ATTENTION: MELVIN MURAKAMI

FROM: MICHAEL S. NAKAMURA, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

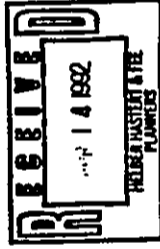
SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT
KAILUA GATEWAY DEVELOPMENT, KOOLAUPOKO, OAHU

We have reviewed the draft environmental impact statement for the Kailua Gateway Development project, and we have no additional comments at this time.

MICHAEL S. NAKAMURA
Chief of Police

Chester E. Hughes
CHESTER E. HUGHES
Assistant Chief of Police
Support Services Bureau

cc: Kaneohe Ranch
Helber Hastert & Fee, Planners



Helber Hastert

April 15, 1992

Mr. Michael S. Nakamura
Chief of Police
Police Department
City and County of Honolulu
1455 South Beretania Street
Honolulu, HI 96814

Dear Chief Nakamura:

Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolaupoko, Oahu, Hawaii

Thank you for your review of the subject DEIS and your letter of April 10, 1992. Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners

Chil Uycata
Chil Uycata
Project Planner

cc: Randy Moore, Kaneohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Rustell

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Planners
211 Bishop Street, Suite 2701
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Facsimile: (808) 531-2000

Helber Hastert & Fee
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211 Bishop Street, Suite 2701
Honolulu, Hawaii 96811
Telephone: (808) 531-2000
Facsimile: (808) 531-2000

Helber Hastert & Fee
Planners
211 Bishop Street, Suite 2701
Honolulu, Hawaii 96811
Telephone: (808) 531-2000
Facsimile: (808) 531-2000

04/28 - 1476

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU

630 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 525-6213



FRANK PARI
MAILER

DONALD A. CLEGG
DIRECTOR
LORETTA C. CHIEF
DEPARTMENT CHIEF

April 28, 1992

MEMORANDUM

TO: BENJAMIN B. LEE, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

ATTENTION: MELVIN MURAKAMI

FROM: DONALD A. CLEGG, DIRECTOR

SUBJECT: THE DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) FOR
PROPOSED DEVELOPMENT PLAN AMENDMENTS
KAILUA, KOOLAUPOKO, OAHU, HAWAII

We have completed our review of the Draft Environmental Impact Statement (DEIS) for the Kailua Gateway Development Plan and submit the following comments.

IDENTIFICATION OF THE WETLANDS

In several instances the DEIS referred to the "wetlands" as the area identified by the U.S. Army Corps of Engineers by means of a 1991 field survey. Insofar as our Special Management Area Permitting (SMP) process is concerned, the Army Corps' delineation and other federal delineations are only acceptable for the general identification of probable wetland areas. The specific determination of the exact location and boundaries of the wetlands will be determined by the Department of Land Utilization.

RUNOFF PATTERNS

The additional impacts associated with the changing patterns of rainwater runoff have only been discussed in terms of their quantitative disposal, but there has been little discussion relating to other possible impacts. For example, will the changing patterns of sheetflow impact the wetland areas between the site to be developed and the Kawaiinui Stream? Because runoff will be directed from developed sites directly into Kawaiinui Stream, the waters and nutrients that previously nourished the intermediate wetlands will no longer sustain these areas. Will these changes impact the ecosystems of the intermediate wetland areas?

Benjamin B. Lee, Chief Planning Officer
Page 2

WATER QUALITY

Our Department is concerned about this project's impact on the water quality in the wetlands. The applicant's consultant found that the project will result in a 15% increase in overall pollutants in the waters of Kawaiinui Stream. The consultant also found that Kawaiinui Stream has little remaining ability to remove additional dissolved and suspended solids, and that if the project is constructed, "over the longer term... the present stagnant and eutrophic condition of the stream will increase and water quality will continue to degrade. This effect will be aggravated by the fact that runoff will pass directly into the stream and will bypass the wetland, which presently probably provides some capacity for removal of sediments and nutrients before the runoff reaches the stream." There should be a more thorough examination of how those waters function within the ecosystem.

WATER LEVELS

The project will also have impacts on water levels throughout the wetland area. The applicant's consultant has found that the proposed project will increase the total flow of water into Kawaiinui Stream and Kaelepuu Pond by 15%. Significant increases in the level of water within the wetland areas may have adverse impacts on the nesting of endangered waterfowl within the wetlands.

THE BUFFER ZONE

The applicant has noted that they intend to route future sewage improvements along the proposed wetland buffer. We are concerned about the applicant's plan to route a new sewer line through the buffer zone. The heavy machine activity and excavation typically associated with a new sewer line within the buffer zone may pose problems, especially if the buffer is near any environmentally sensitive wetland areas.

TRAFFIC

The proposed project will increase traffic in the area by 30%. The applicant's study only analyzed traffic flows for transportation alternatives involving project access utilizing a bridge across the wetlands. However, project elements placed directly within the wetlands will be closely scrutinized by this Department. Our Department will require that the applicant show that there are no practicable alternatives to the proposed intrusion into the wetlands. If the bridge is not approved, other traffic patterns associated with different access routes, should be examined.

Mr. Donald A. Clegg
May 12, 1992
Page 3

Buffer Zone

Increased sedimentation and noise levels affecting the wetland habitat are the two adverse impacts that may result from routing the future sewage improvements along the proposed wetland buffer. Sedimentation reaching the wetlands as a result of the sewer improvements into the wetlands will be prevented or minimized by a berm which will be constructed at the wetlands boundary to prevent runoff from flowing into the wetlands during construction. A drainage swale will be constructed mauka of the berm to channel the overland flow to settling basins to prevent silt from being carried from the site. A description of the construction activity erosion control measures can be found in Appendix G of the DEIS.

Noise and activity impacts of the sewer improvement construction will be mitigated by the regulation of timing of the construction. The U.S. Fish and Wildlife Service has generally recommended that certain construction activities be suspended between March and August for the Hawaiian Stilt. Nesting by the endangered Hawaiian Moorhen apparently occurs throughout the year with peak activity between March through August. Nesting by the Hawaiian Moorhen at the Hamakua Canal wetland has been reported for January, February, April, June, July, and November. The State Department of Health has requested that grading activities take place during the dry season (April through October) in order to prevent sedimentation problems. Construction activities will be regulated to minimize or avoid disturbance to breeding endangered waterbirds and minimize sedimentation. The timing of construction activities will have to balance the recommendations of the various government agencies.

Traffic

The Traffic Impact Analysis Report (TIAR) prepared by Julian Ng, incorporated for the proposed project does not conclude that the project will increase traffic in the area by 30%. Your letter refers to an increase in carbon monoxide concentrations attributable to the project above projected future conditions. This projected concentration level is forecast to comply with even the stringent state standards for emissions. Please see section 4.7 of the FEIS for a discussion of this topic.

Access alternatives that do not cross the wetland would present a lesser impact on the waterbird habitat. However, consideration of traffic engineering and pedestrian circulation has determined that neither alternative is desirable. One alternative would be to direct all project traffic through the driveway on Hamakua Drive, at the south end of the property. Another alternative would be to provide another access point from Kailua Road, with a right turn-in, right turn-out movement only.

Mr. Donald A. Clegg
May 12, 1992
Page 2

Service (letter of April 24, 1992 commenting on DEIS), although the impacts of the changes in runoff on the wetland habitat are undetermined. This will be noted in the FEIS.

Water Quality

Although the proposed development will increase the flow in Kawaiui Stream, the design capacity of the stream will be restored by maintenance dredging improvements currently proposed by the City and County of Honolulu Department of Public Works. Less silt will be deposited in the wetlands because the proposed storm drain improvements will divide the flows and prevent runoff from flowing overland to the wetlands. This will preserve the natural flushing action of fresh water filtering through the wetlands. Controlling the stormwater flows in the lower levels of the hillside will reduce the overall erosion of the hillside and reduce the overall silt load presently reaching the Kawaiui Stream. According to the revised water quality study by AECOS, Inc. (based on stormwater runoff calculations from the revised drainage report), total increased flow under 10-year storm conditions into Kawaiui Stream due to increased runoff from the proposed project would be about 9.5% above the total present 10-year storm flow into the stream. The FEIS will include both revised reports.

Stormwater runoff will likely be regulated under Section 402 of the Clean Water Act through the National Pollutant Discharge Elimination System permit program late in 1992. The proposed permanent drainage system will be designed and constructed to contain adequate retention and sedimentation capacity, to comply with the Clean Water Act. Stormwater management plans include structural measures to decrease peak discharges, trap and retain suspended sediments, and treat pollutants in urban runoff. These measures will be more precisely determined as specific plans are developed for the overall project. The project's impacts on the water quality in the wetlands are presently undetermined. The applicant will continue to work with Ducks Unlimited and the appropriate government agencies to determine those impacts and identify specific measures to mitigate them, if necessary.

Water Levels

As noted above, the net change in runoff reaching either the stream or wetland is an increase of 17 cfs for a 10-year storm event. While the exact impacts of the change in runoff on water levels in the wetland are currently undetermined and addressed in the FEIS as an unresolved issue, the applicant is working with Ducks Unlimited to identify and mitigate any adverse impacts on the wetland habitat that may result. One of the goals of the wetland restoration is the impoundment of water at optimum levels in the wetland habitat. This will be noted in the FEIS.

National Audubon Society

HAWAII STATE OFFICE, 312 MERCHANT STREET #120 HONOLULU, HI 96813 (808) 522-5566



April 22, 1992

Melvin Murakami
Department of General Planning
650 King Street, 8th Floor
Honolulu, HI 96813

RE: Draft Environmental Impact Statement, Kailua Gateway Project
Koolaupoko, Oahu, Hawaii

Dear Mr. Murakami:

We have received and reviewed the above-referenced document and would like to offer the following comments.

The Hawaii State Office of the National Audubon Society is dedicated to promoting wise public policy affecting wildlife and their habitats in the state. We are particularly concerned about the rapid decline of the quantity and health of wetlands. Our comments will be directed to those portions of the DEIS which address the potential impacts of the action and the proposed project on the so-called Hamakua Drive wetlands.

It is our understanding that if the applicant were to receive a Development Plan amendment converting the majority of the parcel from the Preservation designation to Medium-Density Apartment, that the number of units currently envisioned under the ificare retirement community proposed would be on the lower end of the allowable maximum number of units.

If granted, a DP amendment would technically allow a larger number of units to be built; furthermore, it is our understanding that the DP amendment could even allow a different type of project, i.e. other than a ificare retirement community.

The DEIS is deficient in that it does not address the range of development alternatives allowable under the proposed action (the DP amendment); rather, it assumes a "fixed" project. A project incorporating a greater number of units would have a proportionately larger environmental impact, particularly in its effect on water quality (runoff, sedimentation of Kawai

AMERICANS COMMITTED TO CONSERVATION

The National Audubon Society

Mr Melvin Murakami
April 22, 1992

page 2

Nui Stream, disturbance to wildlife) This should be addressed in the Final Environmental Impact Statement

We are concerned with the conclusion, in the water quality section of the DEIS, that a 15% increase in runoff based pollutants to Kawai Nui Stream "will not be significant". It is not clear from the DEIS how this determination was made. Given the size of the project, a 15% increase does indeed appear significant in our view.

The DEIS does not address the possible increase in pollutant and sediment load from the proposed flood control improvements currently planned by the U.S. Army Corps of Engineers to Kawai Nui Marsh. This should be addressed in the Final EIS.

We are concerned that the faunal survey of birds and mammals was limited to one day of observation. Several other sources of survey data, e.g. quarterly waterbird surveys from the Division of Forestry and Wildlife, are referenced in Appendix C by the consultant, but are not included or summarized. The consultant correctly notes that, "A brief field survey such as this one can provide only a limited perspective on the wildlife which utilize the area." No mention is made, however, of the relative importance of this site to endangered waterbirds. This information may be available from the U.S. Fish & Wildlife Service which has prepared a recovery plan for Hawaiian waterbirds.

A 50 foot buffer between the wetland portion of the project and the upslope development is envisioned. How was the width of the buffer determined? It cannot be reasonably concluded that 50 feet is adequate given the wildlife consultants general conclusion that project impacts could be lessened by "planting a dense buffer of trees and bushes between the wetland and the development". (Appendix C)

In summary, we are concerned that the DEIS does not 1) state the range of development alternatives allowable under the proposed action and their potential environmental impacts; 2) provide a reasonable justification for the conclusion that water pollutant load increases due to the project will

Mr. Melvin Murakami
April 22, 1992

page 3

not be significant; and 3) provide a complete picture of the relative importance of the wetland to endangered waterbird species

Thank you for the opportunity to provide these comments.

Sincerely,



Dana Kokubun, Director
Hawai'i State Office
National Audubon Society

cc: Randy Moore
Kaneohe Ranch
1199 Aulooa Road
Kailua, HI 96734

Helber Hastler & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, HI 96813
attn: Gail Uyetake

Brian Choy
Office of Environmental Quality Control
220 S King Street, Fourth Floor
Honolulu, HI 96813

Helber Hastler
Planners

May 6, 1992

Ms. Dana Kokubun
Director
Hawai'i State Office
National Audubon Society
212 Merchant Street, #320
Honolulu, HI 96813

Dear Ms. Kokubun:

Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolaulapoko, Oahu, Hawaii

Thank you for your review of the subject DEIS and your letter of April 22, 1992. We have reviewed your letter and offer the following responses.

1. The proposed Development Plan amendment would change the land use designation of portions of the site from Preservation to Medium-Density Apartment and Commercial (other portions of the site would retain a Preservation designation). The project proposal, as stated in the draft EIS, would develop 333 lifecare retirement units, 20 personal care units, a 60-bed skilled nursing facility, expansion of an existing commercial area, and 70 units of elderly affordable rental units.

A discussion of a higher density alternative will be included in the final EIS. Please note that the proposed development will require several more government permitting actions, each of which will monitor the extent of the development program, any changes to the proposed program, and corresponding environmental impacts. If the applicant revises the development program to include a significantly greater number of units, it is likely that a new or supplemental EIS would be required.

2. The water quality study prepared by AECOS, Inc. (appended to the draft EIS) has been revised to include impacts of the proposed development on the aquatic biota. This revised study will be summarized and appended in the final EIS. The study includes baseline data and projected impacts due to the project's stormwater runoff. It concludes that "at present, both the water quality and the resident biological community of Kawaiinui Stream in the vicinity of the proposed project indicate a low quality aquatic environment which is inhabited only by a few hardy species. The moderate increase in runoff to the stream and to Kaelepu Pond that is likely to occur only during storm periods, is unlikely to have any significant negative impact on the stream environment, and may help to improve circulation in the stream somewhat."

3. The U.S. Army Corps of Engineers prepared a Draft Detailed Project Report and Environmental Impact Statement (April 1991) for its Kawaiinui Marsh Flood Control Project. The possible increase in pollutant and sediment load from the proposed Corps of Engineers flood control improvements would be more appropriately addressed in environmental documentation for that project, since Kawaiinui Stream does



Helber Hastler & Fee
Environmental Planners, Plll Inc.
211 Bishop Street, Suite 2590
Honolulu, Hawaii 96813
Telephone: 808-535-2000
Telex: 808-535-2000

Helber Hastert
Planners

Ms. Dana Kokubun
May 6, 1992
Page 2

not connect to Kawainui Marsh. The Corps of Engineers' document is available at the Municipal Reference and Records Center.

4. The draft EIS clearly acknowledges the wetlands as a habitat for the four endangered Hawaiian waterbirds. The final EIS will note that the Hamakua Canal wetland, in association with Kawainui Marsh, is identified in the U.S. Fish & Wildlife Service Waterbird Recovery Plan as essential to the recovery of the endangered Hawaiian waterbirds.
5. The proposed buffer, as currently designed, widens from 50 feet to over 200 feet in some areas. As described in a recent letter from the U.S. Fish and Wildlife Service commenting on the draft EIS (April 24, 1992), the development of recommendations for a buffer zone between the development and the nesting habitat for the endangered waterbirds would require site-specific evaluations of the project area. The applicant has and will continue to work with Ducks Unlimited to design an appropriate buffer.

Your letter will be reproduced in the Final EIS in its entirety.

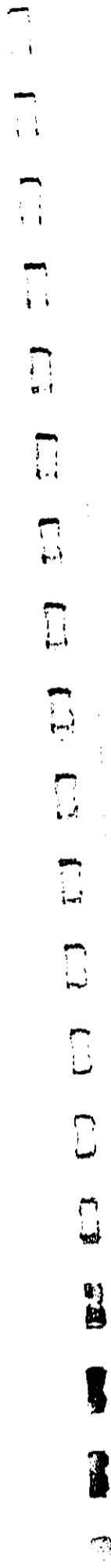
Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyeake
Gail Uyeake
Project Planner

cc: Randy Moore, Kaneohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell



POPULATION:

Project will increase the residential population of Koolauoko planning area by 650 persons. 53% of currently projected 2010 Koolauoko population of 123,400. DGP-desired population is between 109,900-121,900.

Neither the Bluffs nor Norfolk subdivisions have been maxed out in their building and the population of these two developments has not been figured into the population figures for Kailua. The DEIS does not address the impacts of these developments nor the additional 1,000 people added by just this development on Kailua infrastructure etc..

4/14/92

Melvin Murakami
Department of General Planning
650 South King Street
Honolulu, Hawaii 96813

RE: DRAFT EIS FOR KAILUA GATEWAY DEVELOPMENT

The Kailua Neighborhood Board has the following comments and concerns regarding the proposed Kailua Gateway Development. The underlined material is the Boards response.

HAMAKUA DRIVE:
When Hamakua Drive was first recommended and finally put in, it was to be an uninterrupted thoroughfare for commuters between Kailua, Enchanted Lake etc.. As we have seen and heard from residents of Hamakua the traffic is tremendous and there have been many impacts to the residents. It is subjective for the EIS to suggest that projected City changes to Hamakua could elevate problems because the if when and feasibility of the Cities street widening hasn't been introduced or investigated by the community.

"The proposed project will change the existing T-intersection at Hamakua Dr. & Hekili to a 4-way intersection. Traffic exiting the project may not have sufficient capacity to cross or turn left onto Hamakua." "Signalization would address these deficiencies & should be provided when warranted & needed. Traffic impacts on Hamakua Dr. sought of Hekili St were found to be negligible."

The changes to the Hamakua Drive intersection and addition of another traffic light at Hekili Street, which is only necessary to accommodate traffic exiting/entering the Kailua Gateway development, has not been analyzed for impacts on current users and Hamakua Drive traffic patterns. The DEIS comment that "traffic impacts" from the project on Hamakua Dr. and Hekili St. are "negligible" is irresponsible and self-serving.

RUNOFF & SEDIMENT:

Testimony was heard, at the special Kailua Neighborhood Board meeting called to hear from the developer and the community, from Kailua residents and organizations concerning the impact of runoff & sedimentation during construction and after completion of the project. Even the best containment methods fail and there is great concern for the quality of the stream, bay, effect on the wildlife and threat of flooding. The suggestion that it is OK for the "overflow water" to enter Kawaiui Stream near Kailua Road is unacceptable. Why would it be permissible for siltation to flow into a stream at any area? Concern was also expressed about the sodding and planting of the area immediately after grading since the site is dry and require a great deal of water. Where would the water come from? Also the soil quality is poor and what are the assurances that the sodding will take? As we see every day the sodding for the Royal Hawaiian Country Club golf courses continually erodes from soil that was brought in after the original soils were strip graded. The same problem could occur on this site.

IMPACT ON FAUNA:

At the meeting there was great concern expressed about the effect the project will have on the wildlife. Such things as noise, disturbance from vehicles and people moving to and from the project during and after construction, erosion, siltation, contamination of soils & water from pesticides, herbicides, & industrial wastes that accompany urbanization of an area.

SITE ALTERNATIVES CONSIDERED.

"...after consideration of each alternative & with input from the community advisory committee, the applicant found the proposed project on the entire area of application the most feasible & beneficial use of the site."

From the very beginning of the formation of the "community advisory committee" there was concern from community members who attended these "advisory" meetings that their being there would lead to the conjecture that there was some sort of approval of a project or concept. No vote was ever taken by the "advisory committee" on the project nor was a vote taken by the Kailua Neighborhood Board on any part of the project. So to say that with input this was the most feasible is Kaneohe Ranches way of justifying this project but is a miss use of the public participation.

FIRST AND SECOND PHASES OF ARCHAEOLOGICAL INVESTIGATION:

We suggest that the archeological study must be completed prior to beginning of the start of any work. The Royal Hawaiian Country Club (RHCC) golf course and H-3 project are good examples of piecemeal archeological studies. The final archeological report for RHCC is 5 years late while one golf course plus access road, club house etc. are nearing completion. Who is to say or know what archeology and cultural significance has been destroyed. H-3 is another good example of fragmented archeological work. It is not culturally feasible to piecemeal archeological finds.

PROJECT HAS INCREASED FROM 21-33 ACRES.

"to create adequate buffer between development & adjacent wetlands & desire to keep the structures low-rise & dispersed in character"

The attached drawing was part of the EIS and doesn't represent dispersment nor low-rise.

ACCESS:

Access to the area is via a 2-land bridge from Hamakua Drive opposite Hekili St., supported by piers over Kawaiui Stream & wetland. The second access, next to existing homes, is for the community center and emergency vehicles.

The DEIS does not show how the emergency vehicles will get from the community center to the rest of the project. We have heard testimony from the U.S. Fish and Wildlife that a bridge will interrupt the flight and seclusion of the water birds. Concurrently the secondary access will negatively effect the seclusion and habitat of the endangered water birds.

ELDERLY AFFORDABLE HOUSING:

On the makai side of Hamakua Drive the proposal is for 70 studio & 1-bedroom affordable low-income rental units on 3 acres. Kaneohe Ranch is currently working with Salvation Army in obtaining government funding for this development.

This is a new and unique concept that was not presented at the advisory meetings nor the special neighborhood board meeting. This development is to be the low-income rental units but since they are seeking government funding there is good chance that this development would never be built.

WETLAND IMPROVEMENTS:

Once Ducks Unlimited has "improved" the wetland, their ability to do the project is dependent upon receiving grant funding. Ducks Unlimited is to eventually transfer the wetland portion to the State.

There is no guarantee that this will ever happen. The consequences of what happens to the wetlands once Ducks Unlimited is finished with their part of the contract and the possibility of the State not accepting the wetlands has not been discussed. Responsibility and scope of work for the wetlands must be addressed and settled prior to any granting of approvals.

Missing from Ducks Unlimited restoration and management plan is any reference on how they will implement sediment & runoff control, keeping the present endangered bird population now on site there during and after construction. Any mitigation plans for luring the present bird population back if they leave the area. Why is Ducks Unlimited proposing the eradication of mallards and other domestic ducks? All forms of bird life live in harmony on the site now.

COMMERCIAL AREA EXPANSION:

The inclusion of the one acre into commercial zoning will legitimized the business encroachment that has taken place over the years. Over the years the land owner Kaneohe Ranch has ignored the encroachment or encouraged it by taking no action to curb intrusion into the Preservation land designation. This amounts to an after the fact variance for illegal use of Preservation lands for commercial activity.

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PARK DEDICATION ORDINANCE #4621.
 Kaneohe Ranch states that they will meet their "park" obligation by creating private parks within the project. How does this benefit the community at large?

GEOLOGY, PHYSIOGRAPHY & TOPOGRAPHY.
TOPOGRAPHY: Lower hillside has slopes 10-20% with medium to heavy vegetative cover. The development will be on the lower hillside. The upper hillside is steeply sloped (up to 50%) with sparse vegetation. Elevations range from 0 feet above mean sea level near the stream to 300 ft. at the top of the ridge. Of the 33-acres, 55% is at or below the 50ft. elevation. 36% between 50-100 ft. elevation & 9% 100-150 foot elevation. Ground floor elevations of the proposed structures are at approx. 55 ft. elevation.

With the above geographical constraints it is ludicrous to say that soil erosion "may" occur when analyzing the grades and the amount cut and fill and soil removal that will have to be done to make the site buildable. This section does not address the effect and impact of urban runoff or how it will be handled in the future to protect the stream and wetland. Will it be through channelization so that the wetland and stream become urbanized drainage channels? How will the "proposed drainage improvements" "reduce the overall erosion of the hillside"? So far Chapter 23 Grading, Soil Erosion & Sediment control, under which this project will work, has not given the Kailua community great confidence since this is the same ordinance that the Royal Hawaiian Country Club golf course development is working under.

IMPACTS & MITIGATION MEASURES.
 The Contractor shall remove all silt & debris resulting from earth work & it shall not be deposited in drainage facilities, roadway, & other areas. Special care shall be taken to ensure that construction debris is kept out of the wetlands.

What constitutes "special care", what ordinance dictates these procedures?
 "Impacts due to project construction should be moderate & of short duration." (emphasis added) "Long term effects on the stream could result from increased runoff into the stream coming from new paved & other impermeable surfaces after construction is completed. Runoff from the project property presently flows down the hillside & through the wetlands before entering the stream."

COMMUNITY CENTER:
 The center will serve frail elderly & living with & cared for by family members.

From the first introduction of the community center concept it has been all things to all people in Kailua, from a performing arts theater to all sorts of day care facilities. Again the Kailua community is faced with the great unknown of who can/will use the center and what will actually be when and if it is built.

PROJECT PHASING & COSTS:
 The elderly affordable housing could be constructed earlier, doesn't need Land Use District Boundary Amendment.

It is interesting to note that the makai side does not need a boundary change yet it is the most subjective part of the proposal in terms of when, who and if the affordable housing will be built. The elderly affordable housing isn't a part of the master plan. It is treated separately both by funding, management and inclusion in present development proposals.

DEPT. OF PUBLIC WORKS/TRANSPORTATION SERVICES STREET WIDENING PLAN.
 Again there is no guarantee that the City will widen Hamakua at the Kailua Road intersection and if the road is widened what statement of facts demonstrate that the additional population from the project, when built to capacity, will not negate any traffic savings measures instituted now. Also whether Hamakua can be widened at all is questionable because of the close proximity to Kawaiunui Stream and possible adverse environmental effects on the stream, wildlife, etc.

SPECIAL MANAGEMENT AREA (SMA).
 Entire area is within the SMA and will require a permit from the City Council after approval of a zone change request.

Because of Kawaiunui Stream, the wetlands and the watershed hills above it the entire area is in the Shoreline Management Area and requires a SMA permit. The SHMP process is part of the Coastal Zone Management Act which was established to protect coast lines, water ways etc. but Kaneohe Ranch will not go in for a SMP before their request for zoning changes. We are concerned that if the amendment from Preservation to Medium-density apartment is approved the approving agency is in affect saying that building apartments on this site is OK not with standing the fact that many environmental protecting permits have yet been applied for.

It are these very "long term effects on the stream" that have us concerned because as nature presently constructed the site all silt, sediment etc. is filtered through the wetlands.

After the project completion, runoff will flow from the site through 2 separate storm drains through 1 storm drain on the makai portion. "Runoff from 2/3rds. of the mauka area will flow into Kawaiinui Stream through a storm drain outlet at the northwest section of the property near Kailua Rd. Drainage from the lower 1/3 of the mauka portion will be diverted to an existing 36" storm drain at Hamakua, which eventually connects to (Enchanted Lake). Runoff from the area makai of Hamakua Drive will drain into Kawaiinui Stream at the southeastern most point on the property." "Total present runoff from the 97 acres comprising the project site has been estimated at 147 cubic feet (cfs) per second for 10 year storms, increasing to 204 cfs after site development, or an increase of about 57cfs. Total increased flow under 10 yr. storm conditions into Kawaiinui Stream & Kawaiinui pond due to increased runoff from the project will be about 24% more than the present flow above the project site & about 15% more than present flow below the site..." "The initial effect of this increased flow on Kawaiinui Stream quality would probably be to elevate turbidity and suspended solids slightly & to decrease nutrient concentrations by dilution. Over the longer term, assuming Kawaiinui Stream continues to be primarily an enclosed system with no outlet to the ocean, the present stagnant & eutrophic condition of the stream will increase and water quality will continue to degrade." "Long term eutrophication & degradation of Kawaiinui Stream could be mitigated to some degree by continuing to release runoff into the wetland area between the project area and the stream, utilizing the wetland as a nutrient & sediment sink."

Where is the data to support the above statements? Where is the data to substantiate the assertion that the continuing release of runoff into the wetland could mitigate the degradation of Kawaiinui "Stream"?

"Realistic improvement to the stream can be achieved only by restoring it to a free flowing condition."

This statement shows the lack of understanding and sensitivity to the area and the needs of the endangered birds. The wildlife thrive and need areas where the water moves slowly and is shallow.

NEARSHORE MARINE ENVIRONMENT.

"The increased flow from the project can have no impact on the water quality of Kailua Bay as long as Kawaiinui Stream remains isolated from the bay by the sand berm at the stream's outlet."

This is an unrealistic statement and one of great concern because the City is now realizing the importance of keeping the sand berm open as much as possible to relieve flooding threats as well as allow for unconstrained and filtering water flow.

FAUNA.

Be disagree with the statement "No endemic land birds were recorded on the survey" because we know that the wetland provides habitat for Koloa adults and keikis, and the Gallinule or common Moorhen which is the most endangered water bird in Hawaii as there is less than 800 left in the state.

PACTS & MITIGATION MEASURES.

"The proposed drainage system will protect the wetlands from flooding & siltation from up slope development by diverting all storm runoff & overland flows away from the wetland. Construction should be timed to avoid breeding & nesting periods." (emphasis added) "Regular monitoring of the wetland for chemical contamination can also be performed." (emphasis added) "Plantings along the proposed road & bridge may provide auditory & visual shields for the water birds, but may overtake the wetlands. Concrete walls should be included on both sides of the bridge to minimize should and light transmission to the wetlands below. The proposed locations of the road & bridge at either end of the wetlands will minimize the amount of habitat that would be disturbed and are preferable to being located across the center of the wetland. ...the bridge would be used by local traffic only..."

We are very concerned about the subjective words "should" and "can" because they show no commitment that either of these things will be done. The proposed roads & bridges at either end of the wetlands will encroach on the habitat physically & also expose these areas to increased disturbance in the forms of vehicles, pedestrians & dogs.

SCENIC & VISUAL RESOURCES.

Note that the 40 ft. building(s?) will start at the 55ft. elevation and this can only be accomplished by cutting into the hill sides and/or filling the valleys. The amount of dirt that will be effected by the cut and fill must be specified. Also the final EIS needs to address how many truck loads of dirt will be carried to and from the site during all phases of construction.

Puu O Ehu is designated a view plain.

MAKAI AREA DEVELOPMENT.

"Because of the proximity of the existing single-family homes, the proposed elderly affordable housing MAY be partially placed on piers over the wetland...."

It must be explained why the affordable housing may be on piers because it is located near single-family homes? A better explanation for the need for pier construction would be that the area is a wetland and flood zone.

TRANSPORTATION.

The traffic analysis is flawed because it does not address or take into consideration the problems and concerns of the residents living on or near Hamakua Drive. It doesn't acknowledge the existence of the concrete median strip that prohibits left turns from the mauka side, and no surveys were done in the AM, all readings were taking in the afternoon.

WATER.

We have great concerns with the statement that the "availability of water will be confirmed when building permits are submitted for approval." We believe that commitment of water and the amount of water to be used and needed must be determined prior to granting any permits including this DP change.

WASTEWATER.

Kailua's sewage treatment plant is undergoing major changes including the transfer of all waste from Ahuimanu, deposits from various "honey wagons" into the system plus concerns over the efficiency of the overall system so it is necessary that data be provided to prove without a doubt that the input from 650-1,000 additional persons will not add to the over loading of the Kailua plant.

DRAINAGE.

The City is preparing to dredge Kawaiinui Stream & cut back the mangroves along the stream banks, both upstream & downstream from proposed project. No dredging work is proposed for the portions of stream within the project area.

This is a misleading statement. While it may be correct that "no dredging work" in the stream will occur from the project the reality is that the City proposes to dredge Kawaiinui Stream and that will have an effect on the project area.

ALTERNATIVES.

We take exception with the statement "The advisory committee expressed support for..." because as attending members of the advisory committee the board neither took a position on any development proposal nor voted on any proposed projects.

GENERAL STATEMENTS.

While the proposed project is needed and a good idea the location is wrong. The land owner and architect are acting as if this is a flat area and that mitigating any adverse effects will solve all the woes of cut and fill development.

Also the site is the only open green belt area left in Kailua town and to clutter it with development would continue the hap hazard urban sprawl that is unfortunately becoming a way of planning development on Oahu and we do not want this to continue in Kailua.

CC:

- Senater Mary George
- Senater Stan Koki
- Representative Jackie Young
- Representative Cynthia Thielon
- Representative Whitney Anderson
- Councilman Steve Holmes
- Councilman John Henry Felix
- Heiber Hastert & Fee
- Episcopal Homes of Hawaii, Inc.

Heller-Hastert
Planners

May 5, 1992

Ms. Bonnie Heim
Chair
Kailua Neighborhood Board No. 31
Box 487
Kailua, HI 96734

Dear Ms. Heim:

Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolaulopoko, Oahu, Hawaii

The Department of General Planning (DGP) received comments regarding the above-referenced document from the Kailua Neighborhood Board in the form of an unsigned letter dated April 14, 1992. We understand that because they were not signed by an authorized representative of the organization, DGP will discount these comments. We have reviewed the letter and offer the following responses to provide you with more information on the project.

Hamakua Drive

The draft EIS identified the potential impacts of the development on local traffic facilities, and identified possible mitigation measures, one of which was the widening of Hamakua Drive north of Hekili Street to its intersection with Kailua Road. Quantitative justification for this mitigation measure was provided in the Traffic Impact Analysis Report prepared by Julian Ng, Inc., and appended in the draft EIS.

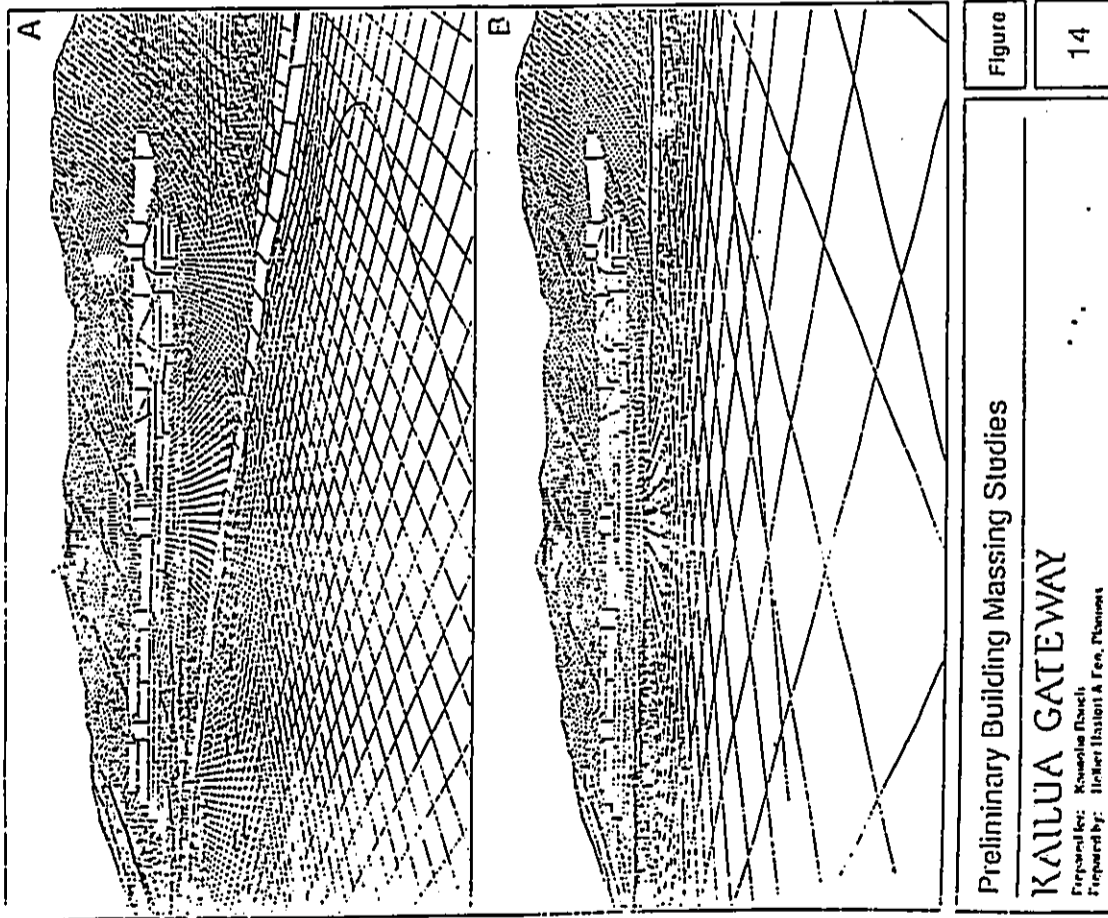
According to the traffic consultant, the proposed traffic signal at Hamakua Drive and Hekili Street may be necessary even without the proposed access opposite Hekili Street. Currently, the left turn movement from Hekili Street to Hamakua Drive (toward Enchanted Lake) operates at Level of Service (LOS) E (LOS D is generally considered an acceptable level for urban traffic). The current LOS indicates that improvements to this intersection should be considered. Traffic volumes making this movement are expected to increase even without the proposed project.

The addition of a traffic signal at the Hekili Street/Hamakua Drive intersection will result in the possibility of traffic on Hamakua Drive being stopped by the signal. Analysis performed by the traffic consultant concluded that even with the addition of a traffic signal at that intersection, it will have sufficient capacity to provide good operating conditions on Hamakua Drive (personal communication, Julian Ng, Inc., May 4, 1992).

Table 4 of the Traffic Impact Analysis Report appended in the draft EIS shows that the projected levels of service resulting from the proposed development on traffic on Hamakua Drive south of Hekili Street do not vary significantly from existing conditions or future conditions without the project.

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211 Hahaione Street, Suite 210
Honolulu, Hawaii 96815

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Planners

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will consult with DTS to determine the most desirable solution with respect to both the impacts to the stream and accommodation of projected traffic volumes.

Special Management Area

The draft EIS states that the area of application is within the Special Management Area and will require a permit for development from the City Council.

Park Dedication Ordinance #4621

The provision of private passive and active parks for the project residents, as required by the Park Dedication Ordinance #4621, will prevent existing public parks from being over-taxed by the additional residents.

Geology, Physiography and Topography

A revised stormwater runoff and drainage report was prepared and will be included in the final EIS. As stated above, the proposed permanent drainage system will be designed and constructed to contain adequate retention and sedimentation capacity. This will be reflected in the utility systems plans as they move into more detailed stages of design.

Impacts and Mitigation Measures

"Special care" simply refers to the conscientious endeavor on the part of the contractor to avoid the placement of construction debris in the wetlands. Section 404(b)(1) of the Clean Water Act regulates placement of fill in the wetlands.

The water quality study, prepared by AECOS, Inc. and summarized in Section 4.4 of the draft EIS, provides quantitative data on the present water quality of Kawaiui Stream and potential impacts of the project on the water quality. A revised report which includes biological studies of the stream will be included in the final EIS. The report states that the establishment of a true wetland environment will increase the capacity of the area to absorb nutrients and reduce turbidity in runoff water which flows through the wetland before entering the stream.

The statement that "realistic improvement to the stream can be achieved only by restoring it to a free flowing condition" was not meant to imply that the standing water in the wetland would also be free flowing. Although the stream does feed the wetlands when its mouth is blocked at Kailua Bay, the improvements by Ducks Unlimited would provide stabilization of water levels for the wetland habitat.

Nearshore Marine Environment

The water quality and biological studies of Kawaiui Stream prepared by AECOS, Inc. found that a comparison of the present condition offshore of Kailua Beach in the vicinity of the Kaeleputu Stream mouth with limited information available from surveys taken in 1973 and 1977 suggests that no degradation in the offshore benthic or fish

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Elderly Affordable Housing

The makai portion of the property was identified as possible site for affordable rentals from early in the planning process. The applicant is committed to developing affordable housing with or without government funding.

Wetland Improvements

The wetland portion of the property will not be transferred to Ducks Unlimited prior to the completion of an acceptable restoration and management plan; assurances of funding availability; and an agreement between the State Department of Land and Natural Resources (DLNR) for permanent management of the restored wetlands.

Ducks Unlimited's final restoration and management plan for the wetland is being prepared in consultation with the U.S. Fish and Wildlife Service and the State DLNR, and is expected to be completed in summer 1992.

The proposal by Ducks Unlimited to eradicate domestic ducks from the subject wetland is for the purpose of discouraging further interbreeding and hybridization of the native endangered Hawaiian Duck (Koloa) and feral mallards.

Commercial Area Expansion

The rationale for the commercial area expansion will be discussed in the final EIS.

Community Center

The community center is being planned as a multi-purpose facility to be open to the entire Kailua community. While the actual uses it will support and its operator are as yet undetermined, the applicant is committed to providing the land for the center and pursuing its development as a part of the overall development.

Project Phasing and Cosis

The elderly affordable housing is and has always been a part of the entire master plan. As stated above, the applicant is committed to pursuing the development of this component of the master plan.

Department of Public Works/Transportation Services Street Widening Plan

The traffic impact analysis report by Julian Ng, Inc. provides quantitative data on the impacts of the proposed development, when built to capacity, on local traffic facilities. Based on these traffic projections, the report identified measures which would mitigate the traffic impacts of the project. The developer would probably be required to make the necessary improvements to Hamakua Drive along the frontage of the property prior to any permits being granted. Because of the proximity to Kawaiui Stream, the developer

Hilmer Hamlett
Planner

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environment has occurred in the past 15 to 20 years. No reef coral and few fish were reported from the earlier studies, compared to moderate coral growth, fish abundance and diversity in the present study. The report stated that no negative long term impact is indicated for the periodic outflow from Kaelepu Stream that has occurred in the past 15 to 20 years, and it is unlikely that any would result for the modest increase in flow that may result from the Kailua Gateway development. Even when the Kaelepu Stream channel is periodically opened, or if flow to Kailua Bay were permanently restored, the small increase in pollutants from the project runoff would be inconsequential in terms of the total flow, nutrient loading and urban based runoff which reaches the Enchanted Lake area and passes over the shoreline.

Fauna

The koloa, gallinule, stilt and coot are all endemic waterbirds, not endemic land birds, and their presence on the subject property was documented in the faunal survey by Phillip L. Bruner in Section 4.5 of the draft EIS.

Impacts and Mitigation Measures

The possible mitigation measures listed in the draft EIS are subject to final design and the coordination of the recommendations and conditions placed by various approving entities.

Scenic and Visual Resources

The development will require some grading of the site, although the extent to which this will occur is difficult to calculate due to the preliminary nature of the plans to date. The intent is to minimize the amount of earth that needs to be either brought in or transported from the site to prepare it for construction.

The draft EIS contains a discussion of the heights of the proposed structures in relation to the hillside, as well as information on footprint coverage of the structures. The draft EIS also includes a preliminary perspective drawing (to scale) showing the heights of the proposed structures in relation to the hillside. As shown in the perspectives, portions of the lower one-third of the hillside will be obstructed by the buildings. A ridge in the northern sector of the property will remain unobscured by the development as will a ridge near the center of the property.

Section 32-6.2(e)(1), Specific Urban Design Considerations, in the Development Plan Special Provisions for Koolauoko states that the "visibility, preservation, enhancement and accessibility of open space areas as defined in Section 32-1.4 of the development plan common provisions shall be given high priority in the design of adjacent and nearby developments in Koolauoko. These areas include...Puu O Ehu...." The applicant recognizes the open space value of Puu O Ehu and is committed to give high priority to designing the development to minimize visual and scenic impacts and the loss of open space. The structures will be clustered and generally located in the lower third of two sectors of the property. Heavy landscaping with complementary vegetation will be included in the development.

Hilmer Hamlett
Planner

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Section 32-6.2(e)(2), Public Views, states that "panoramic views of the Pali and views of Puu O Ehu ridge and Olomana from Kaelepu Pond area" are important public views and shall be protected whenever possible. The proposed development will not impact panoramic views of the Pali and views of Puu O Ehu ridge or Olomana from the Kaelepu Pond area. In most areas around Kaelepu Pond, only the west (mauka) side of Puu O Ehu is visible. When the east (makai) side is visible, only the southern portion of the hillside can be seen, and the surrounding residential developments and landscaping obscure at least the lower one-half of the hillside. The proposed development along the southern portion of the application area will not be visible from the Kaelepu Pond area, as the structures will be located along the lower one-third of the hillside.

Makai Area Development

In an effort to provide the maximum amount of buffer between the proposed elderly affordable housing and the Akoskoa Street homes bordering the makai development area, one possibility would be to place the structures partially on piers over the wetland.

Transportation

The traffic impact analysis report was prepared to assess the projected increase in traffic volumes resulting from the proposed project, the impacts of those volume changes on future conditions, and identify possible mitigation measures. The future projections included the volumes along Hamakua Drive, presumably including contributions to those volumes by the local residents. Since the median strip was constructed after the preparation of the traffic analysis, it was not included in the report. The traffic consultant concluded that the greatest traffic volumes for the affected area occurred during the PM peak hour. Therefore, the analysis was done for the PM peak hour only.

Water

The draft EIS contained a projected potable water requirement for the project in Section 6.2. A Letter dated December 30, 1991 from the Board of Water Supply to the project civil engineer, Smith Young & Associates, states that the existing water system is presently adequate to accommodate the proposed development. A copy of this letter will be reproduced in the final EIS.

Wastewater

A recent memorandum from the Department of Public Works to the Department of General Planning (April, 22, 1992) commenting on the draft EIS states that the existing municipal sewer system is currently adequate to support the proposed wastewater requirements, and that the existing sanitary sewer system in Kailua is not currently operating over capacity.

Helber Hastert
Planners

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Drainage

The statement regarding the City's maintenance dredging project will be revised in the final EIS to read "The City is preparing to dredge Kawainui Stream and cut back the mangroves along the stream banks." An environmental Assessment for the maintenance dredging project by the Department of Public Works. The notice of availability was published in the March 23, 1992 DEOC Bulletin. This document addresses potential impacts of the City's maintenance dredging project.

Alternatives

Opinions on the various alternatives presented during the planning process were solicited via questionnaires at the June 27, 1990 meeting of the community advisory committee. A summary of the survey responses was presented at the July 25, 1990 meeting and included in the advisory committee newsletter number 4 (August 1990). The statement in the draft EIS was not meant to imply that a consensus was reached, but that certain activities (e.g. retirement community, church/daycare center, performing arts center, as stated in Section 7.2.4) were identified as needs in Windward Oahu.

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input. We hope the foregoing responses will help your board members formulate informed opinions of the project.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake

Gail Uyetake
Project Planner

cc: Randy Moore, Kancohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell



William H. Sager
44-211 Hikiola Drive
Kaneohe, HI 96744

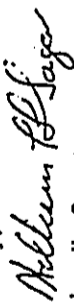
Mon Apr 20, 1992

Helbert, Mastert & Fee, Planners
733 Bishop St., Suite 2590
Honolulu, HI 96813

Attn: Gail Uyetake

Members of the Board of Kawaiinui Heritage Foundation have watched the Gateway Development proposal with considerable concern. After considerable study, we have developed a position statement which is attached. Please accept it as our comments related to the Kailua Gateway Project Draft EIS.

Sincerely,



William H. Sager
President, Kawaiinui Heritage Foundation

Kawaiinui Heritage Foundation
POSITION STATEMENT

Pu'u O E'hu Wetland: CRITICAL HABITAT FOR HAWAIIAN STILT

At the edge of downtown Kailua along Hamakua Drive there is a place called Pu'u O E'hu where one can stand with their back to the traffic and see all endangered water birds of Hawaii. It is a strange experience to stand in civilization and look into a remnant of Hawaii's past.

Clearly this small patch of pickleweed is important habitat for these species. Because of the few such suitable ecosystems left in Hawaii, we believe the site qualifies as "Critical Habitat" for endangered waterbirds under the Endangered Species Act. Certainly because of its proximity to so many people, it is an important interpretive site.

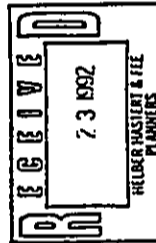
A pair of stilts regularly use the shallow open water of the Pu'u O E'hu Wetland. We believe the site is important to all the water birds we see in the area but is critical habitat for the Hawaiian Stilt. There just isn't many sites left where the Stilt can still wade.

The wetland at Pu'u O E'hu is a very distinctive ecosystem. When habitat for stilts is described in the USFWS Recovery Plan for the Hawaiian Waterbirds the pickleweed, Bakus Sp. is always mentioned. The plant is a highly salt tolerant species found only where hyper-saline soils exclude successional replacement with California Grass, mangrove and other invaders. Such hyper-saline conditions, unique to salt evaporation pan ecosystems, are found in the upper fringes of salt marshes and mangrove swamps. There, pools of salt water can stand, evaporate, and cause hyper-saline conditions that exclude other plants.

A typical salt pan has a shallow open water center maintained by the extreme salinity. This opening is surrounded by concentric zones of salt tolerant plant species. At the Pu'u O E'hu Wetland a large open area is surrounded by a zone of Bakus Sp., the next zone is the shrub Indian pluchea and farthest away are stunted mangrove. This classic salt pan ecosystem provides important, we believe critical, Stilt habitat.

At Pu'u O E'hu Wetland it appears the saltwater intrusion occurs during fortnightly spring tides, and highest salinity occurs when evaporation is high and rainfall is low. We are concerned that proposed modifications to the very small watershed will increase run off and destroy the salt pan ecosystem. Siltation will adversely effect the area as will increased traffic and related non-point pollution. People and their animals will also have adverse impact on wildlife.

This is a tiny remnant of what was in Hawaiian tradition a place of great mana. The area where the male, stream fed waters



ʻŌiwi ʻŌiwi ʻŌiwi

KAWAI NUI HERITAGE FOUNDATION
P.O. BOX 1101 KAILUA, HAWAII 96734

of Kawaiui Marsh joined the female, spring fed waters of Kaelepulu Pond made this an important spiritual place in Hawaiian tradition. We do not think this tiny remnant can survive further development.

The USFWS Recovery Plan for the four species of Hawaiian waterbirds provides no listing of Critical Habitat for any of these species. Critical Habitat designation by the Fish & Wildlife Service appears to be bogged down by a morass of paperwork and bureaucracy. Some movement is resulting from the Sierra Club Legal Defense Fund suit, but action will probably not be quick enough to effect the Gateway Development.

The Pu'u O E'hu Wetland is clearly critical habitat for the Hawaiian Stilt. The salt pan ecosystem is rare on Oahu and has been identified as classic stilt habitat. Kanohe Ranch, page VI-8 of their DEIS, states that runoff will increase significantly. The increased flushing of Kawaiui Stream is a major threat to the Pu'u O E'hu Wetland. The wetland is presently protected by the small size of the watershed and its good infiltration characteristics.

The Kawaiui Heritage Foundation believes the salt pan ecosystem at Pu'u O E'hu Wetland is critical habitat for the Hawaiian stilt and probably for the other endangered waterbirds using the area. It must not be placed at risk.

Helber Hastert
Planners

May 6, 1992

Mr. William H. Sager

President

Kawai Nui Heritage Foundation

P.O. Box 1101

Kailua, HI 96734

Dear Mr. Sager:



Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolaupoko, Oahu, Hawaii

Thank you for your review of the subject DEIS and your letter and position statement of April 20, 1992. We have reviewed your comments and offer the following responses.

The draft EIS discusses the value of the Hamakua Canal wetland for endangered Hawaiian waterbirds, including the Hawaiian Stilt. It also includes a discussion of the potential impacts of the proposed development on the wetland habitat.

The wetlands restoration and management plan proposed by Ducks Unlimited seeks to improve the habitat available for waterbird activities, including nesting and breeding.

The final EIS will indicate that the wetland, in association with Kawaiui Marsh, is identified in the U.S. Fish and Wildlife Service (USFWS) Waterbird Recovery Plan as essential to the recovery of the endangered Hawaiian waterbirds. The listing of the wetland as a "Critical Habitat" for these species by the USFWS is beyond the control of the proposed development or its EIS.

The stormwater runoff and drainage report for the project has been revised and will be summarized and appended in the final EIS. It states the projected change in runoff resulting from the project, which will be from 166 cubic feet per second (cfs) to 204 cfs for the entire 97-acre project area. Ducks Unlimited's restoration and management plan includes the stabilization of water levels in the wetland and monitoring of water levels. The project's potential impacts on the wetland habitat due to changes in runoff water quality will be discussed in the final EIS.

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyeake

Gail Uyeake
Project Planner

cc: Randy Moore, Kanohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell

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and protected viewplanes are, individually, within tolerable limits. The EIS does not assess the sum of all these stresses, but it is this sum which is perceived by a citizen and interpreted as urban stress.

Spot zoning compounds the problem of cumulative effects because each development project claims that its effect is small relative to the community as a whole, and each is considered in the permitting process with little or no regard for other urban encroachments on the long range plan. The result has been a disracetful urban sprawl throughout Koolaupoko. This project will continue the unplanned change from urban fringe to urban. If we have a meaningful DP it should be changed only if the benefits greatly outweigh the costs. The following attempts a cost-benefit analysis.

2. Evaluation of Community Benefits

The developer offers two benefits, ie housing arrangements for the retired elderly, and a management agreement for an urban wetland.

A. Housing for the Elderly; Nursing Home Facilities

The chief inducement to grant the DP amendment is a retirement facility. Most but not all occupants will be Hawaii residents. There would be 333 units for independent living ranging in size from studios suitable for one person to one bedroom apartments. These units are said to be "affordable". The final EIS should not use this self-serving term, and should fully specify the rate structure. Rates quoted to me by phone: Individuals pay an entry fee ranging from \$70,000 for a studio to \$500,000 for the largest apartment. A typical 1 bedroom unit ranges from \$200,000 to \$300,000. This is not a real estate transaction, but a fee in cash. In addition, there is a monthly fee ranging from \$1,500 for the studio to \$2,200, plus \$900 per month additional for a second person. Clearly, these fees are beyond the means of an average citizen, and in most cases would require sale of a residence to generate the cash. One sells tangible equity for a promise of security. The promise is as reliable as the actuarial estimates on which the fee structure is based. Experience on the Mainland is that there is significant unstated risk in contracts of this type.

If the fee structure proves successful and one can afford the "package" the plan is excellent; complete medical care including hospitalization, no increase in fee for higher level care (assisted living, skilled nursing if and when needed), meals, housekeeping services.

The skilled nursing facility consists of 60 beds, an unstated number of which will be open to citizens of Hawaii who do not reside in the retirement facility. There may be an undefined number of medicaid patients. Experience on the Mainland indicates,

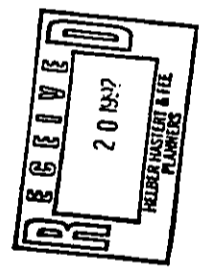
April 15, 1992
Comment on Draft EIS for Kailua Gateway Development

To:
Department of General Planning
City and County of Honolulu
650 South King St.
Honolulu HI 96813
Attention: Mr. Melvin Murakami

Kaneohe Ranch
1199 Auloa Road
Kailua Hawaii 96734
Attention: Mr. Randy Moore

Helber, Hastert and Fee
733 Bishop St. Suite 2590
Honolulu HI 96813
Attention: Ms. Gail Uyetake

Mr. Brian Choy, Director
OEQC
220 South King Street
Central Pacific Plaza
Honolulu HI 96813



The following comments were prepared pro bono at the request of Mr. Keith Kruger, of the Kawai Nui Heritage Foundation.

I am a University research physiologist with 30 years experience. I chaired the Land Use Committee of the Kaneohe Bay Task Force (OSP), and wrote its water quality report. As a physician (Board Certified Internist, not in practice) I am familiar with the operation of multi-level retirement facilities.

Application requests DGP to consider an amendment to Koolaupoko DP during 1992 annual review. Approximately 32 acres would be changed from preservation to medium density apartment and 1 acre from preservation to commercial. The final EIS should clarify the boundary between land zoned P-1 (restricted preservation) and P-2 (general preservation) in relation to the proposed development.

1. Cumulative Effect of Amendments to Development Plan

The purpose of the Development Plan is to anticipate infrastructure requirements, and direct and control urban growth. The developer argues that the additional population attributable to this project, the additional load on wastewater treatment facilities, the additional NPS pollution load, the additional sediment transport to Kawaiui stream, additional traffic, noise, encroachment on wetland

however, that private facilities increasingly are forced to terminate medicare patients to contain costs. Though medicare accessible skilled nursing homes are a bona fide need, the contribution of this project is likely to be small, and can be terminated at any time.

A 20 bed assisted living facility is planned. This amounts to less than 5% of the resident census, which is too few. If the need exceeds 20 beds patients will be encouraged to remain in independent living beyond their capacity to do so safely. There would also be inappropriate assignment of patients to skilled nursing, which will adversely affect cost and the rate of inflation of the monthly fee.

A rental project for low income seniors contiguous to but separate from the retirement community is proposed. This would meet a genuine need. However, these 70 units depend on a cooperative arrangement with the Salvation Army, and on government subsidy which has not been obtained. It is therefore unclear whether this proposed benefit is possible, and if so what its rate structure will be.

Home nursing, live-in companions, housekeeping services, hospice, day care to relieve family care-givers are all less expensive alternatives to retirement contracts. These alternatives do not require commitment of the bulk of an estate, allow an individual to retain greater independence, and delay costly institutional care. Employment in these alternative services will be less than in the fully developed project, but will generate a significant number of service jobs.

In summary, the proposed benefits to retirees will serve a limited population of affluent individuals. In many instances more advantageous alternatives exist.

B. Wetland:

The proposed plan is said to enhance the existing wetland as waterbird refuge. However, the project will compress the habitat between the existing commercial area and the proposed residential development. This human encroachment, including a vehicular bridge across the wetland, will discourage waterbird use, especially for nesting. If nesting is curtailed the supposed "improvement" will actually result in habitat loss for 4 endangered species.

Habitat "improvement" requires clearing that renders the wetland less effective as a filter and sink for urban pollutants. The developer offers only a 50 foot buffer between the area to be urbanized and the wetland. He cannot afford a wider buffer because the percentage of land area < 20% slope is limited. There is general agreement that at least 100 feet, and preferably 300 feet are needed to protect a wetland from NPS such as the biocides and

fertilizer required to maintain lawns, and the hydrocarbons and metals (Pb, Zn, Cu) that leach from urban impermeable surfaces.

Ceding the land to DLNR relieves the developer of responsibility for an ecologically sensitive parcel with no potential for commercial use; the proposed transfer is a benefit to the developer. The wetland would be more useful if left in its present state.

3. Analysis of Public Costs

A. Grading and Erosion Control (Appendix G):

Soils on site are Papaa clay, sticky, plastic, and prone to macropore flow. Permeability is slow, runoff is rapid and erosion hazard is severe. Annual rainfall is 30-45 inches per year. Slopes above the project are up to 50% and poorly vegetated. The area available for infiltration is extremely limited, and will be reduced by about 1/3 by development. These conditions impose formidable limits on responsible construction above a wetland. I calculate that soil loss during the construction phase will increase 25-30-fold over the natural rate. The draft EIS furnishes no data with which to judge the adequacy of the sediment basins. Approximate area, volume, and retention time relative to anticipated rates of runoff are necessary to know whether the proposed measures are substantive or pro forma. Detailed drawings and specifications are, of course, inappropriate at this stage, but sample calculations upon which the consultant bases his claims are necessary. Is there room enough on site for effective sediment basins? Why is there no buffer between the sediment basins and the wetland (Schematic A Appendix G P.4)?

Appendix G claims that stormwater runoff will increase by 15% over the natural condition. The assumptions and details of this estimate should be furnished; the Appendix offers almost nothing that is not in the body of the text. Nothing is said about rate of runoff in the natural and developed condition. The accelerated rate as well per cent increase in volume determines the effect of fresh water influx.

B. Development in flood plain:

The proposed commercial area is to be built within the 100 year flood plain. Fill must be deposited to raise the site at least 3 feet to reach the 6 foot level required for development, and to provide the gradient for drainage to Kawaiui stream. Some of this fill will be deposited in the wetland. Soil transport into the stream during spreading and stabilization cannot be avoided; the extent will depend to a greater extent on rainfall than on mitigation measures. If this fill is derived from an urban location off-site, it must be monitored for adsorbed chlorinated pesticides (chlordane, dieldrin, heptachlor). The amount that will enter the



the environmental costs listed above. One of these proposals was rejected by DCP in 1981 and would be even less acceptable today. On P VII-1 the no action alternative is rejected solely because it eliminates what is termed "subsidized and market priced" senior housing. These words should be deleted from the final EIS; the retirement community is neither subsidized nor priced within the means of most citizens. Less costly and generally more effective means to provide services for the elderly exist; see 2 B above. Since the social and environmental costs of this project far outweigh the benefits, only the no-action alternative is in the public interest.

Carl R. Honig

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stream and wetland should be estimated assuming a worst case (prolonged rainfall after deposition and before stabilization). The effect of this sediment load on stream and wetland should be assessed.

C. Pollutants Other Than Sediment:

P IV-9 claims that "water flow and runoff-based pollutants will be potentially increased by only about 15%". This is not correct; the increase in pollutants will far exceed the increase in flow because there are no sources of pollution on site in the natural state. After completion, fertilizer, biocides, nitrosamines, PAHs, and metals will be entrained in stormwater. The effect of these toxics on the ecology of the wetland and the indirect effect on waterbirds that consume products of the wetland are not known.

D. Viewplanes:

The proposed development violates the Puu O Ehu protected viewplane. The level from which buildings will originate will be 55 feet above the existing buildings on Hamakua Drive. Some will be 4 stories. These structures will appear larger and more intrusive than buildings of comparable height dispersed on level land because the ridge is so close to the point at which it will be viewed. Buildings will obstruct much of the ridge, leaving largely the summit line. The effect will be to change the ambience from urban fringe to urban, contrary to the Development Plan.

E. Wastewater:

Existing wastewater facilities throughout Koolaupoko require extensive renovation and/or new construction. The Aikahi plant will reach design capacity within a decade unless population growth and infiltration flow are curtailed. This project will increase the population by approximately 1000 persons, or about the entire population growth of Kailua between 1980 and 1990. If improvements to the existing system are completed on schedule the system will be able to process the wastewater generated by this project. However, the cumulative effect of this project and others under construction and proposed will increase the wastewater load beyond the design capacity of the expanded Aikahi plant.

If this project goes forward the nexus fee should take account of repair of the existing collection system, future plant expansion, and the possible need to treat stormwater runoff. These nexus charges should be in addition to the Wastewater System Facility Charge based on the number of residential units.

4. Alternatives To Proposed Action

Each of the action alternatives listed in Chapter 7 would entail

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May 7, 1992

Carl R. Honig, M.D.
45-200 Kokohahi Place
Kaneohe, HI 96744

Dear Dr. Honig:

**Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolauopoko, Oahu, Hawaii**

Thank you for your review of the subject DEIS and your letter of April 15, 1992. We have reviewed your letter and offer the following responses.

Figure 8 on page III-13 of the draft EIS showed the boundary between P-1 (Restricted Preservation) and P-2 (General Preservation) zoned land in relation to the area of application. This figure will be included in the final EIS.

