

SMA-Lanikuhouen Improvements

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 523-4432

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QUALITY CONTROL
95/SMA-039 (JT)

JEREMY HARRIS
MAYOR



January 9, 1996

The Honorable Gary Gill, Director
Office of Environmental Quality Control
State of Hawaii
220 S. King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Mr. Gill:

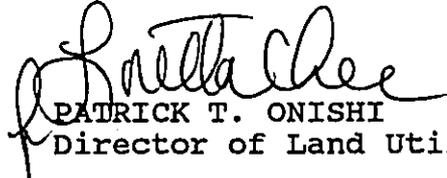
**SPECIAL MANAGEMENT AREA ORDINANCE
CHAPTER 25, ROH
Environmental Assessment/Determination
Negative Declaration**

Owner/Applicant : The Estate of James Campbell
Agent : William E. Wanket, Inc.
Location : 92-1101 Aliinui Drive, Ko Olina, Oahu
Tax Map Key : 9-1-57: 29
Request : Special Management Area Use Permit
Proposal : Construction of various improvements
including a 264-stall paved parking area
Determination : A Negative Declaration Is Issued

Attached and incorporated by reference is the Final Environmental Assessment (FEA) prepared by the applicant for the project. Based on the significance criteria outlined in Chapter 200, State Administrative Rules, we have determined that preparation of an Environmental Impact Statement is not required.

We have enclosed a completed OEQC Bulletin Publication Form and four copies of the FEA. If you have any questions, please contact Joan Takano of our staff at 527-5038.

Very truly yours,


PATRICK T. ONISHI
Director of Land Utilization

PTO:am
Enclosures

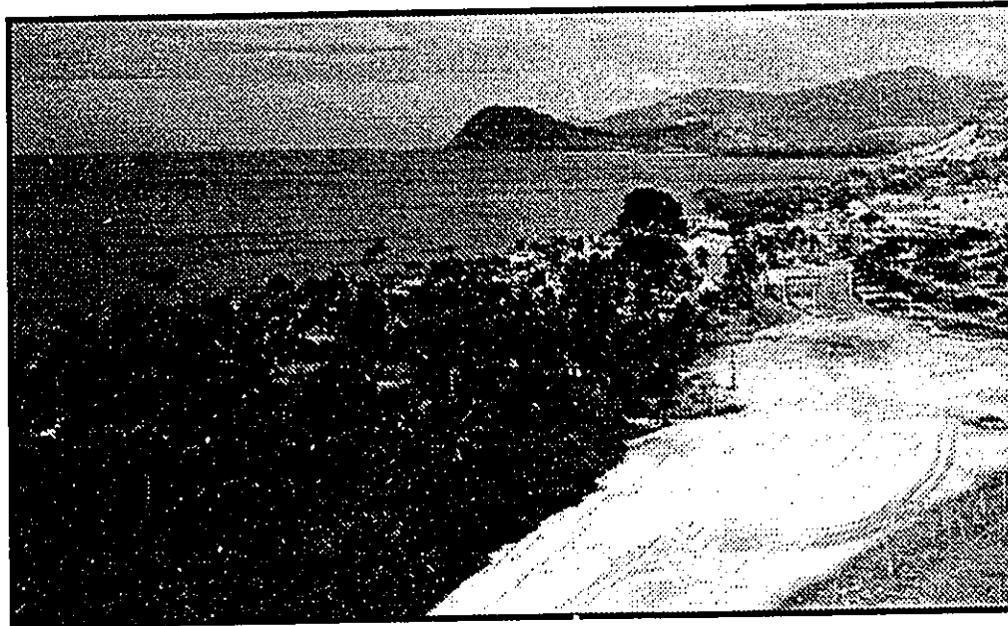
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FILE COPY

Final Environmental Assessment
For
Special Management Area Use Permit
And
Existing Use Permit With Minor Modifications
For



LANIKUHONUA IMPROVEMENTS

Kapolei, Oahu

December 1995

THE ESTATE OF JAMES CAMPBELL

**FINAL ENVIRONMENTAL ASSESSMENT
FOR
SPECIAL MANAGEMENT AREA USE PERMIT
AND
EXISTING USE PERMIT WITH MINOR MODIFICATIONS**