1. Cumulative Effects of Amendments to Development Plan

The final EIS will continue to enumerate the impacts of the proposed project on the physical and socioeconomic environment. The issues raised in your letter (wastewater treatment, water quality, traffic, noise, impacts on the wetland areas, and protected views) have been evaluated and discussed in the draft EIS. When adequately mitigated, the cumulative effect of these impacts will not be in conflict with the urban-fringe character of Kailua, nor will they present urban stress significantly different or in excess of what is currently experienced in Kailua. As stated in the Development Plan Special Provisions for Koolauopoko, the predominantly residential use is suburban single-family development, with limited apartment uses permitted close to regional commercial and industrial center. The proposed development will be low-rise (maximum of 4-stories) in keeping with the overall open space setting of Koolauopoko.

The final EIS will contain a discussion of the project's relationship to the City and County's General Plan, and show that it supports certain policies and objectives, while is in conflict with other guidelines.

2. Evaluation of Community Benefits

A. Housing for the Elderly; Nursing Home Facilities

The term "affordable" as used in the EIS refers to the rental housing component of the development. Residents of this component will be required to meet specified income limitations, as determined by federal or city funding programs and permitting authorities. The lifecare facility, on the other hand, is designed to be affordable to homeowning seniors on the Windward side. The rate structure included in your letter was specific to the Hale O Malia lifecare community being developed in Waialae-Kahala by the same developer. The Kailua Gateway lifecare community will have a lower rate structure, due to its location and target market. Both developments are

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Carl R. Honig, M.D.
May 7, 1992
Page 2

being modeled after existing lifecare projects in northern California, which have proven successful from both management and user perspectives over the last 30 years. The public accounting firm, Deloitte and Touche, performed a financial audit of the lifecare community proposal and found the plan satisfactory.

The 60-bed nursing facility will be open to use by non-residents on a space-available basis. The State Health Planning and Development Agency ("State of Hawaii Long Term Care Bed Projections by Island and County, 1995-2010", March 1991) projects a shortfall of 1,000 long-term care beds in the year 2000. The proposed lifecare center will address the need for skilled nursing care, which will continue to exist for all income segments of the senior population.

The developer has based the distribution of independent living units, personal care units, and skilled nursing beds within the lifecare community on what has been successful in existing lifecare projects and on actuarial data.

The applicant is committed to developing low-income elderly housing as part of the overall project, with or without participation by the Salvation Army.

Rationale for development of the lifecare center can be found on pages II-9 and II-10 of the draft EIS. A significant segment of the senior population may prefer not to maintain a larger home, and will opt for lifecare's provision of housing, meals, and full health care in their own community. Pre-sale activity for the proposed Hale O Malia lifecare community indicates a large potential market for a facility of this type. Within seven months, the facility was over 100% pre-sold; 95% of the units being sold to local residents and 3% to past residents who wished to return to Hawaii.

The proposed lifecare community will not only contribute to meeting a previously under-addressed need for appropriate senior housing designed to meet the housing, recreation and health care requirements of this special population, but also indirectly contribute to the overall housing supply by making the dwellings previously occupied by the lifecare residents available to the general community.

B. Wetland

The development will not "compress" the wetland, as it does not propose to fill or convert any part of the wetland to upland. The potential impacts of the proposed development on vehicular bridge on the endangered waterbird activities is discussed in Section 4.6 of the draft EIS.

The wetlands restoration plans include removal of invasive upland vegetation which has reduced the available habitat for native waterbirds. Once removed, emergent wetland plants are expected to return. Therefore, the improvements will restore the wetlands to a more natural state.

As described in a recent letter from the U.S. Fish and Wildlife Service commenting on the draft EIS (April 24, 1992), the development of recommendations for a buffer zone between the development and the nesting habitat for the endangered waterbirds would require site-specific evaluations of the project area. In other words, there is no "general agreement" on the width of buffer areas for wetlands. The applicant will

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Carl R. Honig, M.D.
May 7, 1992
Page 3

"general agreement" on the width of buffer areas for wetlands. The applicant will continue to work with the conservation group performing the wetland restoration (Ducks Unlimited) to create the most appropriate buffer for the wetlands.

The proposed wetland improvements emerged out of a community-based planning process which began in 1990. As the applicant does not have the expertise to conduct wetlands restoration, consultation with government agencies led to contact with Ducks Unlimited.

We do not agree that the wetland is more useful in its present state; the waterbirds have no existing protection from land predators and have lost valuable wetland habitat to invasive exotic vegetation. The restoration project will provide protection from predation, improved and protected habitat areas and educational opportunities for the public.

3. Analysis of Public Costs

A. Grading and Erosion Control

According to the project civil engineer (Smith Young & Associates), the soil loss during construction cannot be calculated. The contractor will be required to adhere to strict erosion control standards. The Grading and Construction Activities report included in the draft EIS as Appendix G contains specific practices for construction activity erosion control. The sedimentation basins will be sized appropriately when the construction documents and design calculations are done. A drainage swale and berm will be constructed between the wetland and the project area before construction begins. The settling basins will be located upslope of the swale, which is shown on Figure A, referenced in your letter.

The stormwater runoff and drainage report has been revised and will be summarized and included in the final EIS, along with calculations of the projected runoff.

B. Development in the Flood plain

New structures in the proposed expanded commercial area will not be located in the floodway. Because of mapping discrepancies between the Flood Insurance Rate Maps and the base maps used for the EIS, the precise delineation between the floodway and area of 500-year flood could not be determined. Detailed topographic surveys and engineering studies will be completed prior to the final siting of any new structures in the expanded commercial area.

The proposed makai development area must be filled to raise base elevations above out of the flood plain. Fill will not be deposited in the wetlands, as this area does not require flood protection. Every effort will be made to balance the earthwork so a minimal amount of fill is transported on or off site. Any fill material would likely originate from non-urban spoils on-site.

C. Pollutants other than sediment

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Carl R. Honig, M.D.
May 7, 1992
Page 4

The final EIS will note that urban-based pollutants will also increase as a result of the development, and that the effects of this increase on the wetland and waterbirds is undetermined. It should be noted that Kawainui Stream is primarily fed by urban stormwater runoff from the Coconut Grove and Kailua business district areas, and was constructed for the specific purpose of draining developed areas.

D. Viewplanes

As stated in the Development Plan Special Provisions for Koolauoko, the view of Puu O Ehu from the Kaelepu Pond area is an important view. The project will not negatively impact views of Puu O Ehu from the Kaelepu Pond area. It will only affect the view of the lower one-third of Puu O Ehu from portions of Hamakua Drive. The higher structures will not impede views of the upper slopes of Puu O Ehu, and are generally located behind the existing industrial and commercial area along Hamakua Drive, which would dominate the view from that portion of Hamakua Drive.

E. Wastewater

A recent memorandum from the Department of Public Works to the Department of General Planning (April, 22, 1992) commenting on the draft EIS states that the existing municipal sewer system is currently adequate to support the proposed wastewater requirements, and that the existing sanitary sewer system in Kailua is not currently operating over capacity.

4. Alternatives to Proposed Action

The term "subsidized", used in the discussion of the no action alternative on page VII-1 of the draft EIS, refers to the affordable senior rental housing included in the development proposal. As discussed above, references to unit prices and financing strategies in your letter are for a different project with a different market.

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTER & FEE, Planners

Gail Uytake
Gail Uytake
Project Planner

cc: Randy Moore, Kamehohie Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell

Helber Haster
Planners

May 6, 1992

Ms. Robin Dwight
President
Pohakupu Community Association
P.O. Box 1475
Kailua, HI 96734

Dear Ms. Dwight:

**Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolauopoko, Oahu, Hawaii**

Thank you for your letter of April 22, 1992 to the Department of General Planning regarding the above-referenced project. We have reviewed your letter and offer the following responses.

The proposed commercial area expansion will not increase the area currently being used for commercial purposes. The expansion will not decrease any buffer area between the commercial operations and the wetlands as none currently exists.

The draft EIS contains a discussion of the heights of the proposed structures in relation to the hillside, as well as information on footprint coverage of the structures. The draft EIS also includes a preliminary perspective drawing (to scale) showing the heights of the proposed structures in relation to the hillside. As shown in the perspectives, portions of the lower one-third of the hillside will be obscured by the buildings. A ridge in the northern sector of the property will remain unobscured by the development as will a ridge near the center of the property.

Section 32-6.2(a)(1) Specific Urban Design Considerations in the Development Plan Special Provisions for Koolauopoko states that the "visibility, preservation, enhancement and accessibility of open space areas as defined in Section 32-1.4 of the development plan common provisions shall be given high priority in the design of adjacent and nearby developments in Koolauopoko. These areas include...Puu O Ehu...." The applicant recognizes the open space value of Puu O Ehu and is committed to give high priority to designing the development to minimize visual and scenic impacts and the loss of open space. The structures will be clustered and generally located in the lower third of two sectors of the property. Heavy landscaping with complementary vegetation will be included in the development.

Section 32-6.2(a)(2) Public Views states that "panoramic views of the Pali and views of Puu O Ehu ridge and Olomana from Kaelepu Pond area" are important public views and shall be protected whenever possible. The proposed development will not impact panoramic views of the Pali and views of Puu O Ehu ridge or Olomana from the Kaelepu Pond area. In most areas around Kaelepu Pond, only the west (mauka) side of Puu O Ehu is visible. When the east (makai) side is visible, only the southern portion of the hillside can be seen, and the surrounding residential developments and landscaping obscure at least the lower one-half of the hillside. The proposed

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Ms. Robin Dwight
May 6, 1992
Page 2

development along the southern portion of the application area will not be visible from the Kaelepu Pond area, as the structures will be located along the lower one-third of the hillside.

The project will result in an estimated 650 additional residents in the Koolauopoko District. According to the Department of General Planning's Development Plan Status Review (September 1, 1991), the Year 2010 Population Capacity for the Koolauopoko District (121,300) is slightly under the maximum population allowed by the General Plan for the Year 2010 (121,900). The addition of the estimated 650 residents associated with the proposed Kailua Gateway development would result in the total Koolauopoko District population exceeding the Year 2010 population guideline by 50 persons, or 0.04%.

Despite its contribution to the Koolauopoko population exceeding General Plan population guidelines by an estimated 0.04%, the project responds to and supports other General Plan objectives and policies. These include the provision of affordable housing, special needs housing for the elderly, and the protection of the natural environment.

A recent memorandum from the Department of Public Works to the Department of General Planning (April, 22, 1992) commenting on the draft EIS states that the existing municipal sewer system is currently adequate to support the proposed wastewater requirements, and that the existing sanitary sewer system in Kailua is not currently operating over capacity.

A discussion of various development alternatives was included in the draft EIS, along with reasons they were not pursued. It should be noted that the proposed development will require several more government permitting actions, each of which will monitor the extent of the development program, any changes to the proposed program, and corresponding environmental impacts. If the applicant revised its development program to include a significantly greater number of units, it is very likely that a new or supplemental EIS would be required.

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTER & FEE, Planners

Gilly Hester
Gail Uycatake
Project Planner

cc: Randy Moore, Kanohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell



Ke aloha o ko kōkou 'Ūina, 'Ole ka mana kū pō'a. Pānoanoa ka 'Ūina, Mānoanoa ka pō'a.
The Love of our land, is the power for us to stand last. Rare is the land, many are the people.

4/21/92

Hejvin Murakami
 Department of General Planning
 650 So. King Street
 Honolulu, Hawaii 96813

RE: KAILUA GATEWAY DEVELOPMENT DRAFT EIS

As an organization dedicated to ensuring that growth is reasonable and responsible and that appropriate planning and management decisions are made it concerns us when we see development projects proposed for the same sites over and over again.

This is the case with the proposed Kailua Gateway site. Several different development proposals have been submitted for the area and each time the Department General Planning with concurrence from Kailua residents, organizations and elected officials rejected any development on the hilly site.

Several years ago the community thought they had solved the problem of protecting Kawainui Stream, the wetland and the wildlife habitat by obtaining a zoning change for the land to Preservation. The community felt that the wetland would be protected because it falls under the Coastal Zone Management law (CZM).

While the concept of providing senior citizen housing and health care facilities is good and this is not the location for such a development. The issue of housing and care facilities for senior citizens is "motherhood and apple pie" how can anyone disagree with providing for the needs of our senior population. But the issue is not providing for those needs at any cost. This is a land use planning issue. Basic planning 101. build to the site don't reconfigure the land to suit development.

The following are our specific comments on the DEIS.

POPULATION: Koolauopoko is not slated for significant growth yet the the Gateway population of 650-1,000 will increase the population by approximately .53% and this does not include other developments coming on line.

305 Hahani St., Suite 282 • Kailua, HI 96734 • (808) 262-0682

RUNOFF AND SEDIMENT is a major concern because of steepness of the mauna watershed area and the sensitivity of Kawainui Stream and the wetlands into which all the water flows. The DEIS does not provide a hydrological sheet flow study. Such a study is critical in order to determine the effect of changing water patterns upon the stream and wetland water quantity and quality. The sheet flow study must also include demographics of silt and sediment patterns with current and changed rain fall patterns. These studies are critical for the survival of our endangered wildlife and water quality of the stream.

ARCHAEOLOGICAL studies must be completed and available for public comment prior to the beginning of any ground work. Ideally to avoid problems such as encountered in Iliiwa Valley the archeological study should be completed prior to zoning change approval. H-3 has highlighted how negligent we in Hawaii have been in following Federal Historic Preservation law which requires native American perspectives in determining cultural significance.

ACCESS to the project via a 2-lane bridge presents major traffic problems and concerns but the most disruption will be for the endangered water birds who will encounter an obstruction in their flight path. The water birds are further threatened by the road access at the wetland habitat side of the development. The area now is quiet and fenced off but construction and development will bring continual movement either by cars or pedestrians.

WETLAND IMPROVEMENTS as proposed by Ducks Unlimited concerns us because they are quite insignificant in their scope. A Boy Scout troop could clean the stream banks of litter, maintain weed growth and build an information kiosk. There is also no guarantee that DLNR will continue "maintenance" once Ducks Unlimited's contract expires. We are also very concerned about the proposed eradication of mallard and other domestic ducks. What is the purpose of this proposal? Ducks Unlimited began as a "duck propagating" organization for the purpose of raising ducks for hunting and we are concerned that the eradication is some how connected to this type of activity.

COMMERCIAL AREA EXPANSION zoning change approval of 1 acre from Preservation to Commercial would legitimize an illegal encroachment activity that has been ignored by the property for years. We oppose after the fact approvals because of lack of enforcement by the land owner.

SPECIAL MANAGEMENT AREA permit and many other environmental protection permits are needed because the entire area is within the SMA and is an environmentally sensitivity site.

Heller Haderik
Planners

May 5, 1992

Mr. Fred Madlener
President
Hawaii's Thousand Friends
305 Hahani Street, Suite 282
Kailua, HI 96734

Dear Mr. Madlener:

Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolauapoko, Oahu, Hawaii

Thank you for your review of the subject DEIS and your letter of April 21, 1992. We have reviewed your letter and offer the following responses.

Population

The project will result in an estimated 650 additional residents in the Koolauapoko Development Plan Area. According to the Department of General Planning's Development Plan Status Review (September 1, 1991), the Year 2010 Population Capacity for the Koolauapoko District (121,300) is slightly under the maximum population allowed by the General Plan for the Year 2010 (121,900). The addition of the estimated 650 residents associated with the proposed Kailua Gateway development would result in the total Koolauapoko District population exceeding the Year 2010 population guideline by 50 persons, or 0.04%.

Despite its contribution to the Koolauapoko population exceeding General Plan population guidelines by an estimated 0.04%, the project responds to and supports other General Plan objectives and policies. These include the provision of affordable housing, special needs housing for the elderly, and the protection of the natural environment.

Runoff and Sediment

The stormwater runoff and drainage plan for the project has been revised and will be summarized and appended in the final EIS. In the revised plan, runoff from the undeveloped area upslope of the development will be piped under the development area and released into the wetlands. The runoff from the development area will be directed into Kawainui Stream or into Kaelepu Pond via a drain pipe under Hamakua Drive.

The stormwater runoff presently flows over the hillside, carrying soil particles into the wetlands. According to the project civil engineers, Smith Young & Associates, this project will decrease the amount of silt entering the wetlands by controlling the flows in the lower hillside and reducing its overall erosion.

The project's impacts on the wetland habitat due to changes in runoff and water quality will be discussed in the final EIS.

Heller Haderik Inc. 1110 Hahaione Street, Suite 220A Kailua, HI 96734
Telephone: (808) 261-1100 Honolulu, Hawaii 96811 Fax: (808) 261-1100

SCENIC AND VISUAL RESOURCES section of the DEIS pays scant attention to the scenic importance given to Puu O Ehu. This is a view plain that must be unobstructed yet the DEIS proposes buildings 40 feet in height that will start at the 55 foot elevation. Development will intrude into the Puu O Ehu view plain.

In conclusion we do not believe that even the most complete and comprehensive EIS will be able to adequately address the negative ramifications of development on this site.

Previously the Department of General Planning, City Council and the residents of Kailua voiced the same concerns we are facing today and those concerns brought about the zone change to Preservation.

Koneche Ranch is well aware of the liability, limitations and opposition to development of this property. They took a risk when they bought out Iolani School and became full owners of the property. Denial of this proposal will not constitute a taking because Koneche Ranch became principal owners with full knowledge of the land use designations.

Sincerely,

Fred Madlener

Fred Madlener
President

- CC: OEDC
Kailua Neighborhood Board
Representative Cynthia Thiel
Representative Jackie Young
Representative Whitney Anderson
Senator Mary George
Senator Stan Koki
Councilman John Henry Felix
Councilman Steve Holmes
Koneche Ranch
Heller Haderik & Fer
Episcopal Women of Hawaii, Inc.
U.S. Fish and Wildlife Service
Hawaii Audubon Society
HILNR

Hilbert H. Ashcroft
Planner

Mr. Fred Madlener
May 5, 1992
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The proposal to eradicate domestic ducks from the subject wetland is for the purpose of discouraging further interbreeding and hybridization of the native endangered Hawaiian Duck (Koloa) and feral mallards. This is included in the Ducks Unlimited draft wetland restoration and management plan, prepared in consultation with the U.S. Fish & Wildlife Service and DLNR. No hunting will be allowed on the property.

Commercial Area Expansion

The rationale for expansion of the existing commercial area will be included in the final EIS.

Special Management Area Permit

The draft EIS states that a Special Management Area (SMA) permit will be required for the proposed development, because it is within the boundaries of the SMA.

Scenic and Visual Resources

The draft EIS contains a discussion of the heights of the proposed structures in relation to the hillside, as well as information on footprint coverage of the structures. The draft EIS also includes a preliminary perspective drawing (to scale) showing the heights of the proposed structures in relation to the hillside. As shown in the perspectives, a portion of the lower one-third of the hillside will be obstructed by the buildings. A ridge in the northern sector of the property will remain unobscured by the development as will a ridge near the center of the property.

Section 32-6.2(a)(1), Specific Urban Design Considerations, Development Plan Special Provisions for Koolauoko, states that the "visibility, preservation, enhancement and accessibility of open space areas as defined in Section 32-1.4 of the development plan common provisions shall be given high priority in the design of adjacent and nearby developments in Koolauoko. These areas include...Puu O Ehu...". The applicant recognizes the open space value of Puu O Ehu and is committed to give high priority to designing the development to minimize visual and scenic impacts and the loss of open space. The structures will be clustered and generally located in the lower third of two sectors of the property. Heavy landscaping with complementary vegetation will be included in the development.

Section 32-6.2(a)(2), Public Views, states that "panoramic views of the Pali and views of Puu O Ehu ridge and Olomana from Kaelepu Pond area" are important public views and shall be protected whenever possible. The proposed development will not impact panoramic views of the Pali, and views of Puu O Ehu ridge, or Olomana from the Kaelepu Pond area. In most areas around Kaelepu Pond, only the west (mauka) side of Puu O Ehu is visible. When the east (makai) side is visible, only the southern portion of the hillside can be seen, and the surrounding residential developments and landscaping obscure at least the lower one-half of the hillside. The proposed development along the southern portion of the application area will not be visible from the Kaelepu Pond area, as the structures will be located along the lower one-third of the hillside.

Hilbert H. Ashcroft
Planner

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May 5, 1992
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Archaeological Studies

The draft EIS contained a report on the first of a two-phase archaeological reconnaissance for the project area. Phase II of the survey will involve detailed site descriptions, mapping, subsurface testing, and possibly paleoenvironmental investigations of the wetlands, as recommended in the Phase I report. This phase will also assess the significance of the four sites according to existing federal and state criteria. These assessments will be submitted to the State Historic Preservation Division for review and approval. Objectives and mitigation measures for protecting archaeological resources on the project site will be determined during Phase II when more detailed information on the sites is available. Phase II will be conducted in coordination with city and state development permitting processes. A specific commencement date for Phase II has not yet been identified, although it will take place prior to any ground work.

Bridge

The addition of a traffic signal at the Hekili Street/Hamakua Drive intersection will result in the possibility of traffic on Hamakua Drive being stopped by the signal. Analysis performed by the traffic consultant concluded that even with the addition of a traffic signal at that intersection, it will have sufficient capacity to provide good operating conditions on Hamakua Drive (personal communication, Julian Ng, Inc., May 4, 1992).

Potential impacts to the waterbird habitat from the proposed bridge opposite Hekili Street are disclosed in Section 4.6 of the draft EIS.

Wetland Improvements

The proposed wetland improvements by Ducks Unlimited include not only the tasks listed in your letter, but also involve, among other actions:

- obtaining the necessary federal permits,
- developing a long-term management plan,
- topographic surveying,
- general vegetation mapping,
- moist construction,
- removal of invasive upland vegetation, and
- determination of an optimum ratio of plants to water interspersed.

The State Department of Land and Natural Resources (as will be documented in the EIS), has obtained federal grant funds to support the long-term maintenance of the restored wetland. Ducks Unlimited will not be involved in a contract to restore the wetland, but will receive the donated land from Kaneohe Ranch, and convey it to the State once the improvements are completed.

Helber Haster
Planners

Mr. Fred Madlener
May 5, 1992
Page 4

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

cc: Randy Moore, Kancoko Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell

4/21/92

1. Kailua Gateway Project
2. Kailua Gateway Project

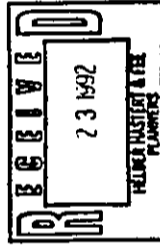
Doris M. Marakami

We are writing this letter concerning the new Kailua Gateway Project being proposed. We have recently purchased the home at 619 Akoakoa St. We are extremely concerned about any developments that may take place in our "back yard". It is obvious that we are in a flood zone and any development in the area between Akoakoa St. & the new town houses would seriously increase the risk of flooding, not to mention the increase in traffic.

We are very disturbed about the idea of the Kailua Gateway project. Our opinion concerning this project is negative we do not support the project and we will protest it.

Sincerely,

Scarlet M. Aviles
Ralph D. Aviles



P.S. Please send any available info. on this project. We are very concerned.
Our Address: 619 Akoakoa St. Kailua, HI 96731

Heller-Hassett
Planners

May 7 1992

Mr. Ralph D. Aviles
Ms. Scarlet M. Aviles
619 Akoakoa Street
Kailua, HI 96734

Dear Mr. and Ms. Aviles:

Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolauloko, Oahu, Hawaii

Thank you for your letter of April 21, 1992 to the Department of General Planning regarding the subject project. We have reviewed your letter and offer the following responses.

We were contacted by letter dated October 9, 1991 by Matthew Johnson of Conlew Dew Realtors concerning the proposed Kailua Gateway development with respect to the pending purchase of your home at 619 Akoakoa Street. We attempted to contact Mr. Johnson on October 10. He returned our call on October 25, 1991, and we provided him with information on what was being proposed for the triangular parcel abutting your home, the governmental approval process, and the expected time frame of the development. He presumably advised you of the information we provided.

Drainage

According to the project civil engineers, Smith Young & Associates, Kawaiui Stream has sufficient capacity to accommodate the project-related runoff, if the stream and berm at the mouth of the stream at Kailua Bay is properly maintained by the City and County of Honolulu.

As you may be aware, the dwellings along Akoakoa Street and the condominiums across Kawaiui Stream from the project area are located in areas determined by the Federal Emergency Management Agency as Zone X in a Flood Area on the Flood Insurance Rate Map (Community Panel #150001 0090 B). Zone X refers to areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood. As we have pointed out, runoff from the project is expected to be accommodated by Kawaiui Stream.

The makai development area will be filled to the required 6-foot base flood elevation (approximately 1 foot +/- above existing grade). According to the City's topographic photo contour map (Sheet No. 592-78) the homes along Akoakoa Street bordering the site are at 10 feet (MSL). The development area, therefore, will be at a lower elevation than the adjacent Akoakoa Street homes. Runoff from the makai development site will not flow onto adjacent private property. Runoff will be piped into a storm drain system which will release the flows into Kawaiui Stream at the east end of the site.



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Planners

Mr. Ralph D. Aviles
Ms. Scarlet M. Aviles
May 7, 1992
Page 2

Traffic

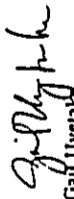
A traffic impact analysis report was prepared by Julian Ng, Incorporated and summarized and appended in the DEIS. This report projected future traffic volumes resulting from the development and impacts to the area's traffic facilities. The report also identified possible mitigation measures. In summary, the analysis found that even without the project traffic, levels of service at some intersections would decrease below a generally acceptable level. With the proposed mitigation measures, level of service would fall within the acceptable range even with the addition of project-related traffic volumes.

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners


Gail Uyeak
Project Planner

cc: Randy Moore, Kanohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell

Hilbert Hastert
Planners

May 7, 1992

Mr. and Mrs. Masayoshi Wakai
643 Akoakoa Street
Kailua, HI 96734

Dear Mr. and Mrs. Wakai:

Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolaulapoko, Oahu, Hawaii

Thank you for your letter of April 13, 1992 to the Department of General Planning regarding the subject project. We have reviewed your letter and offer the following responses.

1. A drainage report was prepared by the project civil engineers, Smith Young & Associates, and will be summarized and appended in the final EIS. According to the engineers, the proposed development will increase the flow to Kawaiinui Stream slightly.

The City and County of Honolulu is planning to dredge Kawaiinui and Kaelepu Stream to its original design capacity. Kawaiinui Stream will be dredged to approximately (-)7 feet (mean sea level), with the Coconut Grove end of the stream slightly higher. Kaelepu Stream will be dredged to approximately (-)8 feet (MSL).

According to the Environmental Assessment of the Kaelepu and Kawaiinui Streams Maintenance Dredging "there have been instances of stream overflow due to the sediment overload in the stream bed; however, there have been no recorded instances of property damage, and this project (maintenance dredging) will relieve this potential risk." The proposed dredging will "restore the design capacity" of the streams. The capacity of Kawaiinui Stream is dependent upon the elevation of the sand berm at the mouth of Kaelepu Stream, which is under the control of the City and County of Honolulu.

According to the project civil engineers, Smith Young & Associates, Kawaiinui Stream has sufficient capacity to accommodate the project-related runoff, if the stream and the berm at the mouth of the stream at Kailua Bay are properly maintained by the City and County of Honolulu.

2. A traffic impact analysis report was prepared by Julian Ng, Incorporated and will be summarized and included in the Final EIS. This report identified the potential impacts of the project on area traffic volumes as well as possible mitigation measures.

Hilbert Hastert & Co., Inc.
214 Bishop Street, Suite 2700
Honolulu, Hawaii 96811
Telephone: (808) 531-2000
Facsimile: (808) 531-2000

0097

643 Akoakoa Street
Kailua, HI. 96734
April 13, 1992

Mr. Melvin Murakami
Dept. of General Planning
City & County of Honolulu
650 S. King Street, 8th Fl.
Honolulu, HI. 96813

Re: Flooding Problem with the
Proposed Kailua Gateway Project

Dear Mr. Murakami:

I, Masayoshi Wakai and wife Helen K. Wakai are residents and owners of a property on Akoakoa Street, Kailua, Hawaii.

Property Description: L-2-077-015-0000-000, called the Kailua Park Estate Sub-division. Second property owner since 1968 to current date. Lot # 90

We are deeply concerned about Kaneohe Ranch's proposed plan to develop housing project to be located on the mauka side of the Hanakua Street and the back of Akoakoa Street.

Major problems that we expect in the event that the foregoing project is approved are:

1. Flooding from the proposed housing project to existing houses along Akoakoa Street which will be caused by run-offs of flood waters due to erosion of lands in the area and blockage of streams.

2. The inevitable increase in traffic.

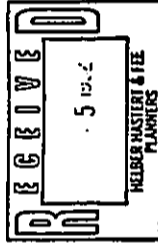
We will appreciate your serious consideration of the foregoing concerns of ours.

cc: Mr. Randy Moore
Kaneohe Ranch
1199 Auloua Rd
Kailua, HI. 96734

cc: Mr. Gail Uyetake
Hilbert, Hastert & Co.
733 Bishop St., Suite 2590
Honolulu, HI. 96813

cc: State of Hawaii
Office of Environmental Quality Control
220 S. King Street, Fourth Floor
Honolulu, HI. 96813

Yours very truly,
Masayoshi Wakai
Masayoshi Wakai, owner
Helen K. Wakai - owner



Helber Hastert
Planners


Mr. and Mrs. Masayoshi Wakai
May 7, 1992
Page 2

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners


Gail Uyeiaki
Project Planner

cc: Randy Moore, Kamehohie Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell

647 Akoakoo Street
Kailua, Hawaii 96734
April 16, 1992

Mr. Melvin Murakami
Department of General Planning
City and County of Honolulu
650 South King Street, 8th Floor
Honolulu, Hawaii 96813

Dear Mr. Murakami:

We are writing to express our concerns regarding the draft environmental impact statement for the Kailua Gateway project and to share our comments regarding the feasibility of this proposed development. Our focus is primarily on flooding, traffic problems and safety hazards, danger to the environment, impact on property values, loss of privacy and the rejection of similar proposals.

We have been resident homeowners in the Enchanted Lake area of Kailua for over 30 years. We have lived at the Akoakoo Street address for almost 25 years. We watched the development of this area from its inception, and moved into our present home upon its completion. We chose to live in Kailua, and this area in particular, because of the small community atmosphere and because of the open green spaces (marshlands) and the beautiful mountains, which we believed would be preserved. We chose this particular lot for the privacy and closeness to nature it affords.

The following are our specific concerns and comments:

1. Flooding

The land between the houselots on Akoakoo Street and the canal serves as a marshland (catchbasin) for the excess water in the canal during heavy rainstorms (and standing water remains in this marshland for long periods of time between rainfalls). This land also serves to catch the runoff of water from the Akoakoo Street lots, which were purposely graded with that intention.

Because we have a swimming pool in our back yard, we keep a close watch for what is happening in the canal and the marshland behind our house during heavy rains. We have seen this marshland filled with water many times. On several separate occasions the overflow from the canal has reached the bottom of our fence line (our lot is quite high and slopes down

2

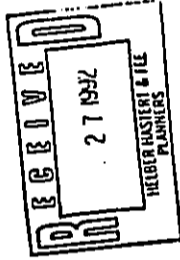
from the back fence to the canal). The lots on Akoakoo Street are graded consecutively lower from our property to Hamakua Drive following the natural slope of the land.

During the heavy rainstorm which damaged property and endangered lives with flooding in the Kailua area (New Years Eve, 1987), the canal on our end filled and overflowed to our fence line at the back of our property. The large storm drains, designed to carry water from the street into the canal (one is located just in front of the house next door to ours), reversed flow because the canal water was so high and pumped water back into the street which caused Akoakoo Street to become flooded and impassable. The neighborhood kids were actually body boarding in the street while we parents became very concerned over the fact that the water rose more than half way up our front yards and driveways - and our lots are steeply sloped to the street. Fortunately the rain ceased at that point, and eventually the water drained from the street back into the canal. Our houses could easily have been flooded, with the water rising both from the back and the front, if the rains had not ceased.

We might mention here that upon refinancing in May, 1988, our mortgage lender required that we purchase flood insurance

According to the projections, the proposed development will funnel 30% more runoff water through storm drains, one to empty just behind our property, the other to empty into Enchanted Lake. The Canal flows under the Kooakoo Road bridge and eventually empties into the ocean at Kailua Beach. We believe that the planners have made a bad assumption that the canal can handle that extra flow, even with the marshlands to catch the overflow. As proposed, however, these marshlands would not only be filled in but would be built up higher to accommodate the buildings. This would create a completely unacceptable situation and conditions for disaster.

The Kooakoo Road bridge, which is just a few feet from our property (ocean side), is very low. The water line during dry weather is such that you could not even get a raft under the bridge. During heavy rains the canal water rises to reach the bottom of the bridge. This situation, with the added volume of water and decreased volume of marshland, along with the debris that becomes deposited in the canal during a rainstorm, could create an incident where the water would back up (the bridge would form a dam) and flood a large area of this section of Enchanted Lake. It could cause endangerment to lives and damage worse than any we have seen in Kailua to date.



A similar situation could be created if the access to the ocean happens to be closed to the stream during a period of heavy rainfall. This access has to be dredged open periodically because it fills with sand and completely closes off the canal from the ocean. All the homeowners whose properties border the canal could be affected, and they should be made aware of this proposed project.

We have not experienced the tsunami alert warnings in recent years that we used to hear so frequently, but if a tsunami were to hit this side of the island, the ocean water would almost certainly flow up into this canal. The loss of the marshlands to help accommodate this body of water would greatly increase the danger and damage from such an occurrence.

2. Traffic Problems and Safety Hazards

Ever since the canal was bridged to enable the connection of Hamakua Drive, the traffic has steadily increased on this road. Traffic on Akoakoo Street has also become very heavy; many times we cannot easily get in and out of our driveways because of the traffic. The neighborhood children have been educated to regard Akoakoo Street as a busy thoroughway and Hamakua Drive as a dangerous thoroughfare.

We could detail the specific problems at every intersection, access road and driveway on the Kailua town end of Hamakua Drive from Kailua Road (Pali Highway and entrance to Kailua) to Aoloo Street (which has a large number of townhouse and condominium residents). Suffice it to say this area is heavily trafficked and very congested.

The proposed development would surely create increased traffic problems all along Hamakua Drive. On the residential end of Hamakua, it would directly affect area residents, those many drivers who use Akoakoo Street to get to Hamakua, and the large amount of traffic which comes from both directions of Keolu Drive onto Hamakua. Keolu Hills and Enchanted Lake residents come from one direction and Waimanalo residents come from the other. Few drivers use the Kailua Road exit from Enchanted Lake or the Kalaianaoale Highway/Pali Highway route into Kailua since the opening of Hamakua Drive. The intersection of Keolu Drive and Hamakua is the only intersection on the residential end with a traffic signal and pedestrian crosswalks.

How and where would the proposed affordable housing for the elderly gain access to Hamakua Drive? Where would the entrances and exits to the

proposed senior citizen's center, the senior daycare facility and the children's daycare facility be located? Day care facilities alone, by the very nature of the operations, create increased automobile traffic. Increased foot traffic across Hamakua Drive could create a serious safety hazard, particularly for elderly people. An even more congested traffic situation would result if additional access roads are created, or if further traffic signals or pedestrian crosswalks are installed.

Perhaps one of the things that helps keep tempers and impotence in check (which prevents accidents) through all of this traffic congestion on Hamakua Drive is the tranquility of the lovely expanse of green (marshlands), the opportunity to observe endangered waterbirds, and the beautiful mountains. The proposed development would destroy this.

3. Danger To The Environment

The fact that the canal does run into the ocean when the access is open presents another concern. Fresh water destroys coral. The additional canal runoff, created by this development, into Kailua Bay would create a further danger to the coral reef.

According to the projections, another part of this additional water runoff would be diverted into the pipelines that empty into Enchanted Lake. The residents of lakefront properties and those in the Kukitakila townhouses should be made aware of this fact. We have certainly witnessed the problems with the drainage areas along Keolu Drive, near the Kukitakilo project, during heavy rains. Debris remains there long after the rains and causes a horrible stench in the area. This also raises a question regarding the possible harm to marine life in Enchanted Lake from the silt and debris carried by this new runoff.

4. Impact on Property Values

Of great concern is the loss of property values. The planners for this project make the assertion that this development is compatible with the area. The proposed medium-density housing is most assuredly not compatible with the houses on Akoakoo Street (whose back yards would border these buildings), nor is the proposed development on Hamakua Drive compatible with the houses there. The residents in this area have maintained and upgraded their homes and take pride in them and in the maintenance of their yards. Most of us now own our land. This project would result in the devaluation of our properties.

5. Loss of Privacy

As previously stated, we chose this particular lot with the full confidence that no development was possible in the marshlands between our property and the canal. We still believe this is true. Aside from the reasons already stated, there is just not adequate room behind the Akooko Street lots to accommodate the proposed development. We are very concerned about the loss of our privacy, and the peace and quiet we now enjoy in this location abutting the marshlands, if this proposed project is approved. We would surely miss the large numbers of birds (which has steadily increased in recent years) if this marshland is destroyed.

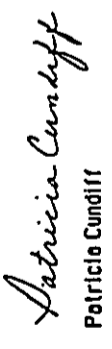
6. Rejection of Similar Proposals

Twice before projects for this same area have been rejected. Affordable housing and community centers for the elderly, day care centers for senior citizens and children, and nursing care facilities are a concern to all of us. But is it because this is the focus of this proposed project that it is being considered when similar projects for the same area have been rejected? And once the rezoning and approval is granted, who guarantees that this is what would actually happen here? We have already heard and read several statements by those proposing this project which contradict one another.

The draft environmental impact statement is inadequate. It does not identify or address our stated concerns. We firmly believe that the proposed development (Kaliua Gateway project) is detrimental to the safety and welfare of the residents (present and proposed), a threat to the environment, and completely inappropriate for this area. A final environmental impact statement needs to incorporate the issues we have raised; and the applicant, consultants and developer for this project need to consider the full impacts of this proposed development.

Sincerely,


Larry L. Cundiff


Patricia Cundiff

Patricia Cundiff

CC: Mr. Randy Moore, Kaneohe Ranch (Applicant)
Heber, Hestert & Fee (Consultant)
Office of Environmental Quality Control
Episcopal Homes of Hawaii, Inc. (Developer)
Kaliua Neighborhood Board Members
Army Corps of Engineers
City Council Members:
Steve Holmes
John Henry Felix
Arnold Morgado, Jr.
John DeSoto
Leigh-Wai Doo
Gary Gill
Donna Mercado Kim
Rene Mansho
Andy Hirikitani
Senator Mary George
Senator Stan Koki
Representative Cynthia Thielen
Representative Jockie Young
Representative Whitney Anderson
U.S. Department of Housing and Urban Development
Department of Land Utilization
Laura Thielen
Eric Weiss
Akooko Street Residents
Hamakua Street Residents

Heller Hestert
Planners

May 6, 1992

Mr. Larry Cundiff
Ms. Patricia Cundiff
647 Akoakoa Street
Kailua, HI 96734

Dear Mr. and Ms. Cundiff:

**Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolaulopoko, Oahu, Hawaii**

Thank you for your letter of April 16, 1992 to the Department of General Planning regarding the subject DEIS. We have reviewed your letter and offer the following responses.

Flooding

The proposed project will not fill any wetland areas. The proposed wetlands restoration will enhance the natural characteristics of the wetlands by removing invasive vegetation and clearing debris.

The City and County of Honolulu is planning to dredge Kawaiinui and Kaelepu Stream to its original design capacity. Kawaiinui Stream will be dredged to approximately (-)7 feet (mean sea level), with the Coconut Grove end of the stream slightly higher. Kaelepu Stream will be dredged to approximately (-)8 feet (MSL).

According to the Environmental Assessment of the Kaelepu and Kawaiinui Streams Maintenance Dredging "there have been instances of stream overflow due to the sediment overload in the stream bed; however, there have been no recorded instances of property damage, and this project (maintenance dredging) will relieve this potential risk." The proposed dredging will "restore the design capacity of the streams."

According to the project civil engineers, Smith Young & Associates, Kawaiinui Stream has sufficient capacity to accommodate the project-related runoff, if the stream and berm at the mouth of the stream at Kailua Bay are properly controlled and maintained by the City and County of Honolulu.

The storm drain inlets on Akoakoa Street drain into the storm drain line under Hamakua Drive and then on to Kaelepu Pond. City and County of Honolulu Storm Drainage Standards require this line to be designed for a 10-year storm. There is sufficient capacity to handle the additional runoff from the portion of the mauka development site which will flow into this line. Flooding in Kawaiinui Stream does not affect the inlets on Akoakoa Street.

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Ms Patricia Cundiff
May 6, 1992
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The stream elevation is approximately 3 feet (MSL) and the development site is well above the existing stream elevation. According to the civil engineers, removing approximately 2 acre-feet of capacity from a flood plain with a capacity of several hundred acre-feet will not raise the 100-year flood plain elevation significantly.

As you may be aware, the dwellings along Akoakoa Street and the condominiums across Kawaiinui Stream from the project area are located in areas determined by the Federal Emergency Management Agency as Zone X in a Flood Area on the Flood Insurance Rate Map (Community Panel #150001 0090 B). Zone X refers to areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood. Any existing requirement by mortgage companies for existing property owners to carry flood insurance is beyond the control of this development.

Civil defense tsunami evacuation maps for the Waimanalo-Kailua area (produced by the Joint Institute for Marine and Atmospheric Research, University of Hawaii, in cooperation with the State of Hawaii Civil Defense System) indicates that the evacuation area is located makai of the confluence of Kawaiinui Stream and Kaelepu Stream. It also notes that the rise in Kaelepu Stream within the evacuation area is estimated at four feet and that the Enchanted Lake area is not in danger. It is the opinion of the Oahu Civil Defense Agency that there would be no significant rise in the level of Kawaiinui Stream in the vicinity of Akoakoa Street due to a tsunami (personal communication, Frank Appel, Oahu Civil Defense Agency, May 6, 1992).

Traffic

The potential impacts of the proposed development on area traffic is discussed in the draft EIS, along with possible mitigation measures. Additional mitigation measures will be discussed in the final EIS.

Access and location of the various elements of the development were described in the DEIS. The traffic impact analysis report prepared by Julian Ng, Incorporated considered the types of activities in its projections of future project-related traffic volumes.

No wetlands are proposed for fill as a part of the development. The wetland restoration plans by Ducks Unlimited will enhance the waterbird habitat and improve the public viewing and educational opportunities of this urban wetland habitat.



Heller Hestert & Co.
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Honolulu, Hawaii 96811
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Environmental Impacts

AECOS, Inc. recently surveyed the nearshore area of Kailua Bay adjacent to the Kawainui/Kaelepulu Stream mouth. The final EIS will include a summary of the final report. A letter from AECOS, Inc. summarizing their findings with respect to the project's potential impacts to coral reefs in Kailua Bay is enclosed for your information. Their summary states that the project-related runoff is unlikely to have any effect on Kailua Bay marine communities.

According to AECOS, Inc. the modest volume of project runoff from the project which will flow into Kaelepulu Pond will not significantly contribute to the siltation in or water quality of the pond.

Impact on Property Values

There is currently no medium-density housing along Akoako Street or Hamakua Drive between Akoako Street and Keolu Drive. However, there are other examples of medium-density residential uses located adjacent to single-family residences elsewhere in Kailua. For example, the 5-story Gardenia Manor, 4-story Poinciana Manor, and 4-story Windward Harbor projects (Development Plan designations: Medium-Density Apartment) are adjacent to the single-family residences along Auwinala Road, Awakea Road, Ka Awakea Road, and Auwina Street (Development Plan designation: Residential). The residences on these streets are in zoning district R-10 (10,000 square foot residential lots), while the residences on Akoako Street and Hamakua Drive between Akoako Street and Keolu Drive are in the higher density zoning district, R-5 (5,000 square foot residential lots). Furthermore, the proposed development is located in an urban context, flanked by existing residential uses, including the condominiums along Aoloo Place and Aoloo Street. This triangular parcel is also located within the State Land Use Urban District, indicating that there is some governmental recognition of the property's potential for urban uses.

Loss of Privacy

While the Akoako Street homes bordering the application area will lose some of its isolationist ambience, every effort will be made to preserve their privacy, including a buffer of landscaping between the elderly affordable housing and the single-family homes. Even with fill bringing the development area to elevation 6 feet above MSL, the final grade of the development area will be lower than the existing Akoako Street homes, and the proposed 2-story structure is not expected to have an imposing presence. The project will comply with applicable City and County setbacks and building standards for the A-2 zoning district.

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Planners

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Ms. Patricia Cundiff
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Rejection of Similar Proposals

The proposed development supports and responds to various General Plan objectives and policies, in particular, the provision of affordable housing, special needs housing for the elderly, and the protection of the natural environment. These are discussed in Section 3.3 of the DEIS.

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

Sincerely,

HELBER HASTERT & FEE, Planners



Gail Uyetake
Project Planner

Enclosure

cc: Randy Moore, Kanoche Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell



970 N. Kahaione Avenue, Suite C311 • Kailua, Hawaii 96734
Telephone: (808) 254-5884

April 22, 1992

Ms. Gail Uyetake
Helber Mastert & Fee
733 Bishop St.
Honolulu, HI 96813

Dear Ms. Uyetake:

Subject: Potential Impact of Increased Runoff from Kawainui Stream on Coral Reefs off Kailua Beach

In their April 14 comments to the Department of General Planning Mr. L. A. Freed and Ms. R. L. Cann express concern over the potential impact of additional runoff from Kawainui Stream on the coral reefs of Kailua Bay. We offer the following comments on this subject, based on the estimates of increased runoff given by the study by Smith, Young and Associates and our own recent survey of the nearshore area of Kailua Bay adjacent to the Kawainui/Kaelepu Stream mouth. More complete information is provided in the enclosed final report "Water Quality and Biological Studies Relative to the Kailua Gateway Project Development".

The nearshore survey conducted April 10, 1992 revealed that the coral reef in the area off the stream mouth has little live coral coverage. The zone from the shoreline to approximate 150 m offshore is a high energy sand environment where the substratum is either too unstable or too scoured by wave resuspended sand to allow settlement of reef corals or most other benthic animals. A variety of macroalgae dominate the biotic community, and, on the area to the north of the stream mouth, algal growth acts as a binder to stabilize the sand somewhat. To the south of the stream mouth the bottom is barren sand to about 180 m offshore, beyond which the bottom is consolidated limestone and coral rubble.

Interestingly, the greatest coral cover in the area occurs directly seaward of the stream mouth, where moderate coverage of four coral species extends seaward from about 120 m from shore. Coverage is patchy, but isolated stands of live coral up to .5 m diameter were found. Reef fish were also more abundant in the habitat provided in this area. No reef corals were reported from surveys conducted in this area in 1977 and 1973. Otherwise the area appeared very similar to the way it was described in 1977. It is

possible that these earlier studies missed the small areas of live coral that may have existed at that time, but it clear from these observations that release of freshwater runoff from the stream mouth during the last 15 to 20 years has had no discernible negative effect on the nearshore reef community.

The stream mouth is blocked most of the time by wave driven sand, which isolates the stream from direct flow into Kailua Bay. However the mouth is dredged open at least monthly by the C & C of Honolulu, and more frequently during periods of high rainfall to provide upstream flood protection. The amounts of storm runoff that have intermittently passed out of the stream mouth in the last twenty years have undoubtedly been substantial, having included the record storm that occurred New Years Eve, 1987 and flooded much of Kailua. Intermittent pulses of storm runoff would be the more likely than continuous stream flow to produce damage to coral reef communities, and no such damage has occurred for the Kailua Bay reefs. Since freshwater is less dense than seawater, stream runoff remains on the ocean surface until waves or processes mix the freshwater into the water column. The Kailua Bay reefs are apparently sufficiently offshore that they are not directly exposed to freshwater runoff before these mixing processes can occur.

The development of the Kailua Gateway project has been estimated to increase the freshwater runoff from the project property during ten year storms by 23%. We estimate that this would amount to an increase of about 16% above the combined flow of the stream in this area including sources from upstream of the Gateway development. This is a small increase, and a negligible one when we consider that Kawainui Stream is a relatively small source of water in terms of the combined flow coming from Enchanted Lakes and Kalelepu Stream. Although we do not have the data to make a firm calculation, it would appear from the above estimates that the increased flow from the Kailua Gateway development will be considerably less than 10% above the total stream runoff reaching the Kaelepu Stream mouth during storms. This increase will be unlikely to have any effect on Kailua Bay marine communities.

We hope that this information will help alleviate concerns about the project's effects on Kailua Bay.

Sincerely,

Stephen L. Coles, Ph. D.

639 Akoakoa St.
Kailua, HI 96734

April 14, 1992

Mr. Melvin Murakami
Department of General Planning
City and County of Honolulu
630 South King Street
Honolulu, HI 96813

Dear Mr. Murakami:

We are offering comments concerning the draft environmental impact statement (DEIS) for the Kailua Gateway project. The comments involve negligent inadequacies of the DEIS with respect to flooding, seismic activity, endangered waterbirds, neighborhood incompatibility, and even feasibility of the project. We understand, by speaking with the Office of Environmental Quality Control (OEQC), that this letter to you as Accepting Authority, with copies to the applicant, consultant, and OEQC, requires the applicant to address each of the concerns we raise here, even though we have not requested to be a consulted party.

Our reasons for offering comments are several. First, we live in an Akoakoa Street home that is contiguous with the makai area of application. We were attracted to the house because it bordered a preservation area, lacked back yard neighbors, and was quieter and more private than other homes we considered. Second, living in our home almost three years, we have experienced rain of sufficient quantity to be concerned about flooding even in the absence of the Kailua Gateway project. Third, as biological scientists we can offer perspective on the problems with endangered waterbirds and on the general relations between assumptions, data, and conclusions in the DEIS.

THE DEIS DOES NOT DEAL ADEQUATELY WITH THE THREAT OF FLOODING. Existing flood conditions for Akoakoa Street homes that are contiguous with the makai area of application are ignored in all chapters and appendices. Yet, as we shall show below, such conditions exist and are linked to the area of application. These conditions should be acknowledged because the increased runoff associated with the project has the potential to worsen them.

a) Flooding occurs in front of Akoakoa Street homes from water in the makai area of application. There are 3 storm drains along Akoakoa Street near the makai area. These drains carry storm water that collects in the street from graded front yards to Kawaiinui Stream in the area of application. During heavy rains, such as the 1987 New Year's Eve storm and also others, flood water within the area of application actually backed up into Akoakoa Street through the storm drains. These waters rose up into residents' front yards and prevented automobiles from using Akoakoa Street. The stream rose so high that Ka Avakea Bridge became a functional dam, and thus the outlets of the storm lines became inlets.

b) The threat of flooding is recognized by some appraisal and mortgage companies that require Akoakoa Street homes to carry flood insurance. Some of our neighbors on Akoakoa Street have been required to obtain flood insurance as a condition for refinancing their mortgage. We are even aware of a family

purchasing a condominium in Windward Cove, which exists on the other side of Kawaiinui Stream, being required to purchase flood insurance.

c) Flooding even occurs in the back yards of Akoakoa Street homes. For example, in March 1991, our rain gauge measured a 4.5 inch rain that fell within a 5 hour period. A small lake 3' deep formed on the lawn in our back yard. The lawn had been planted over land fill clay that had very poor drainage. The waters spread toward the house as well as toward the back property line. Fortunately the area at the rear of our lot and just in back of the property line sloped downward so water eventually drained off the property before it got high enough to enter the house.

d) There is a real threat of flooding from behind Akoakoa Street homes. During the 1987 storm, and during others as well, water has risen from Kawaiinui Stream to the back boundary of Akoakoa Street lots. The floodplain on which the area of application is located is a reality.

These existing conditions mean that there is absolutely no margin for error in estimating the impacts of the the Kailua Gateway project on Akoakoa Street homes and other homes that lie along the watercourse from the area of application to the ocean. The DEIS needs to address the following potential impacts of the project because the increased runoff on a reduced floodplain with 6' fill on the area of application, and the storm line that will dump water directly into Kawaiinui Stream near one of the Akoakoa Street storm drain outlets, are likely to make conditions worse with respect to flooding:

- a) Flooding through the Akoakoa Street storm drains may increase.
- b) Akoakoa Street residents may be required to pay expensive premiums for flood insurance.
- c) The fill behind Akoakoa Street property lines will be higher than the existing back yards in order to drain the development into Kawaiinui Stream. Therefore ponding waters in back yards from heavy rains may go into people's houses rather than drain over the back.
- d) The affordable elderly housing development may flood because the 6' elevation may no longer be relevant given the increased runoff.
- e) The higher elevation of the filled area at the boundary line with Akoakoa Street back yards, necessary to provide drainage within the area of application from the development to Kawaiinui Stream, may cause additional water from the area of application to flow into the back yards of Akoakoa Street residents and thereby increase the risk of flooding to people's homes.
- f) Those people living downstream from the area of application, who currently live in Flood Zone AH, may have increased risk of flooding.
- g) Increased amounts of fresh water not absorbed by the reconfigured or filled wetlands may either flood existing areas, or, if released into the bay, may damage coral reefs and thereby threaten existing beachfront homes with high waves.
- h) There may be legal liabilities with respect to paying flood damage.

This has been the case elsewhere on Oahu. The City and County of Honolulu

will have a role in permitting this development by amending the development plan. The applicant and developer will have a role in worsening existing conditions despite manifest problems concerning flooding.

The DEIS does not discuss water runoff in terms that are significant to flooding impacts. The 2" per hour rainfalls (10 year storms) that are used to estimate runoff flow rates in the stream do not adequately reflect the threat of flooding to homes and condominiums surrounding the area of application. The impacts of flooding should be considered with extreme conditions rather than average or strong conditions given that a floodplain is what is proposed to be developed. Extreme conditions are what would cause massive property damage and threat of injury or death.

The DEIS does not justify the parameters used to estimate runoff and flow rates. The parameters and estimates appear to be arbitrary, without reference to published studies, actual measurements, or mathematical models. We know that hydrological studies have both simple and complex models, and that field studies usually estimate parameters with an average, variance, and range. The assumptions for parameters used in the DEIS need to be spelled out and justified. Otherwise, there is no reason why anyone should agree with the assumptions or believe conclusions that assert "no problem".

THE DEIS DOES NOT DEAL ADEQUATELY WITH THE IMPACT OF SEISMIC ACTIVITY ON DEVELOPMENT IN THE MAKAÏ AREA OF APPLICATION. We have experienced seismic activity at least twice within the last two years in Kailua and our neighbors have documented this activity by noticing movement of water in swimming pools. The hillsides above the mauka area of application are subject to rockslides, as every motorist entering Kailua along Kailua Road is alerted to. The potential of substantial seismic activity is evident from the Pali behind Kaneohe. A recent article in the Journal of Geophysical Research concludes that the Pali is what is left after a massive landslide that created the tidal wave that washed over the island of Lanai. Although this event happened one million years ago, it is relatively recent in terms of the age of Oahu.

There are a number of features of the proposed development on the makaï area of application that may be highly susceptible to seismic activity. First, the soil on which fill would be located is marsh (MZ). We have also noticed substantial amounts of sand. There is a record of settling problems already in Enchanted Lake that might be magnified by seismic activity. The Bay Area in San Francisco has numerous examples of structural problems caused by moderate seismic activity for homes built on fill over marsh soils. Second, the fill on marsh soil and sand is proposed to be sloped for drainage purposes. This may increase the susceptibility of a structure on the fill to seismic damage. Third, the two-story structures that are proposed run greater risk than single story structures. Fourth, the piers proposed to support the rear of the medium density structures over the wetland are perhaps more susceptible to seismic activity than any other design.

The DEIS should combine an analysis of seismic activity with other engineering analyses of the soils and slopes on which the proposed development would be located. This analysis would be important for determining the suitability of the area of application for development as well as identifying constraints on architectural design that would increase protection of residents and visitors from settling and seismic activity.

THE DEIS DOES NOT ADEQUATELY DEAL WITH BUFFERS BETWEEN DEVELOPMENT AND ENDANGERED WATERBIRDS. In the mauka area of application, a 50' buffer of trees and bushes is proposed to screen off visual and auditory disturbances to the birds. There is no justification given that 50' is large enough to fulfill this function. Black-necked Stilts and American Coots certainly feed and breed in proximity to human developments. Kanaha Pond on Maui and Mu'upia Ponds at the Kaneohe Bay Marine Corps Air Station on Oahu provide excellent examples of this. However, at both of these sites there is a buffer that is much greater than 50' in width, probably closer to 100-200'. At KKCAS, restricted entry serves to filter the level of human activity near nesting birds. At Kanaha Pond, public access is limited to an observation pier. The DEIS should also address the possibility that the birds might avoid the portion of the wetland closest to the human development, thereby decreasing the effective size of wetland habitat. This is especially relevant to the mauka area in which the wetland is quite narrow as it parallels the proposed development.

In the makaï area of application there is no buffer proposed between the development and the wetland. While this area may be of limited value to endangered birds in its current state, there are plans to make the wetland into more suitable bird habitat by Ducks Unlimited in collaboration with the U.S. Fish and Wildlife Service. Therefore endangered waterbirds may be expected to use the wetland in this area in the future, and there should be some provision for a buffer between the development and the wetland.

THE DEIS DOES NOT JUSTIFY ITS CLAIM THAT THE DEVELOPMENT IN THE MAKAÏ AREA OF APPLICATION WILL BE COMPATIBLE WITH THE SURROUNDING NEIGHBORHOOD. The proposed change in designation from preservation to medium-density housing is one of the most drastic changes possible, from most-protected status to one of the most permissive land uses, and therefore claims of compatibility deserve special justification. There is no justification, yet the medium-density housing in the makaï area of application is unparalleled on either side of Akoakoa Street or Hamakau Drive between Akoakoa Street and Keolu Drive. None of the Akoakoa Street homes that are contiguous with the area of application have two stories, and all of these homes may have closer back yard neighbors than any other homes in Enchanted Lake if this development proceeds as planned. Moreover, because of the necessity to fill the area of application to an elevation of 6' and to arrange for a slope to drain the area into Kailuanui Stream, the Akoakoa Street homeowners will have closer back yard neighbors in taller buildings, and lose the privacy of their backyards. Visually, they may be forced to look at the foundations of those units due to construction constraints.

The DEIS should identify potential impacts of these circumstances on Akoakoa Street homeowners. Property values may drop relative to comparable homes located further away from medium-density housing. It may be more difficult for homeowners to sell their homes. It may even be the case, since Akoakoa Street homeowners purchased their home with the realization that they bordered a floodplain with preservation status, that the looming presence of medium density housing and the increased risk of flooding disrupts peoples' lives to the point that they are more likely to attempt to sell their house and move to a new location further from medium density housing. At minimum, they will probably incur greater costs to build or maintain higher fences.

plant more dense vegetative covers, and install other privacy-making devices such as burglar alarms.

THE DEIS DOES NOT JUSTIFY ITS CLAIM THAT THE MAKAI AREA OF APPLICATION IS DEVELOPABLE. Even if there were no problems associated with flooding, marsh soil, seismic activity, or endangered waterbirds, the narrow configuration of the makai area of application may pose problems for development. The application for amendment to the development plan includes all the land in the makai area that is not considered wetland by the Army Corps of Engineers. The question then is whether or not all that land is suitable for development.

We have commented previously to the planners that some of the area considered upland in the original application is indeed wetland. We have observed areas in this site with standing water for more than two weeks. We informed the planner of this in September 1991.

Some maps in the DEIS seem to reflect these comments because in most maps the area of application along Akaokoa Street seems to be reduced. However, the conceptual plan that was enclosed with the amended application for development plan amendment, and that is exactly the same as Figure 3 (Conceptual Plan) in the DEIS, has a makai area of application that looks different from the other maps. Therefore the true dimensions and configuration of the area of application are not at all clear. The statement in the DEIS that none of the area of application is considered wetland by the Army Corps of Engineers needs to be clarified if the original application was based on Army Corps of Engineers designations which we believe are incorrect. The point is that some of the land proposed for development is so narrow that even slight alterations of dimensions based on wetland designation may constrain the development to be non-cost-effective, be at variance with building codes, or violate fire truck access regulations.

There are several additional lines of evidence which make us think that consideration of development potential of the makai area has not been adequate. First, there is no preliminary site plan as occurs in the DEIS for the mauka site (Figure 4). Second, the maps used in the civil engineering appendix reflect the original application and so it is not clear that the analyses pertain to the smaller area that ostensibly excludes wetlands as discovered. Third, the area of upland along Akaokoa Drive is included in the makai area of application, yet the DEIS states that development is not feasible in that strip. Why then is this strip included in the area of application?

The DEIS should demonstrate that the makai area of application is developable given the constraints of wetlands, building codes, street codes, and fire department regulations. If not all of the area is developable, then there is no good reason to include non-developable areas, that can continue to serve a valuable function as flood plain, for redesignation from preservation to medium-density housing.

We hope that these comments will assist the applicant, planner, and developer in preparing a final environmental impact statement that is more comprehensive, informative, and analytical.

Sincerely,

Leonard A. Freed

Rebecca L. Cann

cc:

Kaneohe Ranch (Applicant)
Helber Mastert & Fee (Consultant)
Office of Environmental Quality Control
Episcopal Homes of Hawaii, Inc. (Developer)
Kailua Neighborhood Board
Chair
Environment Committee
Planning and Zoning Committee
William Gomes (Boardmember)
John Elliot (Boardmember)
George Gonzales (Boardmember)
Devon Mekoba (Boardmember)
Henry Vincent (Boardmember)
Army Corps of Engineers
U.S. Fish and Wildlife Service
State Department of Land and Natural Resources
National Audubon Society
City Council:
Steve Holmes
John Henry Felix
Arnold Morgado, Jr.
John De Soto
Leigh-Wai Doo
Gary Gill
Donna Mercado Kim
Rene Mansho
Andy Mirikitani
Senator Mary George
Senator Stan Koki
Representative Cynthia Thielen
Representative Jackie Young
Representative Whitney Anderson
U.S. Department of Housing and Urban Development
Laura Thielen
Windward Cove
Windward Harbor
Eric Weiss
Akaokoa Street residents

Heller Huestert
Planners

Mr. Leonard A. Freed
Ms. Rebecca L. Cann
May 7, 1992
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for existing property owners to carry flood insurance is beyond the control of this development.

- c. Any existing drainage problems, such as the "lake" in your backyard, are beyond the control of this development.
- d. The Flood Zone Map included as Figure 19 in the draft EIS, shows flood plain information for the project site. This information will be included in the final EIS.

Potential Impacts of Increased Runoff

a. The drainage and stormwater runoff report for the project has been revised and will be summarized and included in the final EIS. In the revised plan, runoff from the undeveloped area of the project site will be piped under the development area and released into the wetlands. This will decrease the volume of runoff flowing into the storm drain under Hamakua Drive which connects to Kaelepu Pond.

The storm drain inlets on Akoakoa Street drain into the storm drain line under Hamakua Drive and then on to Kaelepu Pond. City and County of Honolulu Storm Drainage Standards require this line to be designed for a 10-year storm. There is sufficient capacity to handle the additional runoff from the portion of the mauka development site which will flow into this line. Flooding in Kawaiui Stream does not affect the inlets on Akoakoa Street.

b. The policy of lending institutions to require flood insurance and the rates for such insurance are beyond the control of this development. As we have pointed out, runoff from the project is expected to be accommodated by Kawaiui Stream.

c. The mauka development area will be filled to the required 6-foot base flood elevation (approximately 1 foot +/- above existing grade). According to the City's topographic photo contour map (Sheet No. 592-78) the elevation of the homes along Akoakoa Street bordering the site is 10 feet above mean sea level (MSL). The development area, therefore, will be at a lower elevation than the adjacent Akoakoa Street homes. The mauka development area will be designed to comply with the Drainage Standards of Honolulu, which requires that the existing natural grade of adjoining properties be maintained (Section 23-3-7 Special Requirements, Paragraph A).

d. The elderly affordable housing will be built according to base flood elevations as specified in the Flood Insurance Rate Maps and according to the



Heller Huestert
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May 7, 1992

Mr. Leonard A. Freed
Ms. Rebecca L. Cann
639 Akoakoa Street
Kailua, HI 96734

Dear Mr. Freed and Ms. Cann:

Draft Environmental Impact Statement (DEIS)
Kailua Gateway Development
Koolaulapoko, Oahu, Hawaii

Thank you for your review of the subject DEIS and your letter of April 14, 1992. We have reviewed your letter and offer the following responses.

Flooding

a. Thank you for bringing the existing flood conditions in the Akoakoa Street area to our attention. We have asked the project civil engineers, Smith Young & Associates, to address the concerns you brought up. The results of their investigation will be included in the final EIS.

The City and County of Honolulu is planning to dredge Kawaiui and Kaelepu Streams to its original design capacity. Kawaiui Stream will be dredged to approximately (-)7 feet mean sea level (MSL), with the Coconut Grove end of the stream slightly higher. Kaelepu Stream will be dredged to approximately (-)8 feet MSL.

According to the Environmental Assessment of the Kaelepu and Kawaiui Streams Maintenance Dredging "there have been instances of stream overflow due to the sediment overload in the stream bed; however, there have been no recorded instances of property damage, and this project (maintenance dredging) will relieve this potential risk." The proposed dredging will "restore the design capacity" of the streams.

According to the project civil engineers, Smith Young & Associates, Kawaiui Stream has sufficient capacity to accommodate the project-related runoff, if the stream and berm at the mouth of the stream at Kailua Bay are properly controlled and maintained by the City and County of Honolulu.

b. As you may be aware, the dwellings along Akoakoa Street and the condominiums across Kawaiui Stream from the project area are located in areas determined by the Federal Emergency Management Agency as Zone X in a Flood Area on the Flood Insurance Rate Map (Community Panel #150001 0090 B) Zone X refers to areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood. Any existing requirement by mortgage companies

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Mr. Leonard A. Freed
Ms. Rebecca L. Cann
May 7, 1992
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City's Land Use Ordinance. The Department of Public Works will review detailed drainage plans prior to commencement of any construction.

c. As noted above, the final elevation of the development area will be the required 6 feet above mean sea level, which, according to City topographic maps, is lower than the elevation of the adjacent Akoakoa Street residences. Runoff from the makai development site will not flow onto adjacent private property. Runoff will be piped into a storm drain system which will release the flows into Kawaiunui Stream at the east end of the site.

f. The stream elevation is approximately 3 feet above MSL and the development site is well above the existing stream elevation. According to the civil engineers, removing about 2 acre-feet of capacity from a flood plain with a capacity of several hundred acre-feet will not raise the 100-year flood plain elevation significantly.

The project should not contribute to the risk of flooding for the residents downstream of the project area if the stream and berm are properly maintained and controlled by the City.

g. No wetlands will be filled as a part of this development. All runoff from the makai development area will flow into Kawaiunui Stream.

AECOS, Inc. recently surveyed the nearshore area of Kailua Bay adjacent to the Kawaiunui/Kaelepulu Stream mouth. The final EIS will include a summary of the final report. A letter from AECOS, Inc. summarizing their findings with respect to the project's potential impacts to coral reefs in Kailua Bay is enclosed for your information. Their summary states that the project-related runoff is unlikely to have any effect on Kailua Bay marine communities.

h. We reiterate that the project's final drainage plan will be reviewed by the Department of Public Works to ensure conformance with all City drainage standards prior to the issuance of a permit.

The difference in calculated runoff between a 10-year storm and a 100-year storm is slight. The rainfall intensity is calculated differently for the 10-year and 100-year storms. For the 10-year storm, following the procedure set forth in the Storm Drainage Standards of the City and County of Honolulu, the intensity (inches of rainfall per hour) is multiplied by time of concentration factor. (The calculations will be included in the revised stormwater runoff and drainage report in the final EIS.) The resulting intensity, used previously, was 3.5 inches per hour. The intensity of a 100-year storm of one hour duration, according to the Rainfall

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Planners

Mr. Leonard A. Freed
Ms. Rebecca L. Cann
May 7, 1992
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Frequency Study for Oahu, 1984, is 3.5 inches per hour. This intensity is greater than the 4.5 inches in 5 hours cited in your letter.

Seismic Activity

According to the Uniform Building Code (1991), the island of Oahu is in Seismic Risk Zone 1 of 5 zones; Zone 5 being the highest risk. All buildings within the proposed development will be designed and constructed in accordance with Uniform Building Code (UBC) requirements for Seismic Zone 1. The UBC specifies construction standards for soils of various bearing capacities as well as for different building types.

Buffer Zone

The makai area is presently of limited value to waterbirds due to dense mangrove thickets and an absence of any sizeable open water habitat. If the area is conveyed to Ducks Unlimited, a buffer area will probably be provided within the boundaries of the wetlands in order to maintain sufficient developable area for the elderly affordable housing.

The proposed buffer, as currently designed, widens from 50 feet to over 200 feet in some areas. As described in a recent letter from the U.S. Fish and Wildlife Service commenting on the draft EIS (April 24, 1992), the development of recommendations for a buffer zone between the development and the nesting habitat for the endangered waterbirds would require site-specific evaluations of the project area. The applicant has, and will continue to work with Ducks Unlimited to design an appropriate buffer.

Compatibility with Surrounding Neighborhood

Your observation that there is no medium-density housing along Akoakoa Street in Hamakua Drive between Akoakoa Street and Keolu Drive is accurate. However, there are other examples of medium-density residential uses located adjacent to single-family residences elsewhere in Kailua. For example, the 5-story Gardena Manor, 4-story Poinciana Manor, and 4-story Windward Harbor projects (Development Plan Designation: Medium-Density Apartment) are adjacent to the single-family residences along Auwinala Road, Awakoa Road, Ka Awakoa Road, and Auwina Street (Development Plan Designation: Residential). The residences on these streets are in zoning district R-10 (10,000-square foot residential lots) while the residences on Akoakoa Street and Hamakua Drive between Akoakoa Street and Keolu Drive are in the higher density zoning district, R-5 (5,000 square foot residential lots). Furthermore, the proposed development is located in an urban context, flanked by existing residential uses, including the condominiums along Aolua Place and Aolua Street. This triangular parcel is also located within

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Mr. Leonard A. Freed
Ms. Rebecca L. Cann
May 7, 1992
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Your letter will be reproduced in the final EIS in its entirety.
Thank you again for your review and input. We hope your will find your concerns adequately addressed in the final EIS.

Sincerely,

HELBER HASTERT & FEE, Planners

Gail Uyetake
Gail Uyetake
Project Planner

cc: Randy Moore, Kanohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell
Timothy Steinberger, Smith Young & Associates

Heller Haster
Planners

Mr. Leonard A. Freed
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the State Land Use Urban District, indicating that there is some governmental recognition of the property's potential for urban uses.

While the Akaokoa Street homes bordering the application area will lose some of their isolationist ambience, every effort will be made to preserve their privacy, including a buffer of landscaping between the elderly affordable housing and the single-family homes. Even with fill bringing the development area to elevation 6 feet above MSL, the final grade of the development area will be lower than the existing Akaokoa Street homes, and the proposed 2-story structure is not expected to have an imposing presence. The project will comply with applicable City and County setbacks and building standards for the A-2 zoning district.

Development Potential of Makai Area

The makai site is wide enough to be developed according to existing regulations. The exact configuration of this development has not yet been determined. The development site averages greater than 100 feet in width, which is adequate for a 24-foot access road, the buildings, and any landscaping. Five truck access is possible. A turnaround will be included in the final design because the access road is longer than 350 feet.

The wetland boundary was identified by the Army Corps of Engineers in 1991 based on field survey, and was used as the basis for determining the area of application. The Corps of Engineers uses three criteria when making wetland determinations: (1) vegetation; (2) soil; and (3) hydrology. Unless an area has been altered or is a very rare natural situation, all three criteria must be present for an area to be designated a wetland. You may contact the Operations Branch of the Corps of Engineers for clarification of their determination criteria as it pertains to this site.

The Department of General Planning requires that maps of the application area for DP amendments be submitted scaled at 1"=1000'. A metric and bounds survey of the makai area wetlands was completed at a much larger scale (1"=200'), which was used as the basis for identifying the area of application. Because of the differences in scale, slight mapping discrepancies can occur. We regret causing any confusion with respect to the makai development area boundary.

As a point of clarification, the draft EIS did not state that development is not feasible in the strip of upland along Hamakua Drive. Rather, it stated that the developable area lies primarily along the southern boundary of the parcel, abutting the homes along Akaokoa Street (page IV-16). This was not meant to imply that the Hamakua Drive section could not be used for parking or other development-related activities.



AECOS

920 N. Kalia Road, Suite 411 • Kailua, Hawaii 96741
Telephone (808) 251-5881

April 22, 1992

Ms. Gail Uyetake
Helber Hastert & Fee
733 Bishop St.
Honolulu, HI 96813

Dear Ms. Uyetake:

Subject: Potential Impact of Increased Runoff from Kawaiinui Stream on Coral Reefs Off Kailua Beach

In their April 14 comments to the Department of General Planning Mr. L. A. Freed and Ms. R. L. Cann express concern over the potential impact of additional runoff from Kawaiinui Stream on the coral reefs of Kailua Bay. We offer the following comments on this subject, based on the estimates of increased runoff given by the study by Smith, Young and Associates and our own recent survey of the nearshore area of Kailua Bay adjacent to the Kawaiinui/Kaelepu Stream mouth. More complete information is provided in the enclosed final report "Water Quality and Biological Studies Relative to the Kailua Gateway Project Development".

The nearshore survey conducted April 10, 1992 revealed that the coral reef in the area off the stream mouth has little live coral coverage. The zone from the shoreline to approximately 150 m offshore is a high energy sand environment where the substratum is either too unstable or too scoured by wave resuspended sand to allow settlement of reef corals or most other benthic animals. A variety of macroalgae dominate the biotic community, and, on the area to the north of the stream mouth, algal growth acts as a binder to stabilize the sand somewhat. To the south of the stream mouth the bottom is barren sand to about 180 m offshore, beyond which the bottom is consolidated limestone and coral rubble.

Interestingly, the greatest coral cover in the area occurs directly seaward of the stream mouth, where moderate coverage of four coral species extends seaward from about 120 m from shore. Coverage is patchy, but isolated stands of live coral up to .5 m diameter were found. Reef fish were also more abundant in the habitat provided in this area. No reef corals were reported from surveys conducted in this area in 1977 and 1973. Otherwise the area appeared very similar to the way it was described in 1977. It is

possible that these earlier studies missed the small areas of live coral that may have existed at that time, but it is clear from these observations that release of freshwater runoff from the stream mouth during the last 15 to 20 years has had no discernible negative effect on the nearshore reef community.

The stream mouth is blocked most of the time by wave driven sand, which isolates the stream from direct flow into Kailua Bay. However the mouth is dredged open at least monthly by the C & C of Honolulu, and more frequently during periods of high rainfall to provide upstream flood protection. The amounts of storm runoff that have intermittently passed out of the stream mouth in the last twenty years have undoubtedly been substantial, having included the record storm that occurred New Years Eve, 1987 and flooded much of Kailua. Intermittent pulses of storm runoff would be the more likely than continuous stream flow to produce damage to coral reef communities, and no such damage has occurred for the Kailua Bay reefs. Since freshwater is less dense than seawater, stream runoff remains on the ocean surface until waves or processes mix the freshwater into the water column. The Kailua Bay reefs are apparently sufficiently offshore that they are not directly exposed to freshwater runoff before these mixing processes can occur.

The development of the Kailua Gateway project has been estimated to increase the freshwater runoff from the project property during ten year storms by 23%. We estimate that this would amount to an increase of about 16% above the combined flow of the stream in this area including sources from upstream of the Gateway development. This is a small increase, and a negligible one when we consider that Kawaiinui Stream is a relatively small source of water in terms of the combined flow coming from Enchanted Lakes and Kaelepu Stream. Although we do not have the data to make a firm calculation, it would appear from the above estimates that the increased flow from the Kailua Gateway development will be considerably less than 10% above the total stream runoff reaching the Kaelepu Stream mouth during storms. This increase will be unlikely to have any effect on Kailua Bay marine communities.

We hope that this information will help alleviate concerns about the project's effects on Kailua Bay.

Sincerely,

Stephen L. Coles, Ph. D.

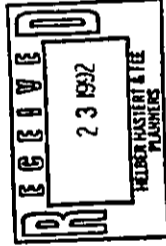


NEO...
 "We Who Stand Tall"
 Makale Elementary School
 KAIKAS Building #1193
 Kailua, Hawaii 96734
 254-1319



20 April 1992

Mr. Melvin Murakami
 Department of General Planning
 City and County of Honolulu
 650 South King Street
 Honolulu, HI 96813



Dear Mr. Murakami,

Like you, we received a copy of Leonard Freed and Rebecca Cann's April 14, 1992 letter stating their concerns and questions about the draft environmental impact statement (DEIS) for the Kailua Gateway project. It's obvious they have done a meticulous job in scrutinizing the paperwork done thus far.

As the original owners of our home at 623 Akoako Street, we are greatly concerned with flooding. In the past 25 years we have had the water rise from the stream up to our property line, but it has never flooded into our home or onto our property. With the project land being elevated above our property, we will become the run off for the proposed Kailua Gateway. Our present storm drains will not be able to adequately service the additional water. Will we be mandated to buy flood insurance

The endangered waterbirds, the neighborhood incompatibility and feasibility all matter to us, but your credibility should matter the most. You and all the parties involved have major decisions to make, especially since we are becoming a more densely populated community that wants to keep a balance between nature and man.

We're looking forward to your final environmental impact statement which should address the concerns already stated in the Freed/Cann letter.

Sincerely,

Cherry Jeong
 Cherry Jeong
David Jeong
 David Jeong
Trenton Jeong
 Trenton Jeong



cc: Randy Moore. Gail Ivetake and State of Hawaii Environmental Quality

Hilber, Hastert
 Planners

May 6, 1992

Ms. Cherry Jeong
 Mr. David Jeong
 Mr. Trenton Jeong
 623 Akoako Street
 Kailua, HI 96734

Dear Ms. and Messrs. Jeong:

**Draft Environmental Impact Statement (DEIS)
 Kailua Gateway Development
 Koolaupoko, Oahu, Hawaii**

Thank you for your letter of April 30, 1992 to the Department of General Planning concerning the above-referenced document. We have reviewed your letter and offer the following responses.

Drainage

The City and County of Honolulu is planning to dredge Kawaiui and Kaelepu Stream to its original design capacity. Kawaiui Stream will be dredged to approximately (-)7 feet mean sea level (MSL), with the Coconut Grove end of the stream slightly higher. Kaelepu Stream will be dredged to approximately (-)8 feet (MSL).

According to the Environmental Assessment of the Kaelepu and Kawaiui Streams Maintenance Dredging "there have been instances of stream overflow due to the sediment overload in the stream bed; however, there have been no recorded instances of property damage, and this project (maintenance dredging) will relieve this potential risk." The proposed dredging will "restore the design capacity" of the streams.

According to the project civil engineers, Smith Young & Associates, Kawaiui Stream has sufficient capacity to accommodate the project-related runoff, if the stream and berm at the mouth of the stream at Kailua Bay are properly controlled and maintained by the City and County of Honolulu.

As you may be aware, the dwellings along Akoako Street and the condominiums across Kawaiui Stream from the project area are located in areas determined by the Federal Emergency Management Agency as Zone X in a Flood Area on the Flood Insurance Rate Map (Community Panel #150001 0090 B). Zone X refers to areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood. The policy of lending institutions to require flood insurance and the rates for such insurance are beyond the control of this development. As we have pointed out, runoff from the project is expected to be accommodated by Kawaiui Stream.

Hilber, Hastert & T
 Planners, 1991
 211 Hahaione Street, Suite 214
 Honolulu, Hawaii 96815

Telephone: 281-3131
 Fax: 281-3131



Helber Haster
Planners

Ms. Cherry Jeong
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The makai development area will be filled to the required 6-foot base flood elevation (approximately 1 foot +/- above existing grade). According to the City's topographic photo contour map (Sheet No. 592-78) the homes along Akoakoa Street bordering the site are at 10 feet (MSL). The development area, therefore, will be at a lower elevation than the adjacent Akoakoa Street homes. Runoff from the makai development site will not flow onto adjacent private property. Runoff will be piped into a storm drain system which will release the flows into Kawaiinui Stream at the east end of the site.

The storm drain inlets on Akoakoa Street drain into the storm drain line under Hamakua Drive and then on to Kaelepu Pond. City and County of Honolulu Storm Drainage Standards require this line to be designed for a 10-year storm. There is sufficient capacity to handle the additional runoff from the portion of the mauka development site which will flow into this line. Flooding in Kawaiinui Stream does not affect the inlets on Akoakoa Street.

Compatibility with Surrounding Neighborhood

Mr. Freed and Ms. Cann's observation that there is no medium-density housing along Akoakoa Street or Hamakua Drive between Akoakoa Street and Keolu Drive is accurate. However, there are other examples of medium-density residential uses located adjacent to single-family residences elsewhere in Kailua. For example, the 5-story Gardenia Manor, 4-story Poinciana Manor, and 4-story Windward Harbor projects (Development Plan designation: Medium-Density Apartment) are adjacent to the single-family residences along Auwinala Road, Awakea Road, Ka Awakea Road, and Auwina Street (Development Plan designation: Residential). The residences on these streets are in zoning district R-10 (10,000 square foot residential lots), while the residences on Akoakoa Street and Hamakua Drive between Akoakoa Street and Keolu Drive are in the higher density zoning district, R-5 (5,000 square foot residential lots). Furthermore, the proposed development is located in an urban context, flanked by existing residential uses, including the condominiums along Aolooa Place and Aolooa Street. This triangular parcel is also located within the State Land Use Urban District, indicating that there is some governmental recognition of the property's potential for urban uses.

Development Potential of Makai Area

The makai site is wide enough to be developed according to existing regulations. The exact configuration of this development has not yet been determined. The development site averages greater than 100 feet in width, which is adequate for a 24-foot access road, the buildings, and any landscaping. Fire truck access is possible. A turnaround will be included in the final design because the access road is longer than 350 feet.

Helber Haster
Planners

Ms. Cherry Jeong
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Impacts to Waterbirds

The potential impacts of the proposed project and corresponding mitigation measures were discussed in the draft EIS.

Your letter will be reproduced in the Final EIS in its entirety.

Thank you again for your review and input.

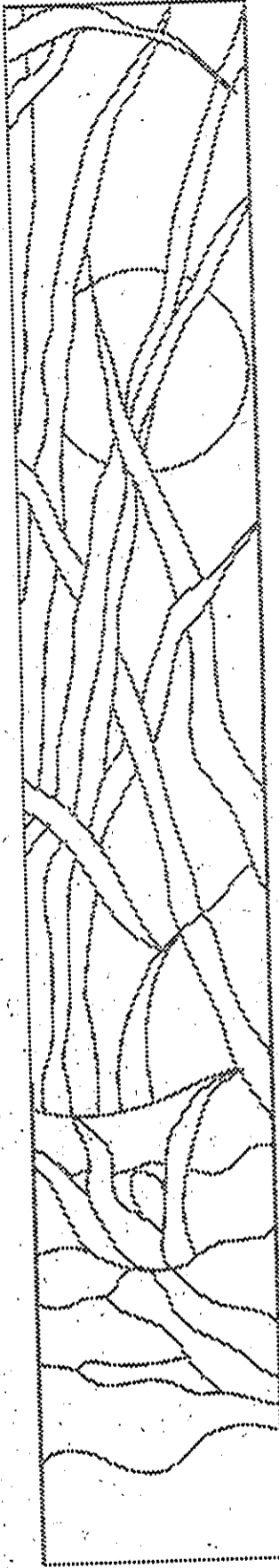
Sincerely,

HELBER HASTER & FEE, Planners

Gail Uyelake

Gail Uyelake
Project Planner

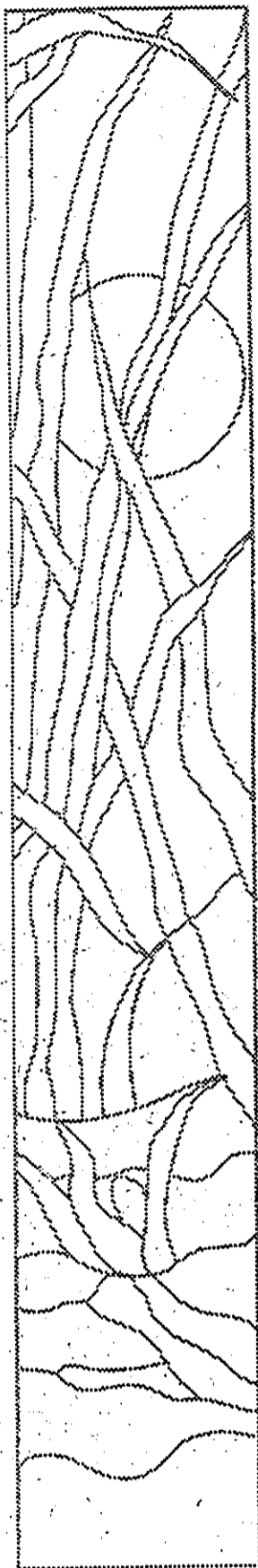
cc: Randy Moore, Kaneohe Ranch
Tony Garcia, Episcopal Homes of Hawaii, Inc.
Don Graham, Graham Murata Russell



Appendices



Appendix A



**Water Quality and Biological Studies of
Kawainui Stream**

AECOS, Inc.

AECOS No. 664

INTRODUCTION AND PROJECT DESCRIPTION

Kaneohe Ranch, Ltd. proposes to develop the Kailua Gateway project near the entrance to Kailua town at the intersection of Kailua Road and Hamakua Drive. The development will be on 89 acres southeast of Kailua Road running parallel to Hamakua Drive and a triangular area 8.4 acres east of Hamakua Drive (Figure 1). The project will be a 400 unit retirement community including a 60 bed skilled nursing facility, 50 to 80 units of affordable elderly housing, commercial area expansion near Kailua road, and possibly hillside townhomes.

WATER QUALITY AND BIOLOGICAL STUDIES
OF KAWAINUI STREAM RELATIVE
TO THE KAILUA GATEWAY
PROJECT DEVELOPMENT

Prepared By:

AECOS Inc.
970 Kalaheo Ave. Suite C-311
Kailua, Hawaii 96734

Prepared For:

Helbert, Hastert & Fee
733 Bishop St.
Honolulu, HI 96813

April, 1992

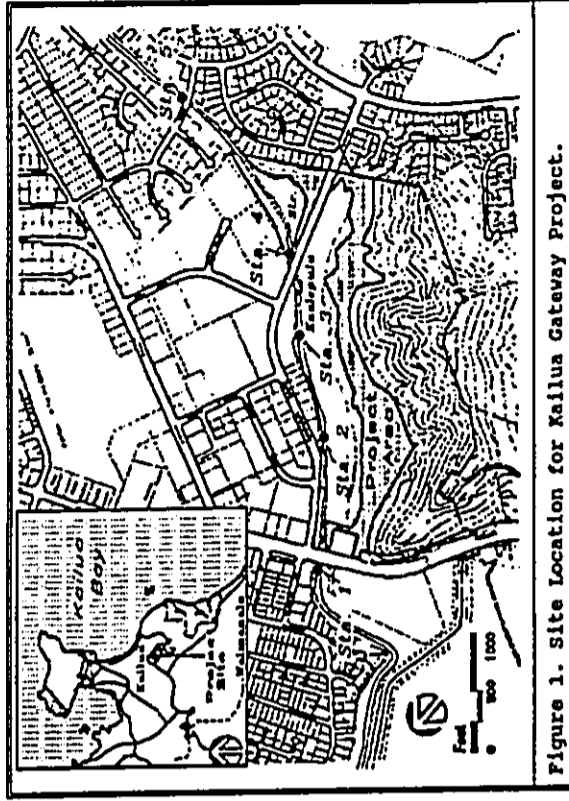


Figure 1. Site Location for Kailua Gateway Project.

Approximately 26 acres of the project's area is designated wetlands and will not be developed, but will be transferred to a conservation group. The wetland is formed by drainage from Kawainui Stream, which forms the northeast border of the project. Because Kawainui Stream will be subject to impact from construction and development of the project, studies were

undertaken to determine baseline conditions for the stream which could be used to evaluate any long term changes in environmental conditions that might occur. This report describes the past and present aquatic environment of Kawaiinui Stream and evaluates the potential impacts of the development of Kailua Gateway project on Kawaiinui Stream.

HISTORICAL BACKGROUND OF KAWAINUI STREAM

Kawaiinui Stream (usually referred to previously as Kaelepulu Stream) consists of two main segments. The first is a man-made canal which runs approximately 6500 feet along the eastern side of Kawaiinui Marsh, from the stream's present blind end by the Oneawa Canal to the Kailua Road bridge. The second segment follows the stream's original natural water course for about 6700 feet through a marshy area next to and beyond Hanakua Drive and joins Kaelepulu Stream, which drains Enchanted Lakes, the remaining vestige of Kaelepulu Fishpond. The upper segment of Kawaiinui Stream provides drainage through four canals from the Coconut Grove area, and a total of thirteen major and minor discharge points empty into the stream between its head and Kailua Road (M & E Pacific, 1989). Water from Kawaiinui Stream and Enchanted Lakes eventually reaches the ocean through the Kaelepulu Stream outlet at Kailua Beach Park. However, the mouth of this channel is often blocked by accumulated beach sand which limits the capacity of the system to drain.

Kawaiinui Stream was originally the primary drainage for Kawaiinui Marsh, which is the largest remaining wetland in the State of Hawaii. The marsh has been shown by geological studies to have been an open lagoon embayment similar to present day Kaneohe Bay (Kraft, 1980; cited in Kelly and Nakamura, 1981 and Drigot, 1982). By the time of Hawaiian occupation 1600 to 1300 years ago an accretion barrier had formed in the present vicinity of Coconut Grove. This barrier restricted flow into the lagoon to a channel in the present location of Kawaiinui Stream near the present Kailua Road Bridge and possibly to an outlet north of the barrier near the present Oneawa Canal. At that time water exchanged freely between Kawaiinui lagoon and the ocean. The accretion of barriers along the fronts of both Kawaiinui and Kaelepulu lagoons continued and

was possibly augmented by the Hawaiians to isolate these areas from the ocean for the purpose of confining and growing fish.

By the time of European arrivals in Hawaii both Kawaiinui and Kaelepulu lagoons were enclosed freshwater systems utilized by Hawaiians as the largest fishponds and taro growing areas in the Hawaiian Islands (Summers, 1964). The two ponds, totaling approximately 650 acres, were connected by a mile long watercourse in the present location of Kawaiinui Stream which provided the principal outlet from Kawaiinui Pond and Marsh to the sea. According to Kraft (1980) there was still access to the Kawaiinui fishpond by boat. Approximately 250 acres along the mauka side of Kawaiinui Fishpond and additional areas between the fishpond and Kawaiinui Stream were utilized for taro growing by controlling and damming the streams into a network of irrigation ditches. The richness and productivity of this water based agriculture/aquaculture system made Kailua a major population center and the capital of Oahu prior to European influence (Drigot, 1982).

Following European contact the Kailua Hawaiian population fell dramatically with the introduction of disease, cultural fragmentation and migration to Honolulu when it became Hawaii's capital. By the time of the first census in 1831-32 the population of Kailua was only 760 persons, and the second census in 1835-36 showed a population of 762 (Kelly and Nakamura, 1981). The resulting lack of labor to maintain the Kawaiinui and Kaelepulu fishponds and clean them of unwanted plant life hastened their decline and natural evolution into marshlands. The decline in demand for taro by the Hawaiian population and increased demand for rice by Chinese and Japanese immigrants prompted a shift to rice production in the former taro pond area around Kawaiinui from 1850 to 1900. Likewise, rising demand for and production of sugar cane promoted further changes in the water systems affecting Kawaiinui Marsh and Kawaiinui Stream. In 1878 the Waimanalo Sugar Plantation began diverting about two million gallons of water per day to Waimanalo Valley which had formerly flowed into the marsh and out of the stream. This water diversion continues today to Waimanalo farmers even though sugar production in the area has long ceased. Further water diversion was implemented in the 1920's which effectively drained the last vestiges of Kawaiinui fishpond, and a vertical

pump installed by Kaneohe Ranch in 1956 and operated until 1965 dropped the water table in the marsh about four feet, increasing the grassland available for grazing (Kelly and Nakamura, 1981; Drigot, 1982).

While this transition from a predominantly freshwater to a grassland environment in the marsh was occurring, other changes in land use and management were occurring which would even more drastically affect the water quality of Kawaiinui Stream. With the urbanization of Honolulu, the desirability of the Kailua climate and recreational opportunities afforded there, the area became increasingly popular as a site for weekend vacation homes. After Honolulu became more accessible with completion of the Pali tunnel and highway in 1957, the permanent population of Kailua soared from 7,740 in 1950 to 25,622 in 1960 and 33,783 in 1970. One of the earliest areas for home construction was "Coconut Grove", along the mauka side of the sand berm that had formed to isolate Kawaiinui Pond from the ocean. Subdivision of Coconut Grove into house lots began in 1924 on 320 acres of former sand dunes which had been planted after 1909 with over 130,000 coconut trees from Samoa and Kauai.

It was soon apparent that homes and streets in this area next to the marsh were prone to flooding, and the U. S. Army Corps of Engineers recommended in 1941 that the marsh drainage be altered to promote flood control in the Coconut Grove area. This need was underscored by a major flood in 1951 that extended the entire length of Coconut Grove to a little makai of Oneawa Street. The first phase of this flood control project was completed in 1952. It consisted of dredging of the pilot channel of the present Oneawa Canal from Kawaiinui Marsh to Kailua Bay. The final stage of this project was completed in 1966 and consisted of the present Oneawa Canal and a nine foot high levee which runs along the marsh side of Coconut Grove. This levee, which was intended to protect Coconut Grove from marsh flooding, effectively isolated Kawaiinui Stream from marsh outflow, resulting in the present dead end configuration of the upstream section of Kawaiinui Stream near the Oneawa Canal.

Despite these efforts major floods continued to occur in the area in 1956, 1958, 1961, 1963, 1966 and 1969 which showed

that protection of Coconut Grove from marsh overflow was not sufficient to prevent flooding. A 1971 study proposed that flooding of Coconut Grove was primarily due to a shallow water table and lack of a sufficient storm drainage system and that water from the marsh no longer contributed significantly to the flooding. Storm sewers and improved drainage into the Kawaiinui Stream were implemented in the early 1970's which were hoped would prevent further serious flooding. However, on New Years Eve 1987 the worst flood ever recorded occurred in the Coconut Grove area, causing damage exceeding \$10 million and displacing hundreds of people from their homes (M & E Pacific, 1989). Both the levee, which was overtopped by water from Kawaiinui Marsh, and the Kawaiinui Stream drainage system were inadequate to remove water at a rate sufficient to prevent flooding.

Initial efforts to prevent a repeat of such an event consisted of raising the levee an additional foot, removal of vegetation from the mauka side of the marsh which had restricted water flow from reaching the Oneawa drainage canal and maintaining the mouth of Kaelupulu Stream at Kailua Beach open during periods of high rainfall. For a longer term solution to Coconut Grove flooding the available information was reviewed and five alternatives were evaluated (M & E Pacific, 1989). One of these alternatives was to provide the capability of overflow from Kawaiinui Stream at its present blind end into Oneawa Canal during periods of high water. This would also have helped to reduce stagnation in Kawaiinui Stream from its present condition (see below). However this alternative was not approved by the U. S. Army Corps of Engineers. Rather, the plan now proposed and accepted is to raise the levee an additional eight feet and maintain areas of open water on the mauka side of Kawaiinui Marsh which will increase the capacity for water to flow toward the Oneawa Canal (Margo Stahl, U. S. Army Corps of Engineers, pers. comm.).

The history and expected future of Kawaiinui Stream in the vicinity of the proposed project is therefore one of transition from a natural, free flowing water course to an artificially restricted appendix to the former Kaelupulu Fishpond, now known as Enchanted Lakes. The water quality and biological communities of Kawaiinui stream were evaluated in the present study to determine the existing conditions and evaluate potential impacts of the Kailua Gateway development.

METHODS

The water quality of Kawaiinui Stream was sampled at the five stations shown on Figure 1 on November 18 during dry weather and on December 13, 1991 following a heavy rain. Station 1 was located on the north side of the Kailua Road Bridge, Station 2 adjacent to the Creekside Tavern parking lot, Station 3 by the Kailua Kaiser Clinic parking lot, Station 4 on the east side of the Hamakua Road Bridge, and Station 5 on the east side of the Ka Awakea Street Bridge. The stations therefore extend from the upstream to below the downstream limits of the proposed development.

Water was sampled from just below the stream surface and adjacent to the stream bank. On site measurements of salinity were made using a Cambridge Instruments refractometer readable to parts per thousand (0/00), temperature and dissolved oxygen with a YSI Model 54 oxygen meter and pH with Cambridge Scientific Hydac Conductivity-Temperature-pH Tester. Water samples were taken at the stations and held on ice until their return to the laboratory within 2 hours, where they were analyzed immediately or held frozen for analysis within two weeks. Analyses were made for turbidity, nonfilterable residue (NFR), ammonia, nitrate+nitrite, total nitrogen, orthophosphate, total phosphorus and chlorophyll a.

Biological studies were undertaken in March and April, 1992. The entire stream course was inspected by two observers in kayaks from Station 1 to the stream mouth at Kailua Beach, and all macro-biota that could be observed from the surface in and along the stream were recorded. Benthic samples were taken on April 3 at Stations 1, 3, 5 (Figure 1) and near the stream mouth (Figure 2) using a dredge that sampled an approximate 30 by 30 cm area to a penetration depth of about 5 cm. These samples were reduced in volume on site to subsamples of about 0.5 liter by sieving through a 0.5 mm mesh size screen to remove silt and clay. The subsamples were returned to the laboratory and further sieved through 4.0, 2.0, 1.0, and 0.5 mm screens, and all organisms that could be resuspended in the washings were sorted from each size fraction, identified, and their relative abundances in the samples were estimated.

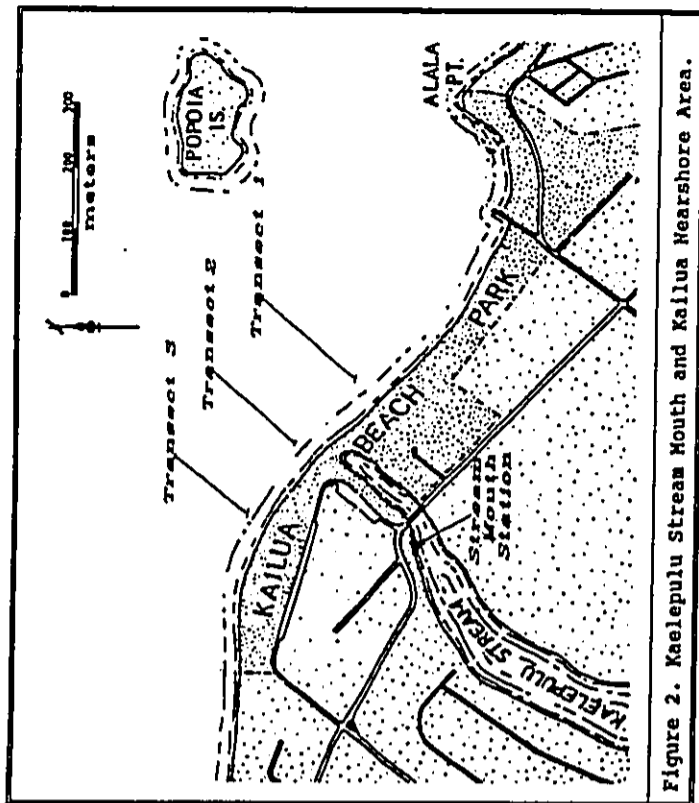


Figure 2. Kaelelepu Stream Mouth and Kailua Nearshore Area.

Fish and large invertebrates were sampled at Stations 1, 3 and 5 from April 9 to April 14 and at the stream mouth from April 14 to April 19 using fish traps 1 by 2 by 3 feet in dimension with a mesh size of 0.5 by 1 inch. The traps were checked at 12 and 24 hours after deployment and at 48 hour intervals thereafter for a total sampling time of five days at each station. Fishes and invertebrates caught in the traps were returned to the laboratory where they were counted, measured and weighed.

A swimming survey was made offshore along Kailua beach in the vicinity of the Kawaiinui Stream mouth. Three transects were inspected from the shoreline to about 250 m offshore and the relative abundances of the dominant macroalgae,

invertebrates and vertebrates were recorded. The transect locations were 1) directly off shore of the lifeguard chair south of the stream mouth, 2) directly offshore of the stream mouth, and 3) offshore of the north side of the Kailua Beach Pavilion north of the stream mouth.

RESULTS AND DISCUSSION

Water Quality

Concentrations and values of the parameters sampled at the five Kawaiinui station are shown in Table 1 along with their geometric means and the geometric mean values not to be exceeded to comply with Hawaii state water quality standards for estuaries. Geometric mean values for the five stations which exceed limit for state water quality standards for estuaries are shown in bold type.

The data show that Kawaiinui Stream water quality in the vicinity of the proposed project is very low. The individual values and geometric means for most parameters far exceed the state water quality standards, especially for dissolved nutrients, total nitrogen and phosphorus and Chlorophyll *a*. The standard geometric mean for ammonia is exceeded by the geometric mean of the samples by 25 to 64 times, the standard for nitrate+nitrite by 4 to 14 times, the standard for total nitrogen by 1.1 to 7 times and the standard for total phosphorus by 4 to 5 times. The state standard geometric mean standard was exceeded for chlorophyll *a* by 3.8 to 10 times and turbidity by 1.2 to 1.3 times. All dissolved oxygen concentrations were below the state standard of 75% of the saturation value at the given temperature and salinity, ranging to as low as 30% of the saturation.

Although no flow was detected in the stream on either sampling date, the water quality data show a pronounced gradient for many of the parameters along the stream (Figures 3 to 6). Mean salinity (Figure 3) increased from 13 o/oo at Station 1 at the Kailua Road bridge to 19 o/oo at Stations 4 and 5 at the Hamakua Road and Ka Awakea Road bridges respectively, with a substantial salinity reduction between November 18 and December 13 occurring due to rain runoff. Even with this runoff there appears to be a pronounced influence of

ocean water into the upper reaches of Kawaiinui stream, even though the stations are all over 1.5 miles from the Kaelepulu Pond outlet into the ocean at Kailua Beach and the outlet was blocked at the shoreline by sand at the time of the stream sampling. The stagnant nature of this water is indicated by the low dissolved oxygen concentrations which generally decreased going upstream on both sampling dates. Turbidity (Figure 4) showed little change with station location while nonfilterable residue (NFR) mean values appears to have peaks at Stations 3 and 5.

The patterns for the various forms of nitrogen (Figure 5) further reflect the stagnant nature of this section of Kawaiinui Stream and suggest that anoxic, reducing conditions dominate going up the stream during periods of low rainfall. This is most clearly shown by ammonia nitrogen, which had a mean concentration on November 18 at the most upstream Station 1 of nearly 300 times the State criterion water quality geometric mean limit of 0.006 mg/l. Ammonia accumulates in water through the excretion of animals and, more importantly, through decay and bacterial decomposition of plant and animal tissue under low oxygen. As ammonia is oxidized, it is converted to nitrite and then to nitrate, and the concentrations of ammonia are generally mirror images of nitrate+nitrite concentrations. This pattern was shown by the November 18 data, with ammonia decreasing linearly toward Station 5, indicating oxidation of the ammonia compound to nitrite and then nitrate. Nitrate+nitrite on November 18 generally increased from Stations 1 to 5, although an inconsistent increase in concentrations occurred at Station 2.

The concentrations of total nitrogen, which includes dissolved organic, particulate organic and particulate inorganic nitrogen forms, closely paralleled the pattern for ammonia on November 18, decreasing linearly from Station 1 to Station 5. Ammonia also dominated over all other forms of nitrogen, ranging from 70% of the total nitrogen by weight at Station 1 to 50% by weight at Station 5.

Orthophosphate and total phosphorus concentrations on November 18 also showed a pattern consistent with increasing stagnation and decay of organic matter going upstream, especially at Station 1 where concentrations of both

orthophosphate and total phosphate were about ten times those of other stations. Because orthophosphate is the only oxidation state of dissolved inorganic phosphorus, concentrations of this compound reflect the abundance of decayed, decomposed and excreted organic matter in the water. Similar to the pattern for ammonia and total nitrogen, the pattern for total phosphorus closely parallels the pattern for orthophosphate with both increasing drastically at Station 1.

With the increased rainfall that preceded the December 13 sampling the concentrations of orthophosphate and all forms of nitrogen became substantially diluted at most stations, indicating that runoff concentrations of these nutrients are well below their concentrations in the stream during periods of low rainfall. Ammonia decreased by as much as 10 times from November 18 to December 13. However, total phosphorus increased at three of the five stations, suggesting a high runoff input of phosphorus from suspended solids and other particulate sources.

Chlorophyll *a* concentrations were high at all stations, during both samplings (Table 1; Figure 4) indicating that the high nutrient concentrations shown in Figures 4 and 5 are being rapidly utilized by phytoplankton, creating a high standing crop and a eutrophic condition. Chlorophyll *a* was highest at Station 3 and decreased rapidly downstream and upstream. Chlorophyll *a* did not track well with any of the forms of nitrogen or phosphorus measured, nor with turbidity. Chlorophyll *a* did appear to correlate well with NFR at all stations except Station 5.

Limited data are available to compare the present results with previous measurements in the upper reaches of Kawaiinui Stream or with the aquatic environment in nearby Kawaiinui Marsh. Temperature, salinity and dissolved oxygen were measured in July 1989 (M & E Pacific, 1989- Appendix B, Section 4)) in the section of Kawaiinui Stream above the present study area, from 800 feet above the Kailua Road Bridge to the dead

Table 1. Kawaiinui Stream Water Quality on November 18 and December 13, 1991

Parameter	Date	Station					State Criteria Geo. Mean
		1	2	3	4	5	
Temperature (deg C)	11/18/91	25.5	26.5	26.5	26.7	26.7	26.7
	12/13/91	24.5	24.5	24.5	24.5	25.0	25.0
Salinity (o/oo)	Geo. Mean	25.0	25.5	25.5	25.6	25.8	-
	11/18/91	17.0	20.0	22.0	24.0	24.0	-
Dissolved Oxygen (ppm)	12/13/91	10.0	10.0	10.0	10.0	15.0	4
	Geo. Mean	13.0	14.1	14.8	15.5	19.0	-
pH	11/18/91	2.1	3.4	3.6	5.1	4.5	-
	12/13/91	4.6	5.4	3.8	4.9	5.3	-
Turbidity (NTU)	Geo. Mean	3.1	4.3	3.7	5.0	4.9	>5.21
	11/18/91	7.70	7.79	7.70	7.73	7.79	-
Non-Filt. Residue (mg/l)	12/13/91	7.96	7.96	7.74	7.84	7.91	-
	Geo. Mean	7.83	7.87	7.72	7.78	7.85	7.0-8.6
Ammonia (mg N/l)	11/18/91	1.93	1.86	1.40	1.68	1.83	-
	12/13/91	3.47	4.02	4.37	4.40	3.42	-
Nitrate + Nitrite (mg N/l)	Geo. Mean	2.59	2.73	2.47	2.72	2.50	2.00
	11/18/91	3.40	4.20	7.00	4.90	8.20	-
Total Nitrogen (mg N/l)	12/13/91	3.00	4.40	8.40	5.20	5.40	-
	Geo. Mean	3.19	4.30	7.67	5.05	6.65	-
Ortho-phosphate (mg P/l)	11/18/91	1.380	1.020	0.880	0.922	0.687	-
	12/13/91	0.108	0.023	0.102	0.038	0.102	0.006
Total Phosphorus (mg P/l)	Geo. Mean	0.386	0.153	0.300	0.187	0.265	0.006
	11/18/91	0.037	0.062	0.045	0.048	0.084	-
Chlorophyll <i>a</i> (mg/l)	12/13/91	0.028	0.050	0.050	0.070	0.038	0.008
	Geo. Mean	0.032	0.056	0.047	0.058	0.056	-
Total Nitrogen (mg N/l)	11/18/91	1.970	1.600	1.570	1.600	1.380	-
	12/13/91	0.900	0.720	0.030	0.690	0.570	0.200
Ortho-phosphate (mg P/l)	Geo. Mean	1.332	1.073	0.217	1.031	0.887	-
	11/18/91	0.055	0.013	0.009	0.007	0.008	-
Total Phosphorus (mg P/l)	Geo. Mean	0.042	0.020	0.021	0.022	0.019	-
	11/18/91	0.128	0.099	0.097	0.098	0.102	-
Chlorophyll <i>a</i> (mg P/l)	12/13/91	0.130	0.120	0.142	0.138	0.098	-
	Geo. Mean	0.129	0.109	0.118	0.116	0.100	0.025
Chlorophyll <i>a</i> (mg/l)	11/18/91	22.00	21.10	40.00	48.00	10.60	-
	12/13/91	5.18	6.32	10.90	5.36	5.68	-
Salinity (mg/l)	Geo. Mean	10.68	11.55	20.88	16.04	7.76	2.00
	11/18/91	10.68	11.55	20.88	16.04	7.76	-

* Salinity - Shall not vary more than 10% from ambient conditions.
 1 Dissolved Oxygen - Not less than 75% of saturation at the given temperature and salinity.

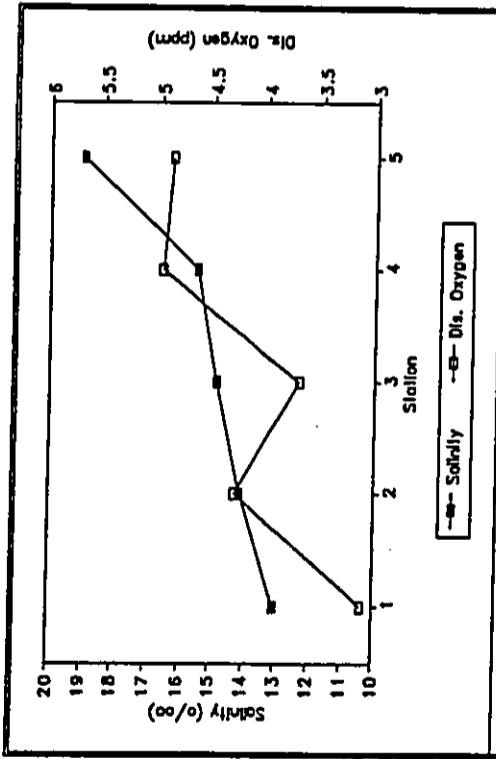


Figure 3. Salinity and Dissolved Oxygen Geometric Mean Concentrations at Kawainui Stream Stations.

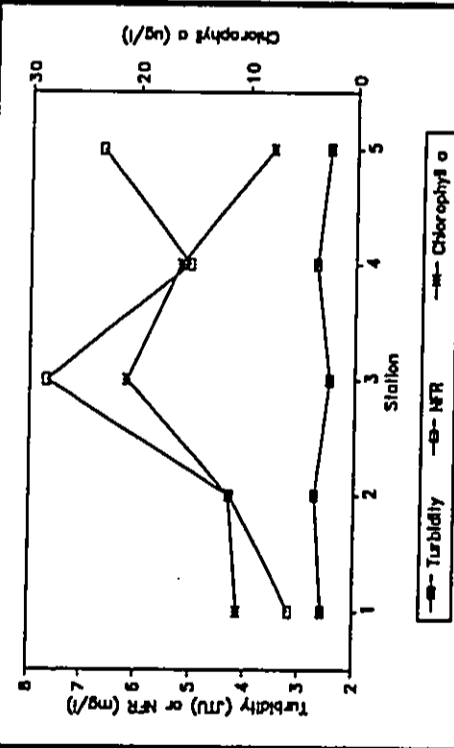


Figure 4. Geometric Means of Turbidity, Nonfilterable Residue and Chlorophyll a at Kawainui Stream Stations.

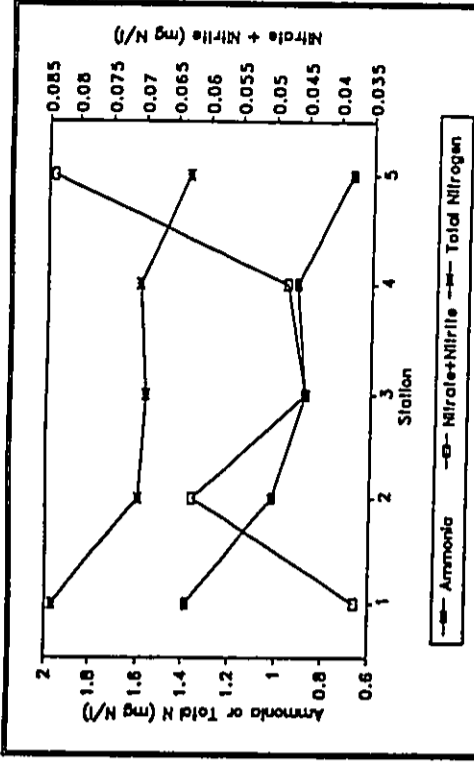


Figure 5. Concentrations of Ammonia, Nitrate + Nitrite and Total Nitrogen at Kawainui Stream Stations on 11/18/91.

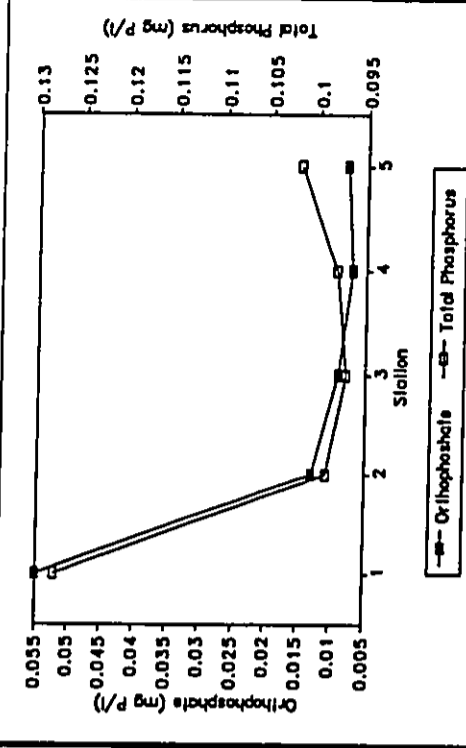


Figure 6. Concentrations of Orthophosphate and Total Phosphorus in Kawainui Stream on 11/18/91

end adjacent to Oneawa Canal. Dissolved oxygen, which was measured during both morning and afternoon in the 1989 study, changed dramatically through the day, with morning measurements ranging about 2.2 to 4.8 mg/l and afternoon values about 6.3 to 7.3 mg/l. In contrast to the present results the stream water was found to be much less saline in these upper reaches, with salinity ranging only 2.4 to 3.5 o/oo. The section of the stream above the Kaiua Road bridge was also surveyed during the present study on March 1, 1992 and found to have a salinity throughout of 10 o/oo. These substantially higher salinity values during the present study are probably a result of reduced precipitation and runoff during a relatively dry year.

The waters entering, within and leaving Kawaiui marsh were sampled for a full range of water quality parameters in March and April 1989 (H & E Pacific, 1989-Appendix B, Section 3). These results are summarized in Table 2 along with the geometric means of the five stations of the present study. Locations of the Kawaiui stations are as follows: Stream Input = means of values for Maunawili and Kahanaiki Streams; Southwest = means for two stations below the confluences of the two streams; Mid Pond = open body of water in middle of the marsh; SE Canal = upper dead end of emergency canal which runs parallel to levee on marsh side; East Canal = midway along levee; Oneawa Canal = just prior to entrance of Oneawa Canal. The station sequence is approximately from upstream to downstream.

The data contrast distinctly with the Kawaiui Stream results in a number of ways. Salinity was only 0.02-0.03 o/oo, showing little or no ocean influence on the marsh water. Dissolved oxygen ranged from near saturation in upstream areas to less than 50% saturation at the two canal station, reflecting sluggish and stagnant downstream conditions. pH declined slightly going downstream, while turbidity generally increased, especially at the upper end of the emergency canal. Non-filterable residue was maximum in the stream samples and quite similar at all the marsh stations. Both turbidity and NFR were slightly to substantially greater in the marsh water than in Kawaiui

Table 2. Comparison of Kawaiui Marsh Water Quality in March-April, 1989 with Kawaiui Stream Water Quality on November 18 and Dec 13, 1991.

Parameter	Kawaiui Marsh Location					Study
	Stream South	Mid SE.	East	Oneawa Sta. 1	Input West Pond Canal Canal	
Salinity (o/oo)	0.02	0.02	0.02	0.02	0.02	13.0
Dis. Oxygen (mg/l)	7.70	6.60	-	3.60	-	3.20
pH	7.82	7.60	7.00	6.71	6.52	6.92
Turbidity (NTU)	4.63	7.50	8.60	18.00	16.60	9.30
NFR (mg/L)	11.30	7.85	5.50	5.50	7.70	7.50
Ammonia Nitr. (mg N/l)	0.022	0.022	0.020	0.275	0.007	0.014
Nitrate + Nitrite (mg/l)	0.189	0.135	0.054	0.003	0.003	0.001
Nitrite (mg/l)	0.032					
Tot. Nitrogen (mg N/l)	0.361	0.309	0.114	0.626	0.388	0.378
Orthophosphate (mg P/l)	0.009	0.016	0.014	0.247	0.110	0.007
Tot. Phosphorus (mg P/l)	0.037	0.048	0.051	0.339	0.166	0.123

Stream, suggesting a higher rate of sediment erosion and water flow or higher phytoplankton growth in the marsh.

The levels and patterns of nitrogen and phosphorus concentrations in the marsh differ most distinctly from those found in Kawaiui Stream. Concentrations of ammonia nitrogen and total nitrogen approach those found in Kawaiui Stream only at the upper end of the Southeast (SE) emergency canal where conditions may also be assumed to be stagnant and conducive to decomposition of accumulated organic matter. High levels of orthophosphate and concentrations of total phosphorus more than ten times occurring elsewhere in

the marsh were also found at this station at the dead end of the Kawaiinui Marsh. With the exception of this station, ammonia nitrogen and nitrate+nitrite appear to decrease systematically going downstream, suggesting a nutrient stripping capability by the marsh that was first described when the marsh was receiving treated sewage effluent from four sewage treatment plants (AECOS 1981).

Biological Studies

Kawaiinui Stream

The Kawaiinui Stream channel is dominated throughout its length from Station 1 to its confluence with Kaelepulu Stream by dense growths of the red mangrove *Rhizophora mangle*, which is rapidly choking off the stream by its proliferation of prop roots. Other plants contributing to this occlusion of the water way are Indian fleabane (*Pluchea indica*), Chinese banyan (*Ficus microcarpa*), sea mulberry (*Conocarpus erectus*) and Christmas berry (*Shinus tokebinthifolius*). These species were most common along the area of the proposed development between Stations 1 and 4.

Few species of fish and invertebrates were observed to occur in the Kaelepulu Stream course during the kayak survey or at any time during water quality or biological sampling. Salinity in the stream at the time of this study was measured by refractometer to range from 12 o/oo at Station 1 to 15 o/oo at Station 5 and 17 o/oo near the blocked stream mouth at Kailua Beach. The only abundant organisms were tilapia (*Sarotherodon malantheron*) which can be observed in schools of hundreds of individuals throughout the stream course from Stations 1 to 5, and various species of topminnows (*Poecilia latipinna* and *Poecilia* spp.) and mosquito fish, (*Gambusia affinis*) which also occur in abundance throughout this area. Tubes of the polychaete worm *Picoponatus enigmaticus* occur on rocks and other hard surfaces at the stream's edge, and small gastropod snails can be seen on the sediment bottom in shallow water. Water fowl observed on the kayak survey were limited to a few mallard ducks (*Anas platyrhynchos*) and black crowned night herons (*Nycticorax nycticorax hoactli*).

Downstream of the confluence of Kawaiinui Stream with Kaelepulu Stream the stream bed becomes substantially widened, mangroves and other vegetation are less dominant and a greater variety of organisms occur. Along with the tilapia common upstream the swimming crab (*Thalamita crenata*), the shore crab (*Metopagrapsus thukuhak*) and aholehole (*Kuhlia sanvicensis*) were observed during the kayak survey. Although not observed at that time, Hawaiian stilt (*Himantopus mexicanus knudseni*) have been observed feeding in this area near the stream mouth.

The paucity of species of aquatic organisms in Kawaiinui Stream suggested by the above observations were confirmed by the results of benthic sampling (Table 3) and fish trapping (Table 4). All samples taken at Stations 1 to 5 in the vicinity of the proposed development were characterized by

Table 3. Relative Abundances of Benthic Invertebrates Sampled from Kawaiinui Stream. (1=rare, 2=common, 3=abundant, 4=very abundant).

Species	Location				
	Sta. 1	Sta. 3	Sta. 5	Str.	Mouth
ANNELIDA					
Oligochaeta	1	1	3		3
Polychaeta					4
Capitellidae Unident.					2
Capitella capitata			2		
Streblospio benedicti					2
Spionidae					3
Malacostracoz sp.					
Syllidae					
Exogona vergera					
MOLLUSCA					
Gastropoda	3	3			
Melania sp.					
ARTHROPODA-CRUSTACEA					
Amphipoda spp.		1	2		2
Corophium baconi			3		3
Neomicrodeutopus mekena			3		4
Total Species	2	3	4		7

black, anaerobic sediments which released profuse quantities of hydrogen sulfide when brought to the surface. Also, a sheen of oil-like organic matter rose to the waters surface when the bottom was sampled at Station 1. The only organism found in any abundance at this station or at Station 2 was the brackish-water gastropod snail (*Melania* sp.), which had well over a thousand shells present in each sample. However, only a fraction of the shells contained a live organism. Two hundred of the *Melania* shells in the Station 1 sample were broken open to estimate the proportion of live organisms. Only nine, or about 4.5% of these contained live snails.

The only other indications of benthic life in the upstream section of Kawaiinui Stream were a single oligochaete fragment at Station 1 and one oligochaete and one amphipod at Station 3. Numbers of species and individuals of oligochaetes, polychaetes and amphipods increased dramatically at Station 5 and even more so at the stream mouth, reflecting the more estuarine salinity conditions and the less anoxic and generally coarser sediments that occur downstream from Station 5. The sediment sample taken furthest downstream, near the stream's blocked outlet into Kailua Bay, was free of hydrogen sulfide odor or black iron sulfides, indicating more aerobic conditions. Although still limited in diversity, the benthic community at this station was relatively high in species compared to the upstream stations (Table 3), and suggest that even though the stream's mouth is blocked most of the time, the seepage of seawater through the sand is sufficient to prevent anaerobiosis of the sediments and to promote a brackish estuarine benthic environment.

The results of fish trapping further confirm the impression limited species diversity of the upstream section of Kawaiinui Stream from Station 1 to 5 (Table 4). Of a total of seven species of fish and large invertebrates, only two species of fish were trapped at the upstream stations 1 and 3, the tilapia (*Sarotherodon malantherion*), and the 'o'opu nakea (*Awaous stamineus*). The 'o'opu nakea that were sampled at Stations 1 and 3 were infested with leeches (*Aestabdella abditovesiculata*) that were attached along the

Table 4. Total Numbers (Tot. Wet Weights in g) of Fish and Macro-invertebrates Sampled by Traps from Kawaiinui Stream and Kaelepulu Stream Mouth in Five Days.

Species	Location				
	Sta. 1	Sta. 3	Sta. 5	Mouth	
ARTHROPODA					
Portunidae "Swimming Crabs"					
<i>Thalamita crenata</i>		4 (280)	11 (505)	8	(532)
"Blue clawed crab"					
<i>Scylla serrata</i>		1 (344)			
"Samoa Crab"					
VERTEBRATA					
PISCES					
Cichlidae					
<i>Sarotherodon</i>	65 (1488)	16 (389)	6 (310)	5	(179)
<i>Malantherion</i> "Tilapia"					
Gobiidae					
<i>Awaous stamineus</i>	2 (755)	1 (36)		1	(24)
"'o'opu nakea"					
Sphyraenidae					
<i>Sphyraena barrucuda</i>			2 (209)		
"Kaku"					
Tetraodontidae					
<i>Arothron hispidus</i>				15	(1084)
"Keke"					
Lutjanidae					
<i>Lutjanus fulvus</i>				1	(20)
"to'au"					
Total Species	2	4	3	5	

fishes bellies, while the single 'o'opu nakea taken at the stream mouth was free of leeches. The only invertebrates trapped in the upstream area were swimming crabs (*Thalamita crenata*) which can often be seen along the streams edge, and the Samoa crab (*Scylla serrata*). Tilapia were especially abundant at the furthest upstream station, where 65 individuals totaling nearly 1.5 kg were sampled in five days. A greater variety of fishes were trapped at the stream mouth, including many puffer fish (*Arothron hispidus*) and a snapper (*Lutjanus fulvus*), and fishermen who lay net at this spot reported that they routinely catch mullet (*Mugil cephalus*), 1ae (*Scopelogadus sancti-petri*), moi (*Polydactylus sexfilis*) and wholehole (*Kuhlia sandvicensis*).

No previous studies have been made of the communities of macro-organisms in Kawaiui or lower Kaelepulu Streams that can be compared to the present study's results. Shallenberger (1977) describes the biota in Kawaiui Stream (referred to as Hamakua canal) to include tilapia, mosquito fish, mollies, smallmouth bass, carp, freshwater turtles, crayfish and 'opae shrimp. However, no site-based studies are referred to in support of this description. Of these, only tilapia, mosquito fish and mollies were sighted or sampled in the present study. Recent comprehensive studies of bacteriological concentrations of the entire Kaelepulu Stream course and of portions of Kawaiui Stream have been completed by researchers of the Water Resources Research Center of the University of Hawaii and will soon be published as masters theses (Roll, Ms; Ahuna, Ms). These studies found high levels of fecal coliforms, *Escheria coli* and *Enterococcus* bacteria in the mid to upper stream areas, which would be expected to occur in the stagnant conditions determined in the present study.

Kailua Beach

The subtidal zone in the Kailua Beach area typifies a high energy shoreline highly influenced by scour and deposition of carbonate sand, the predominant bottom type. Although the area is somewhat protected by being in the lee of Popia ("Flat") Island, the almost constant tradewinds blowing onshore create nearly continuous short period waves which are the dominant environmental factor affecting nearshore marine organisms. Fine carbonate sands are almost continuously resuspended in the water, and turbidity is usually moderate to high. These factors and the resulting sand scour prevent the development of the substantial coral and invertebrate growth that would occur under calmer conditions.

Results of the swimming survey off the stream mouth at Kailua Beach are summarized in Table 5. The observations on Transect 1, south of the Kaelepulu Stream channel, and on Transect 3, north of the channel, are typical of the conditions described above, with the substratum dominated by sand consolidated with heavy growths of macroalgae. On

Transect 1 the bottom is entirely sand covered out to approximately 180 m from shore, beyond which the bottom becomes consolidated limestone interspersed with sand channels and pockets, and occasional patches of fossilized *Porites compressa* coral skeleton and other dead coral. Modest cover of live coral such as *Porites lobata*, *Pocillopora damicornis*, *Montipora verrucosa*, and *Cyphastrea exellina* totaling less than 5% cover can be found on these patches of hard substratum on the outer zone of Transect 1.