FOR

LANIKUHONUA IMPROVEMENTS

Kapolei, Oahu

December 1995

95 DEC 6 AM 10 32
ENVIRONMENTAL UTILIZATION
DIVISION

Prepared For: The Estate Of James Campbell
Campbell Building
1001 Kamokila Boulevard
Kapolei, Hawaii 96707

Prepared By: William E. Wanket, Inc.
Kapolei Building, Suite 320
1001 Kamokila Boulevard
Kapolei, Hawaii 96707

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- Appendix A Agency Consultation**
- Exhibit A-1 Preliminary Consultation For Draft EA
- Exhibit A-2 Draft EA Agency Comment Letters And Responses
- Appendix B Drainage Report For Lanikuhonua Visitor Parking Lot**
Prepared By: William Dean Alcon And Associates
- Appendix C Photographs Of Existing Lanikuhonua Property**
- Exhibit C-1 Plan Showing Locations Of Photographs
- Exhibit C-2 Photographs Of Existing Lanikuhonua Site
- Exhibit C-3 Photographs Of Existing Lanikuhonua Shoreline Area
- Exhibit C-4 Photographs Of Existing Lanikuhonua Shoreline Area
- Exhibit C-5 Photographs Of Existing Lanikuhonua Lawn Area And Grounds
- Exhibit C-6 Photographs Of Lanikuhonua Entrance And Structures
- Exhibit C-7 Photographs Of Caretaker's Residence And Structures
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- Exhibit C-13 Photographs Of Existing Lanikuhonua Parking Lot
- Exhibit C-14 Photographs Of Existing Lanikuhonua Parking Lot
- Appendix D Project-Related Agency Letters**
- Exhibit D-1 Minor Modification Approval For 85/SMA-16 And 85/CUP-4
DLU Letter Dated June 2, 1995
- Exhibit D-2 Lanikuhonua Parking Lot Expansion Approval Requirements
DLU Letter Dated September 15, 1994
- Exhibit D-3 Lanikuhonua Zoning Variance Approval (94/VAR-70)
DLU Letter Dated March 23, 1995
- Appendix E Letter Report On Lanikuhonua Parking Lot Expansion**
Prepared By: AECOS
-
-

SECTION 1.0 INTRODUCTION

1.1 PURPOSE FOR REPORT

This document was prepared for The Estate of James Campbell (Campbell Estate) to satisfy informational requirements and serve as the application for three permits with the City and County of Honolulu (City) to allow the construction of parking lot improvements and other modifications proposed at Lanikuhonua in the Ko Olina Resort. Furthermore, this single document was prepared to allow for the concurrent processing of all permit applications being applied for.

The existing parking lot at Lanikuhonua is proposed to be expanded by adding 264 parking spaces consisting of 203 stalls for visitors to the adjacent Paradise Cove and 61 stalls for visitors to Lanikuhonua. This expansion would increase the parking lot from 165 stalls to a total of 429 stalls for visitors to these sites.

It should be noted that the present condition of the graveled parking lot provides for only 150 stalls. However, plans recently approved by the City Department of Land Utilization (DLU) in their letter dated June 2, 1995 would allow the addition of 15 stalls for public parking and the paving of these 165 stalls. Thus, the approved plans for the 165 stalls are used as existing conditions under this document. A copy of this letter is included as Exhibit D-1 of Appendix D.

This application is being filed for the following permits some of which have been prepared in compliance with a letter from DLU dated September 15, 1994 regarding the proposed parking lot project. A copy of this letter is included as Exhibit D-2 of Appendix D.

1. Existing Use Permit - An Existing Use Permit (EUP) for Lanikuhonua is being sought to designate the site as a "Meeting Facility" under the City's Land Use Ordinance (LUO).
2. Minor Modification to Existing Use - Concurrent with the approval of the EUP designating Lanikuhonua as a Meeting Facility use, a "Minor Modification" to the EUP is being sought to allow the addition of 264 parking stalls to this site. In addition, a Minor Modification is being sought to increase the maximum number of guests allowed during a function from 600 to 1,000 individuals.