Macroalgae are the dominant benthic organisms on the outer zone of Transect 1, and on Transect 3 high macroalgae coverage extends virtually to the shoreline. The calcareous green algae *Halimeda discoidea* and the brown algae *Padina japonica* are the most abundant species throughout the area, followed by *Sargassum schinocarpum*, *Lyngbya malmuscula* and *Dictyota acutiloba*. *Acanthophora spicifera* and *Spiridia filamentosa* are also common along Transect 3, which had the greatest number of algal species and by far the highest coverage of the three transects.

Although absent on Transect 3 and rare on Transect 1, live reef corals were relatively common on Transect 2, directly offshore of the Kaelepulu Stream mouth, while macroalgae were less abundant here compared to further north or south. The most abundant coral species was *Porites compressa*, which occurred in isolated patches as close as about 120 m from shore. *Porites lobata* was also commonly found, and *Pocillopora damicornis* and *Montipora verrucosa* were occasionally seen. A single colony of *Pocillopora meandrina* was found, somewhat surprising in view of the high potential for resuspended sand, scour and turbidity in the area to restrict this sensitive species.

Along with reef corals, other benthic macro-invertebrates were rare in the area, except for the small mussel (*Brachidontes ebraeistratus*) which was abundant in the sand on the nearshore segment of Transect 3. The only other non-coral macro-invertebrate was the black sea cucumber (*Holothuria atra*) rarely seen on Transects 2 and 3. Fish were also rare on Transects 1 and 3, with only 2 to 3 species observed on the these areas where the sand covered bottom offers little vertical relief. Probably due to the

Table 5. Benthic Organisms Observed off Kailua Beach. (1=rare, 2=common, 3=abundant, 4=very abundant)

Species	Location		
	Trans. 1	Trans. 2	Trans. 3
CHLOROPHYTA "Green Algae"			1
EXYOPSIS sp			
Codium edule		1	
Dityosphaeria versluysi		3	4
Halimeda discoidea	4		
CYANOPHYTA "Blue-green Algae"			
Lyngbya majuscula	2	2	3
PHAEOPHYTA "Brown Algae"			
Dictyota acutiloba	3	2	3
Padina japonica	4	4	4
Sargassum echinocarpum	3	3	3
S. obtusifolium			1
Turbinaria ornata	1		
RHODOPHYTA "Red Algae"			
Acanthophora spicifera			2
Gracilaria sp.			1
Hvonea sp.			1
Laurencia sp.			1
Porolithon sardineri		2	
Spyridia filamentosa	1		
Trichoglea keggenii			2
SCLERACTINIA (Reef Corals)			
Porites lobata	2	2	
P. compressa		3	
Pocillopora meandrina		1	
P. damicornis	1	1	1
H. verrucosa	1		
Cyphastrea ocellina	1		
MOLLUSCA			
Brachidontes			3
Cyberistriatus			
ECHINODERMATA			
Holothuria atra		1	1
Total Species	11	12	16

Table 6. Vertebrates Observed off Kailua Beach. (1=rare, 2=common, 3=abundant, 4=very abundant)

Species	Location		
	Trans. 1	Trans. 2	Trans. 3
VERTEBRATA			
PISCES			
Holocentridae			
Myripristis berndti		1	
"u'u"			
Mullidae			
Parapeneus multifasciatus		2	
"moano"			
Chaetodontidae			
C. unimaculatus		1	
Labridae			
Stethoaulis balteata		1	
"omake"			
T. duperruy		2	
"hinalea lau-vili"			
Acanthuridae			
A. triostegus		1	
"manini"			
Ctenochaetus strigosus		1	
"kole"			
Ostracionidae			
Ostracion meleagris		1	
"moa"			
Tetraodontidae			
Arothron hispidus			1
"keke"			
REPTILIA			
Chelonia mydas		1	1
"Green Sea Turtle"			
Total Species	3	8	2

greater relief and habitat provided by both live and dead coral on Transect 2, fishes were both more abundant and diverse, with a total of eight species found. Green sea turtles (*Chelonia mydas*) were observed on Transects 2 and 3, and these undoubtedly utilize the abundant macroalgae of the area for food.

The previous studies made in this area along Kailua Beach (Reed 1973; AECOS 1977) report similar findings to the present study, except no reef corals were previously found.

The AECOS (1977) report comments on the paucity of macro-organisms, the dominance of the area by macroalgae and the limited fish assemblages due to low vertical relief. Coverage by *Halimeda discoidea* ranged up to 55% of the bottom in the areas of the present Transect 3, while *HYPNGA* covered up to 40% in quadrats on present Transect 1. No live coral was reported in the area by AECOS (1977) or by Reed (1973), who also commented on the dominance of the area by *Halimeda* and on the lack of macro-invertebrates.

The absence of live coral for previous studies may be due to its very limited distribution in the area and having been missed on previous surveys, or may be due to new settlement and growth since the last surveys were made. Judging from the size of the coral patches, it seems likely that at least some coral must have been present 15 to 20 years ago. What is clear is that coral growth and diverse fish assemblages are mostly confined to the channel directly seaward of the Kaelepu Stream mouth where there is more hard substratum that has not been covered by sand and is available for coral settlement and growth. The infrequent discharge of brackish water from Kaelepu Stream whenever the channel has been opened has therefore not caused any negative impact on the coral reef community directly offshore, where, in fact, coral growth and fish populations are most abundant in this area off Kailua Beach.

ASSESSMENT OF PROJECT IMPACT ON AQUATIC ENVIRONMENT

These comparisons emphasize the finding that Kawaiui Stream is a stagnant, highly eutrophic estuarine system which, under its current and expected future configuration, has little capability of removing any dissolved or suspended material which may reach it. Retention of organic detritus reaching the stream bottom, along with lack of mixing that would provide a source of oxygen, produces the anaerobic conditions that dominate the upper stream sediments. The aquatic macro-biota that survives in the area of the proposed project is depauperate and not diverse, primarily composed of the introduced exotics tilepia, topminnows, mosquito fish, one benthic snail and one swimming crab. The only Hawaiian native species found anywhere in the stream

was the fish 'o'opu nakea, which was rarely encountered and parasitized by a leech at the upstream stations.

Short term impacts from the project will be primarily from runoff and sedimentation which may occur during construction. Construction of the project will require trenching, foundation excavation, grading and stabilization of the lower hillside, which will be done according to Honolulu City grading, soil erosion and sediment control ordinances. Impacts to Kawaiui Stream from storm runoff and sedimentation during the construction phase will be reduced by the construction of a berm at the wetlands boundary and a drainage swale above the berm which will drain runoff into sedimentation basins. Overflow water from the sedimentation basins which has lost most of its sediment load will flow to the northwest corner of the project property and enter Kawaiui Stream near Kailua Road. Sedimentation impacts from construction will be further reduced by sodding and planting exposed areas as soon as grading is completed.

Any impacts on Kawaiui Stream from project construction sedimentation should therefore be moderate and of short duration. Longer term effects on the stream could potentially result from increased runoff into the stream coming from new paved and other impermeable surfaces on the project site after completion of construction. Presently, water reaches the stream in the vicinity of the project primarily from three sources (Smith, Young and Assoc., 1992): 1) runoff from the Coconut Grove area upstream, 2) three storm drain outlets on the northeast side of the stream along Hamakua Drive between Kailua Road and Mekihi Street which drain runoff from the makai side of Hamakua Road, and one storm outlet which drains into the wetland 300 feet south of the Hamakua Road bridge across Kawaiui Stream, and 3) runoff from the project property which flows down the hillside and through the wetlands before entering the stream along the perimeter of the wetlands.

After project completion, runoff will flow from the site through two separate storm drains from the mauka or hillside portion of the property and through one storm drain from the makai portion east of Hamakua Road (Smith, Young

and Assoc., 1992). Drainage from most of the mauka portion will flow northward to a storm drain outlet into Kawaiū Stream at the northwest section of the property near Kailua Road. However, drainage from approximately the lower third of the mauka portion will be diverted to an existing 36 inch storm drain and will not enter the stream. This runoff will, however reach Kaelepulu Pond below the project area. Runoff from the small area makai of Hamakua Drive will drain into Kawaiū Stream at the property's southeastern point.

Total present runoff from the 97 acres comprising the site property has been estimated at 166 cfs for 10 year storms, increasing to 204 cfs after site development, or an increase of 38 cfs, or about 23% above the present total flow (Smith, Young and Assoc., 1992). Of this total the 124 cfs coming from the undeveloped portion of the property will pass under the developed portion and flow into the wetland, which will act as a buffer to slow this flow before it ultimately reaches Kawaiū Stream or recharges the groundwater. The remaining 80 cfs will flow directly to the stream through the two new storm drains or into Kaelepulu pond through the existing 36 inch conduit.

The total 38 cfs increase due to the development can be compared to 10 year storm total flow in Kawaiū Stream from sources upstream of the Kailua Road bridge. This has been estimated to be about 235 cfs (M & E Pacific, 1999, Table A-22). Total increased flow under 10 year storms into Kawaiū Stream and Kaelepulu Pond due to increased runoff from the project would therefore be about 16% more than the present flow from upstream of the project site, or 9.5% above total present ten year storm flow into the stream.

The initial effect of this increased flow from the project site on Kawaiū Stream water quality would probably be to elevate turbidity and suspended solids slightly and to decrease nutrient concentrations by dilution. As shown in Table 2 turbidity and NFR in stream input in the Kailua area are substantially above Kawaiū Stream levels, while concentrations of most nutrients are substantially less. Following any storm event after project construction, the high levels of nutrients presently occurring in the stream would be reduced in manner similar to which occurred in the

present study between sampling dates, only this effect will probably be accentuated by the increased runoff.

The primary cause of the stagnant, anaerobic and eutrophic conditions of Kawaiū Stream is its limited flow. Therefore, any nutrient or potential pollutant that reaches the stream will have a long residence time and potential buildup. This situation could be improved if more water flowed into the stream and the stream mouth remained open. However, the small increase in total water flow from the project into Kawaiū Stream resulting from the project will be insufficient in itself to produce much improvement in circulation, especially since the higher flow will be primarily restricted to storm periods.

Long term eutrophication and degradation of Kawaiū Stream will be mitigated to some degree by the proposal (Engilis, 1992) to construct improved wetlands between the project area and the stream. Part of the development plan is to increase the open water area in the wetland and establish a wetland plant to open water area ratio of 30 to 50%. Establishment of a true wetland environment will increase the capacity of the area to absorb nutrients and reduce turbidity in runoff water which flows through the wetland before entering the stream. However, those water born materials which reach the closed system of Kawaiū Stream are likely to accumulate within the stream bed as long as the stream continues to be non-flowing.

The present biota of Kawaiū Stream is limited to a few hardy species which can survive the stressful conditions there. This particularly pertains to the stream bottom in the section above Hamakua Drive bridge which is entirely comprised of silty, anoxic sediments that sustain only a single species of snail tolerant to the anaerobic conditions. There is no likelihood that the existing stream biota will be further degraded by sedimentation or nutrient enrichment from the increased runoff from the Kailua Gateway development. It is possible that stream quality can be improved by the intermittent increased runoff and improvement of the wetland, and a healthier biological community may result.

The Kaelepulu Stream mouth is closed most of the time, even though the City and County dredges the mouth open approximately monthly and more frequently during storm periods. Wave action rapidly recloses the opening with sand within a day or two of dredging (C & C Dept. Public Works, pers. comm.). However, runoff from the stream has routinely reached the Kailua Beach shoreline and will continue to do so whenever storms or other conditions of high runoff prevail.

The comparison of the present condition offshore of Kailua Beach in the vicinity of the Kaelepulu Stream mouth with the limited information available from surveys taken in 1973 and 1977 suggests that no degradation in the offshore benthic or fish environment has occurred in the past 15 to 20 years. No reef coral and few fish were reported from the earlier studies, compared to moderate coral growth, fish abundance and diversity in the present study. More significantly, the most pristine area found in the present study occurred directly off the stream mouth. No negative long term impact is therefore indicated for the periodic outflow from Kaelepulu Stream that has occurred in the past 15 to 20 years, and it is unlikely that any would result for the modest increase in flow that may result from the Kailua Gateway development. Even when the Kaelepulu Stream channel is periodically opened, or if flow to Kailua Bay were permanently restored, the small increase in pollutants from project runoff will be inconsequential in terms of the total flow, nutrient loading and urban based runoff which reaches the Enchanted Lakes area and passes over the shoreline.

At present both the water quality and the resident biological community of Kawaiinui Stream in the vicinity of the proposed project indicate a low quality aquatic environment which is inhabited only by a few hardy species. The moderate increase in runoff to the stream and to Kaelepulu Pond that is likely to occur only during storm periods, is unlikely to have any significant negative impact on the stream environment, and may help to improve circulation in the stream somewhat. Stream water quality could be increased considerably by utilizing the increased runoff as part of a management plan to maintain continuous flow from the Kawaiinui Stream - Enchanted Lakes - Kaelepulu

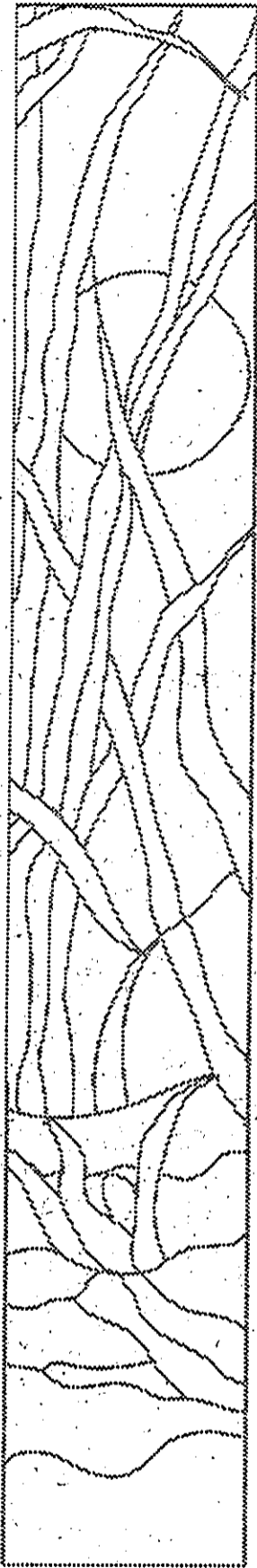
Stream estuarine system to the ocean. However, this approach would have to be evaluated in terms of the availability of upstream sources of water and the multiple uses of the Kailua Beach area as a valued recreational resource.

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Appendix B

Botanical Survey
Char & Associates

BOTANICAL SURVEY
KAILUA GATEWAY PROJECT
KO'OLAU POKO DISTRICT, O'AHU

INTRODUCTION

The proposed Kailua Gateway project is located on approximately 97 acres near the entrance to Kailua town, at the intersection of Kailua Road and Hamakua Drive. Two parcels, an 89-acre parcel mauka of Hamakua Drive and an 8-acre triangular parcel makai of Hamakua Drive, make up the project site. Roughly 26 acres of the property has been identified as wetlands by the U.S. Army Corps of Engineers (COE). Much of the mauka portion of the 89-acre parcel has slopes of 20% or greater. The larger of the two parcels is used for grazing cattle and horses.

Field studies to assess the botanical resources on the project site were conducted on 30 November 1991. The primary objectives of the field survey were to: 1) describe the major vegetation types; 2) inventory the flora; and 3) search for threatened and endangered species protected by Federal and/or State endangered species laws.

SURVEY METHODS

Prior to undertaking the field studies a search was made of the pertinent literature to familiarize the principal investigator with other botanical studies conducted in the general area. Topographic maps and a very recent black and white aerial photograph (January 1991, 1" = 200') were examined to determine vegetation cover patterns, terrain characteristics, access, boundaries, and

reference points.

The areas proposed for development were surveyed intensively as they would be directly impacted by the project. The steeper slopes and wetlands were not surveyed in detail as no developments are planned for these areas. A walk-through survey method was used. Notes were made on plant associations and distribution, substrate types, topography, exposure, drainage, etc. Plant identifications were made in the field; plants which could not be positively determined were collected for later identification in the herbarium and for comparison with the most recent taxonomic literature.

The species recorded are indicative of the season ("rainy" vs. "dry") and the environmental conditions at the time of the survey. A survey taken at a different time and under varying environmental conditions would no doubt yield slight variations in the species list, especially of the weedy annual plants.

DESCRIPTION OF THE VEGETATION

The vegetation on the 97-acre project site is dominated almost exclusively by introduced or alien plants. This is not surprising as early botanists and naturalists noted that large portions of the Kailua and Kaneohe areas were under cultivation by the Hawaiians. By the time the Europeans arrived in the islands, the majority of the native lowland shrublands and forests in this region had been cleared and replaced by swidden agriculture, fire being the primary tool used by the Hawaiians to clear lands prior to cultivation (Cuddihy and Stone 1990).

Two vegetation types are recognized on the Kailua Gateway site. Wetlands are found along and adjacent to the drainage canal while a scrub vegetation, composed primarily of grasses and shrubs, is found on the higher grounds behind the wetlands. A checklist

of all the plant species inventoried during the field survey is presented at the end of this report.

Scrub Vegetation

Vegetation on the Pu'u o Ehu slopes consists of mixed grasses with scattered shrubs. The major grass component is sourgrass (Digitaria insularis) which forms erect tufts from 3 to 5 ft. tall. The grass is quite unpalatable and is not often grazed by the cattle on the property. In between the bunches of sourgrass are other grasses such as Bermuda grass or manienie (Cynodon dactylon), swollen finger grass (Chloris barbata), Guinea grass (Panicum maximum), and Matai reedtop (Rhynchelytrum repens) which are preferred by the cattle. Also fairly common on the slopes are three-flowered beggarweed (Desmodium triflorum), Spanish clover (Desmodium incanum), and puahihaha (Himosa pudica). Scattered shrubs of klu (Acacia farnesiana) are common, while lantana (Lantana camara), koa-haole (Leucaena leucocephala), pluchea (Pluchea symphytifolia), Christmas berry (Schinus terebinthifolius), and wild basil (Ocimum gratissimum) are occasional. Small trees of fiddlewood (Citharexylum caudatum), an escaped landscape species, are also occasional. Rocky outcroppings support 'ihi (Portulaca pilosa), while swales and small gullies support a somewhat dense growth of shrubs, primarily koa-haole.

At the base of the pu'u are scattered stands of trees, primarily kiawe (Prosopis pallida). Other woody components include African tulip (Spathodea campanulata), fiddlewood, and Chinese banyan (Ficus microcarpa). A few, large trees of mango (Mangifera indica) can be found near an old quarry site. Koa-haole shrubs are common in open areas and sometimes under the trees. Because it is wetter at the base of the pu'u, the vegetation is denser and contains a number of species not found on the drier slopes.

On the smaller 8-acre parcel, the scrub vegetation consists of a

koa-haole thicket. Draping over the koa-haole are dense tangles of glycine (Glycine wightii), a legume, and coccinia (Coccinia grandis), a member of the cucumber or squash family. Where the koa-haole is not dense, California grass (Brachiaria mutica) forms thick mats between the shrubs.

Wetlands

The wetlands along Ka'elepulu Stream on the project site were included in the wetlands survey by Elliott and Hall (1977). They note that for centuries this general region was used by the Hawaiians for fishponds and taro production. Today, much of the surrounding areas have been filled for housing and other urban uses.

Wetland vegetation consists largely of low, dense, bright yellow-green mats of pickleweed (Batis maritima). Pickleweed is a short, woody-stemmed shrub, 2 to 3 ft. tall, with fleshy paired, cylindrical leaves about an inch long containing a salty juice. Bordering the pickleweed mats are shrubs of Indian pluchea (Pluchea indica). In places, kiawe forms a narrow band along the mauka perimeter of the wetlands. Along the stream itself are dense stands of mangrove (Rhizophora mangle) and open patches of California grass. A more complete listing of the wetland plants can be found in the Elliott and Hall (1977) report.

Although the wetlands do not support any threatened and endangered plants or any sensitive native plant communities, they do provide habitat for endangered Hawaiian waterbirds. During the field studies in November, five Ae'o or Hawaiian Stilt (Himantopus mexicanus knudseni) and a pair of Koloa or Hawaiian Duck (Anas wyvilliana) were observed feeding within the wetlands.

DISCUSSION AND RECOMMENDATIONS

The vegetation on the Kailua Gateway project site is dominated almost exclusively by introduced species. The Pu'u o Ehu slopes support a scrub vegetation of mixed grasses and scattered shrubs. At the base of the pu'u, the vegetation is denser with trees of kiawe common. On the smaller parcel, the scrub vegetation consists of a koa-hoole thicket. Within the wetlands, mats of pickleweed occur in low-lying areas adjacent to Ka'eiepulu Stream while dense mangrove trees and Indian pluchea shrubs or mats of California grass line the stream itself.

Of a total of 100 plants inventoried on the site, 93 are alien or introduced species; 3 are originally of Polynesian introduction; and 4 are indigenous, that is, they are native to the Hawaiian Islands and elsewhere. No endemic species, i.e. native only to the Hawaiian Islands, were found. None of the plant species on the project site are officially listed threatened and endangered plants (U.S. Fish and Wildlife Service 1989); nor are any proposed or candidate for such status (U.S. Fish and Wildlife Service 1990).

There are no botanical reasons to impose any restrictions, conditions, or impediments to the proposed development of the site and the proposed project is not expected to have a significant negative impact on the botanical resources. Of concern, is the loss of soil and discharge of sediments into the wetlands and Ka'eiepulu Stream. It is recommended that areas cleared of vegetation be landscaped as soon as possible.

While the wetlands do not support any threatened and endangered plants or sensitive native plant communities, they do provide habitat for endangered Hawaiian waterbirds. Therefore, as much of the wetlands should be preserved. The dense growth of mangrove, kiawe, and various shrubs along the wetland margins should be retained to serve as a buffer between the proposed developments and the wetland habitat.

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Scientific name	Common name ¹	Status	Vegetation type	
			s	v
FLOWERING PLANTS				
MONOCOTS				
AGAVACEAE (Sisal Family)				
<i>Cordyline fruticosa</i> (L.) A. Chev.	ti.ki	P	+	-
CYPERACEAE (Sedge Family)				
<i>Cyperus rotundus</i> L.	nutgrass, nut sedge	X	+	-
<i>Kyllinga nemoralis</i> (J.R. Forster & G. Forster) Dandy ex Hutchinson & Dalziel	white kyllinga, killi 'o'opu	X	+	-
POACEAE (Grass Family)				
<i>Bothriochloa pertusa</i> (L.) A. Camus	pitted beardgrass	X	+	-
<i>Brachiaria mutica</i> (Forrk.) Stapf	California grass	X	+	+
<i>Brachiaria subquadripars</i> (Trin.) Hitchc.		X	+	+
<i>Chloris barbata</i> (L.) Sw.	swollen finger grass, mau'uilei	X	+	-
<i>Chloris divaricata</i> R. Br.	stargrass	X	+	-
<i>Cynodon dactylon</i> (L.) Pers.	Bermuda grass, manienie	X	+	-
<i>Digitaria fuscescens</i> (K. Presl) Henr.	creeping kukaepua'a	X	+	-
<i>Digitaria insularis</i> (L.) Mez. ex Ekman	sourgrass	X	+	+
<i>Digitaria setigera</i> Roth	itchy crabgrass, kukaepua'a	I?	+	-
<i>Digitaria violescens</i> Link	smooth crabgrass	X	+	-
<i>Echinochloa colona</i> (L.) Link	jungle rice	X	+	-
<i>Eleusine indica</i> (L.) Gaertn.	wiregrass, manienie ali'i	X	+	-
<i>Eragrostis tenella</i> (L.) P. Beauv. ex Roem. & Schult.	lovegrass	X	+	-
<i>Panicum maximum</i> Jacq.	Guinea grass	X	+	-

PLANT SPECIES LIST -- Kailua Gateway Project, O'ahu

A checklist of all the vascular plant species found during the course of the field studies is presented below. The plants are divided into two groups of flowering plants: Monocots and Dicots. The taxonomy and nomenclature of the flowering plants follow the most recent treatment of the Hawaiian flora by Wagner *et al.* (1990).

For each species, the following information is provided:

1. Scientific name with author citation.
2. Common English and/or Hawaiian name, when known.
3. Biogeographic status. The following symbols are used:
 I = indigenous = plants native to the Hawaiian Islands and elsewhere throughout the Pacific
 P = Polynesian = plants of Polynesian introduction prior to Western contact (1778); not native
 X = introduced or alien = all those plants introduced intentionally or accidentally after Western contact; not native.
4. Presence (+) or absence (-) of a particular species within each of two vegetation types recognized on the project site (see text for discussion):
 s = Scrub Vegetation
 v = Wetlands

Scientific name	Common name ¹	Status	Vegetation type	
			S	W
<i>Setaria verticillata</i> (L.) P. Beauv.	bristly foxtail	X	-	-
DICOTS				
ACANTHACEAE (Acanthus Family)				
<i>Asystasia gangetica</i> (L.) T. Anderson	Chinese violet	X	+	-
<i>Ruellia</i> sp.	ruellia	X	+	-
AMARANTHACEAE (Amaranth Family)				
<i>Achyranthes aspera</i> L.	spiny amaranth, pakai kuku	X	+	-
<i>Amaranthus spinosus</i> L.		X	+	-
ANACARDIACEAE (Mango Family)				
<i>Mangifera indica</i> L.	mango, manako	X	+	-
<i>Schinus terebinthifolius</i> Raddi	Christmas berry	X	+	+
APOCYNACEAE (Dogbane Family)				
<i>Cascabela thevetia</i> (L.) Lippold	be-still-tree	X	+	-
ARALIACEAE (Ginseng Family)				
<i>Schefflera actinophylla</i> (Endl.) Harms	octopus tree	X	-	+
ASTERACEAE (Daisy Family)				
<i>Calyptocarpus vialis</i> Less.	hierba del cabello	X	+	-
<i>Conyza bonariensis</i> (L.) Cronq.	hairy horseweed, ilioha	X	+	-
<i>Eclipta alba</i> (L.) Hassk.	false daisy	X	+	+
<i>Emilia fosbergii</i> Nicolson	pualele	X	+	-
<i>Pluchea indica</i> (L.) Less.	Indian pluchea	X	+	+
<i>Pluchea symphytifolia</i> (Mill.) Gillis	pluchea, sourbush	X	+	-
<i>Sonchus oleraceus</i> L.	sowthistle, pualele	X	+	+
<i>Synedrella nodiflora</i> (L.) Gaertn.	synedrella	X	+	-
<i>Tridax procumbens</i> L.	coat buttons	X	+	-
<i>Vernonia cinerea</i> var. <i>parviflora</i> (Reinv.) DC.	little ironweed	X	+	-

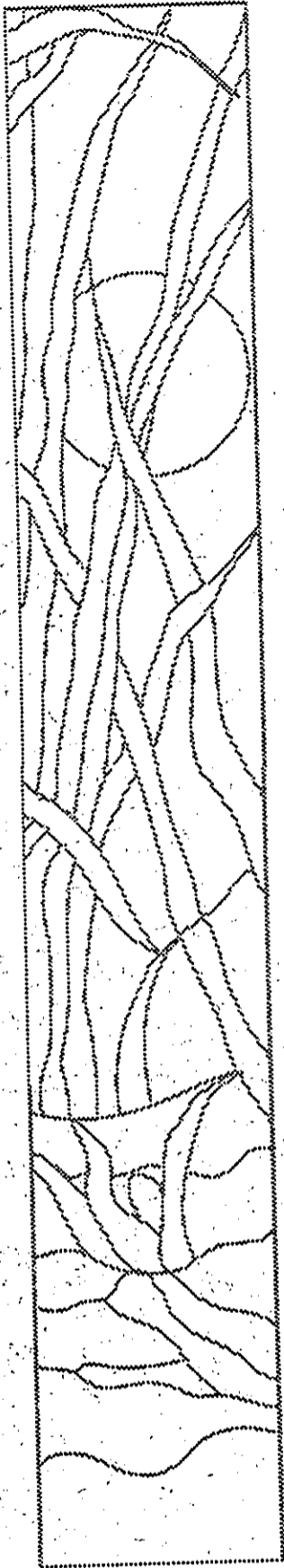
Scientific name	Common name	Status	Vegetation type	
			S	W
<i>Wedelia trilobata</i> (L.) Hitchc.	wedelia	X	+	-
<i>Xanthium strumarium</i> var. <i>canadense</i> (Mill.) Torr. & A. Gray	cocklebur	X	+	-
BATIDACEAE (Saltwort Family)				
<i>Batis maritima</i> L.	pickleweed	X	-	+
BIGNONIACEAE (Bignonia Family)				
<i>Spathodea campanulata</i> P. Beauv.	African tulip	X	+	-
BORAGINACEAE (Heliotrope Family)				
<i>Heliotropium procumbens</i> var. <i>depressum</i> (Cham.) Fosb.		X	+	-
CASUARINACEAE (Ironwood Family)				
<i>Casuarina equisetifolia</i> L.	ironwood	X	+	-
CLUSIACEAE (Mangosteen Family)				
<i>Clusia rosea</i> Jacq.	autograph tree, copey	X	+	-
CONVOLVULACEAE (Morning-glory Family)				
<i>Ipomoea alba</i> L.	moon flower, koali- pehu	X	-	+
<i>Ipomoea obscura</i> (L.) Ker-Gawl.	field bindweed	X	+	-
CUCURBITACEAE (Gourd Family)				
<i>Coccinia grandis</i> (L.) Voight	coccinia	X	+	-
<i>Cucumis dipsaceus</i> Ehrenb. ex Spach	wild cucumber	X	+	-
<i>Momordica charantia</i> L.	wild bittermelon	X	+	-
EUPHORBIACEAE (Spurge Family)				
<i>Aleurites moluccana</i> (L.) Willd.	kukui, tutui	P	+	-
<i>Chamaesyce hirta</i> (L.) Millsp.	hairy spurge, garden spurge	X	+	-
<i>Chamaesyce hypericifolia</i> (L.) Millsp.	graceful spurge	X	+	-

<u>Scientific name</u>	<u>Common name</u> ¹	<u>Status</u>	<u>Vegetation type</u>	
			<u>s</u>	<u>w</u>
Phyllanthus debilis Klein ex Willd.	phyllanthus weed	X	+	-
Ricinus communis L.	castor bean, koli	X	+	+
FABACEAE (Pea Family)				
Acacia confusa Merr.	Formosa koa	X	+	-
Acacia farnesiana (L.) Willd.	klu	X	+	-
Alysicarpus vaginalis (L.) DC.	alysicarpus	X	+	-
Chamaecrista nictitans (L.) Moench	partridge pea, lauki	X	+	-
Desmanthus virgatus (L.) Willd.	slender mimosa	X	+	+
Desmodium incanum DC.	Spanish clover, ka'imi	X	+	-
Desmodium tortuosum (Sw.) DC.	Florida beggarweed	X	+	-
Desmodium triflorum (L.) DC.	three-flowered beggarweed	X	+	-
Glycine wightii (Wight & Arnott) Verdc.	glycine	X	+	+
Indigofera spicata Forrk.	prostrate indigo	X	+	-
Indigofera suffruticosa Mill.	indigo, 'iniko	X	+	-
Leucaena leucocephala (Lam.) de Wit	koa-haole	X	+	+
Macroptilium lathyroides (L.) Urb.	wild bean, cow pea	X	+	-
Mimosa pudica var. unijuga (Duchass. & Walp.) Griseb.	sensitive plant, sleeping grass, pushilahila	X	+	-
Pithecellobium dulce (Roxb.) Benth.	'opiuma	X	+	-
Prosopis pallida (Humb. & Bonpl. ex Willd.) Kunth	kiawe	X	+	+
Samanea saman (Jacq.) Merr.	monkeypod	X	+	-
Senna pendula (Humpl. & Bonpl. ex Willd.) H. Irwin & Barneby		X	+	-
LAMIACEAE (Mint Family)				
Hyptis pectinata (L.) Poit.	comb hyptis	X	+	-
Ocimum gratissimum L.	wild basil	X	+	-
LYTHRACEAE (Loosestrife Family)				
Cuphea carthagenensis (Jacq.) Macbr.	tarweed, Colombian cuphea	X	+	-

<u>Scientific name</u>	<u>Common name</u>	<u>Status</u>	<u>Vegetation type</u>	
			<u>s</u>	<u>w</u>
MALVACEAE (Mallow Family)				
Abutilon grandifolium (Willd.) Sweet	hairy abutilon, mao	X	+	+
Hibiscus tiliaceus L.	hau	I?	+	-
Malvastrum coromandelianum (L.) Garcke	false mallow, hauuoi	X	+	-
Sida rhombifolia L.	Cuba jute	X	+	-
Sida spinosa L.	prickly sida	X	+	-
MORACEAE (Mulberry Family)				
Ficus microcarpa L. f.	Chinese banyan	X	+	-
MYRTACEAE (Myrtle Family)				
Syzygium cumini (L.) Skeels	Java plum	X	+	+
OXALIDACEAE (Wood Sorrel Family)				
Oxalis corniculata L.	yellow wood sorrel, 'ihi 'ai	P?	+	-
PASSIFLORACEAE (Passion Flower Family)				
Passiflora foetida L.	pohapoha	X	+	-
Passiflora suberosa L.	huehue-haole	X	+	-
PORTULACACEAE (Purslane Family)				
Portulaca pilosa L.	'ihi	X	+	-
RHIZOPHORACEAE (Mangrove Family)				
Rhizophora mangle L.	American mangrove, red mangrove	X	-	+
RUBIACEAE (Coffee Family)				
Spermocoe mauritiana Gideon	borreria	X	+	-
SOLANACEAE (Tomato Family)				
Capsicum annum L.	chili pepper, nioi	X	+	-
Solanum americanum Mill.	popolo	I?	+	-
Solanum linnaeanum Hepper & P. Jaeger	apple-of-Sodom, yellow kikania	X	+	-
Solanum seaforthianum Andr.	blue potato vine	X	+	-

<u>Scientific name</u>	<u>Common name</u> ¹	<u>Status</u>	<u>Vegetation type</u>	
			<u>s</u>	<u>v</u>
STERCULIACEAE (Cocoa Family) Waltheria indica L.	'uhaloa, hi'aloa	I?	+	-
TILIACEAE (Linden Family) Triumfetta rhomboidea Jacq.	bur bush	X	+	-
ULMACEAE (Elm Family) Trema orientalis (L.) Blume	gunpowder tree, charcoal tree	X	+	-
VERBENACEAE (Verbena Family) Citharexylum caudatum L.	fiddlewood	X	+	-
Lantana camara L.	lantana, lakana	X	+	-
Stachytarpheta dichotoma (Ruiz & Pav.) Vahl	vervain	X	+	-
13 Stachytarpheta jamaicensis (L.) Vahl	Jamaica vervain, ovi, oi	X	+	-
Stachytarpheta urticifolia (Salisb.) Sims	nettle-leaved vervain, ovi, oi	X	+	-
Verbena litoralis Kunth	weed verbena	X	+	-

Appendix C



**Survey of the Avifauna and Feral Mammals at
Hamakua Marsh, Kawainui Stream and
Surrounding Lands**

Phillip L. Bruner

INTRODUCTION

SURVEY OF THE AVIFAUNA AND FERAL MAMMALS AT HAAKUA MARSH, KAWAIIU STREAM AND SURROUNDING LANDS FOR THE KALLUA GATEWAY PROJECT, OAHU

The purpose of this report is to summarize the findings of a one day (29 November 1991) bird and mammal field survey of approximately 97 acres of property located at Kallua, Oahu (Fig.1). Also included are references to pertinent literature as well as unpublished faunal reports.

The objectives of the field survey were to:

- 1- Document what bird and mammal species occur on the property or may likely occur given the type of habitats available.
- 2- Provide some baseline data on the relative (estimated) abundance of each species.
- 3- Determine the presence or likely occurrence of any native fauna particularly any that are considered "Endangered" or "Threatened".
- 4- If any special or unique wildlife habitat occurs on the property locate such sites and note their possible value for birds and mammals in this region of the island.

Prepared for
Helber Hastert & Fee
by

Phillip L. Bruner
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13 December 1991

GENERAL SITE DESCRIPTION

Figure One indicates the property surveyed for birds and mammals. Much of the site is covered in a variety of introduced plants. Wetland habitat adjoining the area proposed for development includes Kawainui Stream, Hamakua Marsh and ephemeral wet mudflats. Upslope pastureland provides additional habitat.

Weather during the field survey was clear and warm. Winds were light 0-5 mph.

STUDY METHODS

Field observations were made with binoculars and by listening for vocalizations. These observations were concentrated during the peak bird activity periods of early morning and late afternoon. Attention was also paid to the presence of tracks and scats as indicators of bird and mammal activity. At various locations, along roads and trails, eight minute counts were made of all birds seen or heard (Fig.1). Between these count (census) stations any unusual observations of birds were also noted. These data provide the basis for the relative (estimated) abundance figures given in this report (Table 1). Published and unpublished reports of birds

known from this region were also consulted in order to acquire a more complete picture of the possible species that might be expected (Shallenberger 1977; Conant 1981; USFWS 1981; DLMR 1986, 1987, 1988; Pratt et al. 1987; Hawaii Audubon Society 1989; Bruner 1991). Observations of feral mammals were limited to visual sightings and evidence in the form of scats and tracks. No attempts were made to trap mammals in order to obtain data on their relative (estimated) abundance and distribution.

Scientific names used herein follow those given in Hawaii's Birds (Hawaii Audubon Society 1989); Field Guide to the Birds of Hawaii and the Tropical Pacific (Pratt et al. 1987) and Mammal Species of the World (Honacki et al. 1982).

RESULTS AND DISCUSSION

Resident Endemic (Native) Land Birds:

No endemic land birds were recorded on the survey. The Short-eared Owl or Pueo (Asio flammeus sandwichensis) is the only endemic land bird that may occur in this area (Pratt et al. 1987). Pueo are listed as an endangered species on Oahu by State of Hawaii Division of Forestry and Wildlife.

Resident Endemic (Native) Waterbirds:

The following four endemic and endangered waterbirds were recorded on the survey: Black-necked Stilt (Himantopus mexicanus knudseni); Hawaiian Duck or Koia (Anas wyvilliana); American Coot (Fulica americana alai) and Common Moorhen (Gallinula chloropus sandvicensis). These four endangered species were observed throughout the various wetlands associated with this site. The total recorded number of each species was: Black-necked Stilt =14; Koia =2; American Coot =8 and Common Moorhen = 2. Quarterly waterbird surveys conducted by the State of Hawaii Division of Forestry and Wildlife (DLNR 1986, 1987, 1988) provide data from which to evaluate the importance of these wetlands for waterbirds. In addition Shallenberger (1977), USFW (1981) and Conant (1981) also contain information on waterbird populations at this site.

Migratory Indigenous (Native) Birds:

Migratory shorebirds winter in Hawaii between the months of August through May. Some juveniles will stay through the summer months as well (Johnson and Johnson 1983). Of all the shorebirds species which winter in Hawaii the Pacific Golden Plover (Pluvialis fulva) is the most abundant. Plover prefer open areas such as exposed intertidal reef, rocky shorelines, mud flats, lawns, plowed fields and pastures. They arrive in Hawaii in early August and depart to their arctic breeding grounds during the last week

of April (Johnson et al. 1981). Bruner (1983) and Johnson et al. (1989) have also shown that plover are extremely site-faithful on the wintering grounds and most establish foraging territories which they defend vigorously. Such behavior makes it possible to acquire a fairly good estimate of the abundance of plover in any one area. These populations likewise remain relatively stable over many years (Johnson et al. 1989). Thirty-seven plover were recorded on the survey. Ruddy Turnstone (Arenaria interpres), Wandering Tattler (Heteroscelus incanus), Sanderling (Calidris alba) are common migratory shorebirds which also could utilize the mudflats and shallow ponds in this wetland. Migratory ducks such as Northern Pintail (Anas acuta) and Northern Shoveler (Anas clypeata) are also known to occur at this site (Shallenberger 1977; DLNR 1986, 1987, 1988). No migratory waterfowl, however, were found on this survey.

Resident Indigenous (Native) Birds:

A total of three Black-crowned Night Heron (Nycticorax nycticorax) were tallied on the survey. This species is the only native waterbird that is not listed as endangered. Night Heron have probably increased in abundance in recent years as a result of the statewide development of the aquaculture industry (Hawaii Audubon Society 1989).

Resident Indigenous (Native) Seabirds:

No nesting seabirds were observed on the property. The presence of predators renders this site unsuitable for nesting or roosting seabirds. Great Frigatebird (Fregata minor) are known to take fresh water from the open ponds in Kawaiui Marsh (Conant 1981).

Exotic (Introduced) Birds:

A total of 14 species of exotic birds were recorded during the field survey (Table 1). The most abundant birds were: Japanese White-eye (Zosterops japonicus), Zebra Dove (Geopelia striata), Spotted Dove (Streptopelia chinensis), Red-crested Cardinal (Paroaria coronata), Red-vented Bulbul (Pycnonotus cafer), Java Sparrow (Padda oryzivora) and House Finch (Carpodacus mexicanus).

Based on the location and type of habitats found on the property as well as information provided in Pratt et al. 1987 and Hawaii Audubon Society 1989, the following exotic species may also occur at this site: Common Barn Owl (Tyto alba), Ring-necked Pheasant (Phasianus colchicus), Northern Mockingbird (Mimus polyglottos), Japanese Bush-warbler (Cettia diphone), Hamei (Garrulax canorus) and Chestnut Mannikin (Lonchura malacca).

Feral Mammals:

Small Indian Mongoose (Herpestes auropunctatus) and feral cats were observed. Cattle were seen on the upper slopes as well

as in the wetlands. No trapping was conducted in order to assess the relative abundance of mammals.

Records of the endemic and endangered Hawaiian Hoary Bat are sketchy, however, the species has been reported from Oahu (Tomich 1986; Kepler and Scott 1990). No bats were found on this survey.

CONCLUSION

A brief field survey such as this one can provide only a limited perspective of the wildlife which utilize the area. The number and relative abundance of each species may vary throughout the year due to available food resources and reproductive success. Species which are migratory will quite obviously be found only at certain times during the year. Exotic species sometimes prosper only to later disappear or become a less significant part of the ecosystem (Williams 1987; Houlton et al. 1990). Thus only long term studies can provide a comprehensive view of the bird and mammal populations in a particular area. Nevertheless some general conclusions related to bird and mammal activity at this site can be drawn. The following comments summarize the findings of this surveys:

- 1- All major habitats on the property were visited and census stations were distributed along roads and trails so as to provide a reasonable sample from which relative estimates of

bird population could be derived.

- 2- The endemic waterbirds found on the survey have long been known to occur in this region (Shallenberger 1977, USFWS 1981; Conant 1981; DLNR 1986, 1987, 1988). The wetlands at this site are censused for waterbirds on a quarterly basis by DLNR Division of Forestry and Wildlife. The number of waterbirds recorded at Kawaiunui Stream and Hamakua Marsh by Conant (1981) differed somewhat from those tallied by DLNR (1986, 1987, 1988) surveys and this one day survey. These differences are likely due to several factors: survey methods, weather and water level conditions, reproductive success, vegetation cover and disturbance. In addition, Engilis (1991 draft report) discusses the occurrence and activity (nesting, resting, foraging) of the endemic and migratory waterbirds at this site. He, however, does not provide citations from which to judge the source of this information. The Oahu population of the endemic Hawaiian Owl or Pueo is listed by the State of Hawaii as an endangered species. This bird was not recorded on the survey. Pueo, however, do forage in pastures and may on occasion occur in this area.
- 3- The numbers of migratory shorebirds recorded on this survey were comparable with data gathered on other surveys in this region of the island (Johnson et al. 1981).
- 4- The property supports the typical array of exotic birds one would expect in this type of environment on Oahu. Java Sparrow have recently (last five years) experienced an island wide population expansion and were particularly abundant at this site.
- 5- In order to obtain more definitive data on mammals a trapping program would be required. Feral mammal populations were comparable with

similar habitat surveyed elsewhere on Oahu (Bruner 1991). The Hawaiian Hoary Bat was not recorded at this site but is known from Oahu.

- 6- The most important wildlife habitat at this site are the wetlands. They provide important feeding, nesting and resting areas for endemic and migratory waterbirds. The small triangular portion of the property, located east of Hamakua Drive, is presently of limited value to waterbirds due to the dense mangrove thickets and an absence of any sizeable open water habitat.

POTENTIAL IMPACTS AND RECOMMENDATIONS

Development of lands adjoining wetlands usually will result in some negative impacts such as: noise and disturbance from vehicles and people both during and after construction; erosion from land cleared for construction and the subsequent siltation of the downslope wetland; contamination of soils and water from pesticides, herbicides and industrial wastes that usually accompany the urbanization of an area; and increased predator activity in the form of domestic cats and dogs.

To some extent these impacts can be lessened by: engineering a suitable drainage system that will protect the wetlands from flooding and siltation from upslope development; planting a dense buffer of trees and bushes between the wetland and the development to help screen off visual and auditory disturbances that interfere with nesting, foraging and resting waterbirds; isolating the wetlands from adjoining lands by creating a moat that will exclude cats, rats and

mongoose and a fence to discourage dogs and people from accessing the site; and regular monitoring of the wetland for chemical contamination (herbicides, pesticides and industrial wastes).

The proposed roads and bridges at either end of the wetlands will encroach on the habitat physically and also expose these areas to increased disturbance in the form of vehicles, pedestrians, bikes and dogs. While it is true waterbirds can in time habituate to a limited amount of disturbance in areas where they forage they are usually not as tolerant when it comes to nesting and resting sites. This is especially true of Hawaiian Stilt (Hawaii Audubon Society 1989). A couple of possible solutions to the problems posed by the proposed roads and bridges would be to relocate the roads outside of the wetland boundaries or provide visual barriers in the form of tree plantings on both sides of the road. This latter solution, however, also has some drawbacks since it would involve either filling the wetland in order to plant trees or growing mangrove which is costly to control and can quickly overtake a wetland. As I see it, the only slightly positive note to the proposed access roads is that they lie at either end of the wetland and may result in a lower net loss of habitat than if they were located across the center of the wetland which would be unacceptable from the standpoint of the amount of habitat that would be disturbed by such a placement.

Lastly the wetland restoration and management plan devised by Ducks Unlimited (Engliss 1991 draft report) provides a comprehensive long term course of action for restoring and maintaining the Hamakua Marsh. It is clear from a reading of this document that the success of the operation will rest heavily on the diligence of those who ultimately manage the site.

which would appear to be DLNR Division of Forestry and Wildlife. If the wetland in not regularly maintained it will in time deteriorate in the same fashion as Kawaiui Marsh.

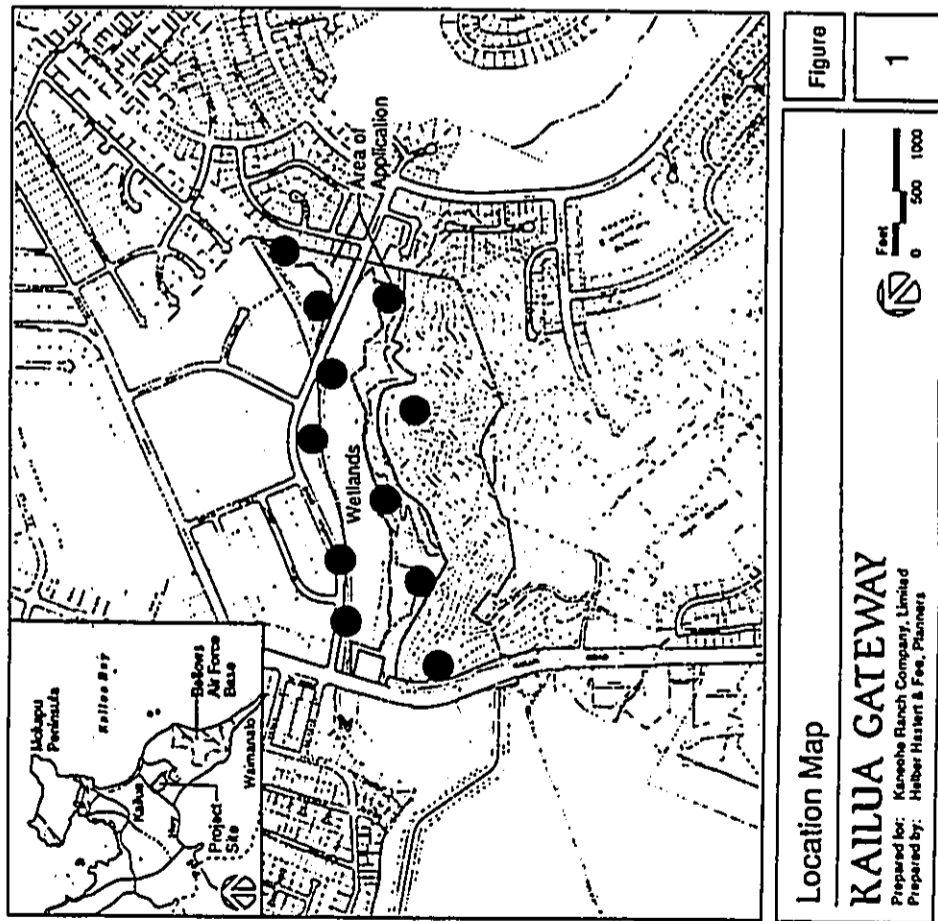


Fig. 1. Location of faunal survey with bird census stations shown as solid circles.

TABLE 1
 Exotic (introduced) birds recorded at Hamakua Marsh, Kawatani Stream and adjoining lands, Kailua, Oahu
 COMMON NAME SCIENTIFIC NAME RELATIVE ABUNDANCE*

Cattle Egret	<i>Bubulcus ibis</i>	R = 9
Spotted Dove	<i>Streptopelia chinensis</i>	A = 11
Zebra Dove	<i>Geopelia striata</i>	A = 12
Common Myna	<i>Acridotheres tristis</i>	C = 8
Red-vented Bulbul	<i>Pycnonotus cafer</i>	A = 16
White-rumped Shama	<i>Copsychus saularis</i>	R = 6
Northern Cardinal	<i>Cardinalis cardinalis</i>	U = 4
Red-crested Cardinal	<i>Paroaria coronata</i>	A = 10
Japanese White-eye	<i>Zosterops japonicus</i>	A = 10
Nutmeg Mannikin	<i>Lonchura punctulata</i>	C = 6
Common Waxbill	<i>Estrelia astrild</i>	C = 9
House Finch	<i>Carpodacus mexicanus</i>	A = 12
House Sparrow	<i>Passer domesticus</i>	C = 8
Java Sparrow	<i>Padda oryzivora</i>	A = 20

* (see page 14 for key to symbols)

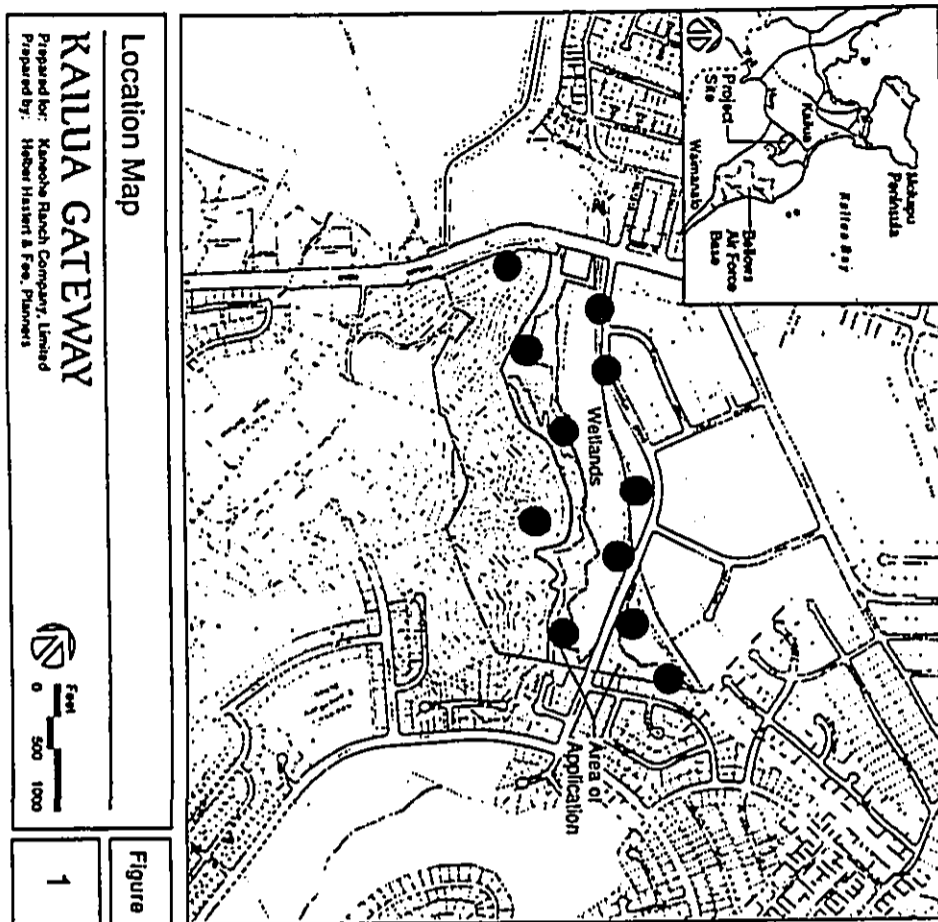


Fig. 1. Location of faunal survey with bird census stations shown as solid circles.

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Exotic (introduced) birds recorded at Hamakua Marsh, Kawainui Stream and adjoining lands, Kailua, Oahu

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Common Waxbill	<u>Estrilda astrild</u>	C = 9
House Finch	<u>Carpodacus mexicanus</u>	A = 12
House Sparrow	<u>Passer domesticus</u>	C = 8
Java Sparrow	<u>Padda oryzivora</u>	A = 20

*(see page 14 for key to symbols)

KEY TO TABLE 1

Relative (estimate) abundance = Number of times observed during survey or average number on eight minute counts in appropriate habitat.

A = abundant (ave. 10+)

C = common (ave. 5-10)

U = uncommon (ave. less than 5)

R = recorded (seen or heard at times other than on 8 min. counts or on one count only) number which follows is the total number seen or heard over the duration of the survey

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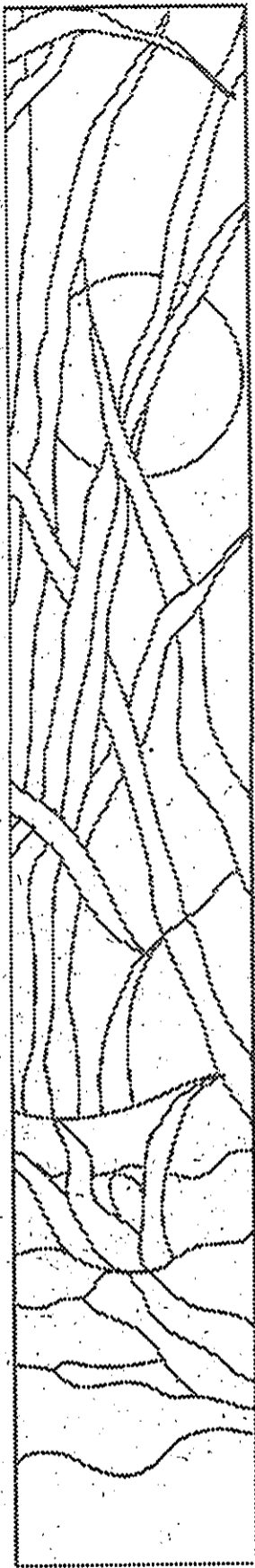
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Appendix D

Air Quality Study

B.D. Neal & Associates

AIR QUALITY STUDY
FOR THE PROPOSED
KAILUA GATEWAY PROJECT

KAILUA, OAHU, HAWAII

Prepared for:
Helber Hastert & Fee

January 1992



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- 2 Wind Rose for Kaneohe, Oahu

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- 1 Summary of State of Hawaii and National Ambient Air Quality Standards
- 2 Air Pollution Emissions Inventory for City and County of Honolulu, 1980
- 3 Annual Summaries of Air Quality Measurements at Waimanalo Monitoring Station

1.0 SUMMARY

Kaneohe Ranch Company, Ltd. is proposing to develop the Kailua Gateway Project on 97 acres of land at Kailua on the island of Oahu. Major elements of the project will include a retirement community, a skilled nursing facility, a community center, affordable elderly housing, commercial space and improvements to wetland areas within the project boundaries. Construction of the project is expected to begin during 1993 and be completed by 1997. This study examines the potential short- and long-term air quality impacts that could occur as a result of construction and use of the proposed facilities. Mitigative measures to lessen project impacts are suggested where possible and appropriate.

Both federal and state standards have been established to maintain ambient air quality. At the present time, six parameters are regulated including: particulate matter, sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone and lead. Hawaii state air quality standards are more stringent than the comparable national limits except for the standards for sulfur dioxide. State and national standards for sulfur dioxide are set at the same level.

Regional and local climate together with the amount and type of human activity generally dictate the air quality of a given location. The climate of the Kailua area is very much affected by its windward and coastal situation. Trade winds from the east or northeast are unobstructed and provide good ventilation most of the time. During winter, the Koolau Mountains to the west largely shelter the area from the occasional strong southerly winds associated with Kona storms that pass over the state. When the larger scale trade winds or Kona winds are weak or absent, small scale landbreeze-seabreeze and/or mountain-induced circulations may develop. Wind speeds predominantly range between about 10 and 25

TABLES (cont.)

Table

- 4 Estimated Worst-Case 1-Hour Carbon Monoxide Concentrations Along Roadways Near Kailua Gateway Project
- 5 Estimated Worst-Case 8-Hour Carbon Monoxide Concentrations Along Roadways Near Kailua Gateway Project
- 6 Estimated Indirect Air Pollution Emissions from Kailua Gateway Project Electrical Demand
- 7 Estimated Indirect Air Pollution Emissions from Kailua Gateway Project Solid Waste Disposal Demand

miles per hour, although there can be prolonged periods of lower velocities. Based on temperature data for the area, extreme temperatures at the project site likely range between about 54°F and 93°F while the average range is 68 to 79°F. Average annual rainfall is moderate to wet in this area of Oahu ranging from 45 inches to 75 inches depending on location and year.

Air quality in the vicinity of the project presently is mostly affected by emissions from natural, industrial, agricultural and/or vehicular sources with the latter probably being the dominant factor. The little air quality monitoring data available for the area from the Department of Health suggest that air quality standards are currently being met, although carbon monoxide measurements from Honolulu suggest that concentrations could occasionally exceed the state standards on occasion near traffic congested areas.

If the proposed project is given the necessary approvals to proceed, it is inevitable that some short- and long-term impacts on air quality will occur either directly or indirectly as a consequence of project construction and use. Short-term impacts from fugitive dust will likely occur during the project construction phase. To a lesser extent, exhaust emissions from stationary and mobile construction equipment, from the disruption of traffic, and from workers' vehicles may also affect air quality during the period of construction. State air pollution control regulations require that there be no visible fugitive dust emissions at the property line. Hence, an effective dust control plan must be implemented to ensure compliance with state regulations. Fugitive dust emissions can be controlled to a large extent by watering of active work areas, use of wind screens, keeping adjacent paved roads clean, and by covering of open-bodied trucks. Other dust control measures could include limiting the area that can be

disturbed at any given time and/or mulching or chemically stabilizing inactive areas that have been worked. Paving and landscaping of project areas early in the construction schedule will also reduce dust emissions. Exhaust emissions can be mitigated by moving construction equipment and workers to and from the project site during off-peak traffic hours.

After construction, long-term impacts on air quality could potentially occur indirectly as a result of emissions emanating from vehicular traffic coming to and from the development. Access to the project will be accomplished via driveways constructed along Hamakua Drive near Hekili Street and near Aoloa Street. To assess the impact of emissions from these vehicles, an air quality modeling study was undertaken to estimate current maximum ambient concentrations of carbon monoxide along roadways leading to and from the project area and to predict future levels of air pollution both with and without the proposed project. Based on the modeling results, present worst-case carbon monoxide concentrations were estimated to be within the national ambient air quality standards but may occasionally exceed the state standards near the intersection of Hamakua Drive and Kailua Road due to traffic congestion during the afternoon. Because the state standards are set at such stringent levels, however, it is likely that they are currently exceeded at many locations in the state that have even moderate traffic volumes. Other locations in the project area will likely meet both state and federal standards during the current year. In the year 1997 without the project, concentrations will likely decrease substantially due to the retirement of many older, more-polluting vehicles from the island's roadways during the intervening years, although the state standards would likely continue to be exceeded on occasion near the Hamakua Drive/Kailua Road intersection. With the project and with the proposed roadway improvements suggested in the project traffic study, the project would have the greatest impact near the Hamakua Drive/Hekili Street intersection

where a traffic signal would be installed. Although concentrations would increase by about 30 percent compared to without the project, maximum concentrations are forecast to comply with even the stringent state standards. Thus, further roadway improvements or other traffic-related air quality mitigation measures are probably unwarranted.

Depending on the demand levels, long-term impacts on air quality are also possible due to indirect emissions associated with a development's electrical power and solid waste disposal requirements. Quantitative estimates of these potential impacts were not made, but based on the relatively low estimated demand levels and emission rates involved, any impacts are unlikely. Nevertheless, requiring homes and businesses to incorporate energy conservation design features and promoting conservation and recycling programs within the proposed development could serve to further reduce any impacts.

2.0 INTRODUCTION AND PROJECT DESCRIPTION

Kaneohe Ranch Company, Limited is proposing to develop the Kailua Gateway Project on 97 acres of land located near the entrance to Kailua Town on the island of Oahu (see project location map given as Figure 1). As shown on the location map, the project area consists of an 89-acre parcel mauka of Hamakua Drive and an 8-acre triangular parcel on the makai side of this roadway. The area affected by the project is currently vacant land with 26 acres of the site identified as wetlands by the Army Corps of Engineers. Major elements of the proposed project include: a 333-unit retirement community, an 80-bed skilled nursing facility, a community center, 68 units of affordable elderly housing, a 43,600 gross square foot commercial area, and improvements to

wetlands within the project boundaries. Project construction is expected to begin during 1993 and be completed by 1997.

The purpose of this study was to evaluate the potential air quality impacts of the proposed project and recommend mitigative measures, if possible and appropriate, to reduce or eliminate any degradation of air quality in the area. Before examining the potential impacts of the project, a discussion of ambient air quality standards is presented and background information concerning the regional and local climatology and the present air quality of the project area is provided.

3.0 AMBIENT AIR QUALITY STANDARDS

Ambient concentrations of air pollution are regulated by both national and state ambient air quality standards (AAQS). National AAQS are specified in Section 40, Part 50 of the Code of Federal Regulations (CFR), while State of Hawaii AAQS are defined in Chapter 11-59 of the Hawaii Administrative Rules. Table 1 summarizes both the national and the state AAQS that are specified in the cited documents. As indicated in the table, AAQS have been established for six air pollutants. These regulated air pollutants include: particulate matter, sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone and lead. National AAQS are stated in terms of primary and secondary standards. National primary standards are designed to protect the public health with an "adequate margin of safety". National secondary standards, on the other hand, define levels of air quality necessary to protect the public welfare from "any known or anticipated adverse effects of a pollutant". Secondary public welfare impacts may include such effects as decreased visibility, diminished comfort levels, or other potential injury to the natural or man-made environment, e.g., soiling of materials, damage to vegetation or other economic damage. In

contrast to the national AAQS, Hawaii State AAQS are given in terms of a single standard that is designed "to protect public health and welfare and to prevent the significant deterioration of air quality".

Each of the regulated air pollutants has the potential to create or exacerbate some form of adverse health effect or to produce environmental degradation when present in sufficiently high concentration for prolonged periods of time. The AAQS specify a maximum allowable concentration for a given air pollutant for one or more averaging times to prevent harmful effects. Averaging times vary from one hour to one year depending on the pollutant and type of exposure necessary to cause adverse effects. In the case of the short-term (i.e., 1- to 24-hour) AAQS, both national and state standards allow one exceedance per year.

State of Hawaii AAQS are in some cases considerably more stringent than comparable national AAQS. In particular, the State of Hawaii 1-hour AAQS for carbon monoxide is four times more stringent than the comparable national limit.

Under the provisions of the Federal Clean Air Act [1], the U.S. Environmental Protection Agency (EPA) is required to periodically review and re-evaluate national AAQS in light of research findings more recent than those which were available at the time the standards were originally set. Occasionally new standards are created as well. Most recently, the national standard for particulate matter has been revised to include specific limits for particulates 10 microns or less in diameter (PM-10) [2]. The State of Hawaii has not explicitly addressed the question of whether to set limits for this category of air pollutant, but national AAQS prevail where states have not set their own more stringent levels.

Hawaii AAQS for sulfur dioxide were relaxed in 1986 to make them essentially the same as national limits. It has been proposed in various forums that the state also relax its carbon monoxide standards to the national levels, but at present there are no indications that such a change is being considered.

4.0 REGIONAL AND LOCAL CLIMATOLOGY

Regional and local climatology significantly affect the air quality of a given location. Wind, temperature, atmospheric turbulence, mixing height and rainfall all influence air quality. Although the climate of Hawaii is relatively moderate throughout most of the state and most of the year, significant differences in these parameters may occur from one location to another. Most differences in regional and local climates within the state are caused by the mountainous topography.

Hawaii lies well within the belt of northeasterly trade winds generated by the semi-permanent Pacific high pressure cell to the north and east. On the island of Oahu, the Koolau and Waianae Mountain Ranges are oriented almost perpendicular to the trade winds, which accounts for much of the variation in the local climatology of the island. Kailua, the site of the proposed project, is located on the windward side of Oahu at foot of the steep Koolau and is thus directly exposed to the trade winds.

Figure 2 is an annual wind rose for the nearby Kaneohe Marine Corps Air Station. Based on the data shown in this figure, winds in this area of Oahu are from the east northeast about 35 percent of the time and occur within the northeast quadrant about 75 percent of the time, reflecting the strong influence of the trade winds in the

area. Ventilation typically is very good with wind speeds predominantly in the 5 to 11 m/s (12 to 24 mph) range. In winter, the intensity of the trade winds diminishes and the passage of storms can bring very strong "Kona" winds for brief periods from the south or southwest to those areas of the state with open fetches in this direction. As indicated in the Kaneohe wind rose, windward areas of Oahu are largely sheltered from Kona winds. When trade winds or Kona winds are absent or weak, local winds such as land/sea breezes and/or upslope/downslope winds tend to dominate the wind pattern for the area. During such times, light winds typically move onshore from the east during the daytime because of seabreeze and/or upslope effects and at night and during the early morning hours land breezes and/or drainage winds move downslope from the west or southwest and out to sea. Calms occur about 4 percent of the time.

Air pollution emissions from motor vehicles, the formation of photochemical smog and smoke plume rise all depend in part on air temperature. Colder temperatures tend to result in higher emissions of contaminants from automobiles but lower concentrations of photochemical smog and ground-level concentrations of air pollution from elevated plumes. In Hawaii, the annual and daily variation of temperature depends to a large degree on elevation above sea level, distance inland and exposure to the trade winds. Average temperatures at locations near sea level generally are warmer than those at higher elevations. Areas exposed to the trade wind tend to have the least temperature variation, while inland and leeward areas often have the most. On the windward side of Oahu at Kaneohe, daily temperatures range between 68°F and 79°F on the average while the extremes range from 54°F to 93°F [3].

Small scale, random motions in the atmosphere (turbulence) cause air pollutants to be dispersed as a function of distance or time

from the point of emission. Turbulence is caused by both mechanical and thermal forces in the atmosphere. It is oftentimes measured and described in terms of Pasquill-Gifford stability class. Stability class 1 is the most turbulent and class 6 the least. Thus, air pollution dissipates the best during stability class 1 conditions and the worst when stability class 6 prevails. In the Kailua area, stability class 5 or 6 is generally the highest stability class that occurs, developing during clear, calm nighttime or early morning hours when temperature inversions form either due to radiational cooling or to downslope winds that push warmer air aloft. Stability classes 1 through 4 occur during the daytime, depending mainly on the amount of cloud cover and incoming solar radiation and the onset and extent of the sea breeze.

Mixing height is defined as the height above the surface through which relatively vigorous vertical mixing occurs. Low mixing heights can result in high ground-level air pollution concentrations because contaminants emitted from or near the surface can become trapped within the mixing layer. In Hawaii, minimum mixing heights tend to be high because of mechanical mixing caused by the trade winds and because of the temperature moderating effect of the surrounding ocean. Low mixing heights may sometimes occur, however, at inland locations and even at times along coastal areas early in the morning following a clear, cool, windless night. Coastal areas may also experience low mixing levels during sea breeze conditions when cooler ocean air rushes in over warmer land. Although there are no mixing height data for the Kailua area, mixing heights elsewhere in the state typically are above 3000 feet (1000 meters). Mixing heights in the Kailua area probably tend to be somewhat lower during periods of light winds and also during periods when sea breeze conditions develop during the daytime.

Rainfall can have a beneficial effect on the air quality of an area in that it helps to suppress fugitive dust emissions, and it also may "washout" gaseous contaminants that are water soluble. Rainfall in Hawaii is highly variable depending on elevation and on location with respect to the trade wind. In the Kailua-Kaneohe area, rainfall is moderate varying anywhere from about 45 to 75 inches per year.

5.0 PRESENT AIR QUALITY

Table 2 is an air pollutant emission summary for the City and County of Honolulu that was compiled in 1980. Although emissions are undoubtedly higher at this time, the major air pollution sources on the island are identified. Proportional relationships amongst the sources may continue to be about the same. The mineral products industry was the most significant source category for emissions of particulate matter. Sulfur dioxide emissions originated mainly from power plants, while motor vehicles accounted for much of the emissions of nitrogen oxides, carbon monoxide and hydrocarbons.

Present air quality in the project area could potentially be affected by air pollutants from natural, industrial, agricultural and/or vehicular sources. Natural sources of air pollution which could affect the area include the ocean, plants (aero-allergens), wind-blown dust, or perhaps distant volcanic emissions from the island of Hawaii.

Air pollution originating from agricultural sources in the project area is probably relatively minor. Although there are some areas of pasture and diversified crops in the vicinity, more air pollution prone agricultural activities, such as the cultivation of

sugar cane or pineapple, are located several miles away downwind in central Oahu.

Industrial sources of air pollutants are located primarily on the leeward and central portions of Oahu. These sources are distant and generally downwind from the project location and thus do not impact the area. Probably the only significant industrial source of air pollution in the Kailua area is the Kapaa Quarry, located a few miles to the west. Infrequent winds from the west may bring some diluted dust concentrations from this facility over the project site on occasion.

Kailua Road, adjacent to the project site on the north, often carries heavy motor vehicle traffic through the project area during peak traffic periods. Hamakua Drive and other streets to the east carry smaller volumes of traffic. Emissions from motor vehicles using these roadways, primarily nitrogen oxides and carbon monoxide, will tend to be carried over the project site by the prevailing winds.

The State Department of Health operates a network of air quality monitoring stations at various locations on Oahu. Each station, however, typically does not monitor the full complement of air quality parameters. The only long-term State of Hawaii monitoring station that could be considered representative of the project area is located on the windward side of Oahu at Waimanalo. This monitoring site was selected by the State to measure background levels of particulate matter. None of the other regulated pollutants are measured at this location. Table 3 shows annual summaries of the data from the Waimanalo station for the period 1985 through 1989. During the five-year period, annual average total suspended particulate (TSP) concentrations ranged from 20 to

29 mg/m³; 24-hour values ranged between 10 and 82 mg/m³. These values are well within the State AAQS for suspended particulate and are probably typical of most locations along or near the windward and northshore coasts of Oahu.

At this time, there are no reported measurements of lead, ozone, nitrogen dioxide or carbon monoxide in the project vicinity. These are primarily motor vehicle related air pollutants. Lead, ozone and nitrogen dioxide typically are regional scale problems; concentrations of these contaminants generally have not been found to exceed AAQS elsewhere in the state. Carbon monoxide air pollution, on the other hand, typically is a microscale problem caused by congested motor vehicular traffic. In traffic congested areas such as urban Honolulu, carbon monoxide concentrations have been found to occasionally exceed the state AAQS. Present concentrations of carbon monoxide in the project area are estimated later in this study by mathematically modeling the atmospheric dispersion of local motor vehicle emissions.

6.0 SHORT-TERM IMPACTS OF PROJECT

Short-term direct and indirect impacts on air quality could potentially occur due to project construction. For a project of this nature, there are two potential types of air pollution emissions which could directly result in short-term air quality impacts during the construction phase: (1) fugitive dust from vehicle movement and site excavation; and (2) exhaust emissions from on-site construction equipment. Indirectly, there could also be short-term impacts from slow-moving construction equipment traveling to and from the project site and from a temporary increase in local traffic caused by commuting construction workers.

Fugitive dust emissions may arise from the grading and earth-moving activities associated with site preparation. The emission rate for fugitive dust emissions from construction activities is difficult to estimate accurately because of its elusive nature of emission and because the potential for its generation varies greatly depending upon the type of soil at the construction site, the amount and type of earth-disturbing activity taking place, the moisture content of exposed soil in work areas, and the wind speed. The EPA (4) has provided a rough estimate for uncontrolled fugitive dust emissions from construction activity of 1.2 tons per acre per month under conditions of "medium" activity, moderate soil silt content (30%), and precipitation/evaporation (P/E) index of 50. Uncontrolled fugitive dust emissions from project construction would probably be somewhere near this level or lower due to the moderately wet climate of the area. In any case, State of Hawaii Air Pollution Control Regulations (5) stipulate that emissions of fugitive dust from construction activities cannot be visible beyond the property line. Thus, an effective dust control plan for the project construction phase should be provided.

Adequate fugitive dust control can usually be accomplished by the establishment of a frequent watering program to keep bare-dirt surfaces in construction areas from becoming significant sources of dust. In dust-prone or dust-sensitive areas, other control measures such as limiting the area that can be disturbed at any given time, applying chemical soil stabilizers, mulching and/or using wind screens may be necessary. Control regulations further stipulate that open-bodied trucks be covered at all times when in motion if they are transporting materials that could be blown away. Haul trucks tracking dirt onto paved streets from unpaved areas is oftentimes a significant source of dust in construction areas. Some means to alleviate this problem, such as road cleaning or tire washing, may be appropriate. Paving of parking areas and/or establishment of landscaping as early in the construction schedule

as possible can also lower the potential for fugitive dust emissions.

On-site mobile and stationary construction equipment will also emit some air pollutants in the form of engine exhausts. The largest of this equipment is usually diesel-powered. Nitrogen oxides emissions from diesel engines can be relatively high compared to gasoline-powered equipment, but the standard for nitrogen dioxide is set on an annual basis and is not likely to be violated by short-term construction equipment emissions. Carbon monoxide emissions from diesel engines, on the other hand, are low and should be relatively insignificant compared to vehicular emissions on nearby roadways.

Indirectly, slow-moving construction vehicles on roadways leading to and from the project site could obstruct the normal flow of traffic to such an extent that overall vehicular emissions are increased, but this impact can be mitigated by moving heavy construction equipment during periods of low traffic volume. Likewise, the schedules of commuting construction workers can be adjusted to avoid peak hours in the project vicinity. Thus, most potential short-term air quality impacts from project construction can be mitigated.

7.0 LONG-TERM IMPACTS OF PROJECT

7.1 Roadway Traffic

After construction is completed, use of the proposed facilities will result in increased motor vehicle traffic on nearby roadways, potentially causing long-term impacts on ambient air quality in the project vicinity. Motor vehicles with gasoline-powered engines are

significant sources of carbon monoxide. They also emit nitrogen oxides, and those burning leaded gasoline contribute lead to the atmosphere. The use of leaded gasoline in new automobiles is now prohibited. As older vehicles continue to disappear from the numbers of those currently operating on the state's roadways, lead emissions are approaching zero. Nationally, so few vehicles now require leaded gasoline that the EPA is proposing a total ban on leaded gasoline to take effect immediately. Even without such a ban, reported quarterly averages of lead in air samples collected in urban Honolulu have been near zero since early 1986. Thus, lead in the atmosphere is not considered to be a problem anywhere in the state.

Federal air pollution control regulations require that new motor vehicles be equipped with emission control devices that reduce emissions significantly compared to a few years ago. Just recently, the President signed into law the Clean Air Act Amendments of 1990. This new legislation requires further emission reductions be phased in beginning in 1994. Even without the new restrictions on motor vehicle emissions, current emission standards for new vehicles will lower average emissions each year as more and more older vehicles leave the state's roadways. Carbon monoxide emissions, for example, will go down by about 25 percent on the average during the next 5 years compared to the amounts now emitted due to the replacement of older vehicles with newer models.

To evaluate the potential long-term indirect ambient air quality impact of increased roadway traffic associated with a project such as this, computerized emission and atmospheric dispersion models can be used to estimate ambient carbon monoxide concentrations along roadways leading to and from the project. Carbon monoxide is selected for modeling because it is both the most stable and the most abundant of the pollutants generated by motor vehicles.

Furthermore, carbon monoxide air pollution is generally considered to be a microscale problem that can be addressed locally to some extent, whereas nitrogen oxides air pollution most often is a regional issue that cannot be addressed by a single new development.

For this project, three scenarios were selected for the carbon monoxide modeling study: year 1992 with present conditions, year 1997 without the project, and year 1997 assuming the project is built and fully occupied. To begin the modeling study, critical receptor areas in the vicinity of the project were identified for analysis. Generally speaking, roadway intersections are the primary concern because of traffic congestion and because of the increase in vehicular emissions associated with traffic queuing.

As indicated in the project traffic study (6), roadway intersections that will be most affected by the project include: Hamakua Drive/Kainehe Street at Kailua Road, Hamakua Drive at Hekili Street and Hamakua Drive at Hahani Street. These areas of potential traffic congestion along Hamakua Drive which were studied by the traffic consultant were also selected for air quality analysis. Modeling of the present scenario was performed assuming the existing roadway configurations. Analysis of the future without-project scenario was accomplished assuming no changes in the current roadway configurations. For the future with-project scenario, two cases were examined: one case assuming no changes in the present roadway capacities and traffic controls and the other case assuming the traffic mitigation measures suggested by the traffic consultant are implemented. Traffic mitigation measures proposed include widening of Hamakua Drive near Kailua Road to permit through movements from both lanes on Kainehe Street and installation of a traffic signal along Hamakua Drive at Hekili Street. Present and future conditions and configurations of these

roadways are described in more detail in the project traffic impact study referenced above.

The main objectives of the modeling study were to estimate both current and future levels of maximum 1-hour average carbon monoxide concentrations and to then compare the values for the various scenarios both to each other and to the national and state AAQS to evaluate their significance. The traffic impact assessment report indicates that traffic volumes in the project area both are and will be substantially higher during the afternoon peak hour than during the morning peak period. Worst-case emission and meteorological dispersion conditions typically occur during the morning hours at many locations. Thus, even though traffic volumes may be higher in the afternoon than in the morning, worst-case air pollution concentrations may occur during the morning. In this case, the substantially higher afternoon peak-hour traffic that occurs in the project area probably overcomes the better afternoon dispersion conditions, causing the highest air pollution concentrations to occur during the afternoon. Thus, only afternoon peak-hour conditions were examined.

The EPA computer model MOBILE4.1 (7) was used to calculate vehicular carbon monoxide emissions for each of the years studied. One of the key inputs to MOBILE4.1 is vehicle mix. Based on recent vehicle registration figures, the present and projected vehicle mix in the project area is estimated to be 91.9% light-duty gasoline-powered vehicles, 5% light-duty gasoline-powered trucks and vans, 0.5% heavy-duty gasoline-powered vehicles, 0.6% light-duty diesel-powered vehicles, 1% heavy-duty diesel-powered trucks and buses, and 1% motorcycles.

Other key inputs to the MOBILE4.1 emission model are the cold/hot start fractions. Motor vehicles operating in a cold- or hot-start mode emit excess air pollution. Typically, motor vehicles reach stabilized operating temperatures after about 4 miles of driving. For traffic operating within the immediate project area, it was assumed that about 25 percent of all vehicles would be operating in the cold-start mode and that about 5 percent would be operating in the hot-start mode. These operational mode values were estimated based on a report from the California Department of Transportation [8] and taking into consideration the likely origins of traffic in the project area.

An ambient temperature of 68 degrees F was used for all emission computations. This is a conservative assumption since afternoon ambient temperatures will generally be warmer than this and emission estimates given by MOBILE4.1 are inversely proportional to the ambient temperature.

After computing vehicular carbon monoxide emissions through the use of MOBILE4.1, these data were then input to the latest version of the computer model CALINE4 [9]. CALINE4 was developed by the California Transportation Department to simulate vehicular movement and atmospheric dispersion of vehicular emissions. The model is designed to predict 1-hour average pollutant concentrations along roadways based on input traffic and emission data, roadway/receptor geometry and meteorological conditions.

Input peak-hour traffic data were obtained from the traffic study cited previously. The traffic volumes given in the traffic study for the future with-project scenario include project traffic as well as traffic from other growth that is expected to occur in the area by the year 1997. Traffic queuing estimates were made based

on the project traffic study, Transportation Research Board procedures [10], U.S. EPA guidelines [11], and traffic observations at the subject intersections. Vehicle speeds during the peak traffic hour near the intersections studied were assumed to be limited to 25 mph either by posted speed limits or by traffic congestion. Deceleration and acceleration times of 10 seconds and 12 seconds, respectively, were assumed.

Model roadways were set up to reflect roadway geometry, physical dimensions and operating characteristics. Presently, pedestrian walkways exist very close to most of the roadways within the project area. Concentrations predicted by air quality models generally are not considered valid within the roadway mixing zone. The roadway mixing zone is usually taken to include 3 meters on either side of the traveled portion of the roadway and the turbulent area within 10 meters of a cross street. Model receptor sites were thus located at the edges of the mixing zones near all intersections that were studied. All receptor heights were placed at 1.8 meters above ground to simulate levels within the normal human breathing zone.

Input meteorological conditions for this study were defined to provide "worst-case" results. One of the key meteorological inputs is atmospheric stability category. For these analyses, atmospheric stability category 4 was assumed. This is the most conservative stability category that can be used for estimating pollutant dispersion during the afternoon at suburban or undeveloped locations. A surface roughness length of 100 cm was assumed with a mixing height of 300 meters. Worst-case wind conditions were defined as a wind speed of 1 meter per second with a wind direction resulting in the highest predicted concentration.

Existing background concentrations of carbon monoxide in the project vicinity are believed to be at relatively low to moderate levels. Hence, background contributions of carbon monoxide from sources or distant roadways not directly considered in the analysis were accounted for by adding a background concentration of 1 ppm to all predicted concentrations for both present and future scenarios.

Predicted Worst-Case 1-Hour Concentrations

Table 4 summarizes the final results of the modeling study in the form of the estimated worst-case 1-hour ambient carbon monoxide concentrations. These results can be compared directly to the state and the national AAQS. Estimated worst-case carbon monoxide concentrations are presented in the table for four scenarios: year 1992 with existing traffic, year 1997 without project traffic (1997/Case A), year 1997 with project traffic but without any roadway improvements (1997/Case B), and year 1997 with project traffic and with the roadway improvements recommended in the project traffic study (1997/Case C). The locations of these estimated worst-case 1-hour concentrations all occurred at or very near the indicated intersections.

As indicated in the table, the estimated present worst-case 1-hour carbon monoxide concentration in the project area is 14.7 mg/m³. This is predicted to occur during the afternoon peak traffic hour near the intersection of Hamakua Drive/Kainene Street and Kailua Road and is mainly due to the long queue of makai-bound traffic that forms on Kailua Road. Maximum 1-hour concentrations at the other intersections studied were 6.0 mg/m³ at Hamakua Drive/Hekilli Street and 8.4 mg/m³ at Hamakua Drive/Hahani Street.

Without the proposed project in 1997 (indicated as 1997/Case A in the table), the highest worst-case 1-hour concentration in the project area would continue to occur near Hamakua Drive and Kailua Road but would be nearly 30 percent lower than the 1992 value at 10.5 mg/m³. This is due to the attrition of older, more-polluting vehicles that is expected to occur between now and then. Concentrations at the other two intersections studied along Hamakua Drive are predicted to decrease by about 20 percent.

As noted in the table, two with-project scenarios were examined: one without the traffic mitigation measures suggested in the project traffic study (indicated as 1997/Case B) and the other with the suggested roadway improvements (designated as 1997/Case C). Compared to the 1997 without project case, predicted 1-hour worst-case concentrations for the 1997/Case B ranged from only a few percent higher at the intersections of Hamakua Drive at Kailua Road and at Hahani Street (10.9 mg/m³ and 6.8 mg/m³, respectively) to about 20 percent higher near the Hamakua Drive/Hekilli Street intersection (5.8 mg/m³). With the proposed roadway improvements, worst-case 1-hour concentrations would likely increase by an additional 6 percent at the Hamakua Drive/Kailua Road intersection (to 11.5 mg/m³) and by another 10 percent at the Hamakua Drive/Hekilli Street location (to about 6.4 mg/m³). The increase at the Hamakua Drive/Kailua Road intersection would be due to the fact that more traffic would be drawn in closer to the intersection by permitting through traffic to use both lanes on Kainene Street. Near the Hamakua Drive/Hekilli Street intersection the increase in concentrations would be caused by the installation of a traffic signal which would create traffic queues on Hamakua Drive that would not exist without the signal. However, even though worst-case concentrations would increase somewhat with the roadway improvements, the improved traffic flow would likely reduce the size of the "hot spot" areas near the intersections.

In addition to comparing model results of the four scenarios to each other, predicted concentrations should also be evaluated in comparison to the state and the national AAQS. All estimated worst-case 1-hour carbon monoxide levels for all four scenarios are well within the national AAQS of 40 mg/m³. It appears likely, however, that worst-case carbon monoxide concentrations in the project vicinity both for the existing case and for the future with- or without-project alternatives could potentially exceed the more stringent State of Hawaii 1-hour AAQS of 10 mg/m³ on occasion within small areas near the intersection of Hamakua Drive and Kailua Road. Other locations in the project area would be in compliance with the state limit in all cases studied.

Predicted Worst-Case 8-Hour Concentrations

Worst-case 8-hour carbon monoxide concentrations were estimated by multiplying the worst-case 1-hour values by a persistence factor of 0.5. This accounts for two factors: (1) traffic volumes averaged over eight hours are lower than peak 1-hour values, and (2) meteorological dispersion conditions are more variable (and hence more favorable) over an 8-hour period than they are for a single hour. Based on monitoring data, 1-hour to 8-hour persistence factors for most locations generally vary from 0.4 to 0.8 with 0.6 being the most typical. One recent study based on modeling (12) concluded that 1-hour to 8-hour persistence factors could typically be expected to range from 0.4 to 0.5. EPA guidelines (11) recommend using a value of 0.6 to 0.7 unless a locally derived persistence factor is available. Recent monitoring data for Honolulu reported by the Department of Health (13) suggests that this factor may range between about 0.35 and 0.55 depending on location and traffic variability. Considering the location of the project and the traffic pattern for the area, a 1-hour to 8-hour persistence factor of 0.5 is probably most appropriate for this application.

The resulting estimated worst-case 8-hour concentrations are indicated in Table 5. For the 1992 scenario, the estimated highest worst-case 8-hour carbon monoxide concentration was 7.4 mg/m³ at the intersection of Hamakua Drive and Kailua Road. Other locations studied were in the 3.0 to 4.2 mg/m³ range. The predicted maximum value for the year 1997 without project scenario occurred at the same location but decreased significantly to 5.2 mg/m³. In 1997 with the project and with the existing roadway configurations, the estimated maximum worst-case 8-hour concentration would continue to occur near the Hamakua Drive/Kailua Road intersection but would decrease slightly less compared to the without-project case to 5.4 mg/m³. With the project and with the suggested roadway improvements, maximum 8-hour concentrations in the project area would be lower than present levels but slightly higher than without the roadway improvements for the reasons discussed above in connection with the 1-hour estimates.

Comparing the predicted 8-hour concentrations to the AAQS, it appears likely that the more stringent state standard of 5 mg/m³ could be exceeded in the project vicinity during the current year (near the intersection of Hamakua Drive and Kailua Road) while the federal standard of 10 mg/m³ will be achieved. With or without the project in 1997, compliance with the federal standard but occasional exceedance of the state standard would likely continue, although without the project concentrations would come closer to complying with the state limit.

The results of this study reflect several assumptions that must be made concerning both traffic movement and worst-case meteorological conditions. One such assumption concerning worst-case meteorological conditions is that a wind speed of 1 meter per second with a steady direction for 1 hour will occur. A steady wind of 1 meter

per second blowing from a single direction for an hour is not very likely, and it may occur only once a year or less. With wind speeds of 2 meters per second, for example, computed carbon monoxide concentrations would be only about half the values given above. It should also be noted that predictions for future years do not account for any reductions in emissions that may result from the new Clean Air Act Amendments of 1990 and thus concentrations could be lower than projected.

7.2 Electrical Demand

The proposed project also will cause indirect air pollution emissions from power generating facilities as a consequence of electrical power usage. The annual electrical demand of the project when fully developed is not expected to exceed about 7 million kilowatt-hours. This power demand will most probably be provided mainly by oil-fired generating facilities located on Oahu. However, with H-Power now online and plans for a coal-fired power plant at Campbell Industrial Park in the near future, some of the project power could well come from sources burning other fuels. In order to meet the electrical power needs of the proposed project, power generating facilities will be required to burn more fuel and hence more air pollution will be emitted at these facilities. Given in Table 6 are estimates of the indirect air pollution emissions that would result from the project electrical demand assuming all power is provided by burning more fuel oil at Oahu's power plants. If power is supplied instead or in part by coal or solid waste burning facilities, emissions will likely be higher than the values given in the table.

7.3 Solid Waste Disposal

Solid waste generated by the project when fully completed is expected to amount to about 2 tons of refuse per day (about two 6-ton truckloads per week). Presently, the refuse district has a capacity to handle about 500 tons per day. Most project refuse will likely be hauled away and burned at the H-Power facility at Campbell Industrial Park to generate electricity. Burning of the waste to generate electricity will result in emissions of particulate, carbon monoxide and other contaminants, but these will be offset to some extent by reducing the amount of fuel oil that would be required to generate electricity for the project. Table 7 gives emission estimates assuming all project solid waste is burned at H-Power. With the high level of particulate emission control achieved at H-Power, emission quantities from the burning of project solid waste would be relatively small.

8.0 CONCLUSIONS AND RECOMMENDATIONS

The major potential short-term air quality impact of the project will occur from the emission of fugitive dust during construction. Uncontrolled fugitive dust emissions from construction activities are estimated to amount to about 1.2 tons per acre per month or less, depending on rainfall. To control dust, active work areas and any temporary unpaved work roads should be watered at least twice daily on days without rainfall. Use of wind screens and/or limiting the area that is disturbed at any given time will also help to contain fugitive dust emissions. Wind erosion of inactive areas of the site that have been disturbed could be controlled by mulching or by the use of chemical soil stabilizers. Dirt-hauling trucks should be covered when traveling on roadways to prevent windage. A routine road cleaning and/or tire washing program will also help to reduce fugitive dust emissions that may occur as a result of trucks tracking dirt onto paved roadways in the project

area. Paving of parking areas and establishment of landscaping early in the construction schedule will also help to control dust.

During construction phases, emissions from engine exhausts (primarily consisting of carbon monoxide and nitrogen oxides) will also occur both from on-site construction equipment and from vehicles used by construction workers and from trucks traveling to and from the project. Increased vehicular emissions due to disruption of traffic by construction equipment and/or commuting construction workers can be alleviated by moving equipment and personnel to the site during off-peak traffic hours.

After the project is completed, long-term air pollution impacts from carbon monoxide emitted by motor vehicle traffic associated with the project will be relatively insignificant. The highest concentrations in the project area currently occur near the intersection of Hamakua Drive and Kailua Road, which is oftentimes congested with traffic during the afternoon peak traffic hour. Although present worst-case concentrations likely comply with federal air quality standards, the more stringent state standards may be exceeded on occasion at this location. Other locations in the project area will likely meet both state and federal standards. With or without the project in the year 1997 and without any roadway improvements, worst-case concentrations will be lower compared to the present year. Roadway improvements suggested by the traffic consultant to improve traffic flow would likely increase worst-case concentrations slightly at some locations but would probably reduce the size of "hot spot" areas. With or without the project, the state standards would likely continue to be exceeded on occasion in the vicinity of Hamakua Drive and Kailua Road while the federal standards would be met. It should be mentioned, however, that the allowable state carbon monoxide levels

are set so low they are probably exceeded at many intersections in the state that have even moderate traffic volumes.

Options available to mitigate long-term, traffic-related air pollution from increased project motor vehicle traffic are to improve roadways, reduce traffic or reduce individual vehicular emissions. Estimates of carbon monoxide concentrations from emissions emanating from vehicular traffic associated with the completed development were made both with and without the roadway improvements recommended in the traffic impact study for the project. In this case, the roadway improvements suggested would likely have a slightly negative impact on air quality. Other mitigation measures to reduce traffic-related air quality impacts from this development are probably either unnecessary or beyond the control of the developer.

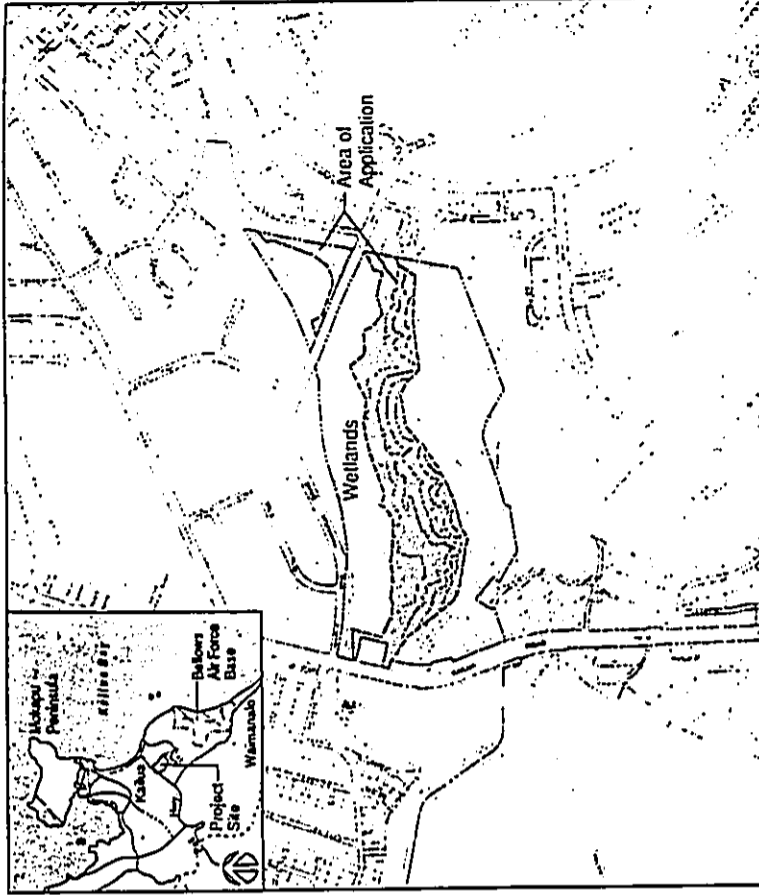
Any long-term impacts on air quality due to indirect emissions from supplying the project with electricity and from the disposal of waste materials generated by the project will likely be negligible based on the relatively small magnitudes of both the estimated demands and the indirect emissions. Even though these emissions will be relatively small, indirect emissions from project electrical demand could likely be reduced somewhat by incorporating energy-saving features into project design requirements. This might include the use of solar water heaters; designing building space so that window positions maximize indoor light without unduly increasing indoor heat; using landscaping where feasible to provide afternoon shade to cut down on the use of air conditioning; installation of insulation and double-glazed doors to reduce the effects of the sun and heat; movable, controlled openings for ventilation at opportune times; and possibly automated room occupancy sensors. Solid waste related air pollution could likely

be reduced somewhat by the promotion of conservation and recycling programs within the proposed development.

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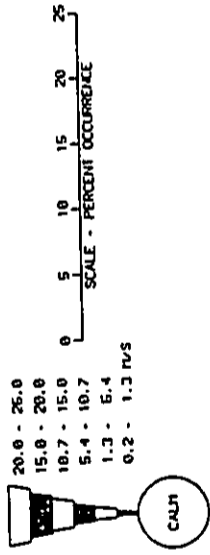
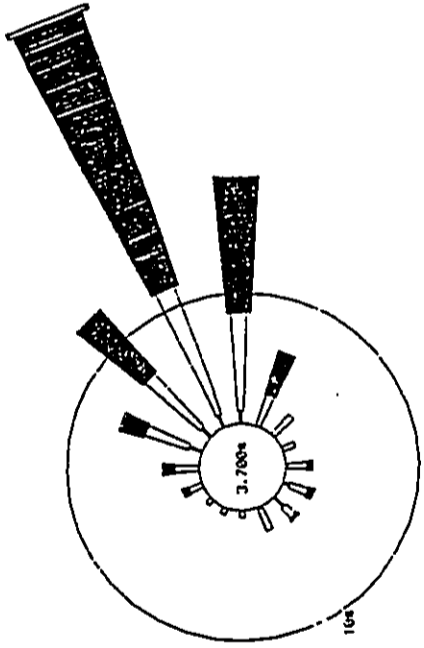
Location Map

RAILUA GATEWAY

Prepared for: Kaneohe Ranch Company, Limited
 Prepared by: Heber Hirstert & Fee, Planners

Figure

1



Source: Atlas of Hawaii

Figure 2
WIND ROSE FOR KANEHOE, OAHU

Table 1
SUMMARY OF STATE OF HAWAII AND NATIONAL
AMBIENT AIR QUALITY STANDARDS

Pollutant	Units	Averaging Time	Maximum Allowable Concentration	
			National Primary	State Secondary of Hawaii
Suspended Particulate Matter	µg/m ³	Annual	-	60 ^a
		24 Hours	-	150 ^b
Particulate Matter ^c	µg/m ³	Annual	50	-
		24 Hours	150 ^b	150 ^b
Sulfur Dioxide	µg/m ³	Annual	80	80
		24 Hours	365 ^b	365 ^b
Nitrogen Dioxide	µg/m ³	3 Hours	-	1300 ^b
		Annual	100	100
Carbon Monoxide	mg/m ³	8 Hours	10 ^b	5 ^b
		1 Hour	40 ^b	10 ^b
Ozone	µg/m ³	1 Hour	235 ^b	100 ^b
Lead	µg/m ³	Calendar Quarter	1.5	1.5

^aGeometric mean

^bNot to be exceeded more than once per year

^cParticles less than or equal to 10 microns aerodynamic diameter

Table 2
AIR POLLUTION EMISSIONS INVENTORY FOR
CITY AND COUNTY OF HONOLULU, 1980

Source Category	Emissions (tons/year)					
	Particulate	Sulfur Oxides	Nitrogen Oxides	Carbon Monoxide	Hydrocarbons	
Steam Electric Power Plants	2,092	36,736	12,455	1,065	184	
Gas Utilities	14	0	199	0	0	
Fuel Combustion in Agricultural Industry	1,088	579	358	0	31	
Refinery Industry	622	7,096	2,149	266	2,584	
Petroleum Storage	0	0	0	0	1,261	
Metallurgical Industries	28	96	40	0	0	
Mineral Products Industry	6,884	1,883	597	0	31	
Municipal Incineration	42	145	2,029	0	184	
Motor Vehicles	1,413	1,014	17,270	239,198	22,853	
Construction, Farm and Industrial Vehicles	184	193	2,507	3,729	338	
Aircraft	382	145	1,751	5,594	1,476	
Vessels	42	386	438	533	123	
Agricultural Field Burning	1,399	0	0	15,982	1,692	
Total:	14,190	48,273	39,793	266,367	30,757	

Source: State of Hawaii, Department of Health

Table 4

ESTIMATED WORST-CASE 1-HOUR CARBON MONOXIDE CONCENTRATIONS
ALONG ROADWAYS NEAR KAILUA GATEWAY PROJECT
(milligrams per cubic meter)

Roadway Intersection	Year/Scenario ^a			
	1992/ Present	1997/ Case A	1997/ Case B	1997/ Case C
Hamakua Drive at Kailua Road	14.7	10.5	10.9	11.5
Hamakua Drive at Hekili Street	6.0	4.8	5.8	6.4
Hamakua Drive at Hahani Street	8.4	6.6	6.8	6.8

Hawaii State AAQS: 10
National AAQS: 40

^a1997/Case A pertains to without project scenario. 1997/Case B assumes with project without any roadway improvements. 1997/Case C assumes with project with roadway improvements suggested in project traffic study (widening of Hamakua Drive at Kailua Road to permit through movements from both lanes on Kainche Street and signalization of Hekili Street at Hamakua Drive).

Table 3
ANNUAL SUMMARY OF AIR QUALITY MEASUREMENTS AT
WAIHOLE MONITORING STATION

Parameter	1985	1986	1987	1988	1989
Total Suspended Particulate					
No. of 24-Hr Samples	57	59	54	60	56
Range of 24-Hr Values (µg/m ³)	13-52	10-72	13-45	16-82	10-57
Average Daily Value (µg/m ³)	26	28	25	29	20
No. of State AAQS Exceedances	0	0	0	0	0

Source: State of Hawaii Department of Health

Table 5

ESTIMATED WORST-CASE 8-HOUR CARBON MONOXIDE CONCENTRATIONS
ALONG ROADWAYS NEAR KAILUA GATEWAY PROJECT
(milligrams per cubic meter)

Roadway Intersection	Year/Scenario ^a			
	1992/ Present	1997/ Case A	1997/ Case B	1997/ Case C
Hamakua Drive at Kailua Road	7.4	5.2	5.4	5.8
Hamakua Drive at Hekili Street	3.0	2.4	2.9	3.2
Hamakua Drive at Hahani Street	4.2	3.3	3.4	3.4

Hawaii State AAQS: 5
National AAQS: 10

^a1997/Case A pertains to without project scenario. 1997/Case B assumes with project without any roadway improvements. 1997/Case C assumes with project with roadway improvements suggested in project traffic study (widening of Hamakua Drive at Kailua Road to permit through movements from both lanes on Kainehe Street and signalization of Hekili Street at Hamakua Drive).

Table 6

ESTIMATED INDIRECT AIR POLLUTION EMISSIONS FROM
KAILUA GATEWAY PROJECT ELECTRICAL DEMAND

Air Pollutant	Emission Rate (tons/year)
Particulate	<1
Sulfur Dioxide	18
Carbon Monoxide	1
Volatile Organics	<1
Nitrogen Oxides	5

^aBased on U.S. EPA emission factors for industrial boilers (4). Assumes electrical demand of 7 million kw-hrs per year and low-sulfur oil used to generate power.

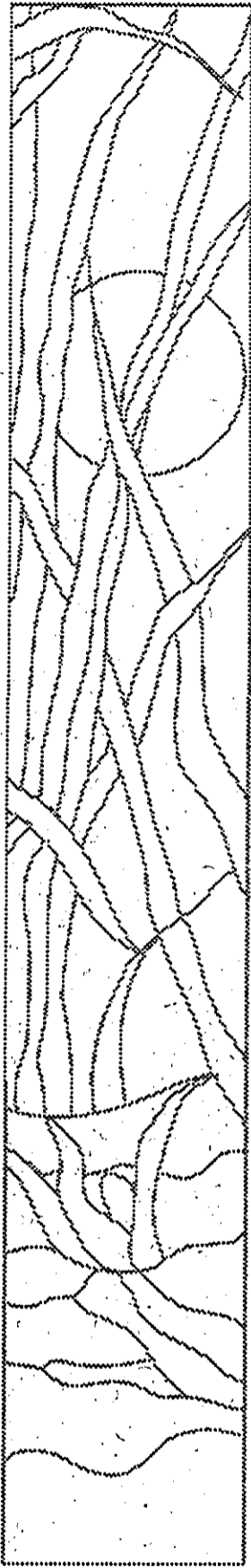
Table 7

ESTIMATED INDIRECT AIR POLLUTION EMISSIONS FROM
KAILUA GATEWAY PROJECT SOLID WASTE DISPOSAL DEMAND*

Air Pollutant	Emission Rate (tons/year)
Particulate	<1
Lead	<<1
Sulfur Dioxide	<1
Carbon Monoxide	<1
Volatile Organics	<<1
Nitrogen Oxides	1

*Based on U.S. EPA emission factors for municipal waste incinerators [4]. Assumes mass burn unit with 99 percent control of particulate emissions and solid waste disposal demand of 2 tons per day.

Appendix E



Archaeological Inventory Survey, Phase I
International Archaeological Research Institute, Inc.

ARCHAEOLOGICAL INVENTORY SURVEY, PHASE I,
KAILUA GATEWAY DEVELOPMENT,
KAILUA, O'AHU, HAWAII

by

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Carolyn J. Orndoff, M.A.
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April 1992

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ABSTRACT

Under contract with Helber Hastert and Fee of Honolulu, International Archaeological Research Institute, Inc. conducted a Phase I archaeological inventory survey of the Kailua gateway development project area (TMK #4-2-01:1, 55; 4-2-03:17, 29 and 4-02-38:24). This survey, including an historical land use study and archaeological background literature review, were conducted in November of 1991.

The historical study documented the general importance of lands within the immediate vicinity of the project area for traditional Hawaiian activities, especially agriculture. However, there was no specific indication of traditional Hawaiian land use on the project parcels. Rice cultivation and livestock grazing characterized the project area during the latter half of the 19th century and the 20th century. Extensive residential and commercial development activities in neighboring areas began to occur after the first decades of the 20th century, though the only direct impact to the project area was the quarrying of a hill in 1963.

Four sites were identified during the archaeological survey and one previously recorded site was relocated but not labeled a site. These sites, including two platforms, an unidentified structure, and two lithic scatters, are briefly described and their approximate locations are indicated on a map of the project area.

Recommendations for further investigation include detailed recording of the two sites with structural remains, subsurface test excavations at all four sites, and archaeological survey of the adjacent wetland area (where one of the identified sites is located). Paleoenvironmental investigations are also recommended for the wetland.

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INTRODUCTION

Under contract with Helber Hastert and Fee of Honolulu, International Archaeological Research Institute, Inc. conducted a Phase I archaeological inventory survey of the Kailua Gateway project area (TMK #4-2-01:1. 55; 4-2-03:17,29 and 4-02-38:24). The survey was limited to an approximately 33 acre area designated for development, which extends from the wetland margin to approximately the 50 ft to 100 ft elevation contours (see Figs. 1, 2, and 3). The total combined acreage of the tax map key parcels is 97 acres, which is divided between an 89 acre section on the landward side of Hamakua Drive and an 8 acre triangular section to the east on the seaward side of Hamakua Drive. No development is contemplated on the steeper slopes, comprising roughly 40 acres. However, the area of primary development is indicated on the project location map (Fig. 2), which also shows the approximately 26 acres of wetland as identified by the U.S. Army Corps of Engineers.

Fieldwork for the archaeological inventory survey was conducted by Rey Quebral, B.A., and Michel Lufly, B.A., with J. Stephen Albens, Ph.D., as Principal Investigator. The survey was conducted during the period of November 20th through 24th, 1991. A site visit was made of the entire project area by Dr. Albens and Greg C. Burtchard, M.A., on November 24th. The purpose of the Phase I inventory survey was to identify and record in a preliminary fashion all surface archaeological sites inside the designated development area, which is the proposed location of a 400-unit retirement community. In addition, a land use history was compiled by Carolyn J. Orndoff, M.A., which included a brief review of the relevant archaeological literature. The results of these investigations, including recommendations for further research, are presented below.

Project Location and Environment

The Kailua Gateway project area is situated at the southwestern corner of the Kailua road and Hamakua drive intersection. It is clearly bounded on all sides: to the west by a barbed wire fence that crosses the peaks of Pu'u o Ehu Ridge, to the east by Kaelepuu Stream, to the south by the residential areas of Hamakua Place and Akoakoa Street, and to the north by Kailua Road and a business complex. As noted above, the project area consists of two parcels; an 89 acre parcel landward of Hamakua Drive, and an 8 acre triangular parcel on the seaward side. Photo 1 provides an overview of the parcel.

The landward parcel contains two distinctive environmental zones with a narrow interface. A wetland area occupies nearly one-third of this parcel to the northeast, while the an upland zone, including Pu'u o Ehu Ridge and its many ravines and ridge toes occupy roughly two-thirds. The wetland vegetation consists mainly of pickleweed (*Batis maritima*) and mangrove (*Rhizophora mangle*) toward the east, while *koa-haole* (*Leucaena glauca*), Christmas berry (*Schinus molle*), *Kiawe* (*Prosopis pallida*), California grass (*Brachiaria mutica*), and dense thickets of *Pluchea indica* cover the western edge. The upland vegetation consists mainly of California grass, *oi* (*Coryne vevina*), *lanana* (*Lantana camara*), *kiu* (*Acacia farnesiana*), and occasional patches of Christmas berry. The interface of the wetlands and the uplands sustains a multitude of plant life, including *koa-haole*, *lanana*, *kiawe*, *Pluchea indica*, African tulip, java-plum, mango, Hawaiian cotton, *oi*, Christmas berry, and California grass.

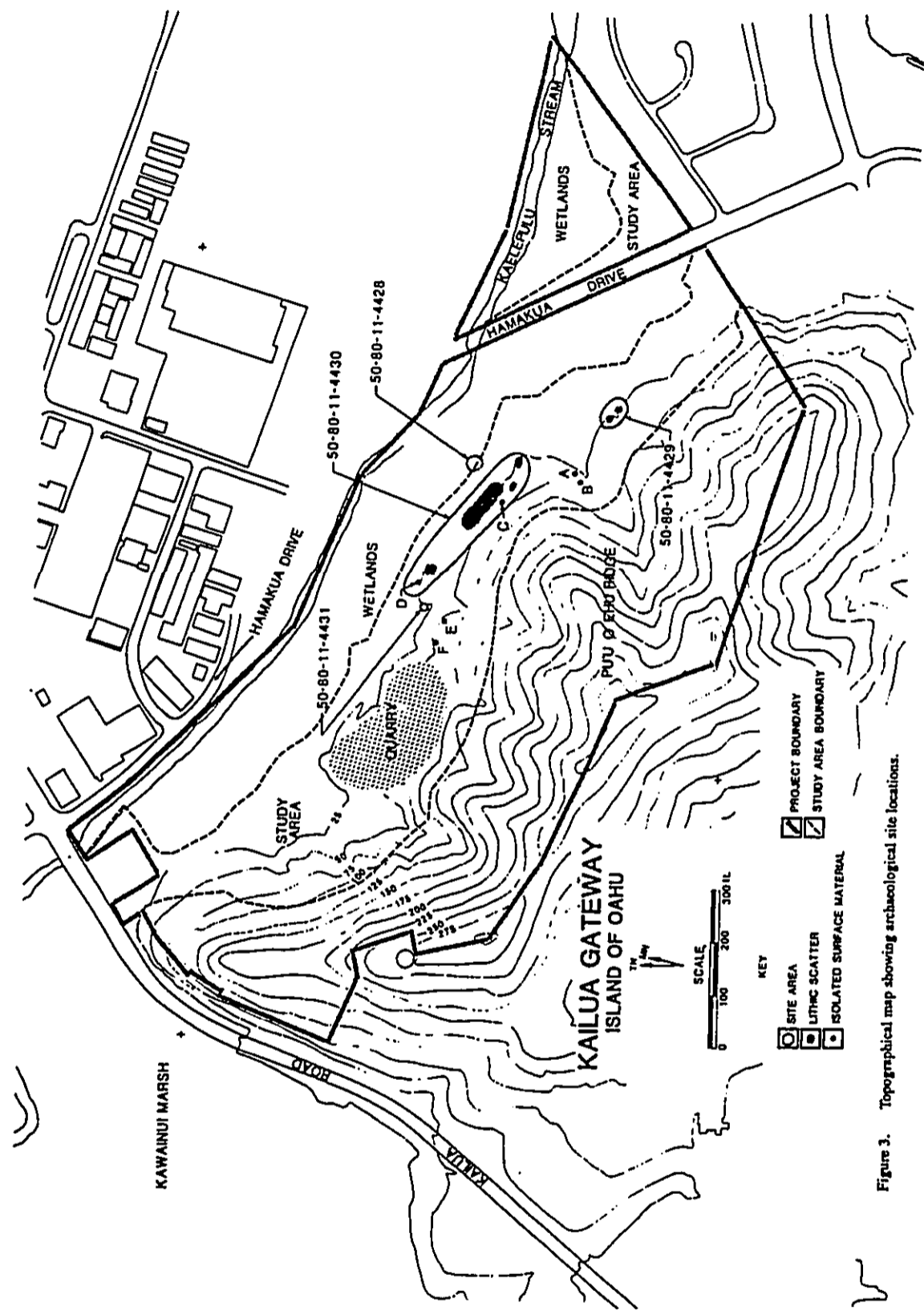


Figure 3. Topographical map showing archaeological site locations.

The wetlands are fed by the overflow of Kaelepu Stream (Photo 2). This marshy area is inhabited by several native birds, including the Hawaiian Stilt, the Hawaiian Coot, and possibly the Hawaiian duck. Isolated fragments of marine shell (mainly bivalves) were observed scattered throughout wetlands; their presence probably stems from recent dredging of Kaelepu Stream.

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Photo 2. Wetlands within project area showing overflow from Kaelepu Stream.

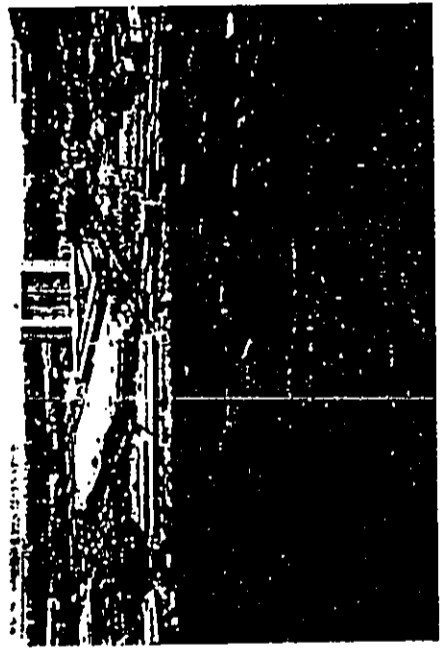


Photo 1. Overview of central portion of project area. View to north-northeast from steep slope above development area.

• • •

The seaward parcel is mainly wetlands with a low-lying land-fill area adjacent to the residential area of Akoakoa Street. This raised area is densely covered with elephant grass (*Panicum mitisimum*), mangrove, and *kou-hiole*.

The development area is situated primarily on the thin wetland-upland interface of the landward parcel, which includes sections of the uplands to an elevation of 50 ft above sea level, and the non-wetland area of the seaward parcel. This development area is the proposed location for the retirement community (see Fig. 2).

There are numerous modern disturbances within the development area. A recent quarry and its access road is highly visible (Fig. 1, see also Fig. 1-4). The quarry is located near the center of the study area. The access road extends from the quarry site toward the south following the base of the ridge then turns toward Hamakua Drive as it parallels the residential area of Hamakua Place. Asphalt remnants near the quarry site suggest the probability that the section of the access road adjacent to the quarry site was paved while the remaining sections were gravel-filled. Towards the south of the main development parcel, a ranching complex consisting of a horse pen, several watering troughs, and extensive fencing attest to current cattle grazing activity within the study area; indeed, cattle were present during the archaeological survey.

HISTORICAL LAND USE AND ARCHAEOLOGICAL BACKGROUND

Introduction

The findings of a literature and documents search, which was undertaken to ascertain Pre- and Post-Contact land use for the Kailua Gateway Project, revealed a pattern of differential land use through time. The earliest evidence consisted of pre- and post-contact traditional Hawaiian activities, which emphasized broad-spectrum collection, aboriginal agriculture, and taro production. Rice cultivation beginning during the mid-19th century replaced taro cultivation, which was supplanted in turn by livestock grazing. Finally, during the 20th century, intensive residential and commercial development directly affected the project area through sporadic land disturbances, such as earth removal.

Project Area Description

The Kailua Gateway project area is located on a section of land between Kawaiinui Marsh and Kaelepuhū Pond, which are situated at the base of the Koolau Mountain (Fig. 1). The project area is located seaward within the Kailua *ahupua'a* (traditional Hawaiian land division) of Ko'olaupoko District, O'ahu.

The project area covers a roughly rectangular area that includes parcels 1 and 55 on Tax Map Key (TMK) 4.2.01 and parcels 17 and 29 on TMK 4.2.03 (Figs. 4 and 5). The northwestern corner is at the intersection of Kailua Road and Kaelepuhū Stream, the latter connecting Kawaiinui Marsh and Kaelepuhū Pond. The seaward parcel segment follows the stream, crosses Hamakua Drive, and continues to follow the stream to the Kaelepuhū boundary division line (TMK 4.2). The periphery turns towards the mountains along this same boundary division line (TMK 4.2). The inland peripheral segment follows the Kaipōia and Kawai-loa seaward boundary division lines before it bisects the Pohakupu no Keshupū's land area (TMK 4.2) it continues along the Kukanono seaward boundary division line until it intersects with Kailua Road (TMK 4.2). The project area periphery turns seaward along Kailua Road until it intersects the stream (TMK 4.2).

In short, the seaward parcel boundary follows the stream, then turns towards the mountains, crosses the marsh land, and climbs up to the ridgeline of Pu'u o 'Ehu (see Figs. 1 and 4). The inland boundary line follows the ridge, descends to Kailua Road, and parallels the road until it reaches the stream.

Previous Archaeological Investigations

The evidence presented by previous archaeological investigations suggests four primarily agricultural land use phases that may have occurred either in or near the project area (see Athens and Ward 1991 and discussion below). (1) Settlement in the area around Kawaiinui Marsh may have occurred as early as about A.D. 650. (2) Wetland taro cultivation, possibly beginning as early as approximately 1300, lasted until about 1860. (3) Rice cultivation replaced taro cultivation towards the latter half of the 19th century. (4) Livestock grazing replaced rice cultivation during the 20th century.

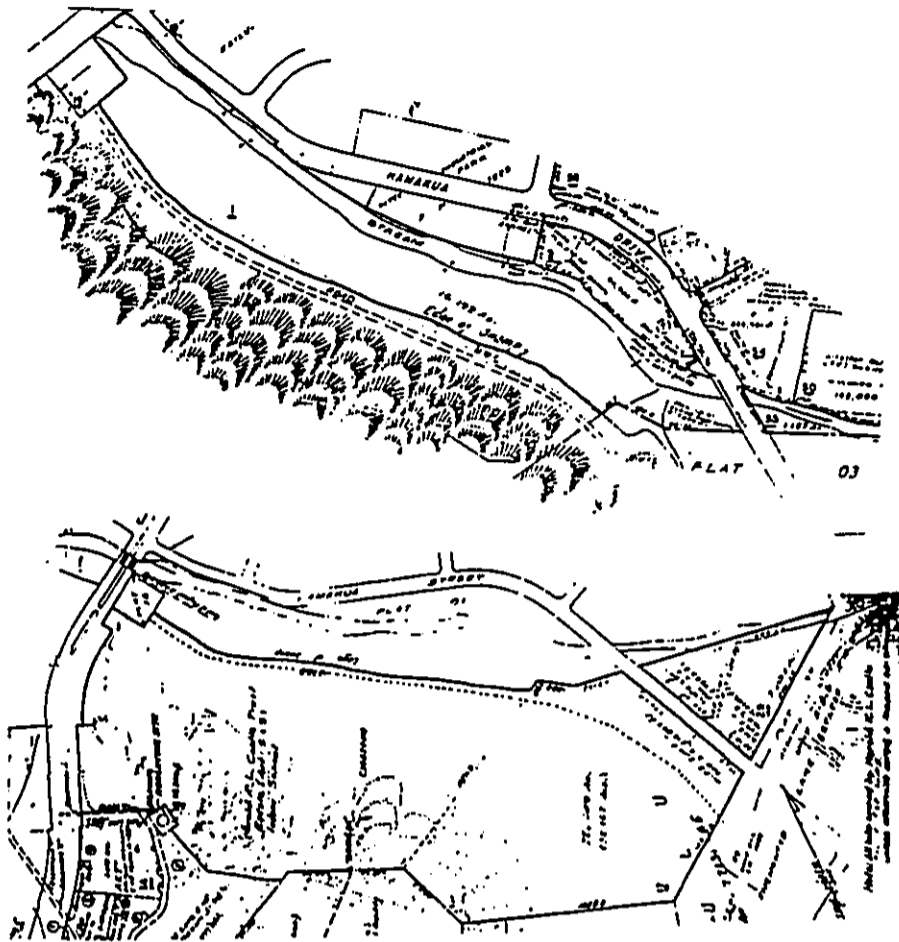


Figure 4. TMK 4.2.01 (left), and TMK 4.2.03 (right).

in the area until the historic period or possibly the late historic period" (Allen-Wheeler 1981:87). A second important finding was that large tracts of land around the marsh area were used for irrigation and drainage agriculture, with an emphasis upon taro, between 1300 and 1860 (Allen-Wheeler 1981:82). There were also documentary evidence that taro was replaced by rice cultivation during the latter 19th century, and rice by grazing in the 20th century (Allen-Wheeler 1981:83). The portable artifact collection was small, with only one historic artifact (Allen-Wheeler 1981:55).

3. Jeffrey T. Clark conducted a limited archaeological investigation that included surface surveys and excavation (Clark 1980). The five archaeological sites revealed 390 predominantly agricultural features. One of the conclusions drawn by Clark, that the Marsh environs did not support large populations, is similar to one of the 1981 findings of Allen-Wheeler (Allen-Wheeler 1981:17). Both Athens and Ward (1991) and Allen-Wheeler (1981) discuss the 1980 investigation by Clark.

4. Ross Cordy conducted an archaeological reconnaissance, which included photogrammetric surveys, and pre-1850 literature search related to an area along the Kawaiui Marsh sewerline in 1977 (Cordy 1977). The six recorded sites included terraces, mounds, walls, and a canal (Allen-Wheeler 1981:14). Although Allen-Wheeler notes one historic house site in her summary of the report, there appeared to be two historic house sites on the fold out map that accompanied the report.

In 1978 Cordy excavated a series of field systems (Allen-Wheeler 1981:14). Allen-Wheeler notes that one important contribution made by this excavation was the suggestion of existence of many Pre-Contact structural field components (Allen-Wheeler 1981:15).

6. Stephan D. Clark conducted a site survey for the proposed plan to realign Hamakau Drive in 1977 (Clark 1977). A considerable portion of the area surveyed intersects the Kailua Gateway project area. The survey revealed several archaeological features. The area south of the stream contained a large earth mound (possibly formed by bulldozing) with an adjacent possible wall alignment and at least five

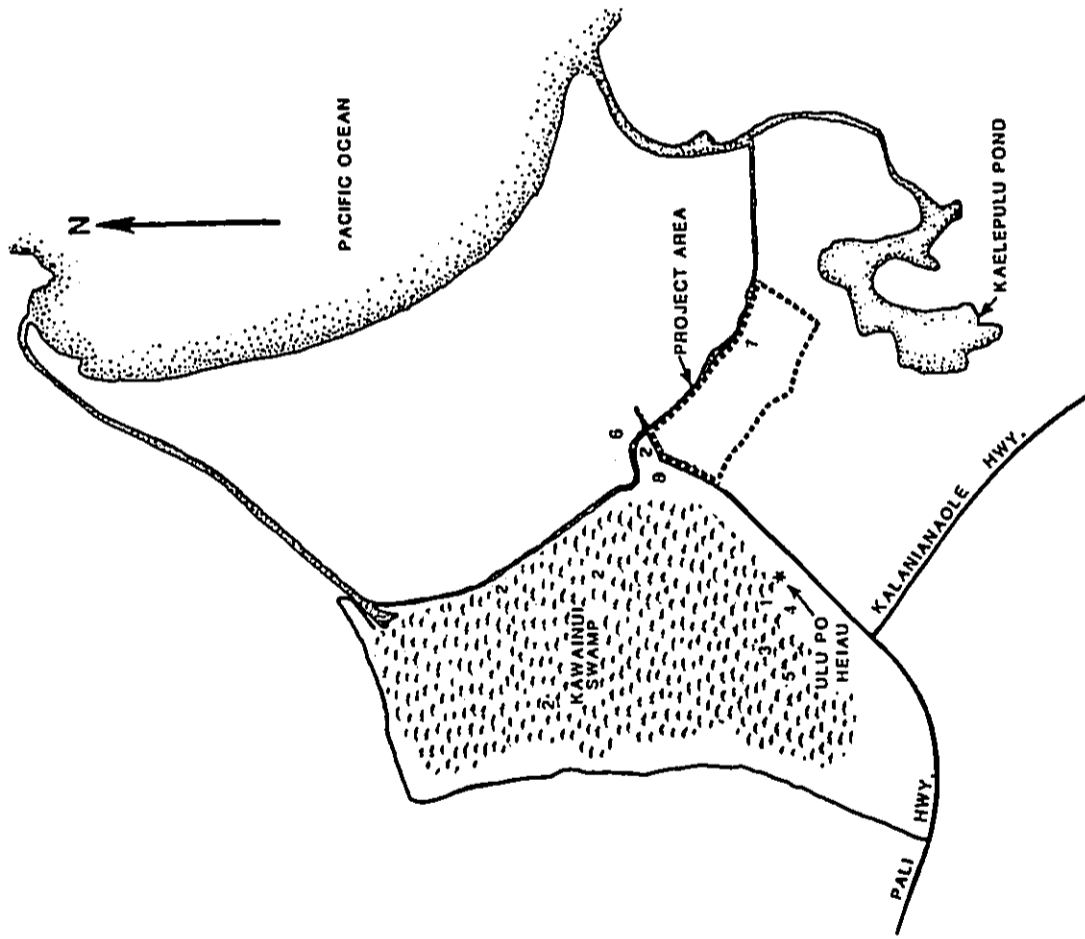


Figure 6. Previous archaeological investigations and legends. 1. McAllister (1933), 2. Athens and Ward (1991), 3. Allen-Wheeler (1981), 4. Clark, J. (1980), Athens (1983a), 5. Cordy (1977, 1978), 6. Athens (1983b), 7. Clark S. (1977), Morgenstein (1982), Hommon (1982), 8. Maka-Lei Tree.

basalt alignments (Clark 1977:1). Also south of Kaelepulu Stream, the survey revealed a possible habitation site; two possible abandoned agricultural plots; the remains of an irrigation ditch; and surface midden (*Zeilina rugosa*; Clark 1977:1-2). The survey also revealed a possible *heiau* with associated features in the pasture land at the base of Puu o Ehu ridge (Clark 1977:3).