3. Special Management Area Use Permit - A Special Management Area Use Permit (SMP) is sought for Lanikuhonua to allow the expansion of the parking lot since the site is located within the City's Special Management Area. The improvements are subject to environmental review stipulated under Chapter 25, Revised Ordinance of Honolulu (ROH).

Due to the project's relationship with these various permits, a single document was prepared to serve as the application and concurrent processing of these three permits. Therefore, this document serves as the *Final Environmental Assessment (Final EA)* for the SMP, and contains informational requirements for the EUP and Minor Modification to the EUP applications. A previous document was filed with the City in July 1995 which served as the *Draft Environmental Assessment (Draft EA)* for the subject project. Subsequently, comments received on the Draft EA during the 30-day comment period along with responses were incorporated into this application under Appendix A. Table 1.1 provides summary information on the project.

1.2 BACKGROUND ON PERMIT REQUIREMENTS

1.2.1 Existing Use Permit

The purpose of an EUP is to serve as a type of "grandfather" provision recognizing hardship imposed upon uses that were legally established, but became non-conforming due to changes made with the adoption of the LUO. The initial development of Lanikuhonua was approved in 1985 as a Conditional Use Permit (85/CUP-4) for an "Outdoor Recreation and Amusement Facility" under the provisions of the Comprehensive Zoning Code in place then.

With the adoption of the LUO, the uses at Lanikuhonua now more appropriately fall under the LUO's land use definition of a "Meeting Facility." Therefore, an EUP for Lanikuhonua is necessary to recognize the classification of the development as a Meeting Facility under the LUO. Furthermore, approval of the EUP allows consideration of other improvements at Lanikuhonua for uses allowed under the Meeting Facility definition, such as the proposed parking lot expansion. Information detailing the site's existing uses as required under the EUP application are provided under Section 3.0.

Table 1.1 Summary Information

Project Name:	Lanikuhonua Improvements
Applicant:	The Estate of James Campbell Campbell Building 1001 Kamokila Boulevard Kapolei, Hawaii 96707
Agent:	William E. Wanket, Inc. Kapolei Building, Suite 320 1001 Kamokila Boulevard Kapolei, Hawaii 96707
Application Request:	Application for the following permits: 1. Special Management Area Use Permit 2. Existing Use Permit 3. Minor Modification to Existing Use Permit
Approving Agency:	Department of Land Utilization
Land Ownership:	The Estate of James Campbell
Tax Map Key:	9-1-57:22 29
Land Area:	Parking Lot Site: 3.2 acres, Lanikuhonua Total: 10.8 acres
State Land Use:	Urban
City Development Plan:	Park and Recreation
City Zoning:	AG-2, General Agricultural District
SMA District:	Yes
Existing Permits:	Special Management Area Use Permit (Resolution 85-396) Conditional Use Permit (85/CUP-4) Zoning Variance (94/VAR-70) SMP Minor Modification (85/SMA-16) CUP Minor Modification (85/CUP-4)

1.2.2 Minor Modification To Existing Use

A "Minor Modification" to the Existing Use Plan (EU-Minor Modification) is requested under this document to allow: 1) the expansion of the current parking lot at Lanikuhonua, and 2) increase the number of guests allowed during functions held there.

The presently allowed 165 parking stalls would be increased by 264 more stalls for visitors to both the adjoining Paradise Cove development (203 stalls) and Lanikuhonua (61 stalls). These additional stalls proposed for Paradise Cove visitors on Lanikuhonua are part of plans previously approved by DLU for the Paradise Cove Redevelopment project in 1993. This redevelopment project was granted a new SMP (Resolution 93-318) and Conditional Use Permit (93/CUP2-7) which are discussed under Section 1.2.4. In conformance with these approved plans, a Zoning Variance for Lanikuhonua (discussed in Section 1.2.4) was also approved to allow these additional Paradise Cove parking spaces to be located off-site at Lanikuhonua.