Two 1982 reports concluded that the archaeological features discovered by Clark in 1977 did not exist (Morgenstein 1982:15; Hommon 1982:1). Both 1982 reports provide evidence in support of pre-1900 rice cultivation and fill deposits from recent decades (Morgenstein 1982:1; Hommon 1982:1). Hommon claims that Clark revisited the site in 1981 and could not locate the features seen in 1977 (Hommon 1982:12). In a conversation with C. Orndoff on November 22, 1982, Clark did not remember revisiting the site in 1981, and adamantly insisted on the validity of the findings from his 1977 site survey.

7. Excavations by Athens (1983a) on the Pohakupu slope revealed abundant lithic and midden remains. A hearth feature was dated at A.D. 1240-1385 (calibrated). The investigations demonstrated that by the late 13th century the Pohakupu area had become an important locus of prehistoric Hawaiian settlement and activity.

Excavations by Athens (1983b) on the Kailua sand berm fronting the marsh (see Fig. 6) documented an occupation in the late 13th or 14th centuries along with plentiful marine shell and other midden remains. There was no indication that Kawaiinui Marsh was being exploited at this time.

Hawaiian Cultural Traditions

The abundance of literature that relates Hawaiian cultural traditions to the Kailua *ahupua'a* suggests the importance traditional Hawaiian occupation in this area. A selected compilation of this data is presented below, including place name definitions, legends of chiefs and kings, and tales related to natural formations and natural resources.

There is a preponderance of mythological and legendary material related to Kawaiinui Marsh. One of the largest compilations is, *Ho'ona'auao No Kawai Nui: Education About Kawai Nui*, by D. C. Dringot (1982). Kelly (1980) also provides a compilation of similar information. The following works are suggested for additional legends and myths associated

with the Kailua *ahupua'a*: *Legends and Myths of Hawaii*, by Kalakaua (1888); *The Ruling Chiefs of Hawaii and The People of Old* by Kamakau (1961 and 1964); *Formander Collection of Hawaiian Antiquities and Folk-lore, Vol. 4 and 5*, by Formander (1916).

The literal translation of Kailua is "two seas", which may refer to the two ancient lagoons which eventually became Kawaiinui Marsh and Kaelepulu Pond (Pukui et al. 1986:69; Athens and Ward 1991:9). Kawaiinui Marsh, located west of the project area, literally translates as "the big water" (Pukui et al. 1965:349,250). Kaelepulu, the name of the pond and of the 'i'i (traditional Hawaiian land unit, usually a subdivision of the *ahupua'a*) to the east of the project area, literally translates as "the moist blackness" (Pukui et al. 1986:61). Puu o Ehu possibly means the "hill of spray or foam" (Pukui et al. 1965:36).

Abramson Formander recounts the adventures of Lonoikamakahiki and Kuailii, two legendary O'ahu chiefs who resided in Kailua. Lono, the king of Hawaii, went to O'ahu to avoid the wrath of his in-laws after he killed his supposedly adulterous wife (Formander 1916:IV:256, 274-322; Beckwith 1940:393). He resided at Kamooa, Kailua with Kakuhihewa, the king of O'ahu (Beckwith 1940:393). The two kings engaged in a series of bets that led to Lono winning the island of O'ahu (Formander 1916:IV:274-322).

Kuailii, a possible 18th century O'ahu chief who at times assumed supernatural attributes, resided in Kailua (Formander 1916:IV:364, 432-444). Kuailii purportedly ran around O'ahu five times in one day, persecuted the Menehunes; and was glorified as a heaven-sent messenger in a 610 line chant (Beckwith 1940:328,394).

There are several legends from the Formander collection that tell the exploits of a legendary chief, Olomana. The creation story of Olomana tells how a young man from Kailua, Kaulu pushed the overly prominent forehead of Lonoakao, the king of Koolau, into the ground, where it stuck (Formander 1916:IV:522-532). Eight sections comprised the forehead: stone, rock, wood, *ohia*, weeds, *maile* vines, *ieie*, *halo*, and *tehua* trees on each section as well (Formander 1918:V:364-370). When Lonoakao attempted to kill Kaula with the rock, he missed and hit the ground instead (Formander 1918:V:364-370).

An informant cited in the work of Sterling and Summers claims that Olomana was a chief from long ago, whose favorite, Ahiki, was *konohiki* (lesser chief) over the Kaelepulu and Kawaiinui ponds (Sterling and Summers 1978:234).

Sterling and Summers locate the Maka-Lei Tree (Site 15) near the Kailua Gateway project area (Sterling and Summers 1978:231; see Fig. 6). This tree had the magic power of attracting fish (Sterling and Summers 1978:231). Originally there were a male and female Maka-Lei trees in Hilo and the female was brought to O'ahu for the purpose of attracting fish (Sterling and Summers 1978:231).

Major Land Owners

There is little to infer about land use from the documentation obtained while tracing property ownership. The major landowners leased the property to others who actually worked the land (land use is discussed in the following section). H. K. L. Castle, through Kanooho Ranch, owned the land for almost two-thirds of the 20th century, currently owns it, and has used it primarily as livestock pasture. However, the title prior to ownership by Kanooho Ranch is convoluted and ambiguous.

The O'ahu *alii*'i (Hawaiian royalty) preferred Kailua for their residence in historic times as well as in the time of legendary figures. However, documentation for the pre-1850 residents of Kailua is second hand at best. For example, Kamakau alleges that Kamehameha I worked the fishponds, including Kawainui and Kaelepulu (Kamakau 1961:192).

The project area is roughly divided between the 'i'i of Kaelepulu and an area of land described as Pohakupu no Keahupua'a (see 1902 map, Fig. 7). Princess Victoria Kamamalu (1838-1866) claimed the 'i'i of Kaelepulu in January of 1848 [Native Register (N.R.) V:569; see Fig. 7]. The Land Commission Award (L.C.A.) number is 7713 (N.R. V:569). The Board of Commissioners to Quiet Land Titles initially awarded to Princess Victoria an estate of freehold less than allodial (Original Surveyor's Notes December 29, 1854 and December 30, 1858). Princess Victoria gave some of her land to the government and received title in fee simple in 1858 (Original Surveyor's Notes December 29, 1854 and December 30, 1858). The Royal Patent number 4475 was issued December 23, 1884 (Libre 18:405). The Princess owned the land until her death in 1866.

Princess Victoria Kamamalu was born in Honolulu in the old Fort on November 1, 1838 (Hawaiian Gazette 1866:2:1). She was the daughter of Mataio Kekuanoa, Governor of O'ahu, and Kinau (The Friend 1855:14; Peterson 1984:324). One source claims that the Honorable John II and Sarai, his wife, cared for Victoria from birth (Hawaiian Gazette 1870:2:2). Another source claims that John and Sarai became the principle guardians when Kinau died in March, 1839 (Peterson 1984:192). Victoria attended the *Hale Kula Alii* (Royal School) and resided with the family of Mr. Cooke, the principal of the school (The Friend 1855:14-15; Privy Council 1847:2:429).

King Alexander Liholiho (Kamehameha IV, 1834-1863) appointed Princess Victoria as *Kuhina Nui* (Premier) on January 15, 1855 (Foreign Office and Executive 1855; Hawaiian Annual 1892:41). The Princess held the office until 1863 when King Lot (Kamehameha V, 1830-1872) appointed Kekuanoa as *Kuhina Nui* (Peterson 1984:193; Hawaiian Annual 1892:41).

The princess may have had a weak constitution. Her father wrote to King Kamehameha III, 1814-1853) in 1861 that Princess Victoria was sick during an extended trip to Hawaii'i (Letter September 3, 1861; Hawaiian Annual 1892:41). She died after a lengthy illness in 1866 (Peterson 1984:194).

At this point the ownership of the 'i'i of Kaelepulu becomes obscure. Princess Victoria Kamamalu died intestate. Her estate settlement, undertaken by her father in accord with John C. Dominis, was completed in 1871 (Liliuokalani Collections, Estate of M. Kekuanoa, Hawaii'i State Archives). Kaelepulu appears for another three years in the account book pages of Kekuanoa (Liliuokalani Collections, Estate of M. Kekuanoa, Hawaii'i State Archives).

On April 22, 1880 Ruth Keanolani Kanapohoa Keelikolani (1826-1883) leases lands in the 'i'i of Kaelepulu and Makawao to 36 individuals (Bureau of Conveyances (B.C.) Libre 61:80-82; Peterson 1984:324). Again, on October 15, 1881, Princess Ruth leases 8.5 acres of land in Kaelepulu to *Alai et al.* (B.C. Libre 71:253-254). There is no documentation at this time which describes how or when Princess Ruth became the owner of the 'i'i of Kaelepulu.

Princess Ruth was born in Honolulu on February 9 or June 17, 1826 (Peterson 1984:324). She was the daughter of High Chiefess Pauahi and *po'olua* (child with two fathers)

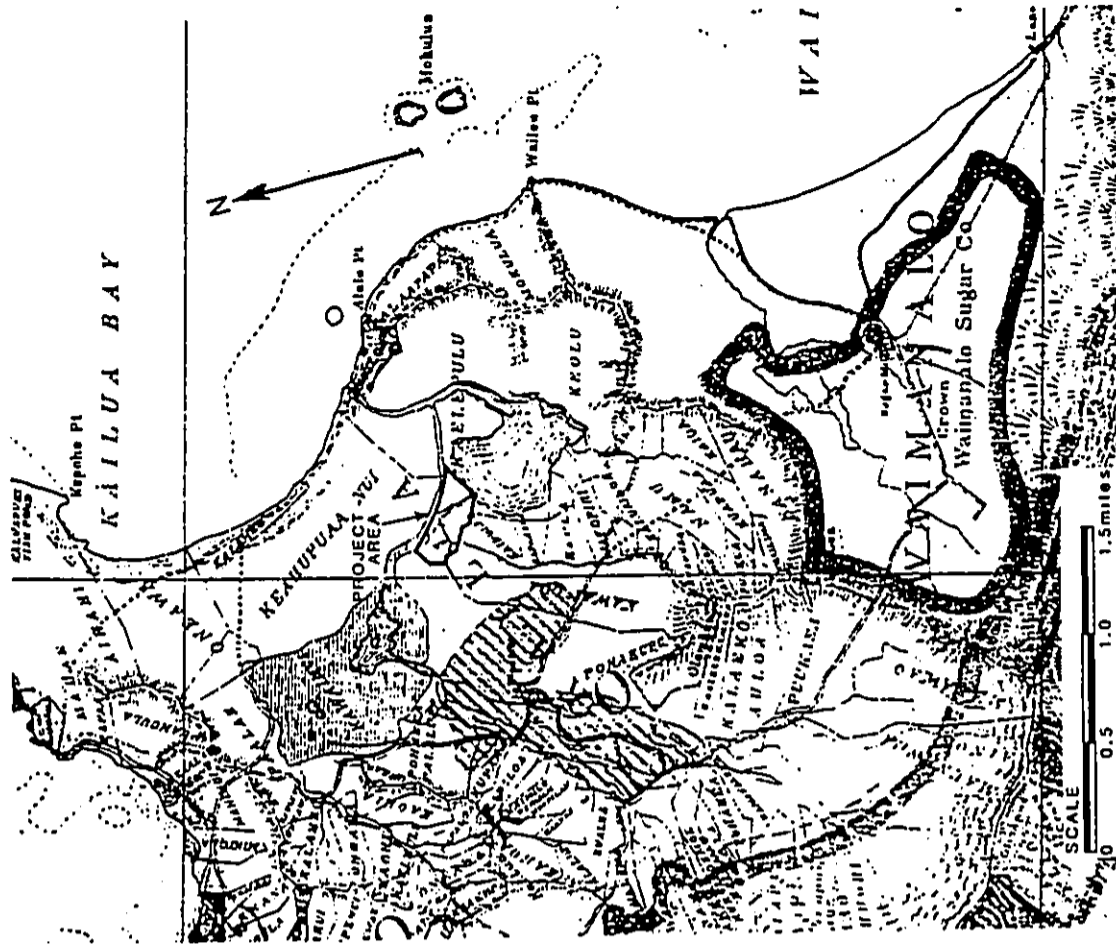


Figure 7. 'I'i of Kaelepulu, Pohakupu. Hawaii Territory Survey Map. Prepared by Walter E. Wall after map originally prepared by John M. Donn, 1902.

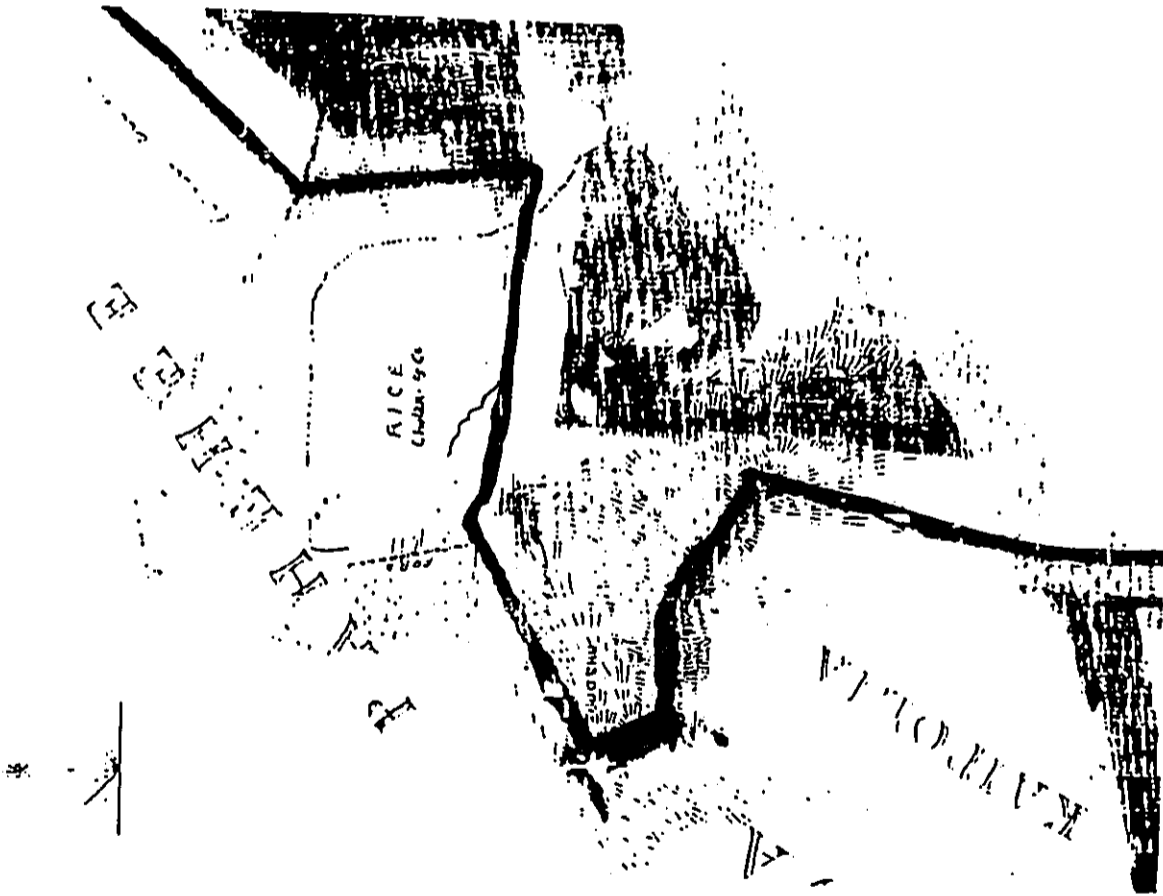


Figure 9. Patched, Chulan Company. Surveyed by Arthur C. Alexander, 1884. Note location of Puu O Ehu and the "ford" that appears to cross the project area.

Award (M.A.) 7 and M.A. 49. It is possible that this property is part of Keahupua'a Nui or Kawainui 'Ili.

As part of the Kawainui 'Ili, Pohakupu no Keahupua'a would have belonged to Queen Kalama until her death in 1870 (Driget 1982:27). The Queen died intestate and left all to her sole heir, S. Charles Kanaina. In 1871, he sold to C. H. Harris all of Kaneohe and Kailua in the possession of the Queen Dowager (B.C. Libre 34:52-54). Nannie Roberts Harris, sole heir to the Harris estate, sold nearly all of their interest in both Kailua and Kaneohe to H. K. L. Castle (Kaneohe Ranch) in 1917 (Driget 1982:27).

Changes in Land Use Over Time

Up to this point, information on land use has been weighted towards traditional Hawaiian practices. The focus of this section, however, is historical records, which tend to emphasize more recent land usage.

Replacing taro cultivation, rice cultivation in the *ahupua'a* began during the second half of the 19th century and continued just past the beginning of the 20th century. Cattle and horse grazing also began in the mid-19th century and still continues in some parts of the *ahupua'a*, including the project area. Commercial, residential, and industrial development in and adjacent to the project area began during the 1920s. Such development produced a rapid and radical change in land use adjacent to the current project area, but only sporadic alterations within the project area.

Allen-Wheeler (1981:10) refers to a botanist and naturalist from the HMS *Blonde*, who described wet taro grown in stream beds and taro ponds--"too many to cross"--essentially covered the surface between the cliffs and the ocean. Specific information concerning traditional use of the project area, however, is unavailable. Typically, testimony provided by those who claimed *kuleana* (land owned by commoners) during the *Mabete* of 1848 mentioned land under taro cultivation and other uses of the land. However, this information is unavailable for the current project area because there were no *kuleana*.

George Bowser wrote the following descriptions for the *Tourists' Guide*, 1880-1881. Note the mention of an abundance of fish and fowl, cultivation of rice, and use of the land for pasturage.

"From this point I started back and retraced my steps about four miles until I came to the rice plantations of Mr. Luk Sang and Mr. Ah Ho. These plantations are in the Kailua District, near the road I have just returned over from Waianalo. They include about 230 acres of rice-land, which at the time of my visit (January) was being sown with rice....

"To my left, as I looked eastward, was the valley of the Kawainui, about one-fourth of which is already laid out in rice plantations. The remainder will be brought under cultivation during the coming season

for the same purposes. Before me, still looking east, there is an uninterrupted view of the sea. In the bosom of the valley there is a large pond or lake celebrated for its mullet and awa. The latter fish grows here to four feet in length. Wild duck and the famous Hawaiian goose are also to be found here in abundance. Between this fish-pond of Kawainui and the sea there is level land about one mile and a quarter long by three-quarters of a mile in width, covered with the most beautiful green grass I ever saw. To the right is a wide extent of plain, well grassed, where large herds of cattle and droves of horses roam at will. At the south end of the plain is a large grove of cocoa nut palms. To the north is the open sea...

"Leaving Mr. Kahuhu's farm, I next visited the Kaelepu Lake. This sheet of water is twelve miles from Honolulu. Innumerable ducks and geese frequent it, besides waterbeats, herons and other wild fowl. In its waters plenty of the freshwater fish of the country may always be found. The lake is completely surrounded by high mountains. Around its shores splendid pasture is to be found. Large quantities of sheep might be bred here to great advantage. When I was there I only saw one small flock of about fifty in all grazing on the border of the lake. Mr. Wong Luog's rice plantation is at the head of this lake, and at the other end is Mr. Ah Sui's. I now turned my steps southward so as to reach again the main road, from which I had diverged in order to visit Waimanalo. Skirting the rice plantations of Messrs. Ah Ho and Luk Sang, already referred to, and those of Messrs. Chulan & Co., and keeping the Kawainui Lake on my right, I reached first the Valley of Kapa. The appearance of the country here was similar to that through which I had just been traveling. I am told that wild goats, turkeys, and fowls in plenty are to be found in the mountains about this neighborhood..." (Bowser 1880:480-481).

In September of 1939, a Mrs. Charles Alona offered the following description of Kaelepu Lake (note the numerous varieties of edible fish and the gathering of bullrush leaves, possibly for weaving):

"Once upon a time it was much larger and very clean. The people of that locality always saw to it that the ponds were kept clean in the olden days. Fat mullet, awa, whole and oopu fish were found

there and much limu kala-wai. This limu was eaten with fat fish and much liked with awa fish. The fish were tender and always fat. Bullrushes (akaakai) grew around the edge of the ponds and Mrs. Alona remembered going with her grandmother to gather the leaves. "On the west side of Kaelepu, a branch of the pond runs up into a small gulch. That is Waioniki. From the lower side of the pond runs a small stream, Pupu-opae that joins a larger one called Pele-kane. West of Kaelepu stands the hill Ka-lae-o-ka-iwa." (Summers and Sterling 1978:240).

The "splendid pasture" noted by Bowser was taken advantage of by Charles L. Harris. In 1864, Harris went into partnership with Queen Kalama and formed the Kanohe Plantation (B.C. Libre 23:204). As previously mentioned, Harris bought all the land belonging to the queen dowager from her heir in 1871. Eventually the property went to H. K. L. Castle (Kanohe Ranch), who used the land for the grazing of livestock. Figure 7 depicts the boundary lines of land used for grazing.

Coulter and Chun proffer the date 1857 for the first experiment in rice culture in the Hawaiian islands (Coulter and Chun 1937:7). The Hawaiian population, which consumed quantities of poi (staple made from taro root), had been decimated by disease, epidemics and emigration (Coulter and Chun 1937:8). A considerable amount of acreage became available for rice cultivation (Coulter and Chun 1937:8). The local Chinese population, many of whom had been brought to Hawaii as contract laborers, but whose contracts had expired, provided both a source of labor and a market for consumption (Coulter and Chun 1937:9). Another major market was California (Coulter and Chun 1937:8).

Documentation exists demonstrating that rice was produced in Kaelepu and in Kailua in general. Besides the description presented by Bowser, there exists two maps and several leases that name several rice companies. Figure 9 places cultivation of rice by Chulan Company within the project area. Another map from the same year, 1884, shows what appears to be agricultural plots in the same area (Fig. 10).

Unfortunately, there are no documents that directly link the Chulan Company with the property owners. The earliest mention found of Chulan Company is a deed from October 1874 (B.C. Libre 41:70). Quechoong sells to Chulan Company the rights and interests in eight deeds of lease to property (unspecified) in Koolauoko, and all crops of rice, which means that rice cultivation existed in Kailua prior to 1874 (B.C. Libre 41:70). Later that year Chulan Company leased land from Princess Rulh in Koolauloa (B.C. Libre 40:493-495). C. H. Judd leased swamp land to the company in 1875 in Hakipuu (B.C. Libre 43:76-77).

Two other rice companies, Sun Luk Hop Wai and King Sang Wai, appear in the documents. A. K. Ngawk, who appears to be a common denominator among these businesses and who leased land from the Bishop's in 1883, engaged in a transaction that same year with Sun Luk Hop Wai, "who do business in Kaelepu" (B.C. Libre 82:237-238). Ngawk sells his agricultural tools, oxen, horses, houses and crops of rice to Sun Luk Hop Wai (B.C. Libre 82:237-238). He also sells his leases from King Sang Wai Co., another group of Kailua rice growers (B.C. Libre 82:237-238). Ngawk was also a member of the firm, The Kaiala Mill Co., which did business for the Bishop's into the 20th century (B.C. Libre 74:87-90).

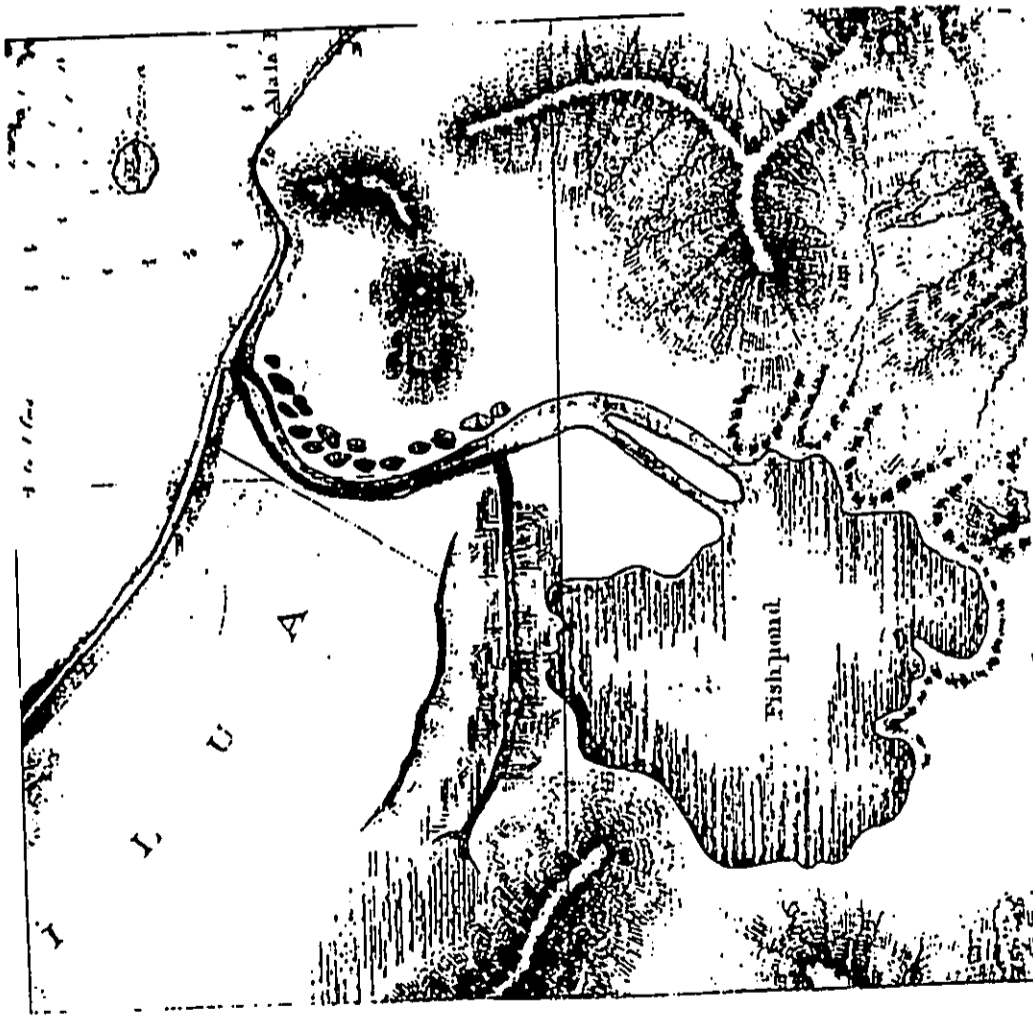


Figure 10. Agricultural plots. Map Reg. 1345. W. D. Alexander, 1884.

Exactly how long rice cultivation lasted in the project area is not known. By the 1920s, Chinese names have virtually disappeared from the Bishop property transactions and by 1917 Kaneohe Ranch used at least a portion of the project area for grazing.

Between 1913 and 1952, the project area appears relatively undisturbed (see Figs. 11 and 12). On the 1952 map, water tanks appear on the Puu o Ehu ridge (See Fig. 13). By 1959, considerable residential and commercial development has taken place near the project area (See Fig. 14). Buildings appear within the project area along Kailua Road that are possibly related to the lease, which pertains to TMK 4.2.38, between Standard Oil company and Kaneohe Ranch (see Fig. 5 and 14). These buildings may be the same as those shown in the photograph (Photo 3). An aerial photograph from 1963 shows a relatively large portion of the hillside under excavation (Photo 4). Since that time considerable residential and commercial development has occurred in Kailua and the surrounding area.

In summary, other than rice cultivation and livestock grazing, land use specifically within the project area remained fairly stagnant after the Mahele. Historical documentation places several rice companies actively working in Koolau-poko; two definitively farmed Kaelepu-lu, and one farmed within the project area. Two archaeological investigations also revealed evidence of rice cultivation.

Sporadic land disturbances would best characterize the land use in the project area during the last two-thirds of the 20th century. Maps depict rapid and extensive development immediately adjacent to the project area, which led to removal of part of the hill in 1963.

Methodology of Historical Study

The initial focus of this report was the development of a chronological series of that illustrated changes in land use over time. Maps were obtained from the Tax Record Office and the University of Hawai'i at Manoa Map Collection housed in the Hamilton Library.

The information for the previous archaeological investigation came from reports housed at the State Historic Preservation Office and the IAHII library.

Information concerning Hawaiian cultural traditions came from various secondary sources in the personal collection of Orndoff and the Bishop Museum Library.

The bulk of the historic data, both primary and secondary sources, came from the Hawai'i State Archives and the Bureau of Conveyances. Photocopied photographs of agricultural land use in Kailua, which were obtained at the Bishop Museum Archives, remain in the files of the author awaiting permission to publish. Reprints of photos were taken from the photo collection at the Hawai'i State Archives.

Telephone conversations with the property manager at Standard Oil Company and an employee of Kaneohe Ranch provided support information on recent land usage.

Bibliographical material, primary and secondary sources, was obtained from the Hawai'i State Archives and the Bishop Museum Library.

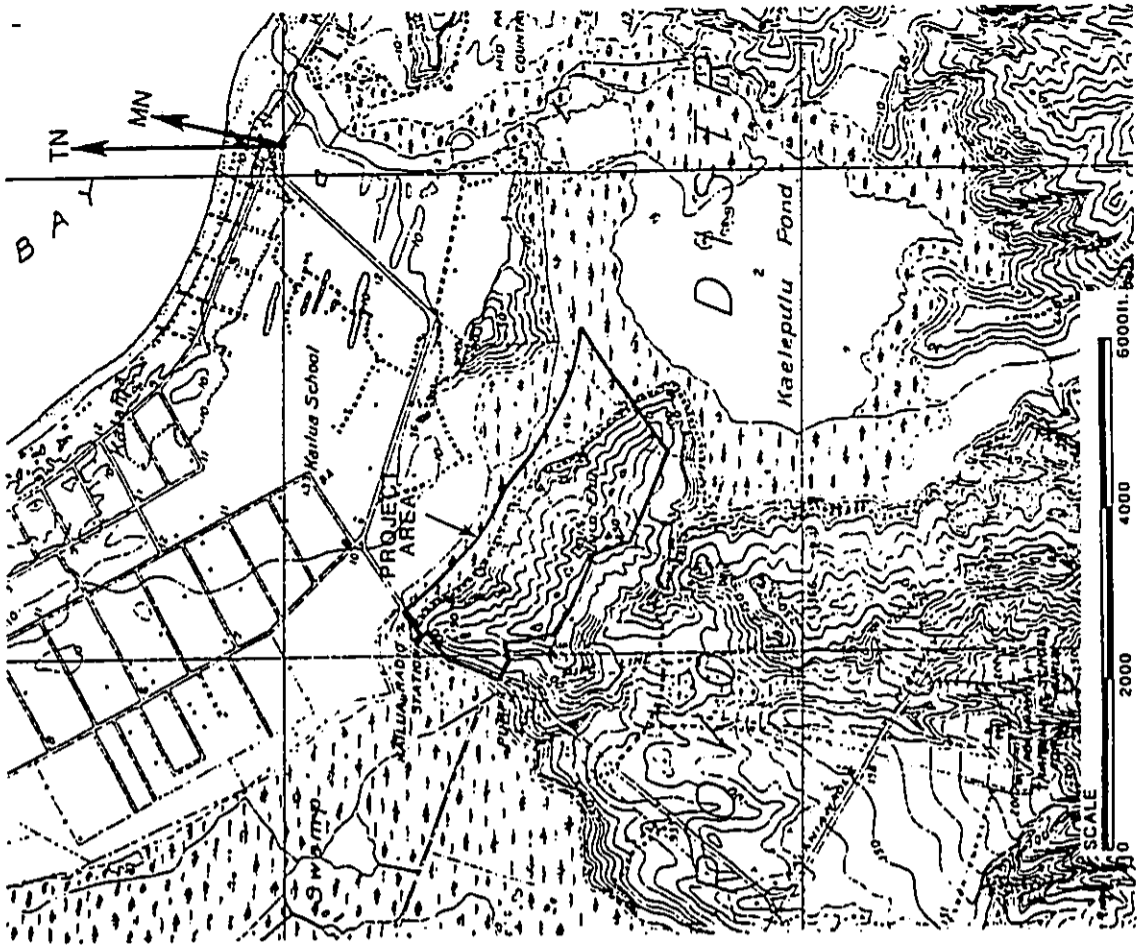


Figure 12. Terrain map - Kailua. U.S. Army Corps of Engineers, Kailua Quad, 1943.

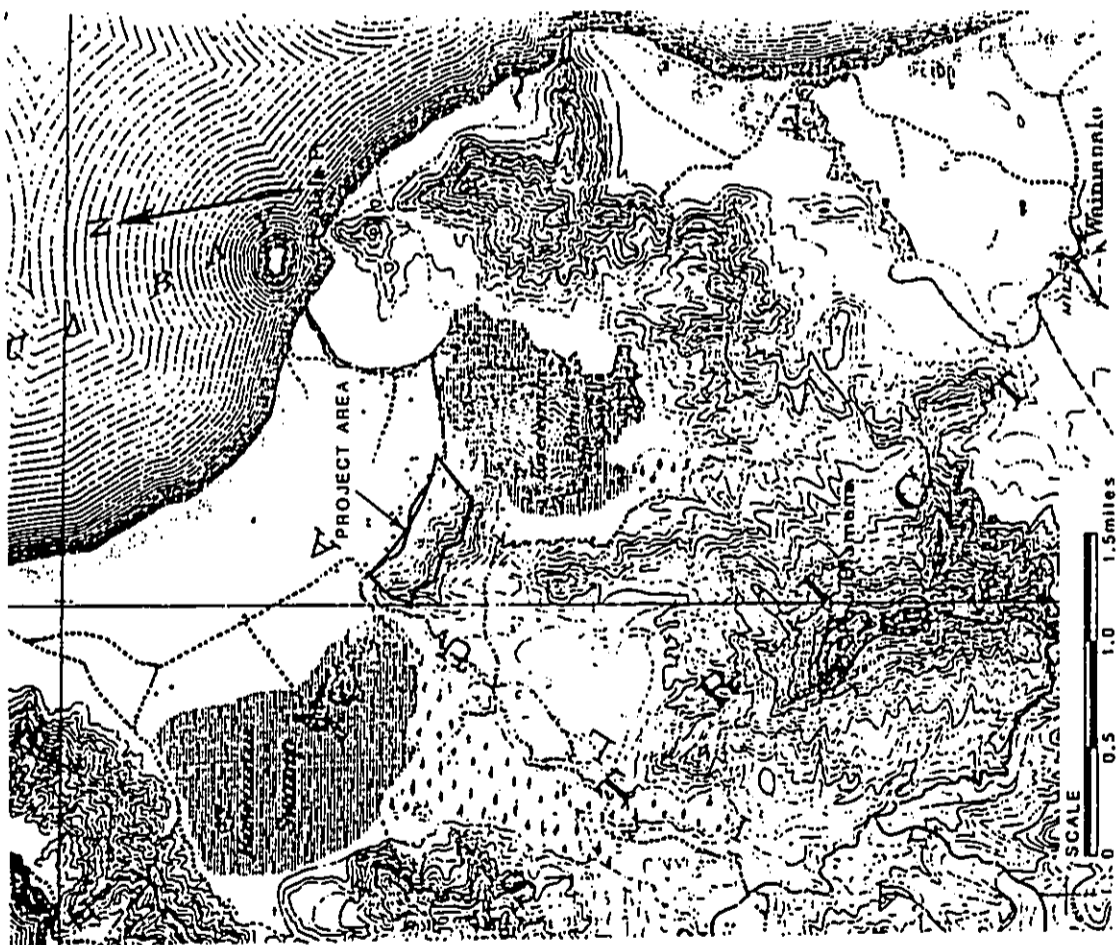


Figure 11. U.S.G.S. topographical map, 1917 (surveyed 1909-1913).

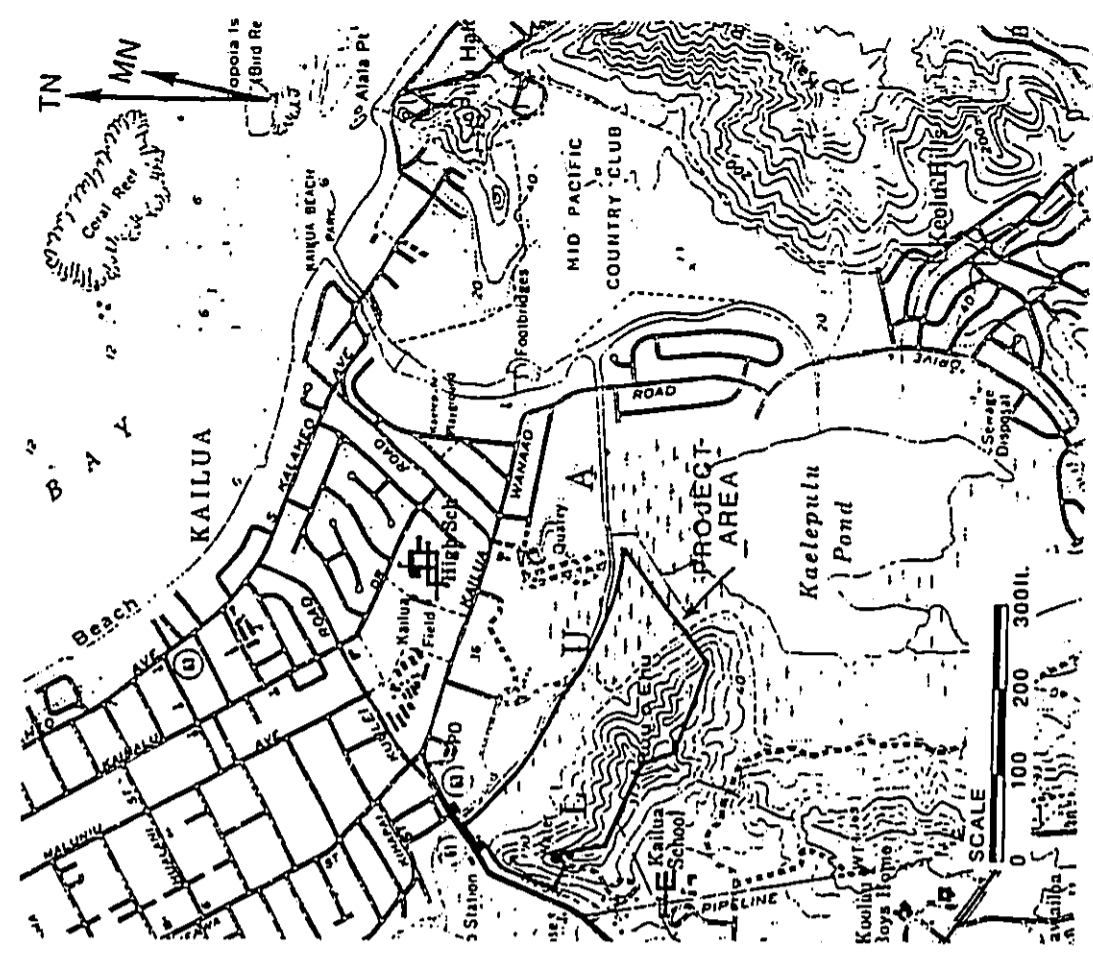


Figure 14. U.S.G.S. topographical map, Mokapu Quad, 1959.

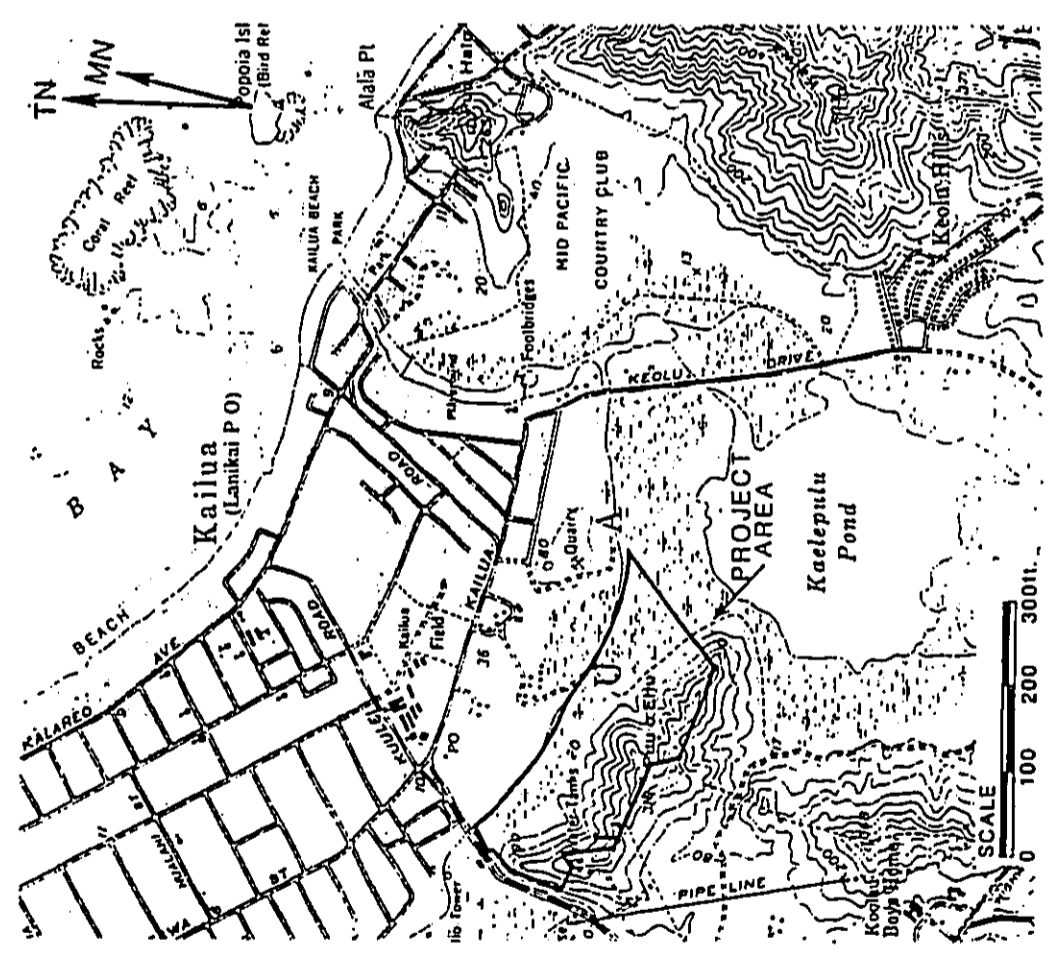


Figure 13. U.S.G.S. Mokapu Quad, 1952.





Photo 4. Hillside dirt removal within Kailua Gateway project area. U.S. Agricultural Stabilization Conservation Service, EKM-2CC-245, 1963.



Photo 3. Kailua, O'ahu. Photo by Roy F. Crabb, 1937-1941 (Hawaii State Archives).

ARCHAEOLOGICAL FIELD SURVEY

Using a map of the project area superimposed on an orthographic map, Rey Quebral and Michel Luffy conducted systematic sweeps of the entire 33 acre land area that constitutes the proposed development area. All archaeological sites visible on the surface were located and recorded. The approximate location of these recorded sites and also isolated surface material were plotted on the project area maps by incorporating topographic information and visible reference points. The lack of a recent aerial photo made this task somewhat difficult due to limited reference points—mainly distinctive vegetation—on the orthographic map.

During the survey, several items of surface cultural material—mainly basalt flakes—were collected for verification and identification. This minimal analysis assisted in ascertaining the probable functions of each recorded site and the raw material used. The source or origin of the raw material for the basalt flakes was investigated by searching the upper slopes of Puu o Ehu for a possible quarry site or workshop area. [A list of collected items is presented in the Appendix.]

Only the eastern boundary of the landward parcel study area was marked by orange and blue flagging tape. Since the western boundary was not marked, topographic information and relative elevation aided in the determination of this boundary. To compensate for any possible error in estimating the study area boundaries, a 10 to 20 m margin of error was allotted for additional survey.

Survey Results

The inventory survey resulted in the location of four archaeological sites. Three sites are situated within the study area of the landward development parcel while the other is located just outside of its northeastern edge (see Fig. 3). Though a house site was previously recorded within the seaward parcel study area (see S. Clark 1977), a revisit of the location failed to verify that it was anything but a fortuitous formation of boulders and cobbles, perhaps the result of bulldozing. Descriptions of this probable mistaken house site and the four recorded sites, which have been assigned site numbers provided by the State Historic Preservation Office, are presented below.

Site 50-80-11-4428

Site 4428 is a possible habitation site situated in the wetland area just outside of the development area at an elevation of 5 to 10 ft above sea level (see Fig. 3). It is ca. 50 m northwest of a horse pen in the southeastern section of the landward parcel. This site is densely covered by Christmas berry, *lauiua*, California grass, and *Pluchea indica*. The site consists of two platform features, designated Features 1 and 2. The west side of both features are aligned at the same bearing and seem to be almost contiguous except, though both have definite corners. Cattle grazing, evident in the numerous visible trails, has highly impacted both features. Since this site is densely covered with vegetation, additional features could be present in the surrounding area. No marine shell midden or historic artefacts were visible in the vicinity of either feature, though several basalt flakes were observed.

Feature 1 is a roughly square-shaped, platform measuring 8.5 m by 7.5 m with a maximum height of 0.9 m (Photo 5). The platform appeared to have 3 distinct levels or tiers. The central and uppermost tier of this feature is less than 1 m by 1 m in area, having a distinctive basalt-like plant at its northwest corner. The platform is constructed of small to medium basalt boulders that line the sides and small to large cobbles of coral and basalt that fill the interior. A basalt flake was observed and collected from the immediate exterior of its southwest corner, and another flake was collected from its approximate central interior.

Feature 2 is a rectangular-shaped platform located ca. 1 m south of Feature 1. This feature measures 10 m (N-S) by 6 m with a height range of 0.2-0.5 m. The platform sides are also aligned with small and medium sized boulders, the interior is filled mainly with basalt cobbles and a few small boulders. Only a few pieces of coral cobbles were found on this platform at its northwestern corner. The eastern side and northeastern corner are tumbled in that only segments of the east side are visible. A large, mostly subterranean boulder is visible of the northeast corner. A unidentified fleshy fruit plant with thorns is withering at the southwest corner of Feature 2. This plant was only observed at that location within the development area.

Site 4428 is located at the approximate center of a site complex previously recorded by Stephen Clark (1977) but apparently not relocated by Morgenstein (1982) or Hornmon (1982). The following excerpt is Clark's (1977) brief description of the aforementioned site complex:



Photo 5. View of interior surface of tiered platform, Feature 1, Site 4428, to south.

In the pasture land at the base of Puu o Ehu ridge, southwest of the road corridor and Kaelepu Stream, the survey crew discovered a unique archaeological site. The complexity of the site suggests a possible religious structure (heiau) with associated features, but this could not be definitely ascertained. Although the dimensions of the site are approximately 115 x 70 meters, the basic shape resembles a "T". The top of the "T" is approximately 115 x 10 meters (maximum), while the perpendicular is 70 x 4 meters (maximum). The site is fairly disturbed, and some portions are extremely deteriorated condition--probably destroyed by the cattle grazing in the area.

The top of the "T" formation is oriented roughly north-south (approx. 10 degrees west of North). From south to north the structures seen are as follows: A partially destroyed paved basalt stone platform with a well-defined west face has exterior alignments and faces constructed of dark grey basalt boulders. The interior pavement (fill) is of fist-sized and smaller basalt rocks. A possible sharpening stone fragment (a large, broken, angular basalt boulder) with circular peckings was found in the northwest corner. A few weathered coral fragments, a broken muller, several dense basalt flakes, and four small holes (either image, or post, holes) were found on the surface. The platform is approximately 11 x 9 meters in size and ranges from .4 to .9 meters in height. Adjacent to, and connected with this platform, is another partially [sic] destroyed platform of the same construction, and approximately the same dimensions. The second platform however, is paved mostly with coral and has a visible interior alignment of basalt boulders--a roughly rectangular notched alignment, possibly the remains of an interior structure. A sharpening stone fragment, basalt flakes, and broken pieces of old bottle glass (dark green) were found on the surface. The structure which connects these platforms appears to be a small (3 x 2 meter) causeway-like structure, evidenced by a mound and basalt boulder alignments. Both platforms support a meager growth of *haole* koa trees.

Site 50-80-11-4429

Site 4429 is a lithic scatter concentrated on two ridge toes overlooking a narrow gully at the southern section of the landward development area. Both localized scatters measure roughly 10 to 20 m in diameter and are situated at an elevation of 25 to 30 ft. These fairly concentrated localities of scatter are highly visible from Hamakua Drive because erosional forces have exposed bare outcrops lightly covered by reddish brown silt against the greenish vegetation. The southern locality consists of seven basalt flakes in a 1 m square area with a thin scatter surrounding it. A basalt flake was retrieved as a sample from this concentration. The northern locality is a little further back into the gully but at the same elevation range as the southern locality. It has more lithic material scattered along a slightly larger area compared to the other locality. A small, polished flake (possible adze fragment) was observed but not collected. The two localities are roughly 30 m apart.

Site 50-80-11-4430

Site 4430 is mainly a widely distributed lithic scatter on a wide ridge toe north of Site 4429 and overlooking Site 4428. This widely distributed scatter has four localities in the south, southwest, north and center of the site. These localities were included as a single site because of their relative closeness and similarity in content.

The southern-most locality is situated mostly on an exposed outcrop area much like the localities of Site 4429. This locality is roughly 15 to 20 m in diameter and has an elevation of 25 ft. It consists of a concentration of basalt flakes (two samples were collected, one discarded as natural) with a few pieces volcanic glass flake shatter (tiny) and several flakes. Gizzard stones (from birds) were also found among the flakes.

Just 35 m upslope at an estimated elevation of 35 ft is a small localized concentration of volcanic glass flakes (seven were noted and collected) with a few surrounding basalt flakes. This southwest locality is situated on a moderately sloping ridge side with evidence of wash throughout its immediate surroundings.

The northern-most locality consists of a small concentration of basalt flakes sparsely scattered within a 30 m wide area. A mortar (or possibly an anvil stone) with a water-worn pebble pestle was observed at the southern half of this locality. At the northern half, a fragment of a large gastropod shell (collected) was thought to be isolated surface material until a few basalt flakes were incidentally found less than 2 m north of it. This northern locality is covered by grass at an elevation of 25 to 30 ft.

The central locality is characterized by a thin scatter of basalt flakes widely distributed though separated from the other localities. This thin scatter roughly measures 130 to 150 m (N-S) long and 40 to 60 m wide. It is in a very close proximity to Site 4428 in that the quarry access road barely separates the two.

Site 50-80-11-4431

Site 4431 is situated on the northern slopes of a ravine located at the approximate center of the landward development area at an elevation of 15 to 20 ft above sea level. It con-

sists of two adjacent stone structures that extend from the base of a dry channel. The structure nearest the channel is roughly square in shape measuring 2 x 2 m with a height range of 0.2 to 0.5 m. This feature could actually be three parallel short terraces except the the corners are fairly evident although collapsing, and its interior appears to be filled with small basalt boulders and a few coral and limestone ones. At its northeast corner, a rectangular structure measuring 2 m (N-S) by 1.2 m extends upslope. The moderately sloping interior of this feature is filled with small boulders (one is a large piece of weathere coral) and a few pockets of reddish brown silt. It is only single boulder high but it may have been much higher and level (Photo 6). The absence of cultural material may indicate a possible agricultural function.

Previously Recorded House Site

The following is a description from Clark (1977) of a previously recorded house site located inside the seaward development parcel:

In the area south of Kaelepulu (Kawainui) Stream, just north of the road corridor, the survey revealed evidence of agricultural sites and a possible habitation (house) site. The possible house site, a basalt rock structure approximately 3 x 4 meters (approx. 10 x 13 ft) in size, is located just outside the road corridor on the northeast. It is constructed of basalt

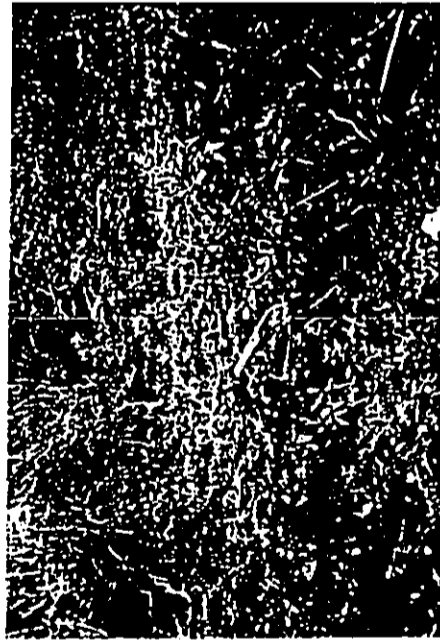


Photo 6. View of single boulder-aligned structure of Site 4431 to west.

boulders, some of which reach 1 x .5 meters in size, and shows evidence of interior pavement of small (10 cm. and smaller) basalt rocks. The shape is irregular, and is partially disturbed. Surface midden (T. ruginosa) was seen.

During the current survey, a stone formation was found at the approximate location of the aforementioned site. It measured 4 x 7 m with a north facing height of 0.4 to 0.8 m. This formation, however, resembles bulldozer push in that the large boulders used for its north facing is consistent with those found lining the edge of the designated wetland. In addition, though, there are numerous cobbles in its interior, possibly suggesting a prepared surface area. There were no historic or prehistoric remains on the surface of this structure. It is possible that the shell fragments found by the earlier survey may have been derived from the recent dredging of Kaelepulu Stream, which is nearby. Located less than 40 m away, deposits of dredged material are evident at the southeastern corner of the seaward development parcel. It is likely that both descriptions refer to the same structure.

Since the location and recording of this mistaken house site occurred prior to the construction of the Hamakua Drive extension located just west, the origin of this structure must be from the development of the residential area of Akoskoas street to the immediate south.

SITE SIGNIFICANCE AND RECOMMENDATIONS

Site Significance

Despite the uncharacteristic coral fill in Feature 1, Site 4428 is a probable habitation structure. This implies that site may be either of fairly recent origin if the source of the utilized coral is the dredged material of nearby Kaelepu Stream, or of pre-contact origin if the coral came from the original ocean side of Kailua bay. The atypical tiered platform construction of Site 4428 suggests the latter.

Historic records show considerable historic agricultural use and livestock grazing in the general area of the site. Given such activities and the well documented presence of cattle and horses, the Site 4428 features may very well be historic habitation or activity areas. If this is the case, however, the lack of visible historic midden remains on the surface seems curious (though Clark (1977) does refer to the presence of dark green glass).

Sites 4429 and 4430, both lithic scatters, provide definite tangible evidence of prehistoric activities within the development area. Some of the surface remains probably have undergone some degree of movement from their original location of deposition due to erosion processes on the hill slope. Since no basalt quarry site was located upslope, it is possible that the scatters simply represent the extraction of cobbles and basalt rock fragments from various exposures on the slope for stone tool manufacture. However, the presence of volcanic glass, shell, and gastrolith remains implies that somewhat more diversified activities may have characterized the prehistoric use of the slope. The co-occurrence of such materials of varying sizes and bulk densities suggest further, that some *in situ* deposits may remain. Unfortunately structural remains were not located in association with the scatters. Whether subsurface features such as hearths might be present remains to be determined.

At present little can be said about Site 4431, a stone structure of uncertain shape and function. It appears to be partially destroyed by stream channel downcutting, and the remainder is obscured by sediment deposition.

In addition to the above sites, four berm-like features are visible on the orthophoto within the wetland section of the landward development parcel. These berms are possible remnants of a historic field system--probably for rice cultivation--as documented in Figures 9 and 10).

An additional indication of probable historic activities is the roadway that is visible on the tax maps that show it crossing virtually the entire length of development area. However, this appears to be a relatively late feature as it does not appear on any of the pre-1943 maps. It is likely that the road is primarily related to ranching and livestock production either within the project area or in nearby areas.

Recommendations

It is recommended that Sites 4428 and 4431 be recorded in detail, including the preparation of accurate plan maps and profiles. In addition, these sites should be tested for

subsurface archaeological remains in a effort to determine their function and age. Subsurface testing should also be conducted at the two lithic scatters--Sites 4429 and 4430--to assess the possibility that intact deposits or features might be present, particularly on the small benches that are present on the lower hillslope.

The north section of the landward parcel (just north of the quarry) has a deep gully that opens into a wide flat area. This gully may have been channeled for agricultural purposes. During the next phase of archaeological investigation, this area should be more thoroughly surveyed.

Site 4428 is within the designated wetlands of the project area. It is possible that additional sites may also be present here. The western half of the designated wetland area is mostly dry and therefore easily surveyed for possible cultural materials. The eastern half is mostly submerged with ankle to knee deep water with evidence of secondary sediment deposit throughout, making it unsuitable for pedestrian survey.

Finally, should actual disturbance to the wetland be anticipated from the development project, a paleoenvironmental study of this area is recommended to examine the possibility that taro pondfields or buried remains of earlier agriculture fields or prehistoric cultural deposits may be present. It would also be appropriate to assess the environmental and vegetation history of this area. Such work should include radiocarbon dating of the various soil layers and pollen analysis as appropriate. Paleoenvironmental investigations should only be performed by qualified research specialists having the appropriate equipment for taking undisturbed sediment cores.

APPENDIX A

List of Collected Items			
Item#	Type of Sample	*Origin/Location	Description
01	Site sample	from Site 4428 (southeast corner)	Basalt flake
02	Site sample	from Site 4428 (central interior)	Basalt flake
03	Site sample	from Site 4429 (south locality)	Basalt flake
04	Surface sample A	ca. 45 m southwest of Site 4430	Basalt flake
05	Site sample	from Site 4430 (southern locality)	Basalt flake
06	Surface sample C	from Site 4430 (eastern edge)	Polishing stone
07	Site sample	from Site 4430 (southwest locality)	Volcanic glass (?) flakes and debris
08	Surface Sample D	from Site 4430 (northern locality)	Large gastropod shell fragment [Discarded]
09	Surface sample F	25 m north of Sample E	Basalt flake
10	Site sample	from Site 4430 (southern locality)	Basalt flake
11	Site sample	from Site 4430 (southern locality)	Gizzard stones

(Note: Surface samples B and E were flagged but not collected, both are basalt flakes)

* For approximate locations of the collected items inside of the project area refer to the archaeological site location map, Figure 3.

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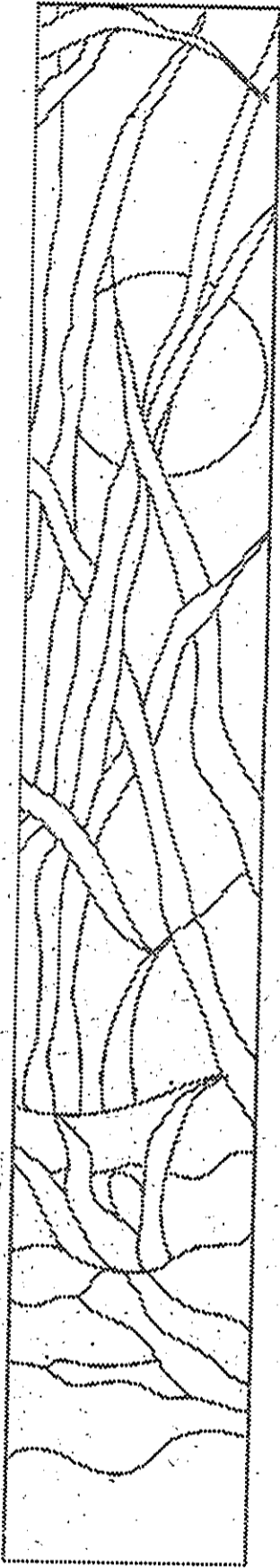
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Appendix F



**Traffic Impact Analysis Report and
Supplemental Findings**
Julian Ng, Incorporated

**TRAFFIC IMPACT ANALYSIS REPORT
KAILUA GATEWAY**

Kailua, Oahu, Hawaii

Prepared for:
**Kaneohe Ranch Company, Limited
Helber Hastert & Fee, Planners**

Prepared by:
**Julian Ng, Incorporated
P.O. Box 816
Kaneohe, Hawaii 96744**

November 1991

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Traffic Impact Analysis Report
Kailua Gateway

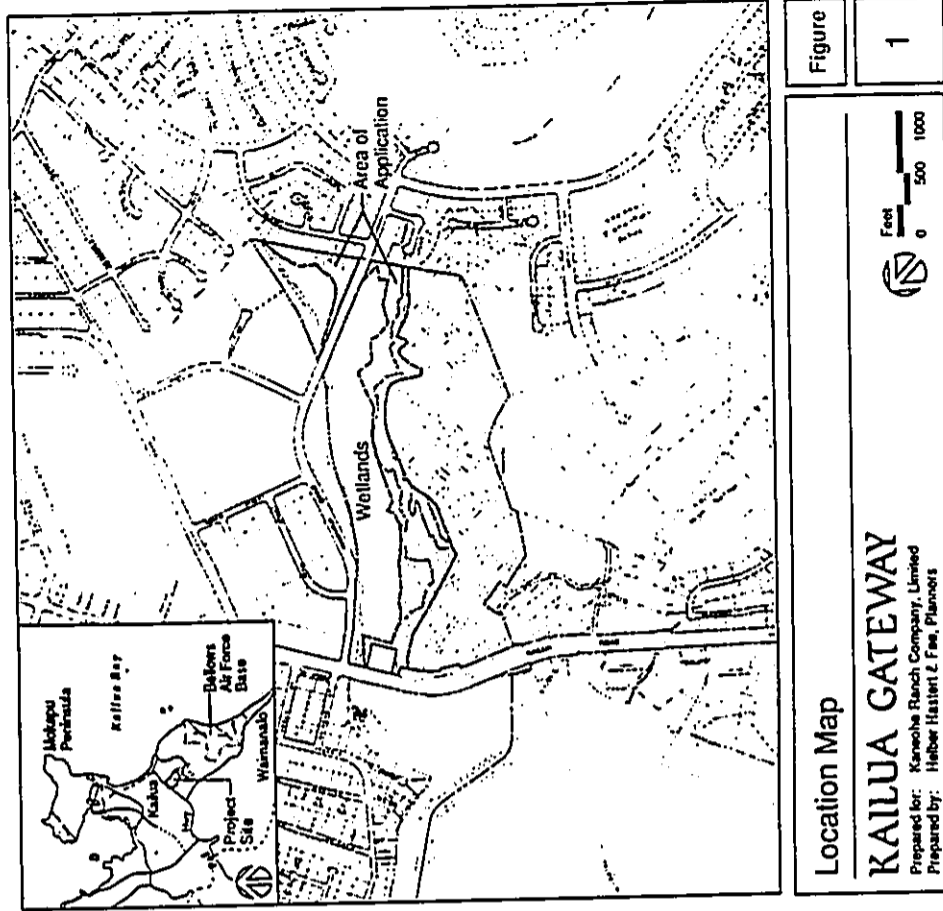
SUMMARY

A traffic impact analysis of the conceptual plan for the Kailua Gateway project in Kailua, Oahu was done to identify future traffic conditions. The proposed project includes a retirement community, affordable elderly residential units, and a community center accessed from Hamakua Drive and a commercial area with vehicular access from Kailua Road. Traffic impacts were analyzed for increased traffic volumes at the Hamakua Drive intersections with Kailua Road (and Kainehe Street), Hekili Street, Hahani Street, and Aoloa Street. The proposed Kailua Gateway project would have minimal impacts to traffic conditions in the surrounding street system. Figure 1 shows the project location.

A review of traffic count data indicates that existing traffic volumes in the area are highest during the late afternoons. High traffic volumes were also recorded during the morning commute peak period and from late morning through the mid-afternoon hours. The historical data suggest that traffic volumes are increasing in this area. The traffic analyses therefore added the proposed project's expected highest hourly traffic generation to estimates of future non-project peak hour traffic volumes.

The proposed commercial area fronts a divided State highway and would utilize existing permitted access points from and to the eastbound (makai-bound) lanes of Kailua Road. Access from/to only the eastbound lanes would continue, but driveway volumes are expected to increase as a result of development. Any new driveways to the site should be at the permitted locations or meet State Highways Division standards and approval for relocation if needed by the project's design.

Existing peak hour conditions at the signalized intersection of Kailua Road, Hamakua Drive, and Kainehe Street are expected to worsen as traffic increases, with or without the proposed project. Widening of Hamakua Drive between Kailua Road and Hekili Street could allow for modifications in approach striping and parking restrictions on both Hamakua Drive and Kainehe Street, which when combined with adjustments to signal timing, would mitigate the adverse traffic impacts of the proposed development.



The main part of the proposed project includes a retirement community of 333 dwelling units and an 80-bed skilled nursing and personal care facility. Vehicular and pedestrian access is proposed at a driveway located opposite Hekili Street, approximately 600 feet south of Kailua Road, which would change the existing T-intersection to a cross-intersection. The analysis indicates very long delays for traffic exiting the project at an unsignalized intersection. Future pedestrian crossing of Hamakua Drive at this location is also expected to have long delays before an acceptable gap in Hamakua Drive traffic is available. Traffic signals may be warranted (justifiable) in the future and provisions for the future installation of traffic signals should be provided.

Hahani Street intersects Hamakua Drive at a signalized T-intersection approximately 1,000 feet south of Hekili Street. The analysis shows that even with increased volumes, the existing intersection will be adequate, continuing to operate in the "under capacity" range.

Aoloa Street is a private street intersecting Hamakua Drive at a T-intersection approximately 600 feet south of Hahani Street. While Aoloa Street traffic volumes would not change because of the proposed project, future conditions here were analyzed to verify that increased volumes on Hamakua Drive would not have significant adverse impacts to Aoloa Street movements.

Akoakoa Street intersects Hamakua Drive approximately 1,400 feet south of Aoloa Street. Total increase to Hamakua Drive traffic due to the proposed project at this location is less than 50 vehicles per hour and this volume should not have adverse impacts to Akoakoa Street traffic.

Driveways on both sides of Hamakua Drive will be located approximately 170 feet north of the Akoakoa Street intersection. To the east (makai) side, the driveway would serve traffic entering a 68-unit affordable elderly housing project; to the west is a two-way driveway serving the community center. A driveway for traffic exiting the affordable elderly housing project will be located 400 feet farther north. Analyses of the driveways as unsignalized intersections show that there will be adequate capacities to serve the expected traffic demands.

The proposed project is expected to increase traffic on Hamakua Drive; however, traffic conditions should not be significantly affected south of Hekili Street. Future signalization of the Hekili Street intersection with Hamakua Drive may be necessary. Widening of Hamakua Drive fronting the project site would allow for changes in lane striping and signal timing to mitigate adverse impacts at the Kailua Road intersection.

SCOPE OF STUDY

A traffic impact analysis of a proposed project in Kailua, Oahu was based on a conceptual plan showing increased commercial activity, a retirement community with care facilities, affordable elderly housing, and a community center. The study included a review of past traffic count data collected by the City and County Department of Transportation Services and the State Highways Division, peak period field counts of turning movements at several locations, and evaluation of existing peak hour traffic conditions. Future peak hour traffic volumes were estimated using historical trends and traffic conditions were evaluated. The proposed project's peak hour traffic and its effect on Hamakua Drive were estimated and recommendations are made for mitigating any adverse impacts of the proposed project.

Geographically, the study was limited to the Hamakua Drive intersections with Kailua Road and Kainehe Street, Hekili Street, Hahani Street, and Aoloa Street. The regional impact of the project is not expected to be significant, as activities within Kailua town are expected to be the primary origins/destinations of project traffic. Traffic volumes immediately to the west on Kailua Road were estimated to increase by less than five percent of existing, with less impact farther away, because of the proposed project. Traffic increases to the east on Kailua Road, Hekili Street, and Hahani Street would each be less than 100 vehicles in the peak hour; the impact farther east would be smaller due to the many possible destinations within Kailua. To the north on Kainehe Street, and south on Hamakua Drive, added volumes are each less than 50 vehicles per hour, and no significant impacts are expected.

EXISTING TRAFFIC CONDITIONS

The proposed project is located at the primary entrance to Kailua town from the west on State Route 61 (Pali Highway/Kalaniana'ole Highway/Kailua Road). A commercial site with access from and onto Kailua Road is part of the proposed project. The remainder of the project will connect to Hamakua Drive, a collector roadway between the Kailua town area and the Enchanted Lakes area of Kailua to the south.

State Highways Division traffic counts¹ of Kailua Road traffic at Kawaiui Bridge, located between the project's commercial site and the Hamakua Drive intersection, taken between 1982 and 1989 show daily two-way volumes of between 28,700 and 30,600 vehicles; a 1990 count of 33,800 vehicles appears to have overcounted the eastbound traffic.

¹ Hawaii State DOT, Highways Division. 24-Hour Traffic Count Summary, Station C-40-C.

The State Highways Division also estimates average daily traffic (ADT), "k" factors representing peak hour volumes divided by daily volume, and "D" factors showing directional distribution on its facilities; the ADTs for the segment of Kailua Road between Kalamanaole Highway (Castle Hospital junction) and Kawaiwi Bridge were reported* as follows:

1985	29,454
1986	32,577
1987	31,991
1988	31,376
1989	31,483

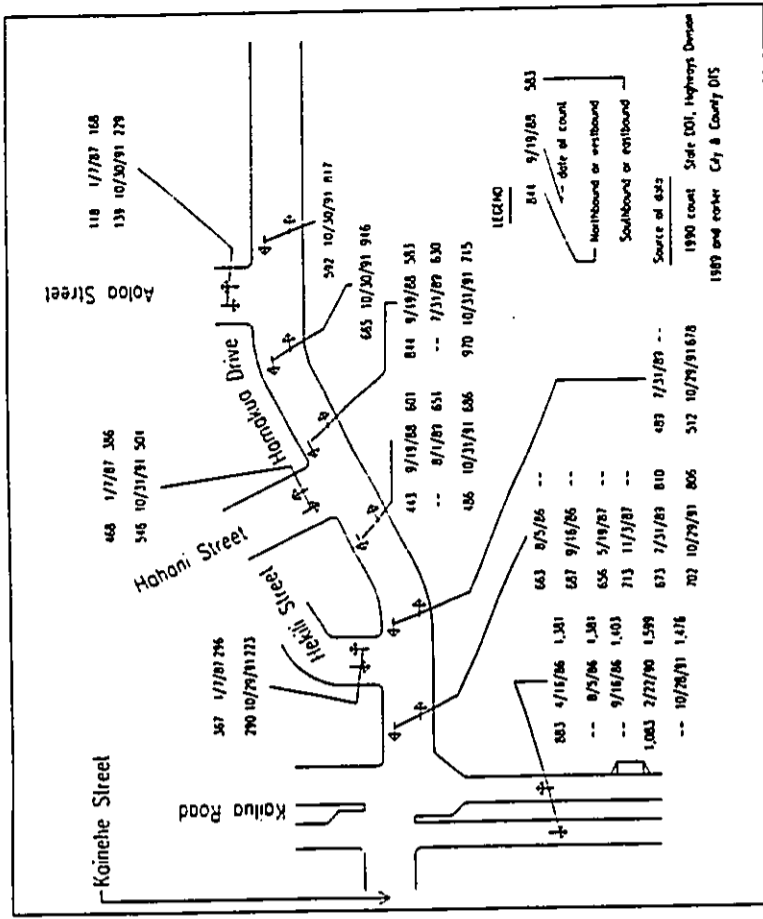
Linear regression analysis of these volumes indicate a "best fit" rate of about 1% annual increase in daily volume on Kailua Road. Using the State's "k" and "D" factors, eastbound afternoon (PM) peak hour volume on Kailua Road in 1991 was computed to be 1,466 vehicles. The 1990 count shows a PM Peak Hour eastbound volume of 1,599 vehicles. The observed eastbound peak hour volume was 1,476 vehicles in a field count taken on October 28, 1991.

Various traffic counts were taken by the City and County of Honolulu Department of Transportation Services on Kailua Road, Hamakua Drive, Kainehe Street, and other streets intersecting Hamakua Drive. These counts indicate that while the highest volumes occur in the late afternoons, daytime volumes exceed 80% of peak hour volumes. Many of these counts were taken in 1986 and 1987; since then, additional residential units have been occupied in the Kailua Gardens complex (Aolua Street) and some of the commercial activities in the Hekili and Hahani Streets area have moved.

Field counts taken in the afternoon peak periods during the week of October 28, 1991 show slight increases in volumes on Hamakua Drive north of Hahani Street and decreases in Hekili Street volumes since 1987. South of Hahani Street and on Aolua Street, larger increases have occurred. Field observations during the afternoon peak periods of the week of October 28, 1991 indicate that existing volumes are served with moderate delays but are under the capacities of the roadway system.

Figure 2 shows the PM Peak Hour volumes counted on and near Hamakua Drive. Field count summaries are attached to this report as an appendix. An existing traffic assignment for the PM Peak Hour developed from the field counts and the City and State count data is shown in Figure 3.

- 1 State of Hawaii Department of Transportation Highways Division, *Traffic Summary - Island of Oahu 1989*, p. 40.
- 2 City and County of Honolulu Department of Transportation Services, Traffic Planning Section counts.



PM Peak Hour Traffic Counts

KAILUA GATEWAY

Prepared for Konehoe Ranch Company, Limited
Prepared by John Hg. Inc.

Reference Mark



Not to Scale

Figure

2

FUTURE TRAFFIC WITHOUT PROJECT

Future conditions for year 1997 were evaluated. From past and existing traffic counts, future traffic in the area can be expected to remain the same as existing or increase by no more than one percent per year. For the purpose of evaluating 1997 conditions without the proposed project and to serve as a baseline for future with-project conditions, the existing traffic assignment was increased by six percent. In addition, the existing one-acre commercial site fronting Kailua Road was assumed to be redeveloped as a small shopping center, thereby increasing driveway volumes from less than 10 vehicles observed to 115 vehicles in the peak hour in each direction, as described below. Figure 4 shows the future traffic assignment.

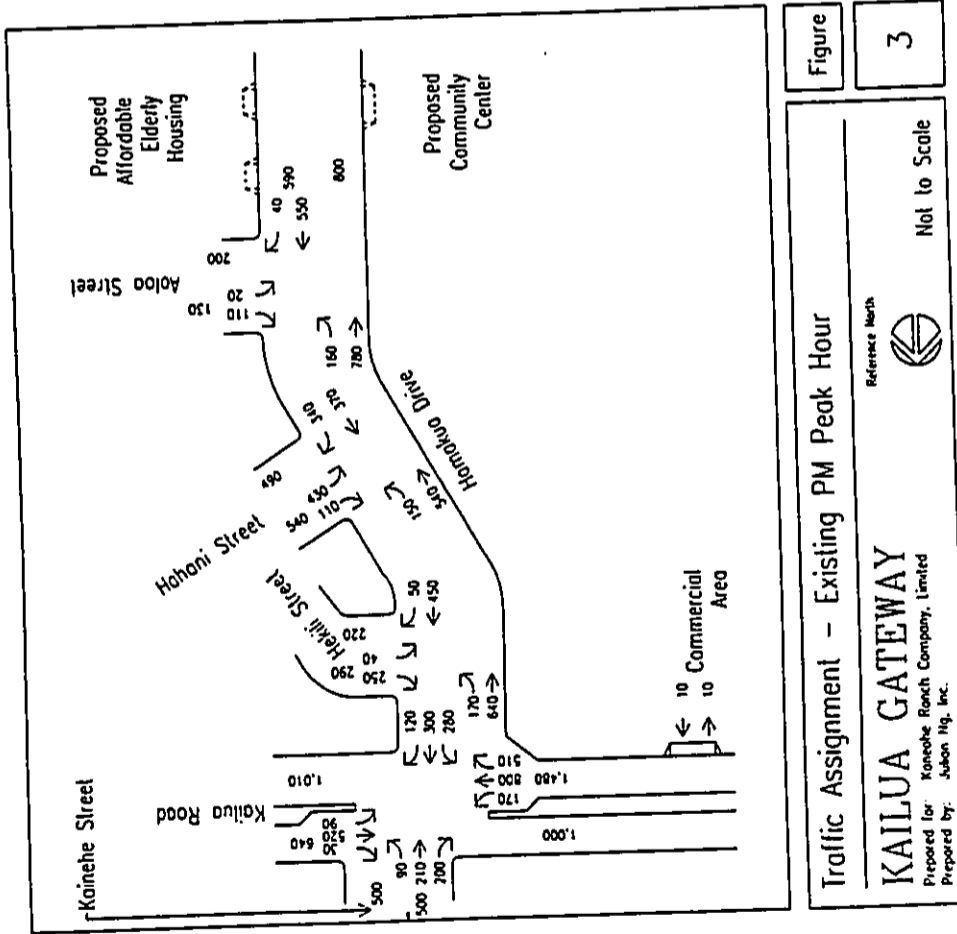
SITE TRAFFIC GENERATION

The currently designated Development Plan land uses on the site have the potential for larger traffic generation from the one-acre commercial parcel. Estimates of this traffic as well as that which would be generated by the proposed project are described here.

The proposed project includes elderly housing units and a retirement community, a community center, and an expanded commercial site. Traffic volumes generated by the elderly housing and retirement community components of the proposed project were estimated from the unit counts and average trip generation rates of large data bases from studies in various communities around the mainland United States and reported in the informational report *Trip Generation* (Fifth Edition), published by the Institute of Transportation Engineers. Application of the mainland per dwelling unit rates for projects in Hawaii have been found to be appropriate.

The traffic volumes at the commercial area and the community center driveways were calculated from estimated floor areas. In the case of the commercial site, the gross floor areas were estimated assuming that parking is provided on site at grade: 19,200 square feet for the existing one-acre site (single floor building) and 43,600 square feet for a two-acre site (building with a partial second floor). Trip generation equations and computation methods presented in *Trip Generation* for shopping centers were used to estimate the commercial site traffic. Trip rates per 1,000 gross square feet (GSF) typically decrease as total floor area increases. Of the driveway volumes, 35 percent were estimated to be "passby" traffic, or traffic that would be on the adjacent street even without the commercial development.

Institute of Transportation Engineers, *Trip Generation*, Fifth Edition, Washington, D.C. 1991.



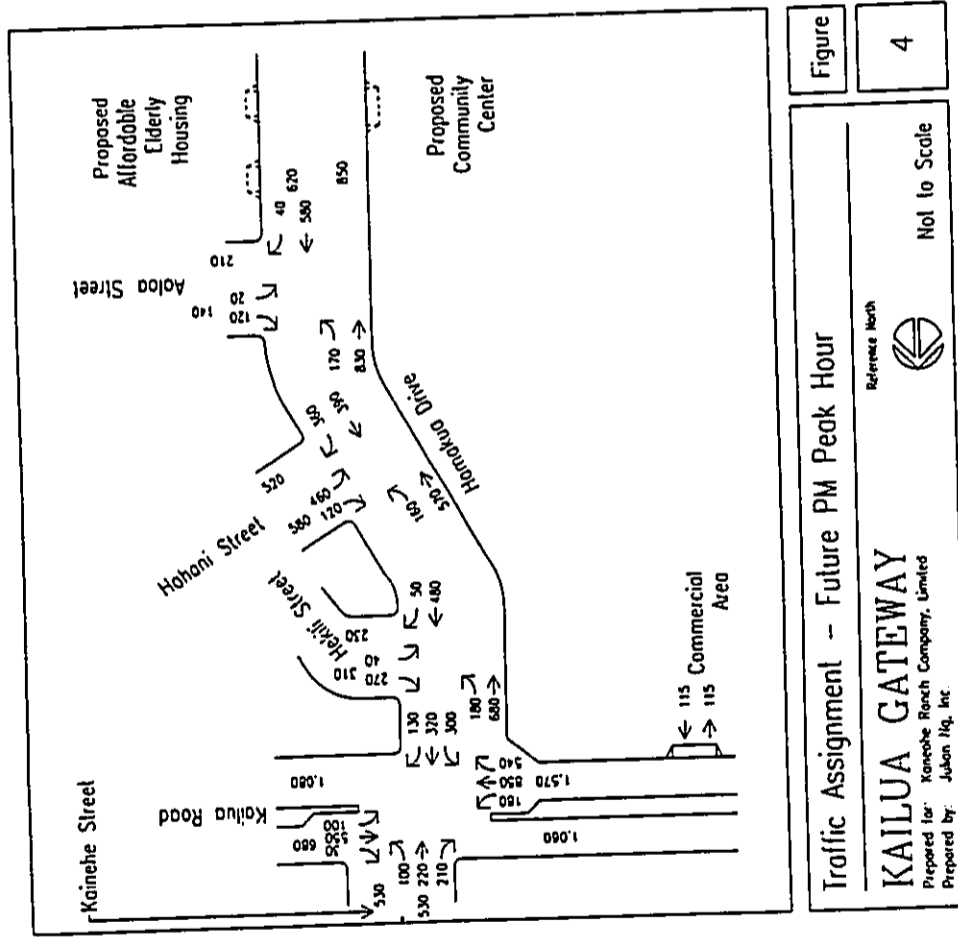
The peak hour traffic volumes generated by the community center were based on the floor area and the expected use as a recreational community center. While special events may generate larger volumes, an average weekday peak hour volume was used for the traffic impact analysis. Table 1 summarizes the trip generation calculation for the project site.

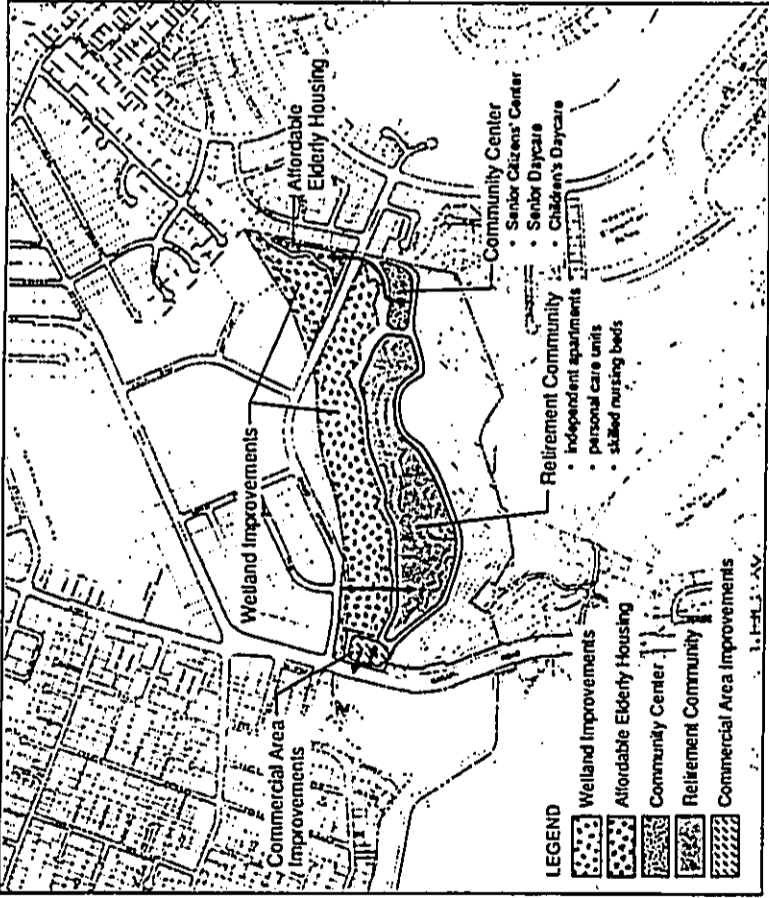
Table 1
TRAFFIC GENERATION

	Unit	Rate	%In	Peak Hour Volume	
				In	Out
Without Development Plan amendment	19,200 GSF	11.95	50%	115	115
Commercial site (1 acre)				75	75
Net = less 35% passby					
Proposed Project					
Commercial site (2 acres)	43,600 GSF	8.87	50%	193	193
Net = less 35% passby				125	125
Retirement Community	333 d.u.	0.34	56%	63	50
Skilled nursing/personal care facility	80 beds	0.26	39%	8	13
Affordable elderly housing	68 d.u.	0.25	53%	9	8
Community center	10,000 GSF	4.10	39%	16	25

The assignment of site traffic to the roadway system was based on existing patterns observed at intersections. Traffic entering the commercial site will only be from the eastbound lanes of Kailua Road; similarly, traffic leaving that site would turn only onto the eastbound lanes of Kailua Road. Due to the proximity of the commercial site to the Hamakua Drive/Kaiehe Street intersection and the existing traffic conditions, traffic from the commercial site was distributed as right turn or through movements at the intersection, based on counted volumes. Further assignment of the portion of this traffic on Hamakua Drive was based on the field turning movement counts.

Turning movements from and into the Aoloa Street residential area were used for the project directional split (northbound or southbound onto Hamakua Drive). Turning movements at Hohani and Hekei Streets were used as an indicator of attractions within the Kailua town business area. Because several access locations have been identified in the conceptual plan (Figure 5), traffic volumes from each location were assigned separately; the composite project traffic impact is illustrated in Figure 6. These volumes are added to the Figure 4 volumes to arrive at the traffic assignment for future conditions with the project, shown in Figure 7.



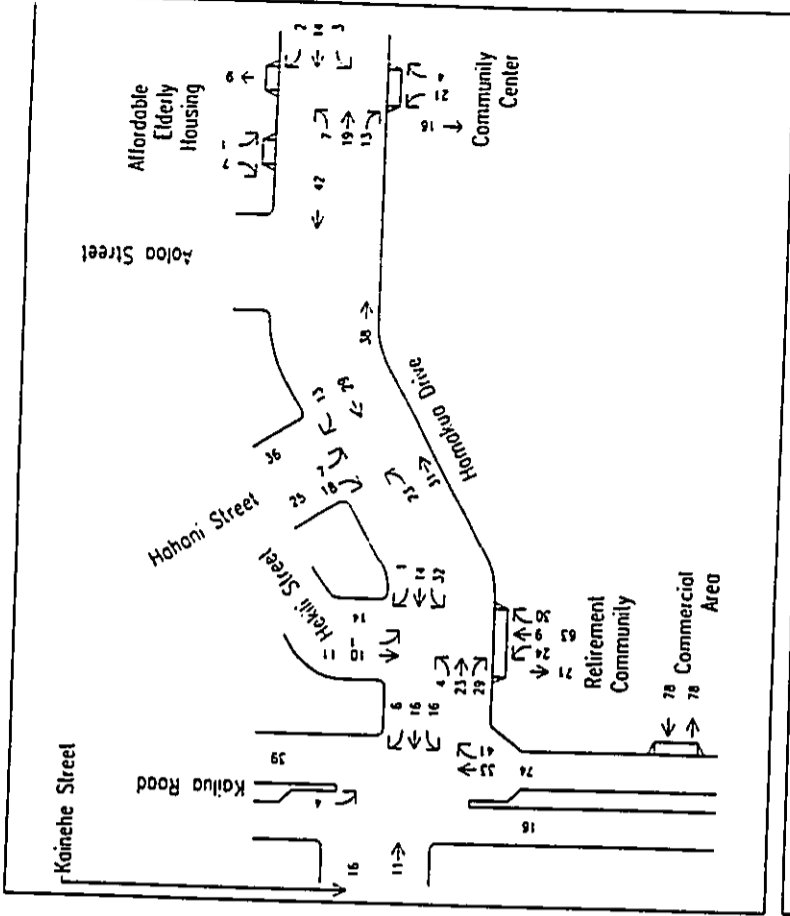


Conceptual Plan

KAILUA GATEWAY
 Prepared for: Koneohe Ranch Company, Limited
 Prepared by: Heber Hastert & Fee, Planners

Figure 5

Scale: 0 500 1000 Feet



Project Traffic Assignment

KAILUA GATEWAY
 Prepared for: Koneohe Ranch Company, Limited
 Prepared by: Jubon Ng, Inc.

Reference North

Figure 6

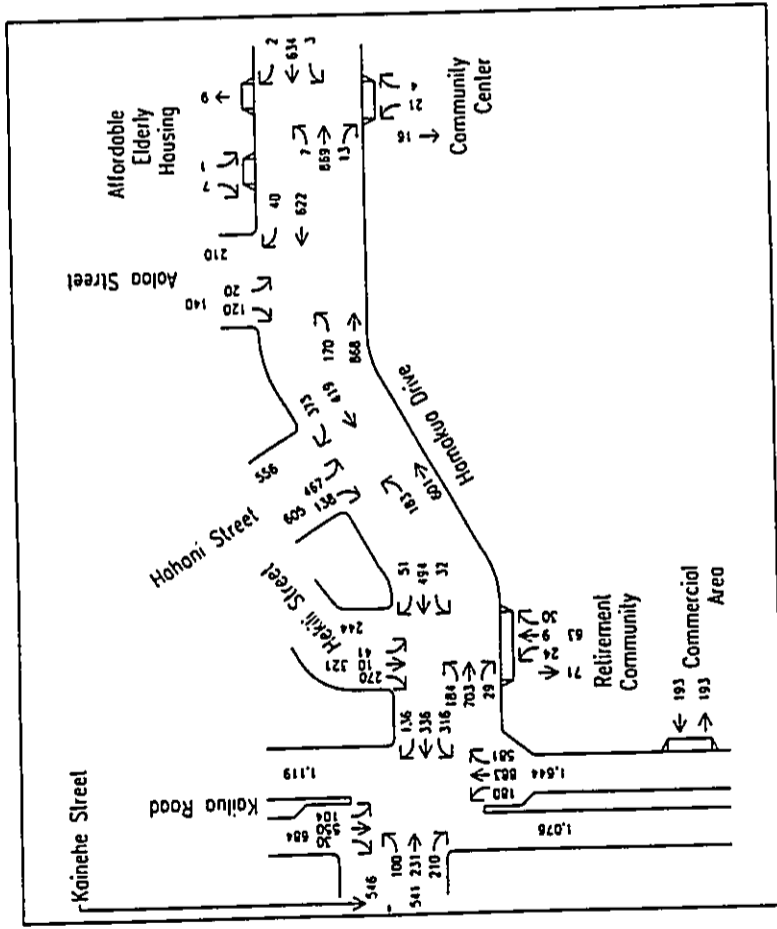
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TRAFFIC ANALYSES

In an urban area, traffic conditions are determined by capacity constraints at intersections. Several intersections, including driveways within the study area, were analyzed. The analyses were based on the concepts and procedures presented in the *Highway Capacity Manual*. For signalized intersections, a "Planning Application" analysis is available for cases where volumes are not near capacity levels. Critical, or conflicting, movements at an intersection are summed and compared with several criteria to determine if the intersection operates at under capacity, near capacity, or over capacity levels. The Hamakua Drive - Hahani Street intersection was analyzed using the "Planning Application" analysis.

A more detailed "Operational Analysis" was used for the more complex Kailua Road-Hamakua Drive-Kaiehe Street intersection. This procedure estimates average delays for traffic using an intersection from volumes, intersection geometry, and signal timing. Existing conditions at the intersection include a significant volume of right turns on red from the eastbound Kailua Road and left turns from the westbound Kailua Road during the yellow phase, as well as a short eastbound median pocket to isolate from through traffic those vehicles waiting to turn left. These factors affect the operation of the intersection and a supplemental calculation was done so that the conditions observed in the field can be better represented. Levels of service (LOS) are identified from average delays for each approach and for the overall intersection condition.

The *Highway Capacity Manual* procedure for unsignalized intersections compares the capacity available for controlled movements (those that yield to other movements or stop before proceeding) with the demand; levels of service are identified from the excess of capacity over demand ("reserve capacity") for each movement. The unsignalized procedure was used for left turns from Hamakua Drive into Hekiti and Aoloo Streets and into project driveways, as well as for the side street approaches to Hamakua Drive that are controlled by stop signs and driveways.



Traffic Assignment - Future PM Peak Hour with Proposed Project

KAILUA GATEWAY

Prepared for Kaneohe Ranch Company, Limited
Prepared by John Ing, Inc.

Reference Mark

Not to Scale

Figure 7

LOS	Description of delay	Signalized Int. Delay (seconds)	Unsignalized Int. Capacity - demand
A	little or no delay	less than 5.0	400 or more
B	short traffic delays	5.1 to 15.0	300-399
C	average traffic delays	15.1 to 25.0	200-299
D	long traffic delays	25.1 to 40.0	100-199
E	very long traffic delays	40.1 to 60.0	0-99
F	extreme delays	greater than 60.0	less than 0

⁵ Transportation Research Board, *Highway Capacity Manual*, Special Report 209. Washington, D.C., 1985.

Kailua Road-Hamakua Drive-Kainehe Street: Four conditions were analyzed for this intersection. The analysis of the existing PM Peak Hour traffic assignment (Figure 3) produced LOS D conditions for the eastbound approach on Kailua Road, LOS C for the westbound Kailua Road approach, and LOS E conditions on the Hamakua Drive and Kainehe Street approaches. Overall intersection condition was LOS D. These findings compare well to field observations.

The analysis of the increased volumes in the future without project traffic assignment (Figure 4) show poorer LOS for all but the westbound Kailua Road approach, with LOS F describing the other approaches and the overall intersection condition. Higher average delays and similar levels of service were found for the future with project traffic assignment (Figure 6).

The fourth condition analyzed was that of the future with project traffic using a modified intersection. A widened Hamakua Drive between Kailua Road and Hekili Street, as shown on City and County street widening plans, would provide two departure lanes, allowing through movements from both lanes on Kainehe Street. The Kainehe Street phase could be shortened; additional green time would then be available for the Hamakua Drive and the Kailua Road phases. The analysis shows decreased average delays at the intersection, with LOS E describing overall conditions. Table 2 summarizes the findings of the analyses.

Table 2
INTERSECTION LOS
KAILUA ROAD-HAMAKUA DRIVE-KAINEHE STREET

PM Peak Hour	Average Delay (seconds) and Level of Service									
	Kailua Road		Kainehe Hamakua		Overall					
	EB	WB	SL(SB)	DL(NB)						
Existing	37.5	D	20.9	C	58.6	E	54.0	E	38.6	D
Future without project	73.1	F	22.2	C	72.3	F	70.2	F	62.1	F
Future with project traffic (modified intersection)	98.2	F	23.3	C	82.1	F	86.1	F	79.7	F
	43.6	E	19.9	C	61.8	F	46.5	E	42.5	E

Hamakua Drive-Hahani Street: This signalized intersection was observed to have considerable capacity; although long queues formed on Hahani Street waiting to turn left, vehicles were able to clear the intersection in the next green phase for Hahani Street. The Planning Application analysis confirms that existing volumes are under capacity. Future volumes were also found to be under capacity. The results of the analysis are shown in Table 3.

Table 3
INTERSECTION LOS
HAMAKUA DRIVE-HAHANI STREET

PM Peak Hour	Sum of Critical Movements	Condition *
Existing	925	under capacity
Future without project	995	under capacity
Future with project traffic	1,046	under capacity
	* Criteria:	
	0 to 1,200	under capacity
	1,201 to 1,400	near capacity
	greater than 1,400	over capacity

Hamakua Drive-Hekili Street: The analysis of the existing traffic assignment at this unsignalized intersection gave LOS E for the left turn from Hekili Street to Hamakua Drive, and LOS A for both the Hekili Street right turns and the left turns into Hekili Street. These findings agree with field observations. Similar levels of service were found for future without project conditions.

The proposed project would change the intersection by adding a fourth leg opposite Hekili Street. Increased through traffic on Hamakua Drive would result from the other project access driveways, in addition to the increased traffic turning into or out of the fourth leg. The left turn from Hamakua Drive to Hekili Street changes to LOS B while Hekili Street remains at LOS E (left lane) and LOS A (right lane). The new approach, however, would not have sufficient capacity to serve the estimated peak hour traffic leaving the project. Table 4 summarizes the analysis results.

Traffic signals would interrupt the heavier Hamakua Drive traffic stream and provide for the cross street flows. Signals would also improve the pedestrian crossing of Hamakua Drive, which is expected to have a higher demand with the proposed project. The *Manual On Uniform Traffic Control Devices* states that "signals should not be installed unless one or more of the signal warrants in this Manual are met." A review of the traffic count information, the future traffic estimates, and the unsignalized intersection analysis indicates that traffic signal warrants for eight-hour minimum volume (Warrant 1), eight-hour interruption of continuous traffic (Warrant 2), peak hour delay (Warrant 10), and peak hour volume (Warrant 11) would each be met. The intersection should be designed for the future installation of traffic signals, including the provision of underground conduits.

* U.S. Department of Transportation, Federal Highway Administration, *Manual On Uniform Traffic Control Devices*, 1988, Part IV.

Table 4
**INTERSECTION LOS
 UNSIGNALIZED INTERSECTIONS AND DRIVEWAYS**

PM Peak Hour Hamakua Drive at:	Reserve Capacity and Level of Service			
	Hamakua Dr. Left Turn	Westbound Approach	Eastbound Approach	Annex
	Southbound	Northbound	Left Lane	Right Lane
Hekiii Street				
Existing	438 A	-	55 E	478 A
Future without project	406 A	-	40 E	443 A
Future with project traffic	392 B	436 A	4 E	436 A (5) F
Aoaloa Street				
Existing	386 B	436 A	43 E	593 A
Future without project	355 B	408 A	31 E	570 A
Future with project traffic	328 B	387 B	24 E	552 A
Affordable Elderly Housing exit				
Future with project traffic	-	-	-	373 B
Community Center				
Future with project traffic	524 A	382 B	-	71 E

Hamakua Drive-Aoaloa Street: The unsignalized intersection analysis for existing and both future traffic assignments show LOS B for left turns from Hamakua Drive into Aoaloa Street, LOS A for right turns from Aoaloa Street, and LOS E for left turns from Aoaloa Street. Traffic exiting from a driveway opposite Aoaloa Street (eastbound approach) remains at LOS E. Increased volumes on Hamakua Drive will have little impact to this intersection.

Affordable Elderly Housing and Community Center driveways: The analysis of these driveways as unsignalized intersections show that capacity will be adequate. At the exit only driveway from the Affordable Elderly Housing parking lot, larger right turn volumes result in LOS B conditions for exiting traffic, while higher left turns will cause greater delays (LOS E) from the community center driveway. For left turns from Hamakua Drive, LOS A or LOS B will describe future conditions. Any pedestrian crossing demand here should be directed to a crosswalk at the nearby Akoakoa Street intersection through the use of signs or other devices.

CONCLUSIONS

Expected increases in traffic demand even without the proposed project will cause an increase in delay and deterioration of level of service at the signalized intersection of Kailua Road, Hamakua Drive, and Kainche Street. Traffic due to the proposed project would further aggravate this situation if no changes are made to the intersection. Widening of Hamakua Drive could allow for restriping, which along with adjustments in the signal phasing and timing, could mitigate the project impacts. While the future mitigated condition would not be an improvement over existing conditions, it would be an improvement over future conditions without the project.

The proposed project will change the existing T-intersection at Hamakua Drive and Hekiii Street to a four-way intersection. Traffic exiting the project may not have sufficient capacity to cross or turn left onto Hamakua Drive. Pedestrians wishing to cross Hamakua Drive will also have difficulty finding acceptable gaps in the main street traffic. Signalization would address these deficiencies and should be provided when warranted and needed; allowances for the future signalization of this intersection, such as curbed driveway returns and underground conduits for future signal wiring, should be incorporated into the design of the connection. Traffic impacts on Hamakua Drive south of Hekiii Street were found to be negligible.

Count date: Monday, October 28, 1991 Weather: Cloudy

Time: 3:30 PM - 5:15 PM

APPENDIX - FIELD COUNT SUMMARIES

(4 pages follow)

PM Peak Period

Time	Kailua Road northeast (NE) bound at Hamakua Drive												by lanes		volume		
	SH	LT	NE	LT	TH	L	TH	R	RT	RTOR	Sum	NE	LT	WRT		left	right
03:30 - 03:45 PM	20	39	112	105	86	14	356	11.0%	28.1%	151	205	57.6%					
03:45 - 04:00 PM	23	34	106	82	84	26	332	10.2%	33.1%	140	192	57.8%					
04:00 - 04:15 PM	19	52	132	95	99	26	404	12.9%	30.9%	184	220	54.5%					
04:15 - 04:30 PM	23	41	100	72	101	30	344	11.9%	38.1%	141	203	59.0%					
04:30 - 04:45 PM	24	43	122	92	108	31	396	10.9%	35.1%	165	231	58.3%					
04:45 - 05:00 PM	20	24	109	68	86	41	328	7.3%	38.7%	133	195	59.5%					
05:00 - 05:15 PM	17	53	118	92	85	34	382	13.9%	31.2%	171	211	55.2%					
	146	286	799	606	649	202	2,542	11.3%	33.5%	1,085	1,457	57.3%					

Kailua Road (northeast bound) at Hamakua Drive

Hamakua Drive and Hekili Street

Hamakua Drive and Aoloa Street

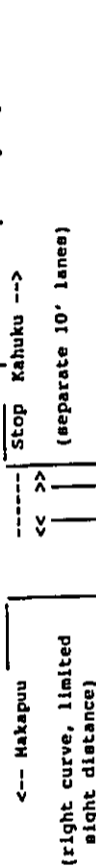
Hamakua Drive and Hekili Street

Peak hour of approach	SH	LT	NE	LT	TH	L	TH	R	RT	RTOR	Sum	NE	LT	WRT	left	right	right
03:30 - 04:30 PM	85	166	450	354	370	96	1,436	11.6%	32.5%	616	820	57.1%					
03:45 - 04:45 PM	89	170	460	341	392	113	1,476	11.5%	34.2%	630	846	57.3%					
04:00 - 05:00 PM	86	160	463	327	394	128	1,472	10.9%	35.5%	623	849	57.7%					
04:15 - 05:15 PM	84	161	449	324	380	136	1,450	11.1%	35.6%	610	840	57.9%					

Manual Traffic Count, Hamakua Drive and Hekili Street

Count date: Tuesday, October 29, 1991 Weather: Cloudy

Time: 3:30 PM - 5:45 PM
 lane 1 Tow Away, 4:30-6:30 PM
 lane 2 <---
 lane 3 Left to Kailua Road
 lane 4 Thru/Right at Kailua Rd
 No parking anytime

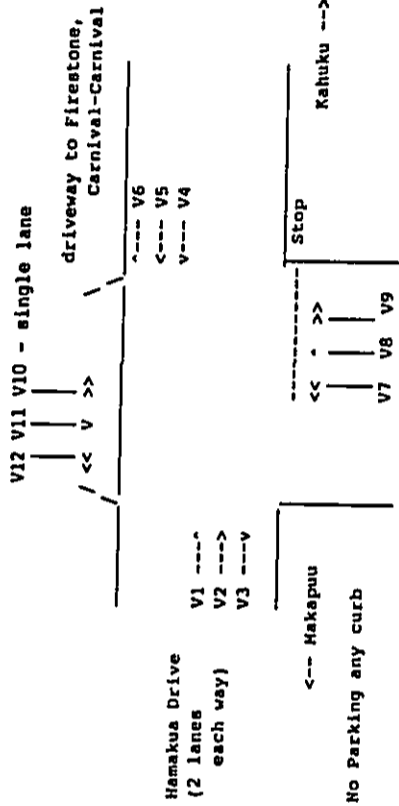


Time	Field count										Approach (compd)		Departure (compd)		
	V2 TH	V3 RT	V4 LT	V5 TH	V7 LT	V9 RT	Total	left	right	minor	left	right	minor	left	right
03:30 - 03:45 PM	109	11	33	142	4	69	368	120	175	73	146	178	44		
03:45 - 04:00 PM	107	6	47	142	9	60	371	113	189	69	151	167	53		
04:00 - 04:15 PM	132	11	38	160	3	59	403	143	198	62	163	191	49		
04:15 - 04:30 PM	98	11	39	146	3	57	354	109	185	60	149	155	50		
04:30 - 04:45 PM	106	8	47	152	8	74	395	114	199	82	160	180	55		
04:45 - 05:00 PM	105	12	38	150	11	63	379	117	188	74	161	168	50		
05:00 - 05:15 PM	132	15	53	155	8	59	422	147	208	67	163	191	68		
05:15 - 05:30 PM	106	9	37	160	10	57	379	115	197	67	170	163	46		
05:30 - 05:45 PM	124	9	38	175	9	50	405	133	213	59	184	174	47		
	1,019	92	370	1,382	65	548	3,476	1,111	1,752	613	1,447	1,567	462		

Peak hour of approach

03:30 - 04:30 PM	446	39	157	590	19	245	1,496	485	747	264	609	691	196
03:45 - 04:45 PM	443	36	171	600	23	250	1,523	479	771	273	623	693	207
04:00 - 05:00 PM	441	42	162	608	25	253	1,531	483	770	278	633	694	204
04:15 - 05:15 PM	441	46	177	603	30	253	1,550	487	780	283	633	694	223
04:30 - 05:30 PM	449	44	175	617	37	253	1,575	493	792	290	654	702	219
04:45 - 05:45 PM	467	45	166	640	38	229	1,585	512	806	267	678	696	211

Manual Traffic Count, Hamakua Drive and Aoloo Street
 File: COUNT3.MK1
 Count date: Wednesday, October 30, 1991 Time: 4:00 PM - 6:15 PM Weather: Sunny

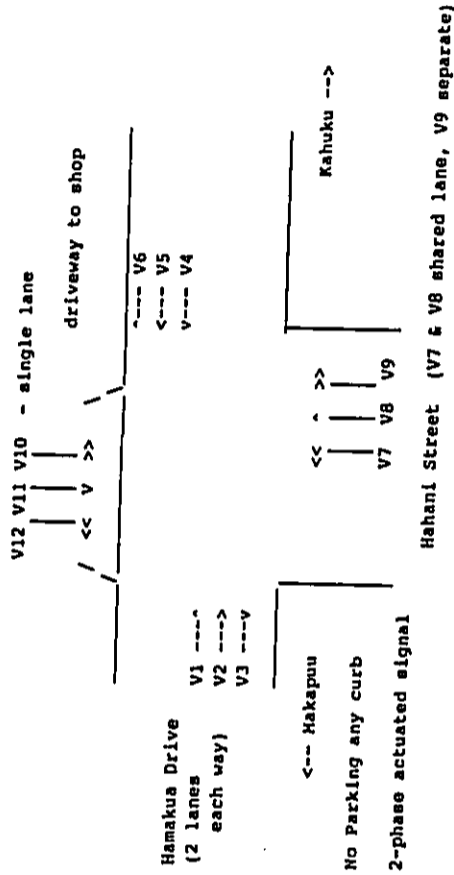


Time	Field Count									Total		Makapuu side Kahuku side					
	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	app.	dep.			
04:00 - 04:15 PH	0	105	6	38	172	2	6	0	23	5	0	3	360	111	181	212	133
04:15 - 04:30 PH	2	115	8	34	149	3	4	0	26	1	2	2	346	125	155	186	142
04:30 - 04:45 PH	2	132	7	30	187	2	2	0	20	2	0	2	386	141	191	219	154
04:45 - 05:00 PH	1	139	11	34	181	2	3	0	24	4	1	4	404	151	188	217	167
05:00 - 05:15 PH	0	124	12	37	221	1	5	0	24	4	0	9	437	136	235	259	152
05:15 - 05:30 PH	0	129	12	46	192	0	5	0	36	2	2	2	426	141	199	238	167
05:30 - 05:45 PH	1	155	8	47	185	0	8	2	23	1	0	2	432	164	195	232	179
05:45 - 06:00 PH	2	130	10	54	157	0	8	0	28	3	1	6	399	142	171	211	161
06:00 - 06:15 PH	1	164	14	45	184	1	9	0	24	2	0	4	448	179	197	230	190
	9	1,193	88	365	1,628	11	50	2	228	24	6	34	3,638	1,290	1,712	2,004	1,445

Peak hour of approach

04:00 - 05:00 PH	5	491	32	136	689	9	15	0	93	12	3	11	1,496	528	715	834	596
04:15 - 05:15 PH	5	510	38	135	738	8	14	0	94	11	3	17	1,573	553	769	881	615
04:30 - 05:30 PH	3	524	42	147	781	5	15	0	104	12	3	17	1,653	569	813	933	640
04:45 - 05:45 PH	2	547	43	164	779	3	21	2	107	11	3	17	1,699	592	817	946	665
05:00 - 06:00 PH	3	538	42	184	755	1	26	2	111	10	3	19	1,694	583	800	940	659
05:15 - 06:15 PH	4	578	44	192	718	1	30	2	111	8	3	14	1,705	626	762	911	697

Manual Traffic Count, Hamakua Drive and Hahani Street
 File: COUNT4.WK1
 Count date: Thursday, October 31, 1991
 Time: 4:00 PM - 6:00 PM
 Weather: Sunny



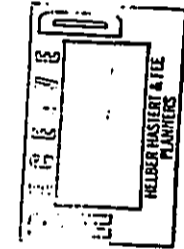
Time	Field Count												Total		Hakapuu side Kahuku side		
	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	app.	dep.	app.	dep.	
04:00 - 04:15 PH	0	100	86	53	108	0	95	0	31	0	1	0	474	186	203	161	131
04:15 - 04:30 PH	0	76	86	37	103	0	116	0	32	1	0	0	451	162	219	140	109
04:30 - 04:45 PH	0	95	92	50	148	0	125	0	30	0	0	1	541	187	274	198	125
04:45 - 05:00 PH	0	92	82	30	127	0	89	0	28	1	0	0	449	174	216	157	121
05:00 - 05:15 PH	0	102	87	40	137	1	92	0	22	0	0	0	481	189	229	178	124
05:15 - 05:30 PH	0	82	80	29	124	0	127	0	25	0	0	0	467	162	251	153	107
05:30 - 05:45 PH	0	103	87	37	122	0	102	0	30	0	0	0	481	190	224	159	133
05:45 - 06:00 PH	0	80	76	31	129	0	96	0	29	0	0	0	441	156	225	160	109
	0	730	676	307	998	1	842	0	227	2	1	1	3,785	1,406	1,841	1,306	959

Peak hour of approach

Time	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	app.	dep.	app.	dep.	
04:00 - 05:00 PH	0	363	346	170	486	0	425	0	121	2	1	1	1,915	709	912	656	486
04:15 - 05:15 PH	0	365	347	157	515	1	422	0	112	2	0	1	1,922	712	938	673	479
04:30 - 05:30 PH	0	371	341	149	536	1	433	0	105	1	0	1	1,938	712	970	686	477
04:45 - 05:45 PH	0	379	336	136	510	1	410	0	105	1	0	0	1,878	715	920	647	485
05:00 - 06:00 PH	0	367	330	137	512	1	417	0	106	0	0	0	1,870	697	929	650	473

Julian Ng, Incorporated
Engineering Consulting Services
P.O. Box 816 Kaneohe, Hawaii 96744-0816

(808) 236-4325



April 30, 1992

Ms. Gail Uyetake, Project Planner
Helber Hasiert & Fee, Planners
733 Bishop Street, Suite 2590
Honolulu, Hawaii 96813

Subject: Supplemental Findings to Traffic Impact Analysis Report for Kailua Gateway
Intersection of Kailua Road/Hamakua Drive/Kainehe Street
Kailua, Oahu, Hawaii

Dear Gail:

As requested by the State Department of Transportation, Highways Division, additional analyses have been done to identify an appropriate improvement for the intersection of Kailua Road and Hamakua Drive/Kainehe Street. The November 1991 Traffic Impact Analysis Report discussed an alternative which was found to improve future PM Peak Hour conditions to Level of Service E; the Highways Division has stated that an appropriate improvement would provide Level of Service (LOS) D.

Appropriate Improvements

The traffic study found that additional capacity at the intersection is needed as traffic increases, with or without the proposed project, and intersection conditions become LOS F. Alternatives for signal phasing are limited because of the misalignment of Kainehe Street and Hamakua Drive and the lack of adequate turning lanes from Kailua Road.

Improvements are needed at the existing intersection to meet current highway design standards; these include the provision of adequate turn lanes for eastbound traffic. The Hawaii *Statewide Uniform Design Manual for Streets and Highways*, approved by the State Department of Transportation and adopted by the City and County of Honolulu in October 1980, states that a median left turn lane should be "provided at intersections ... where there is a high volume of left turns." Further, the manual states that the "median left turn lane should be sufficiently long to store the number of vehicles likely to accumulate during a critical period." A guideline for the storage length is given for signalized intersections: "one-and one-half to 2 times the average number of vehicles that would store per cycle."

For the existing signal phasing (30 cycles per hour) and left turn volume (170 vehicles per hour), a minimum storage for nine vehicles (200-225 feet) should be provided. Similarly, the existing 550 vehicles per hour turning right from eastbound Kailua Road to Hamakua Drive should have a separate turn lane. The addition of these lanes will require widening of the eastbound Kawaiinui Bridge from two to four lanes (other improvements, such as a longer westbound left turn lane and larger turn radii, may also be needed). With separate turn lanes on the eastbound approach, six-phase operation of the signal, with protected left-turns (left on arrow only) from Kailua Road, should be implemented. A new controller and additional signal equipment may be needed.

Julian Ng, Incorporated

Ms. Gail Uyetake
April 30, 1992
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Analysis

The signalized intersection operational analysis described in the *Highway Capacity Manual* was used to identify average delays of vehicles using the intersection. Qualitative "levels of service" based on these average delays are used to describe intersection conditions: delays between 25.1 and 40 seconds would be described as LOS D, while 40.1 to 60 seconds would be LOS E, and greater than 60 seconds would be LOS F. In addition to traffic volumes, other factors are considered in the analysis, such as intersection geometry, traffic conditions, and signal phasing. Changes in any of these factors could change the findings of the analysis.

In the analysis for the traffic study, the "existing" and the "future without project" cases were based on an estimate of existing timing at the signal. The intersection was reanalyzed with the timing modified by providing additional green time for Kailua Road to decrease the overall future average delay, thereby obtaining a best case for future conditions without the project (technical note: the future calculated 'X' or volume-to-capacity ratio for each approach was maintained at 1.1 or less). In addition, a higher "peak hour factor" (reflecting less variation in traffic demand over the peak hour) of 0.95 is used for future conditions instead of the existing 0.92. Table 1 compares the findings of the traffic study and this new analysis.

Table 1
Comparison of Findings

	Average Delay (seconds) and Level of Service	
	Kailua Road	Hamakua Kainehe
PM Peak Hour		
Existing (TIAR)	37.5 D	54.0 E
modified timing	33.8 D	65.6 F
Future without project		
(TIAR)	73.1 F	70.2 F
modified timing	50.7 E	76.0 F
(TIAR = Traffic Impact Analysis Report, November 1991)		
	Overall	Overall
	38.6 D	58.6 E
	39.1 D	70.8 F

Even with the modified signal timing and other adjustments to maximize capacity at the intersection, volume would be about seven percent over capacity and calculated average delays would exceed 60 seconds on the cross-street approaches. Overall intersection condition would be LOS E, which is not acceptable.

The improvements described earlier, providing separate left and right turn lanes for the eastbound Kailua Road approach and changing the signal phasing, would increase capacity for an overall LOS D condition for the 1996 PM Peak Hour traffic volumes without the proposed project. While each approach will have an average delay in the LOS D range, individual lane groups would have average delays exceeding 40 seconds, i.e., conditions would be LOS E. Provision of a separate right turn lane on the northbound Hamakua Drive

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Page 3

approach would allow retiming for LOS D or better on every lane group. Table 2 summarizes the analyses findings.

Table 2
Analyses Findings

PM Peak Hour	Average Delay (seconds) and Level of Service				
	Kailua Road EB	WB	Hamakua Dr. (NB)	Kainehe St. (SB)	Overall
Existing	33.8 D	19.1 C	65.6 F	70.8 F	39.1 D
Future without project and eastbound turn lanes plus turn lane on Hamakua	50.7 E	20.7 C	76.0 F	84.8 F	51.7 E
Future with project and eastbound turn lanes plus turn lane on Hamakua	30.9 D	37.5 D	39.5 D	37.4 D	36.0 D
	25.2 D	27.8 D	32.3 D	37.4 D	30.0 D
	33.5 D	37.8 D	40.4 E	48.4 E	39.2 D
	27.4 D	28.1 D	36.6 D	39.5 D	32.3 D

Conclusions

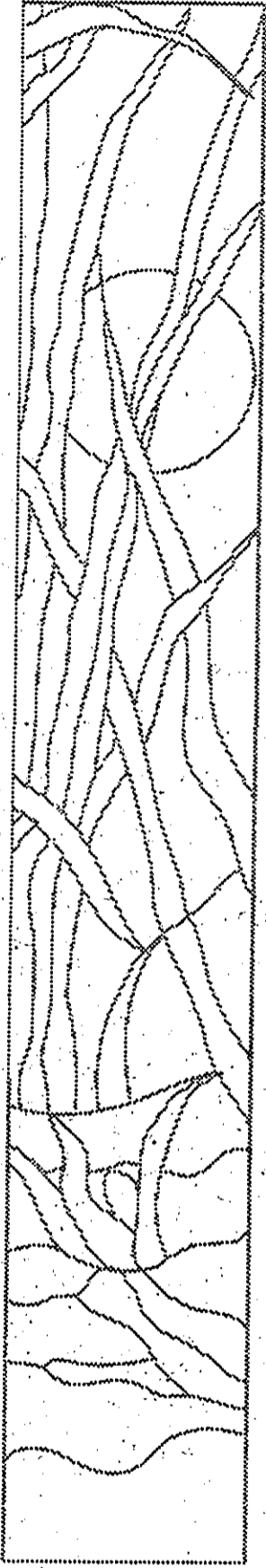
Improvement of the intersection of Kailua Road and Hamakua Drive/Kainehe Street to current highway design standards would provide added capacity and, along with changes in signal phasing, permit the intersection to serve future traffic at an acceptable overall level of service (LOS D). This improvement would require that the Kawaihi Bridge (eastbound) on Kailua Road be widened. The further addition of a right turn lane on the northbound Hamakua Drive would provide for LOS D conditions on each approach. Due to the existing relationship between the centerlines of Hamakua Drive and Kainehe Street, any widening for additional approach lanes on Hamakua Drive should be on the east side. Additional traffic due to the proposed project will increase delays, but LOS D would continue to describe conditions for each approach.

The foregoing is a brief analysis of future conditions at the intersection, prepared for your use in responding to comments on the proposed project. As with any roadway improvement, additional studies may be necessary to establish design parameters, identify impacts, or evaluate alternatives. These studies are usually done by the responsible agency. Should there be any questions, please contact me.

Very truly yours,

JULIAN NG, INC.


Julian Ng, P. E.
President



Appendix G

Civil Engineering Reports
Smith Young & Associates

GRADING AND CONSTRUCTION ACTIVITIES

Introduction

The objective of this section of the report is to present the necessary planning and preliminary engineering concepts for the site grading and construction of the proposed retirement community. Specifically, this section covers the following items:

- a. Existing sites and site conditions;
- b. Proposed development and necessary grading and construction activities;
- c. Impacts and mitigation measures to be undertaken at the sites.

Sites and Site Conditions

The two sites selected for development lie within two parcels of land owned by Kaneohe Ranch Ltd. (TK 04-02-01). One parcel holds 89 acres and a small second parcel holds 8 acres. The primary proposed development area (29 acres) lies uphill from a wetlands area (approximately 22 acres) adjacent to Kawaiui Stream and lying mauka of Hamakua Drive. The wetlands are nearly level (slopes approximately 2%) with deep grasses and low brush. The lower hillside has slopes between 10% and 20% with medium to heavy vegetative cover. The development site will be on the lower hillside. The upper hillside is steeply sloped (up to 50%) and the vegetative cover is sparse. Small portions of the hillside appear to have been excavated in the past.

A second development site is located makai of Hamakua Drive. This 8 acre triangular site is relatively flat (slopes up to 5%) and in a low-lying area adjacent to Kawaiui Stream. Most of this site is less than 5 feet above mean sea level. Approximately 2 acres are available for development. The rest of the parcel is designated as wetlands.

Kawaiui Stream is approximately 3 feet above sea level at the east end of the 8 acre makai parcel. The stream meanders between the wetlands and Hamakua Drive and reaches an elevation of approximately 4 feet above sea level at Kailua Road. The wetlands are the flat expanse that lies between the stream elevation and the lower hillside. The highest points on the mauka site are at 300+ feet above sea level. The retirement community will be located on the lower hillside between 25 and 75 feet above sea level.

CIVIL ENGINEERING REPORTS
for the

ENVIRONMENTAL IMPACT STATEMENT
for

KAILUA GATEWAY DEVELOPMENT
KANEHOE RANCH COMPANY, LIMITED

PREPARED FOR:

PREPARED BY:

SMITH, YOUNG & ASSOCIATES
501 SUMNER STREET, SUITE 502

HONOLULU, HAWAII 96817

December 1991

Hamakua Drive is north of Kawaihau Stream and Kailua Road is to the west of the site. Land uses of property adjacent to the site are commercial, retail and residential. Currently, the hillside land is used for cattle grazing. The wetlands adjacent to Kawaihau Stream are inhabited by birds.

Construction Work and Grading

There are certain short-term negative impacts associated with construction which will be mitigated. Special care shall be taken to ensure that the wetland area is protected from these impacts.

Trenching, foundation excavation, parking lot grading and stabilization of as well as road construction will be accomplished in the normal manner as required by Public Works Construction with special provisions at the wetlands boundary.

Every attempt will be made to balance the earthwork. Spoils will be disposed of at nearby Kapa'a Sanitary Landfill. Clearing, grubbing and grading will be accomplished in phases so that a limited acreage will be barren of ground cover at any given time. Every step possible to suppress dust will be required of the contractor.

Prior to any work being undertaken at the site, an erosion control plan shall be completed, approved and adhered to. A berm will be constructed at the wetlands boundary to prevent runoff from flowing into the wetlands during construction. A drainage swale will be constructed mauka of the berm to channel the overland flow to settling basins to prevent silt from being carried from the site. Overflow from the settling basins will flow in a drainage swale to the northwest corner adjacent to the commercial area and thence to Kawaihau Stream. The overflow from the easternmost settling basin must be pumped up to the next settling basin. Owing to the low elevation at this basin, there is no other outlet for the flows until the subsurface drain lines are constructed and connected to the existing drainage line under Hamakua Drive. See Figure A for locations of swales and settling basins.

Basically, the following construction methods will be followed throughout the project:

1. All clearing and grubbing work shall be done in accordance with Chapter 23, Grading, Soil Erosion and Sediment Control, of the Revised Ordinances of Honolulu, 1978, as amended (Ordinance No. 81-13).

2. The contractor shall remove all silt and debris resulting from his work and it shall not be deposited in drainage facilities, roadways, and other areas. In particular, special care shall be taken to ensure that construction debris is kept out of the wetlands.

3. The contractor shall keep the project area and surrounding area free from dust nuisance. The work shall be done in conformance with the air pollution control standards and regulations of the State Department of Health.

4. All slopes and exposed areas shall be sodded or planted as soon as final grades have been established. Planting shall not be delayed until all grubbing has been completed. Any area within which work is expected to be interrupted or delayed for more than 4 weeks shall be planted.

5. Temporary erosion controls shall not be removed before permanent erosion controls are in place and established.

6. All grubbing operations shall be performed in conformance with the applicable provisions of Chapter 54, Water Quality Standards, and Chapter 55, Water Pollution Control, of Title II, Administrative Rules of the State Department of Health.

7. The limits of the area to be grubbed and the wetlands boundary shall be flagged before the commencement of the grubbing work.

8. Grubbed material shall not be placed next to drainage ways, streams, waterways, or the wetlands.

9. The contractor shall maintain a water truck and shall dampen the grubbed graded area with water as may be required to suppress dust.

10. The contractor shall conduct his operations so that the exposed area shall be kept damp with water during his clearing and grubbing operation. At the end of each day, the site shall be sufficiently dampened so that the site remains moist during the night.

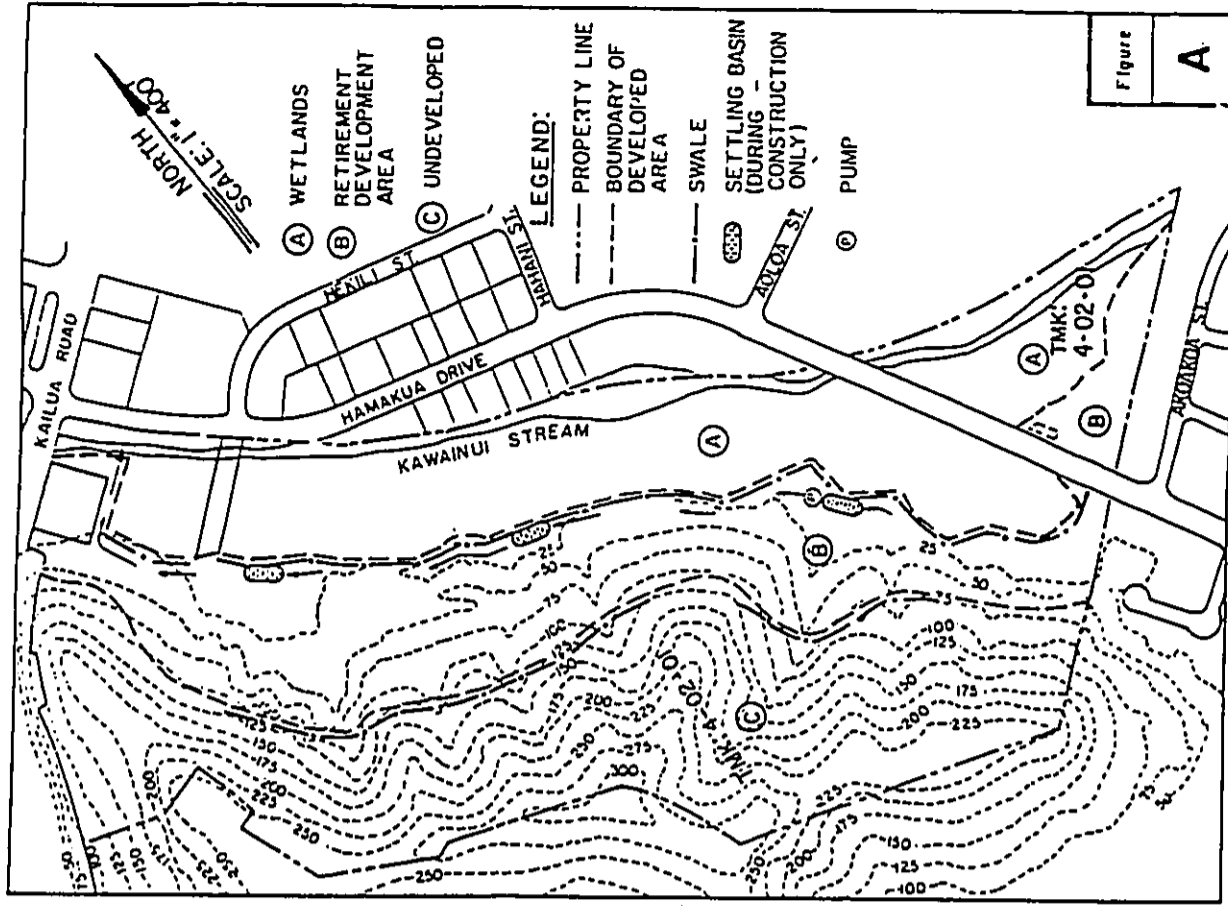
As the site lies downwind from the wetlands and the existing developments along Hamakua Drive, any noise or dust generated by the construction equipment will be suppressed by the prevailing wind direction during normal tradewind conditions.

Impacts and Mitigation Measures

The construction activity will have some temporary negative impacts which will be mitigated by several measures.

The drainage swale between the construction site and the wetlands is the most significant mitigating step. Dust suppression by watering is the second most important mitigating step to be taken during the construction phase. Planting the graded area as soon as possible after the grading and shaping is completed is another important step which shall be followed.

All equipment used on site shall be provided with mufflers and shall be operated during normal working hours between 7 a.m. and 5 p.m. Hauling of spoils will be done after 9 a.m. and before 3 p.m. to avoid peak traffic flows.



KAILUA GATEWAY DEVELOPMENT
GRADING & CONSTRUCTION ACTIVITIES

prepared by:
SMITH, YOUNG & ASSOC.

DRAINAGE AND STORMWATER RUNOFF

Introduction

The objective of this section of the report is to provide information on the sites and to present the necessary planning and preliminary engineering concepts for the drainage of the proposed retirement community and to discuss stormwater runoff quantities. Specifically, this report addresses the following:

- a. Existing sites and site conditions;
- b. Proposed development and resulting drainage changes;
- c. Impacts and mitigation measures to be undertaken at the sites.

Sites and Site Conditions

The primary proposed development area (29 acres) is uphill from a wetlands area adjacent to Kawaiinui Stream. The wetlands are nearly level (slopes around 2%) with deep grasses and low brush. The lower hillside has slopes between 10% to 20% with medium to heavy vegetative cover. The development site will be on the lower hillside. The upper hillside (consisting of some 38 acres) is more steeply sloped (up to 50%) and the vegetative cover is sparse. Small portions of the hillside appear to have been excavated in the past.

The second development site is located makai of Hamakua Drive. This 8 acre triangular site is relatively flat (slopes up to 5%) and in a low-lying area adjacent to Kawaiinui Stream. Most of this site is less than 5 feet above sea level. Approximately 2 acres are available for development. The rest of the parcel is designated as wetlands.

Kawaiinui Stream is at approximately 3 feet above sea level at the east end of the 8 acre makai parcel. The stream meanders between the wetlands and Hamakua Drive. The wetlands are the flat expanse that lies between the stream and the lower hillside that is proposed for development. The highest points on the mauka site are at 300+ feet above sea level. The retirement community will be located on the lower hillside between 25 and 75 feet above sea level.

Hamakua Drive is north of Kawaiinui Stream and Kailua Road is to the west of the site. Land uses of property adjacent to the site are commercial, retail and residential. Currently the hillside land is used for cattle grazing. The wetlands adjacent to Kawaiinui Stream are inhabited by birds and other wildlife.

In the existing drainage pattern, the stormwater runoff flows down the hillside into the wetlands area. Kawaiinui Stream drains the wetlands to Kaelepulu Stream and thence to the ocean. Stormwater runoff carries soil particles from the hillside so that silt accumulates both in the wetlands and the stream.

The City and County of Honolulu is preparing to dredge Kawaiinui Stream and cut back the mangroves along the stream banks. The work will be both upstream and downstream from the proposed project. No dredging work is proposed for the stream fronting these sites.

There is a curb inlet on either side of Hamakua Drive approximately 100' south of the bridge crossing Kawaiinui Stream. These inlets drain to an outlet in the wetlands on the makai side of Hamakua Drive. There are also curb inlets on either side of Akeakoa Street at the intersection of Akeakoa and Hamakua Drive and one curb inlet on Hamakua Drive across from Akeakoa Street. These inlets connect to an existing 36" storm drain line under Hamakua Drive which terminates in Kaelepulu Pond.

There are three storm drain outlets on the northeast side of Kawaiinui Stream between Hekili Street and Kailua Drive. These outlets release flows into Kawaiinui Stream.

Drainage Changes by Development

Calculations for runoff have been based on rainfall intensities of 2.0 inches per hour for 10 year storms. Table I shows the runoff quantities for the project site under existing conditions and also after development of the retirement community.

TABLE I

STORM WATER RUNOFF* - KAILUA GATEWAY DEVELOPMENT

Area	Existing Conditions (cfs)	Developed Conditions (cfs)	Percent Increase
Development Area Only (32 acres)	58	80	38
Overall Site** (97 acres)	166	204	23

* 10 year design storm interval
 ** Including mauka (89 acres) and makai (8 acres) parcels

In general, development of the retirement community will change the drainage characteristics of approximately 31 acres of the 97 acre site. The thick grasses of the lower hillside will be replaced by buildings, roadways and parking areas. These will account for a higher runoff coefficient and shorter time of concentration. These features all tend to increase runoff as indicated in Table I.

Two separate storm drain systems will service the mauka site. One storm drain line will service the makai site. See Figure B for drainage areas for the storm drain systems.

The development site on the mauka parcel is located above the wetlands. According to the Flood Insurance Rate Map (Community-Panel #150001 0090C), the 100 year flood plain is located within the wetlands. Therefore, the development site is above the 100 year flood plain.

The proposed drainage improvements for the mauka development site will intercept runoff from the upper hillside above the proposed development and divert the flow into pipes. The pipes will run under the proposed development area. The flows will be released into the wetlands to preserve the existing flushing action of those wetlands.

The wetlands will be separated from the development by a 50' buffer zone. A permanent berm and swale shall be constructed at the buffer zone lower boundary to intercept overland flows and direct them into inlets which will connect to the proposed storm drain system. Storm drain inlets along the lower boundary of the development will also intercept runoff from the developed area and divert that flow into pipes.

The western mauka pipe system will terminate in an outlet in the northwest corner adjacent to the commercial area. This outlet should not affect the stream significantly because the present hillside runoff currently enters Kawaiui Stream, as will this.

The eastern mauka system will terminate at Hamakua Drive and Akoakoa Street where it will connect to the existing 36" storm drain line. See Figure C for the suggested routing of the drainage systems.

One storm drain line will extend across the lower boundary of the developed area on the makai parcel. At the eastern wetlands boundary an outlet shall be constructed to release storm water flows into the stream. According to the Flood Insurance Rate Map (Community-Panel #150001 0090C) this parcel is in Zone AE. The 100 year flood elevation is 6 feet. In order to develop this site fill must be put in place to raise the area above the 6' flood level. This area must be raised enough to create sufficient slope to drain

TABLE II

PROPOSED DRAINAGE PATTERN

FROM	TO	WETLANDS	KAWAIUI STREAM	HAMAKUA DR. STORM DRAIN
AREAS 1 & 2		83		
AREA 3			51	21
AREA 4		34		
AREA 5			8	
AREA 6		7		
AREA 7				
TOTAL		124	59	21

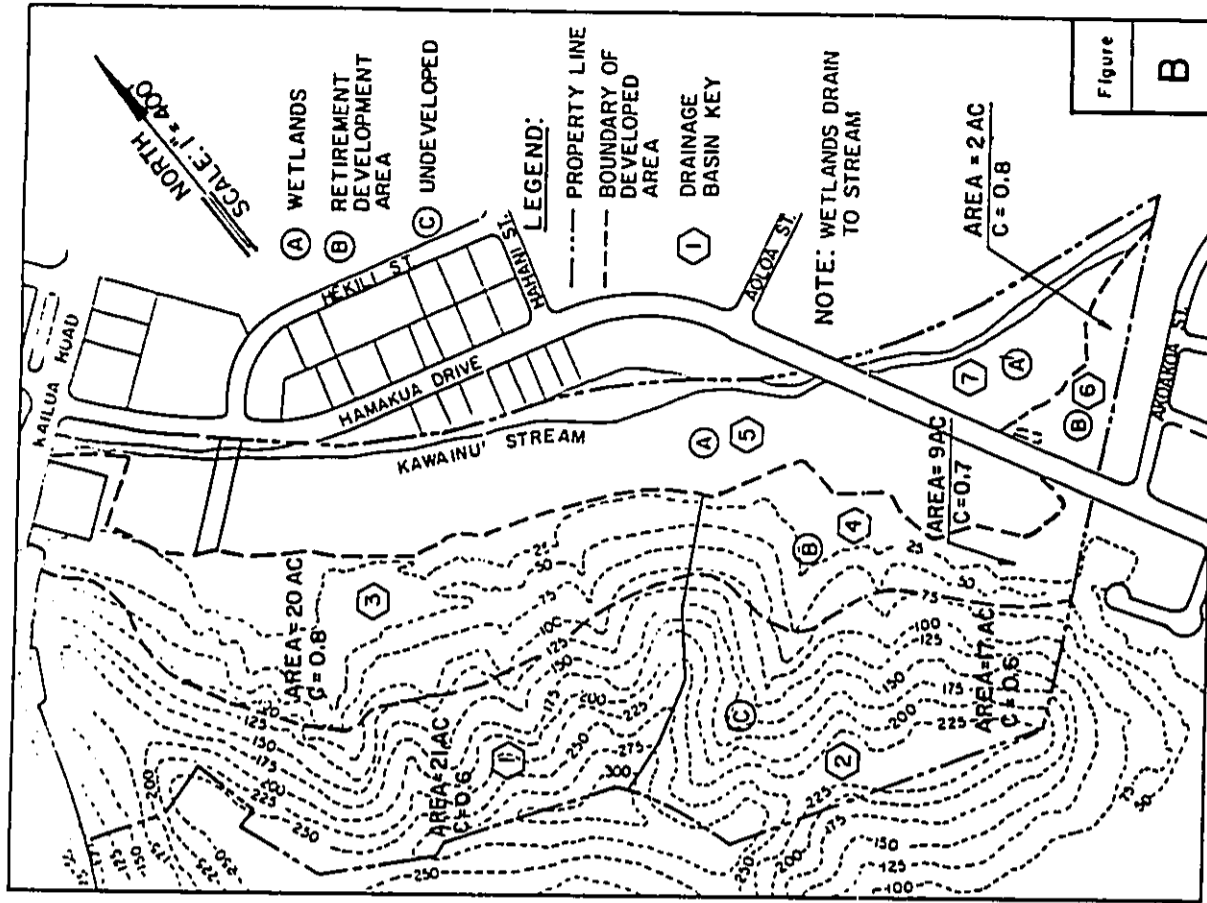
All flows in cubic feet per second.

The overall increase in storm water runoff will be 23%. This increase was calculated by considering the change in the runoff coefficients and times of concentration. The runoff coefficient used for the upper hillside is 0.6 in the post development calculations compared to the overall average of 0.5 for the entire site used for the existing runoff calculations. Runoff coefficients of 0.7 and 0.8 are used for the developed areas in the post development calculations. Shorter times of concentration are used for the post development calculations (which vary for each drainage basin) than were used in the existing runoff calculations. Until the specifics of the development layout are decided, more exact calculations cannot be made.

the developed area down to the stream. An additional cost for this fill must be given consideration in this small development area.

Impacts and Mitigation Measures

The proposed development will increase the flow to Kawaiinui Stream slightly. The capacity of the stream will be increased by the improvements currently proposed by the City and County of Honolulu. Less silt will be deposited in the wetlands because the proposed storm drain improvements will divide the flows and prevent runoff from flowing overland to the wetlands but still preserving the natural flushing action of fresh water filtering through the wetlands. Controlling the stormwater flows in the lower levels of the hillside will reduce the overall erosion of the hillside and thereby reduce the overall silt load presently reaching Kawaiinui Stream.



KAILUA GATEWAY DEVELOPMENT
STORMWATER RUNOFF MAP

Prepared by:
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DEC. 1991

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PROJECT KAILUA GATEWAY PROJ NO 91626
 PREPARED BY LBS DATE 3/13/92
 CHECKED BY _____ DATE _____
 SHEET 1 OF _____

MAUKA SITE - EXISTING

INCLUDES DRAINAGE BASINS ① THROUGH ⑤

AREA = 84 ACRES
 LONGEST REACH = 1,400'
 AVERAGE SLOPE = 250'/1,400' ≈ 20%
 COVER = AVE. GRASSES (RANGES FROM SPARSE ON THE HILLSIDE TO HEAVY IN WETLANDS)
 ∴ C = 0.5
 TIME OF CONCENTRATION = 21 MIN (FACTOR = 1.75)
 INTENSITY: I = 2.0"/HR (10 YR STORM) × 1.75 = 3.5"/HR

Q = CIA = 0.5 × 3.5"/HR × 84 AC

Q (EXIST) = 157 CFS TO KAWAINUI STREAM

MAKAI SITE - EXISTING

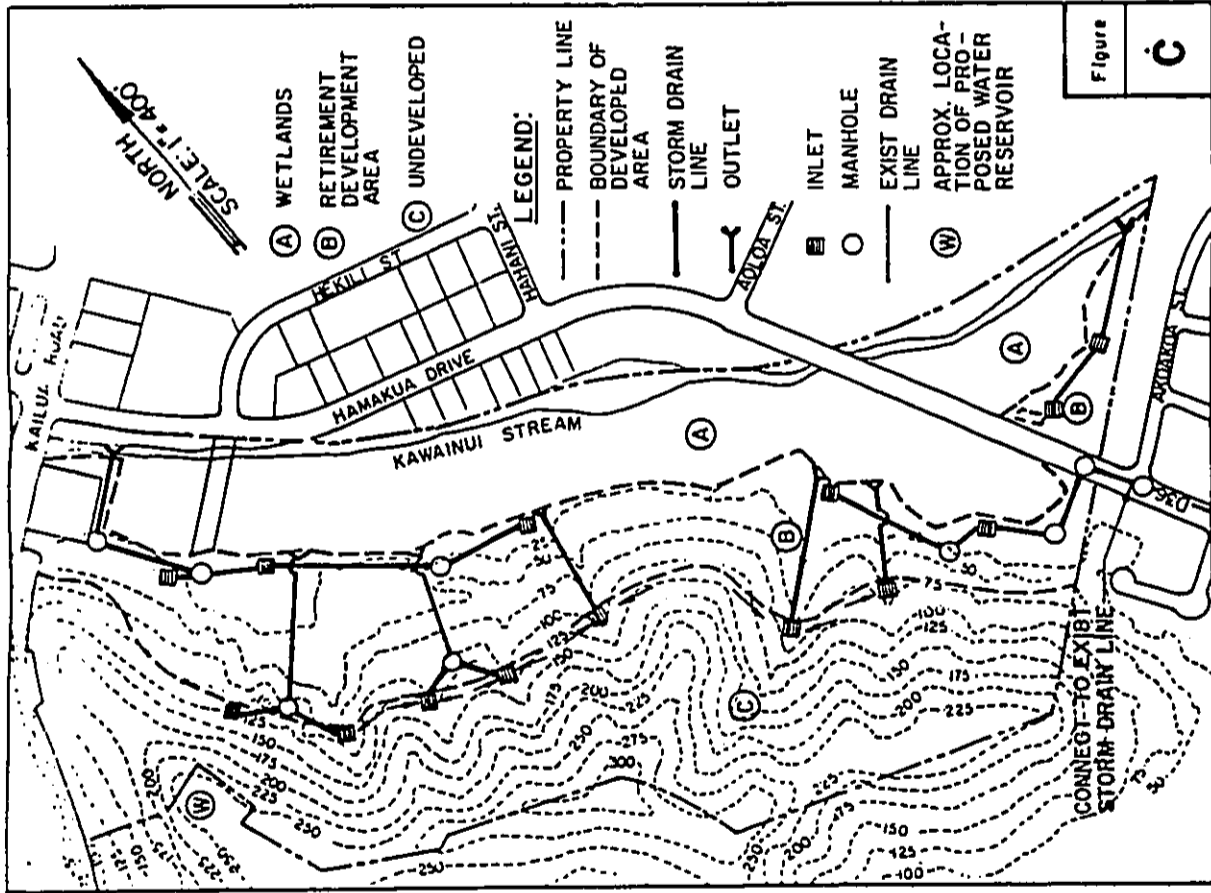
INCLUDES DRAINAGE BASINS ⑥ & ⑦

AREA = 8 ACRES
 LONGEST REACH = 500'
 AVERAGE SLOPE = 5'/500' = 1%
 COVER = HEAVY ∴ C = 0.4
 TIME OF CONCENTRATION = 35 MIN (FACTOR = 1.4)
 INTENSITY: I = 2.0"/HR (10 YR. STORM) × 1.4 = 2.8"/HR

Q = CIA = 0.4 × 2.8"/HR × 8 AC

Q (EXIST) = 9 CFS TO KAWAINUI STREAM

TOTAL Q (EXIST) = 166 CFS TO KAWAINUI STREAM



KAILUA GATEWAY DEVELOPMENT DRAINAGE SYSTEM

Prepared by:
 SMITH, YOUNG & ASSOC.

DEC. 1991

MAUKA SITE - Post Development
DRAINAGE BASIN ① & ② (Upper Hills)

AREA = 38 ACRES
 LONGEST REACH = 700'
 AVE. SLOPE = 200/100' = 30%
 COVER: SPARSE ∴ C = 0.6
 TIME OF CONCENTRATION = 15 MIN (OVERLAND FLOW)
 + 4 MIN (PIPE FLOW)
 $T_c = 19 \text{ MIN}$ (FACTOR = 1.8)

$I = 1.8 \times 2.0 \text{ "/hr} = 3.6 \text{ "/hr}$
 $Q = CIA = 0.6 \times 3.6 \text{ "/hr} \times 38 \text{ AC}$

$Q_{(PROPOSED)} = 83 \text{ CFS TO WETLANDS}$

DRAINAGE BASIN ③

AREA = 20 ACRES
 LONGEST REACH = 500'
 AVE. SLOPE = 100/500' = 20%
 COVER: RESIDENTIAL ∴ C = 0.8
 TIME OF CONCENTRATION = 14 MIN (OVERLAND FLOW)
 + 9 MIN (PIPE FLOW)
 $T_c = 23 \text{ MIN}$ (FACTOR = 1.6)

$I = 1.6 \times 2.0 \text{ "/hr} = 3.2 \text{ "/hr}$
 $Q = CIA = 0.8 \times 3.2 \text{ "/hr} \times 20 \text{ AC}$

$Q_{(PROPOSED)} = 51 \text{ CFS TO KAWAINUI STREAM}$

MAUKA SITE - Post Development (CONT)
DRAINAGE BASIN ④

AREA = 9 ACRES
 LONGEST REACH = 500'
 AVE. SLOPE = 30/500' = 7%
 TIME OF CONCENTRATION = 14 MIN (OVERLAND FLOW)
 + 8 MIN (PIPE FLOW)
 $T_c = 22 \text{ MIN}$ (FACTOR = 1.65)

$I = 1.65 \times 2.0 \text{ "/hr} = 3.3 \text{ "/hr}$
 $C = 0.7$ (SEE SHT. 4)

$Q = CIA = 0.7 \times 3.3 \text{ "/hr} \times 9 \text{ AC}$

$Q_{(PROPOSED)} = 21 \text{ CFS TO HAMA KUA STORM DRAIN}$

DRAINAGE BASIN ⑤ (WETLANDS)

AREA = 22 ACRES
 LONGEST REACH = 200'
 AVE. SLOPE = 3/100' = 1.5%
 TIME OF CONCENTRATION = 17 MIN (FACTOR = 1.9)
 $I = 1.9 \times 2.0 \text{ "/hr} = 3.8 \text{ "/hr}$
 COVER: HEAVY ∴ C = 0.4

$Q = CIA = 0.4 \times 3.8 \text{ "/hr} \times 22 \text{ AC}$

$Q_{(PROPOSED)} = 34 \text{ CFS WETLANDS TO KAWAINUI STR.$

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PROJECT KAILUA GATEWAY
 PREPARED BY LBS
 CHECKED BY _____

PROJ NO 11628
 DATE 3/12/92
 DATE _____ OF _____

SHEET 4

CALCULATION OF RUNOFF COEFFICIENT (4)

IMPERVIOUS AREA:

BUILDINGS:

$11 \times 1800SF + 11,000 = 48,800$
 I.L.U.'S COMM. CTR.

PAVED AREAS:

$800' \times 24' + 150' \times 160' = 43,200$
 ROAD PARKING

COURTYARD:

$120' \times 120' = 14,400$

TOTAL IMPERVIOUS AREA = $106,400SF = 2.4 AC$

$C_{LAVE} = (2.4/4)1.0 + (6.6/4)0.5 = 0.63$

BUILDING AREAS ARE BASED ON A PRELIMINARY DESIGN. TO ALLOW FOR FLEXIBILITY IN FINAL DESIGN, USE $C_{LAVE} = 0.7$

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PROJECT KAILUA GATEWAY
 PREPARED BY LBS
 CHECKED BY _____

PROJ NO 11628
 DATE 3/17/92
 DATE _____ OF _____

SHEET 5

MAKAI SITE - POST DEVELOPMENT

DRAINAGE AREA (6)

AREA = 2 ACRES
 LONGEST REACH = 600' (IN PIPE)

AVE. VELOCITY $\approx 3 FPS$

TIME OF CONCENTRATION = 5 MIN. (OVERLAND)
 $\frac{5 MIN.}{3 MIN.}$ (PIPE FLOW)
 (FACTOR = 2.5)

$I = 2.5 \times 2.0 \frac{1}{HR} = 5.0 \frac{1}{HR}$
 COVER: RESIDENTIAL $\therefore C = 0.8$

$Q = CIA = 0.8 \times 5.0 \frac{1}{HR} \times 2 AC$

$Q (PROPOSED) = 8 CFS$ TO KAWAINULI STREAM

DRAINAGE AREA (7)

AREA = 6 ACRES

LONGEST REACH = 300'

AVE. SLOPE = $\frac{3}{300} = 17 \frac{1}{1000}$

TIME OF CONCENTRATION = 29 MIN (FACTOR = 1.5)

$I = 1.5 \times 2.0 \frac{1}{HR} = 3.0 \frac{1}{HR}$

COVER: HEAVY $\therefore C = 0.4$
 $Q = CIA = 0.4 \times 3.0 \frac{1}{HR} \times 6 AC$

$Q (PROPOSED) = 7 CFS$ WETLANDS TO KAWAINULI STREAM

CORRECTION

THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

WATER SUPPLY

Introduction

The objective of this section of the report is to present the necessary planning and preliminary engineering research for the supply of potable water to the proposed retirement community. Specifically, this section covers the following items:

- a. Existing water supply;
- b. Proposed development and resulting water demands;
- c. Impacts and expected costs.

Existing Water Supply

This project will connect to the existing City and County of Honolulu Board of Water Supply water distribution system. There are two water mains under Kailua Road crossing Kawaihuli Stream: one 24" diameter line and one 14" diameter line. There is one 12" diameter water main under Hamakua Drive.

The water reservoir at the top of the hill on the west end of the property has been abandoned. Board of Water Supply plans to construct a water reservoir at the top of the hill on the west end of the project site adjacent to the abandoned reservoir. The feasibility study and EIS are presently being formulated for this reservoir and construction is tentatively scheduled for fiscal year 1994-95.

A drainage easement will be required to accommodate the proposed reservoir drain and overflow pipe. The Board of Water Supply must drain the reservoir periodic maintenance. The runoff from this draining must be collected in the storm drain system. Any impact from these flows on the wetlands comes under the Board of Water Supply development plans.

The new reservoir is required to bring water storage capacity for the Kailua area up to Board of Water Supply standard. The Pohakapu Reservoir (overflow elevation = 272) presently provides the water for this part of Kailua.

Proposed Development and Water Demands

The proposed retirement community will require water for personal use and for landscape irrigation. The maximum daily demand for water for the proposed development of approximately 400 apartment units will be 240,000 gallons. According to the City and County of Honolulu Board of Water Supply there is sufficient capacity at the present time to accommodate this development.

The mauka parcel of the development will connect to the 24" water main under Kailua Road. The Community Center on the east end will connect to the 12" water main under Hamakua Drive. The Makai parcel also will connect to the 12" water main under Hamakua Drive. See Figure D for water distribution system design concept.

Fire hydrants will be required at 250' intervals. An estimated total of 14 fire hydrants will be required for the entire project.

Impacts and Expected Costs

At the present time, the Water System Facilities Charge is \$2,000 per apartment unit. In 1992 this charge will be increased to \$2,400 per unit. If this rate holds, the total Water System Facilities Charge (WSFC) for the development will be \$960,000. The Board of Water Supply is planning to reassess the basis for charging this fee and they anticipate the WSFC to increase again before 1994. Monthly charges are based on water usage at the prevailing rates.

This project will not have a significant impact. No water lines will be located in the wetlands. There will be some minor, temporary impacts during construction because of the trenching required to install the water line. These impacts will be mitigated according to the guidelines set forth in the "Grading and Construction Activities" section of this report.

WASTEWATER

Introduction

The objective of this section of the report is to provide information on the sites and to present the necessary planning and preliminary engineering concepts for the disposal of wastewater generated by the proposed retirement community and to discuss sewage quantities. Specifically, this section addresses the following:

- a. Existing wastewater collection and treatment facilities;
- b. Proposed development and resulting wastewater flows;
- c. Impacts and expected costs.

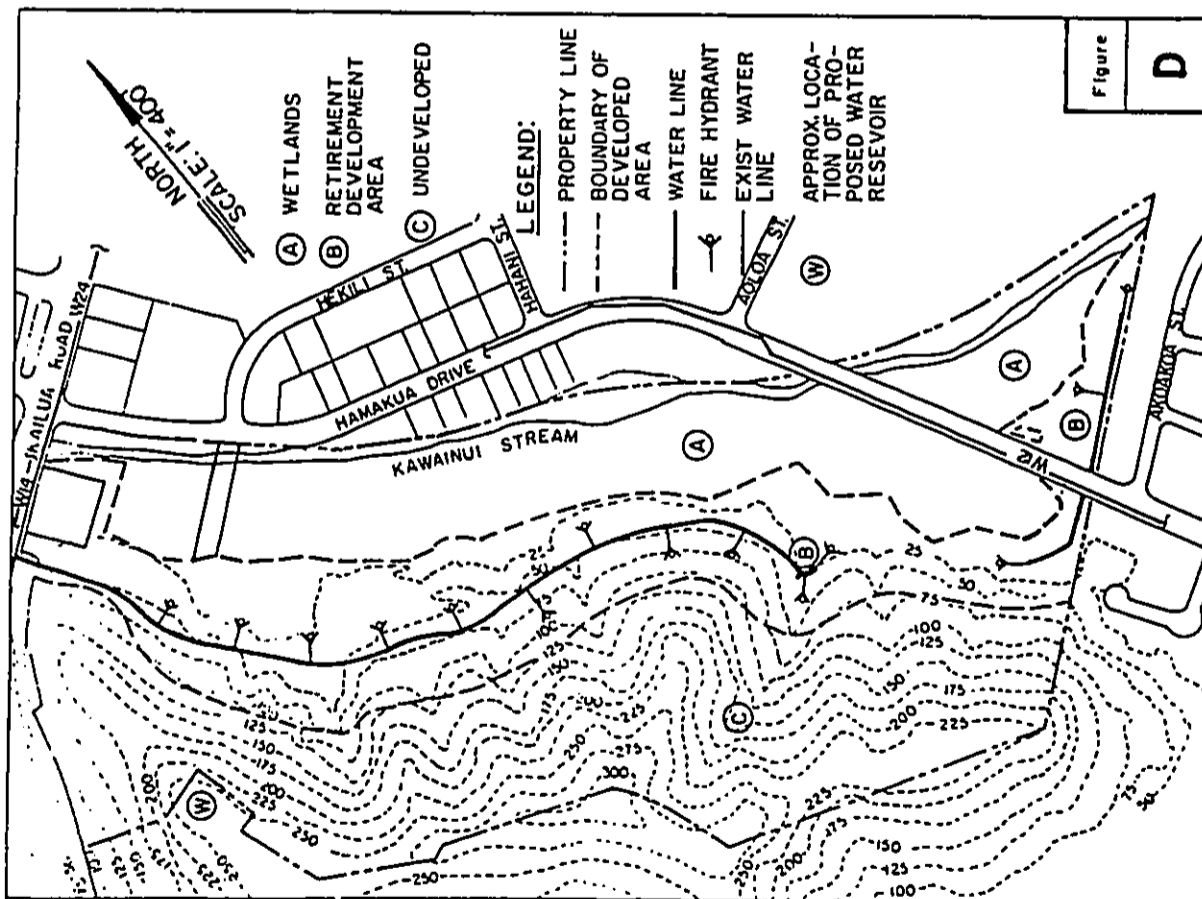
Existing Wastewater Facilities

The existing sanitary sewer system in Kailua is overloaded. No sewer connections will be permitted until late 1993. There are two existing pump stations nearby, the Kailua Road pump station and the Kailua Heights pump station. The Kailua Road pump station is across Kailua Road from the proposed development. The Division of Wastewater Management, City and County of Honolulu, has requested that we direct all wastewater flows to the Kailua Road Pump Station as the Kailua Heights Station is severely overloaded. This request is easily accomplished as an existing 27" sewer presently exists along Hamakua Drive that flows to the Kailua Road Pump Station.

Proposed Development and Wastewater Flows

The construction of a retirement community will generate additional wastewater flows. Average daily flows will be approximately 76,000 gallons. All of the flows will be directed to the Kailua Road Pump Station. This project will not be constructed until late 1994 or early 1995. The Division of Wastewater Management expects to allow this project to connect to the existing sanitary sewer system at that time upon payment of the applicable fees.

The buildings on the 89 acre mauka site will be at, or above, 25 feet above mean sea level. Wastewater flows will be piped to a sewer main makai of the buildings in the buffer zone between the development area and the wetlands. The western mauka sewer system can be connected to an existing manhole at Kailua Road. The invert elevation of this manhole is 4.19 feet above sea level. The proposed sewer line on the eastern part of the mauka site will connect the Community Center to the existing 27" sewer under Hamakua Drive. See Figure E for sewer system layout.



**KAILUA GATEWAY DEVELOPMENT
WATER SUPPLY SYSTEM**

prepared by:
SMITH, YOUNG & ASSOC.

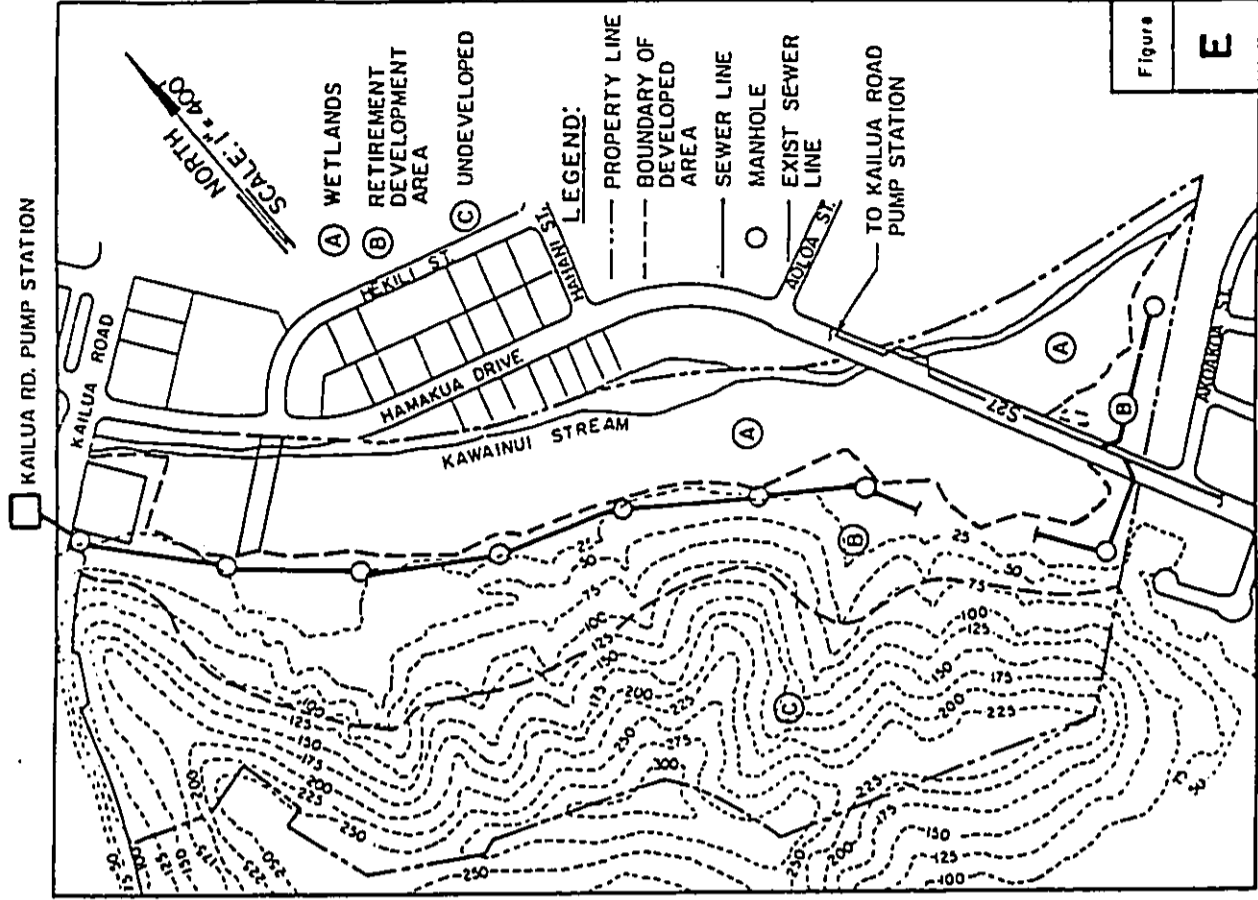
DEC. 1991

The 8 acre triangular lot makai of Hamakua Drive also should be connected to the existing 27" sewer line under Hamakua Drive which flows towards the Kailua Road Pump Station. The invert elevation of (-)10.96 feet mean sea level is sufficiently deep to service this low elevation site.

Impacts and Expected Costs

The Wastewater System Facility Charge (WSFC) is currently \$1,146 per residential unit. Apartment units are charged 0.7 x \$1,146 per unit. For a proposed 400 apartment unit retirement community, the WSFC would be \$320,880. Average monthly service charges are approximately \$16.75. These charges are subject to change.

The impact that this development will have on the Kailua wastewater system is not significant when considered individually. It is the combination of this development with other proposed developments and the existing overloaded condition of the wastewater system which is a subject of concern. The City and County of Honolulu is presently developing a plan to alleviate the overloading condition. The Facility charges which will be paid by this development will help to finance the necessary improvements to the existing sewer system.



KAILUA GATEWAY DEVELOPMENT
SANITARY SEWER SYSTEM

prepared by:
SMITH, YOUNG & ASSOC.

DEC. 1991

SOLID WASTE

Introduction

The objective of this section of the report is to present the necessary planning and preliminary engineering research for the disposal of solid wastes generated by the proposed retirement community. Specifically, this section covers the following items:

- a. Existing solid waste disposal site;
- b. Proposed development and anticipated quantities of solid waste generated;
- c. Impacts and expected costs.

Existing Solid Waste Disposal Site

Solid waste in the Kailua area is collected by the City and County of Honolulu, Refuse Collection and Disposal Division or by private collection companies and transported to the Kapa'a Transfer Station and thence to H-Power where it is converted to electricity. This station has the capacity to transfer 500 tons per day of refuse. The current charges are \$71.11 per ton at the transfer station.

There is a school drop-in recycling program currently in effect in Kailua. Recyclable materials (glass, aluminum and newspapers) can be brought in to schools for recycling. Contributors are not paid for the materials recycled. Alternatively, aluminum and glass can be sold to private operated recycling centers. Aluminum is currently worth approximately \$0.10 per pound. The financial incentive for recycling is not the money paid for recycled materials, but the money saved by not having to pay the transfer station charge.

Proposed Development and Expected Solid Waste Quantities

Each person generates approximately 4.5 pounds of solid waste per day (based on a 1980 Oahu study). Assuming that each unit in this retirement community houses two people and that there will be approximately 400 units, there will be approximately 3,600 pounds of solid waste generated by residents each day. This figure is conservative owing to the following factors:

1. Many of the units will only house one person;
2. This is a retirement community: There will not be any babies living here, hence no disposable diapers, etc.;
3. Adults living alone generate less refuse per person than do families with children.

The restaurant is expected to serve approximately 100 outside patrons per day. Each such patron may generate an average of 1 pound of solid waste. The restaurant can be expected to generate approximately 100 pounds of solid waste per day over and above that figured for the on-site residents. The commercial activities, it is estimated, will generate an average of 200 pounds of solid waste per day.

The medical facilities on site also will generate refuse. There will be 10 personal care units and a 60 bed skilled nursing facility. These can be expected to generate approximately an additional 100 pounds of solid waste per day. The total amount of solid waste generated by this project will be approximately 4,000 pounds per day.

These medical facilities will comply with the City and County of Honolulu, Refuse Collection and Disposal Division medical waste disposal regulations. Most of the refuse can be disposed of in the same manner as the residential solid waste. Sharps (needles and glass) and non-combustible refuse must be separated from the rest of the solid waste to be sent directly to the Kapa'a Landfill.

One advantage of cluster development is the opportunity to provide convenient recycling centers on site. Newspapers, glass and aluminum can be deposited in designated bins and transported to local recycling centers.

Impacts and Expected Costs

This development will have no significant impact on the operations of the Kapa'a Transfer Station. The amount of solid waste generated by this project each day is less than 2 tons. The capacity of Kapa'a Transfer Station is 500 tons per day. The proposed retirement community will generate less than one-half of one percent of the total capacity of the transfer station. The majority of the refuse will be converted to electricity and will not be deposited in landfills.

If the current rates hold, the monthly charges for solid waste disposal will be approximately \$4,200. This is based on 4,000 lbs/day for a 30 day month at \$71.00 per ton. City and County of Honolulu will collect the refuse without charging a collection fee if the project is designed to accommodate the collection vehicles. Should the developer decide to use a private collection service instead, there would be a collection charge.

ELECTRICAL

Introduction

The objective of this section of the report is to present the necessary planning and preliminary engineering research for the supply of electricity to the proposed retirement community. Specifically, this section covers the following items:

- a. Existing electricity distribution system;
- b. Proposed development and expected electric consumption;
- c. Telephone and cable connection considerations.

Existing Electricity Distribution System

The Kailua Gateway Development area has available three Hawaiian Electric Company (HECO) 12.47 KV feeders. The Kailua Substation Kailua Feeder No. 1 is an underground feeder located on Kaineue Street. The Keolu Substation Enchanted Lakes Feeder is an overhead feeder. It comes down along Kawaiinui Stream from the Enchanted Lakes subdivision and crosses Hamakua Drive at the bridge near the makai development site. After entering the wetland area, it traverses the wetlands for about 800 feet then exits to Mahani Street. The Pohakapu Substation Kailua Feeder is an overhead feeder which comes down from the Pali along Kailua Road. See Figure F for location of feeders.

Two 12.47 KV circuits will be required to serve the Kailua Gateway Development. The primary feeder will be the Kailua Substation Kailua Feeder No. 1. It can be tapped at the Hamakua Drive entry to the project site. The backup feeder will be the Keolu Substation Enchanted Lakes Feeder which is accessible right on the development site. There will be enough capacity on these feeders to serve this load when the project comes on line in January 1995. Installation of two switching vaults are required on the development site.

Expected Electric Consumption

There will be no adverse environmental impact due to serving this development with electricity. The ultimate maximum demand for this development when all the facilities (housing, nursing, personal care, support & public spaces, and commercial improvements) have been completed will be approximately three megawatts. The anticipated energy consumption is expected to be about 600,000 kilowatt-hours per month.

TABLE IX

ELECTRIC CONSUMPTION

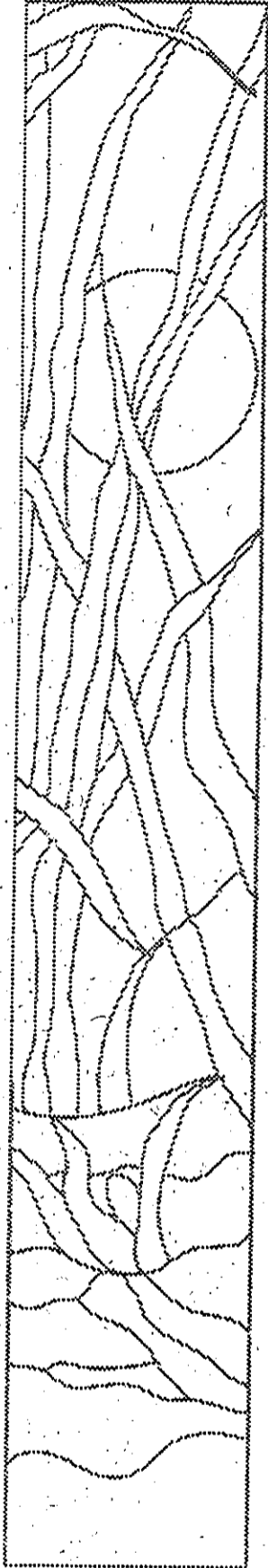
TYPE OF USE	DEMAND	LOAD FACTOR	CONSUMPTION PER MONTH
Housing	1135 KW	0.15	124,000 KWH
Nursing facilities	365 KW	0.50	133,000 KWH
Admin & Public spaces	370 KW	0.35	95,000 KWH
Commercial	1000 KW	0.30	219,000 KWH
Future	130 KW	0.30	29,000 KWH
TOTAL	3000 KW		600,000 KWH

Efforts to conserve energy will include extensive use of dimming, selection of energy efficient light sources, and use of photocells or automatic timing devices to turn off lights when not needed. Where feasible, lights and motors will be energized at higher voltages to minimize line losses. Capacitors will be applied at VAR producing loads to improve voltage regulation and distribution efficiency.

Telephones and Cable Connections

The Hawaiian Telephone Company (HTC) will provide the necessary line requirements to the Kailua Gateway Development when the project is ready for service. The service point will be made from Kailua Road. Sufficient advance written notice and lead time must be given HTC to complete their work. All building plans concerning telephone structures must be reviewed and accepted by HTC before construction starts. No adverse environmental impact will be caused by this service.

Oceanic Cable will have no problems in providing cable service to the development area. However, adequate advance written notice must be given Oceanic so they can perform their work in a timely manner. No adverse environmental impact is anticipated due to the cable television service.



Appendix H

**Draft Wetland Restoration and Management
Recommendations for the Hamakua Marsh**

Ducks Unlimited, Inc.

WETLAND RESTORATION AND
MANAGEMENT RECOMMENDATIONS
FOR
THE HAMAKUA MARSH
HONOLULU COUNTY, HAWAII

DRAFT

(subject to revision)

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Management Plan Prepared By:
Andrew Englis, Jr., Ducks Unlimited, Inc.

water recharge, and aesthetic values. Hamakua Marsh is an urban wetland but still has intrinsic values that make it an important area for wildlife and wildlife interpretation and education.

Current Restoration Goals:

- 1) Acquire, through donation from Kaneohe Ranch, the 30 acre parcel.
 - 2) Develop restoration plan and obtain permits allowing enhancement in the marsh.
 - 3) Remove alien, upland shrubs and clear overgrown wetland basins.
 - 4) Clean-up trash and other debris.
 - 5) Post and/or Fence construction to restrict predators.
- 1) Implement habitat management through vegetation control and periodic water quality analysis.
 - 2) Maintain a predator control program to reduce predation by feral dogs, cats, and the introduced Indian mongoose.
 - 3) Implement eradication program on all mallards and other domestic ducks found on the property.
 - 4) Develop and install informational kiosks and interpretive panels and assist in design and funding for boardwalks.

Waterbird Resources on Hamakua Marsh

Waterbirds on the Hamakua Marsh can be roughly divided into three groups: wintering species, spring-fall migrants, and local nesting species. Because of its small size, and proximity to urban resources, the Hamakua Marsh does not support a large number of individuals. Nonetheless, the wetlands are home to four endangered species.

1 - Endangered Endemic Waterbirds:

Hawaiian Duck or Koloa (Anas xxxilliana); Federal and State Endangered Species. Rare on windward Oahu where its population

Introduction

This management plan represents a series of recommendations that focus on problems in two areas: habitat restoration and area management. The purpose of this plan is to provide guidance and suggestions to restore and enhance quality wetland habitat of the Hamakua Marsh.

This plan is not intended to be a comprehensive wildlife management plan. It focuses on restoring a quality emergent marsh benefiting native, endangered waterbirds and resident and migratory waterbirds.

The plan has been developed for the Kaneohe Ranch (Castle Estate) and the Hawaii Division of Forestry and Wildlife as part of a cooperative venture to restore wetlands on the island of Oahu. This is not intended as a static plan. Instead, as predator control, vegetation control, and public use activities are developed, modifications to this plan will be necessary to improve proper long-term protection of the site. By implementing the recommendations herein it is anticipated that the project will: 1) protect an important urban wetland resource along Oahu's windward coast; 2) create a more productive wetland for a variety of wildlife and plants; 3) provide a demonstration area for conservationists, politicians, local government officials and others to show that private land holdings can be managed for the mutual benefit of wildlife and humans.

Area Description

The Hamakua Marsh project is located in Honolulu County and covers approximately 30 acres (Figure 1). The wetland site is bound on the east by the town of Kailua and on the west by a steep bluff. The basin collects rainfall runoff originating on the adjacent hillsides and from the Hamakua Canal which collects runoff from Coconut Grove, an urban section of Kailua. Runoff from the land is regulated by tide, downstream blockages at the mouth of the canal and flood control gates in Coconut Grove.

Hamakua Wetland is a remnant flood plain that once linked Kawaihi Marsh to Kaelepu Pond. Kaelepu Pond, also known as Enchanted Lake, has been completely converted to a suburban lake front. Kawaihi Marsh is the largest remaining freshwater marsh in the state and is currently owned by the county and, in the future, will be managed as a wildlife refuge by the state Division of Forestry and Wildlife (DOFAW). The entire area supports a variety of bird- and plant-life, including four federal and state listed endangered species.

Historic Background and Statement of Need

Today nearly 70% of Hawaii's natural lowland wetlands have been filled or converted to other land uses such as agriculture and urban expansion. Despite the loss, many of Hawaii's wetland adapted plants and animals have been able to survive. The remaining wetlands on Oahu's windward coast are small, and isolated. Most are closely associated with human communities. Long-term protection of the remaining wetlands are essential to ensure the stability of native, endemic waterbirds, hydrologic cycles, ground

has been compromised through hybridization with feral mallards. At Hamakua, the species has attempted to nest. Last recorded nesting (9 young seen with an adult) was on May 9, 1987.

Hawaiian Moorhen (*Gallinula chloropus sandvicensis*): Federal and State Endangered Species. In past fairly common on the site, with known densities reaching 4.6 birds per hectare. Dense vegetation cover, makes accurate assessment of numbers nearly impossible. The species is known to breed on the site. The most recent nesting observed was in April 1989.

Hawaiian Coot (*Fulica alai*): Federal and State Endangered Species. Fairly common in the past when more habitat was available. Since conditions in the wetland has deteriorated due to invasive plants this species use of the site has dropped. Coot are still observed foraging on the site, but nesting has not been recorded. It is expected to breed on the site.

Hawaiian Stilt (*Himantopus mexicanus knudseni*): Federal and State Endangered Species. Commonly observed in the open, shallow basins on the site. Several pairs have been recorded on the site with at least two attempting to nest. If vegetation is cleared and adequate nesting habitat provided, this species is expected to breed on the site.

2 - Resident Waterbirds:

Black-crowned Night-Heron (*Nycticorax nycticorax*): Common indigenous resident. Night-herons are commonly seen in the Hamakua Marsh, where they feed on aquatic animal life.

Cattle Egret (*Bubulcus ibis*): Common introduced resident. This species is seen frequenting the wetland and adjacent upland habitat. This species is suspected of being a serious predator on endangered waterbird species eggs and young.

3 - Migratory Waterbirds:

Although the site is small, its close proximity to Kawainui Marsh and Nuupia Ponds, allows for interchange of migratory and wintering shorebirds and waterfowl.

Migratory Waterfowl are not common on the wetland, but are expected to occur once the site is adequately restored, and Kawainui Marsh is restored. Northern Shoveler (*Anas clypeata*), wigeon, and perhaps Green-winged Teal (*Anas crecca*) might be expected to occur.

Migratory Shorebirds: Currently Hamakua Marsh is so overgrown that mudflats, which support most species of shorebirds, are absent. If managed properly, shorebirds of all types could benefit from the site's restoration. The mudflats and shallow brackish wetlands of Kaneohe Bay support thousands of

wintering shorebirds including: sanderling (*Callidris alba*), plovers, tattler, turnstone, stilt, and others. These birds move freely to find optimal foraging conditions, which can be provided, to a limited degree at Hamakua. Edge habitat can be selectively managed. Hamakua Marsh supports a small number of common wintering shorebirds. Pacific Golden Plover (*Pluvialis fulva*), Wandering Tattler (*Heterosculus incanus*), and Ruddy Turnstone (*Arenaria interpres*) currently frequent the marsh.

Waterbird Habitat Requirements

Migration/Wintering - Feeding/Cover

Feeding requirements for Hawaii's waterbirds vary by species, season, sex and habitat availability. While some species will feed in drier habitat, most prefer to eat "with their feet wet." Optimal foraging depths for Hawaii's waterbirds range from 1 to 16 inches of water. Coot and duck can exploit the deeper water habitats.

Woad seeds (from Eelgrass, sedges, and rushes) are selected by most ducks, coots and moorhen and are high in nutrition for lipids and certain important amino acids. Some waterbirds (coots and some ducks) are grazers preferring new green vegetative growth. Freshly sprouting grasses and forbs in shallow water and uplands surrounding a wetland are all excellent foods for these birds.

Invertebrates (insects, snails, worms) are important foods for stilt and moorhen year round, and are particularly important seasonally to coot, ducks and migratory shorebirds. Invertebrates are gleaned from water, vegetation and the soil.

Nesting

Hawaii's breeding waterbirds have three primary nesting habitat needs: 1) a breeding pair territory -- space, high protein food source and a nesting or loafing site; 2) nest site -- well vegetated upland area, secure from flooding, disturbance, and predators; and 3) brood rearing area -- wetland areas that seldom go dry, highly interspersed with vegetation and open water; most with gradual, gently-sloping shorelines. The primary threat from predators comes from the Indian Mongoose, an introduced diurnal carnivore.

Habitat at Hamakua has lost, through time, those characteristics sought by waterbirds for nesting. Overgrown wetland basins, easy access by predators, limited nesting sites, and human disturbance have all contributed to the site's degradation. These restoration recommendations followed by management recommendations are designed to provide optimal foraging, loafing, and nesting habitat for Hawaii's endangered waterbirds.

RESTORATION RECOMMENDATIONS

- Action 1. The site restoration will require a topographic survey and general vegetation mapping. Through mapping, areas for plant removal can be planned and areas for moat construction can be planned.
- Action 2. Once plans are drawn DU will be responsible to obtain an Army Corps 404 permit for the sites construction.
- Action 3. Remove Indian Fleabane (*Pluchea indica*) from the wetland basin. This invasive upland species has reduced available habitat for native waterbirds. Once removed emergent wetland plants are expected to return. Removal may be through heavy equipment.
- Action 4. Remove all mangrove (*Rhizophora mangle*). This includes all trees and sprouts. This effort may require heavy equipment and hand removal. The makai wetland section is particularly choked out by mangrove. Cut trees would be removed to a nearby sanitary landfill.
- Action 5. Open wetland flats can be accomplished through mowing or top vegetation removal. Flats of *Eragrostis* and other emergents will be mapped and removal will be undertaken to try and establish a 30% interspersation (plants to open water) level. In time regeneration should lead to the desired 50% interspersation of plants and water.
- Action 6. Moat construction appears to be the most cost effective predator control strategy for the site. The moat would be constructed to isolate several portions of the wetland to allow for eradication of predators within. In this fashion, nesting and brood feeding areas can be protected. The exact layout of moats will be determined from topographic surveys and available funding. The moat should be 4 feet wide and 3 feet deep. Spoils from the excavation could be placed on upland areas to avoid fill. Some nesting islands could be established, but this alternative will need to be carefully considered.
- Action 7. Fencing may be an alternative to moat construction, but is far less effective in predator control. Fencing along the Hamakua Drive side of the property would limit human intrusion.
- Predator removal will be necessary once moats are functional. With the use of EPA approved chemicals, mongoose and rodents can be effectively removed.

- Action 8. from with the moated areas. The area will be surveyed for the removal of cats if necessary. For reasons of practicality, DOFAW will be in charge of predator removal and control on the site.
- Action 9. Trash Removal is necessary as large quantities of debris have accumulated over the years. Trash removal could be accomplished at the same time as the vegetation removal process.
- A buffer zone, from planned Kailua Gateway Development will be required so as to maintain the integrity and values of the restored wetland. The degree of vegetation to be left along the wetland's edge will be negotiated between DU and Konohe Ranchi as will the desired width of the buffer zone. Plantings of native coastal shrubs in the buffer zone will enhance the aesthetic value of the property. Species such as Naupaka could be planted to outcompete Indian fleabane. Plantings along the Hamakua canal could also provide a disturbance barrier without hindering viewing of the wetland.

Figure 2 depicts a conceptualized view of the restored wetland and buffer areas.

MANAGEMENT RECOMMENDATIONS

- Recommendation 1. Predator control will be imperative to maintain nesting populations of endemic waterbirds. DOFAW will periodically monitor, through trapping, rat, cat and mongoose populations at the project site. A control program will be instituted to keep predator populations low.
- Recommendation 2. Control of reseeded mangrove will also be necessary. Periodic site visits to remove seeds, and seedling mangrove will be required. The frequency of these visits will be agreed upon by DOFAW and DU.
- Recommendation 3. During periodic site visits, the area should be policed for trash. A home owners association, for Kailua Gateway could develop a fund for maintaining the buffer zone area.
- Recommendation 4. Mallards will be excluded through trapping and removal from the Hamakua Marsh wetland. No exotic waterfowl will be allowed to inhabit the marsh.

Hamakua Marsh Restoration and Management Recommendations Page 9

Recommendation 12. The Hamakua Marsh provides excellent opportunities for natural history education and interpretation. Endangered waterbirds and migratory birds can be regularly seen on the marsh. A visitor's kiosk with interpretive panels will be established on the Hamakua Drive frontage. DU, Castle Estate and DOFAW will jointly agree on construction and production of the signs. The feasibility of developing a hiking trail along the buffer zone will be explored with the Developer of the Kailua Gateway, Kanohe Ranch and DU. A visitor's kiosk could be placed on this side of the wetland as well. In the future, the trail could support an interpretive walk. Funding will need to be secured.

Recommendation 13. DOFAW will be required to maintain the interpretive kiosk along Hamakua Drive. Arrangements for managing the interpretive areas on the Kailua Gateway side will be needed.

Recommendation 5. Stabilized water levels are expected to encourage the growth of desired emergents. No seeding will be necessary. Instead those wetland species present in the existing seed bank will be encouraged to grow through stable water level management. Dry-season evaporation will expose portions of the marsh allowing moist-soil species to germinate. Expected to thrive are wetland annuals and perennials. Water level management will not be a factor in maintaining this wetland.

Recommendation 6. Wetland basin vegetation is expected to grow beyond our desired interspersed of 50% open water/vegetation. We estimate that vegetation control efforts in the basins will be required every 2-3 years. Ducks Unlimited will provide technical assistance to DOFAW in developing a vegetation control management scheme. It is anticipated that mowing will be the desired vegetation control practice. The technique best suited to this wetlands will become more apparent once the wetland has been allowed to function.

Recommendation 7. In order to maintain the predator control character of the moats, periodic vegetation removal will be required. This can be done economically and efficiently through the use of aquatic vegetation herbicides.

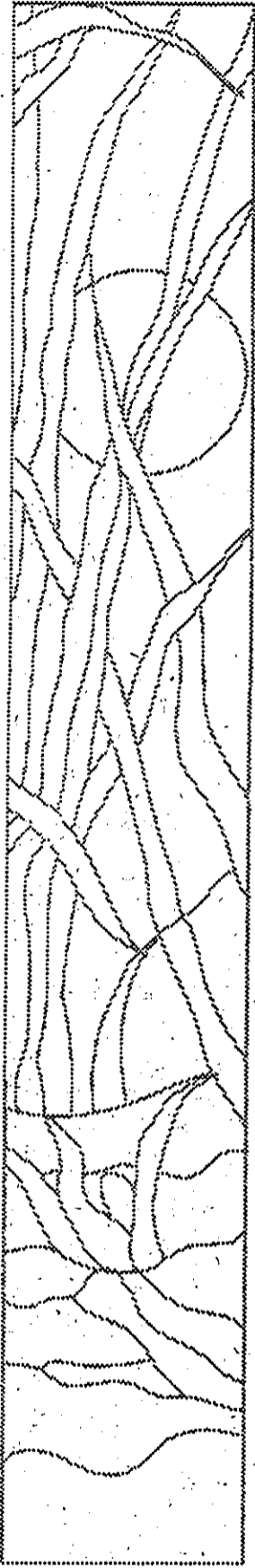
Recommendation 8. The wetland will be monitored annually to judge the degree of vegetation growth. This proactive monitoring should allow DOFAW to keep-up with management duties. DOFAW will establish the criteria for the monitoring program and will consult with DU in the effort.

Recommendation 9. Monitor water levels in the marsh using staff gauges.

Recommendation 10. Monitor waterbird populations and degree of nesting success in order to determine the effectiveness of the management program. DOFAW and DU will agree upon criteria used to evaluate the management program.

Recommendation 11. DOFAW will be managing this wetland as a wildlife sanctuary. DOFAW will keep people from aimlessly walking about. Bird watchers, school children, and nature groups may view wildlife from an interpretive overlook planned for the buffer area and along Hamakua Drive, and will be excluded from directly walking on core habitat areas, to reduce wildlife harassment.

Appendix I



**Correspondence Regarding Ducks Unlimited, Inc.
and Department of Land and Natural Resources
Participation in Wetland Restoration Project**



DUCKS UNLIMITED, INC.
 1199 Auloea Road
 Kailua, Hawaii 96734

DUCKS UNLIMITED, INC.
 1199 Auloea Road, Suite 16
 Kailua, Hawaii 96734
 (808) 261-5215

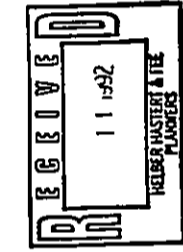


INTER-OFFICE COMMUNICATION
 WESTERN REGIONAL OFFICE

TO: Heitmeyer, Nagel, Cawthon, Van Ray DATE: February 5, 1992

FROM: Andy Engllis

SUBJECT: Hamakua Marsh



Randy Moore
 Kaneohe Ranch
 Castle Junction
 1199 Auloea Road
 Kailua, Hawaii 96734

February 5, 1992

Dear Randy,

I have had an opportunity to sort out a few details concerning the Hamakua Project. A time line is attached that details how DU expects the project to unfold this year. As you are aware, the entire project hinges on the subdivision process. Once completed the project should begin to move. Some delays in environmental permitting are expected, but 6 months seems an adequate time frame for this project. I will be working with the agencies for permits. You will be working with me and our Western Region Development Coordinator, Dal Case, for most of the deed negotiations. Dal can be reached at the same address and number that you have for me. He will also be in Honolulu in early March, and will contact you for a possible meeting. Once the deed is near final negotiations we will involve our National Office. I am beginning talks with Ron Walker concerning the restoration and future land transfer. He is wrapped-up with legislative duties at the moment. My plans to return to Hawaii have changed. It looks as if my trip will be in late March to Mid-April. Timing will depend on progress with the deed transfer.

Best Regards,

Andy Engllis, Jr.
 Andy Engllis, Jr.
 Project Biologist
 attachment

cc: Heitmeyer, Cawthon, Van Ray

I have followed-up with phone conversations to several parties involved with this project. From this information I have constructed a status report for the project. If any questions please let me know.

I. Deed Transfer from Kaneohe Ranch to Ducks Unlimited Inc.

a. Subdivision and Reasoning: This process will determine legal meets and bounds for the wetland parcel. All aspects of the project are linked to this process. Status: filed in September 1990. Approval expected within next 2-3 weeks.

b. Land Appraisal: This process will determine land value of the wetland. Used as state match for Breaux funding and legal deed transfer to DU. Status: Process was initiated on 1/27/92. Expected to be completed by 3/30/92.

c. Deed Transfer: Will require title search (once subdivision is completed). Kaneohe Ranch Attorney and DU Staff will negotiate language in deed agreement. Once completed will be recorded at Honolulu County Courthouse. Status: Process can begin once subdivision is completed. No waiting period to file deed transfer. Can be negotiated concurrently with appraisal.

II. Restoration Funds

As of 1/27/92, DU has received unofficial word that Breaux Amendment Funds were approved for the restoration phase of Hamakua Marsh. The amount funded is \$100,000. Before these funds can be released to DU (via the State of Hawaii) the

following must be completed.

- 1) DU must provide the state with a copy of the independent appraisal. This is needed to secure federal funds.
- 2) The state must fill out an AFA application (DOFAW to do).
- 3) DOFAW must get state clearing house and governor approval for the project.
- 4) DOFAW must get a sole-source contract approved between DU and the DOFAW.

Status: This process can begin as soon as appraisal is completed and state receives word it has funding from the federal government (expected March 30, 1992). Time frame is 6 months to develop contract between DU and DOFAW.

III. Management and Restoration Plan

These plans need approval from both DOFAW and USFWS prior to finalizing. DU is currently working on these plans with both agencies.

IV. Permit Process:

DU must receive several permit authorizations prior to restoration. To date three are required: Army Corps 404, County SHA, and State 401 water quality. DU must accomplish the following:

- 1) DU must provide a management and restoration plan for the project (in draft).
- 2) DU must complete an environmental assessment on the property.
- 3) DU must meet with corp and state officials to determine extent of permits needed.
- 4) DU must apply for these permits.

Status: All of these permits should be applied for once DU owns title to the land and Breaux contract is under negotiation. Permit applications and contract negotiations should be done concurrently. Time frame for this process is expected to be 6 months from

permit initiation.

V. Land Transfer to State of Hawaii
DU will transfer deed to the state for this wetland property. Negotiation will be followed between DU and the State. The state will need to present the land donation to the DLMR Board for approval.



United States Department of the Interior
FISH AND WILDLIFE SERVICE

911 NE 11th Avenue
Portland, Oregon 97232-4181

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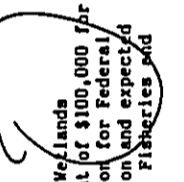
In Reply Refer To:
FWS/AFF/FA

12 1992

William W. Paty, Chairperson
Board of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96813

RECEIVED

92 MAR 19 AM 57



Dear Mr. Paty:

This letter confirms that Fiscal Year 1992 National Coastal Wetlands Conservation grant funds will be made available in the amount of \$100,000 for your "Hanakua Wetlands" project. Please submit an Application for Federal Assistance and a Project Agreement to describe the acquisition and expected costs to Donald Friberg, Deputy Assistant Regional Director, Fisheries and Federal Aid, at the above address.

If you have questions about preparation of the documents or the process, please call Kahler Martinson at 503-231-6128.

Sincerely,

William E. Martin
WILLIAM E. MARTIN
Acting Regional Director

Enclosures