In accordance with existing conditions placed on Lanikuhonua under the City's Finding's of Fact, Conclusion of Law, and Decision and Order (85/CUP-4), the capacity of the property is limited to a maximum of 600 guests. Upon approval of the EUP being applied for, this condition would similarly be applicable. Therefore, the EU-Minor Modification is intended to increase this limit to a maximum of 1,000 guests at Lanikuhonua. This increase in guest limit is necessary due to the growing popularity and use of the site by Hawaiian and community groups, and is discussed in greater detail under Section 2.3.

Under the City's LUO, applicants that have received an EUP may apply for an EU-Minor Modification if they would like to modify the approved plan. Modifications to the Existing Use Plan are classified by DLU as either minor or major depending upon the modification's potential impact on surrounding land uses. This document thus provides DLU with supplemental information for their processing of the EU-Minor Modification application. The results of the assessment conducted under this document warrant a "Minor" classification due to a finding that the parking lot expansion and activities conducted would have minimal, if any, impact on surrounding land uses.

1.2.3 Special Management Area Use Permit

Under Chapter 205A (Coastal Zone Management) of the HRS, the City is given authorization to regulate land uses located within the established Special Management Area (SMA) for the island of Oahu. Based upon the City's Flood and SMA map for Ewa, the Lanikuhonua property is situated within the SMA boundary. As a result, the proposed parking lot improvements are subject to DLU's permitting requirements established under Chapter 25 of the Revised Ordinance of Honolulu. A SMP (Resolution 85-396) was previously granted for the present Lanikuhonua development in 1985.

In accordance with a September 15, 1994 letter from DLU, the parking lot expansion was determined to require a SMP since the project costs would exceed \$125,000. An Environmental Assessment was thus required as part of the SMP application requirements. This document therefore serves as the Final EA prepared in compliance with the SMP application requirements, and the findings herein support the issuance of a Negative Declaration. A Draft EA was previously filed with the City in July 1995 and first published in the August 7, 1995 Office of Environmental Quality Bulletin for public comments. Comments received on the Draft EA along with responses provided are included under Appendix A of this document.

1.2.4 Other Related Permit Applications

In addition to the three permits being applied for under this single document, there are other permit requirements associated with the parking lot project which have been approved by DLU. These related requirements include a Zoning Variance and Minor Modification to a SMP for Lanikuhonua, and a Conditional Use Permit (CUP) and SMP for Paradise Cove. A brief background on these permits is provided below.

1.2.4.1 Other Permits Associated With Lanikuhonua

A Minor Modification to an approved SMP (Resolution 85-396) and Conditional Use Permit (85/CUP-4) for Lanikuhonua was approved by DLU on June 2, 1995 in accordance to their September 15, 1994 letter. Both letters are included in Appendix D. Subsequently, these Minor Modifications allow the existing 150 stall graveled parking lot to be paved and increased by 15 stalls for public beach access parking.

A Zoning Variance for Lanikuhonua (94/VAR-70) was approved on March 23, 1995 (Exhibit D-3, Appendix D) allowing the proposed 203 stalls for Paradise Cove visitors to be located on the Lanikuhonua site. Under the AG-2 zoning for Lanikuhonua, off-site parking for visitors to the adjacent Paradise Cove site are not permitted as a Principal or Conditional Use. Thus, a Zoning Variance pertaining to "Use" regulations for Lanikuhonua was obtained for the parking lot expansion.

1.2.4.2 Other Permits Associated With Paradise Cove

The plan to provide 203 parking stalls on the Lanikuhonua site for use by visitors to Paradise Cove was approved by DLU as part of previous permits granted to West Beach Estates for Paradise Cove in 1993. These permits were issued for the redevelopment and expansion of existing commercial facilities and uses, and consisted of a Conditional Use Permit, Type 2 (93/CUP2-7) and SMP (Resolution 93-318). Thus, the Final EA and applications included within this document are intended to fulfill the remaining permit requirements associated with the approved redevelopment of Paradise Cove.

SECTION 2.0 PROJECT DESCRIPTION

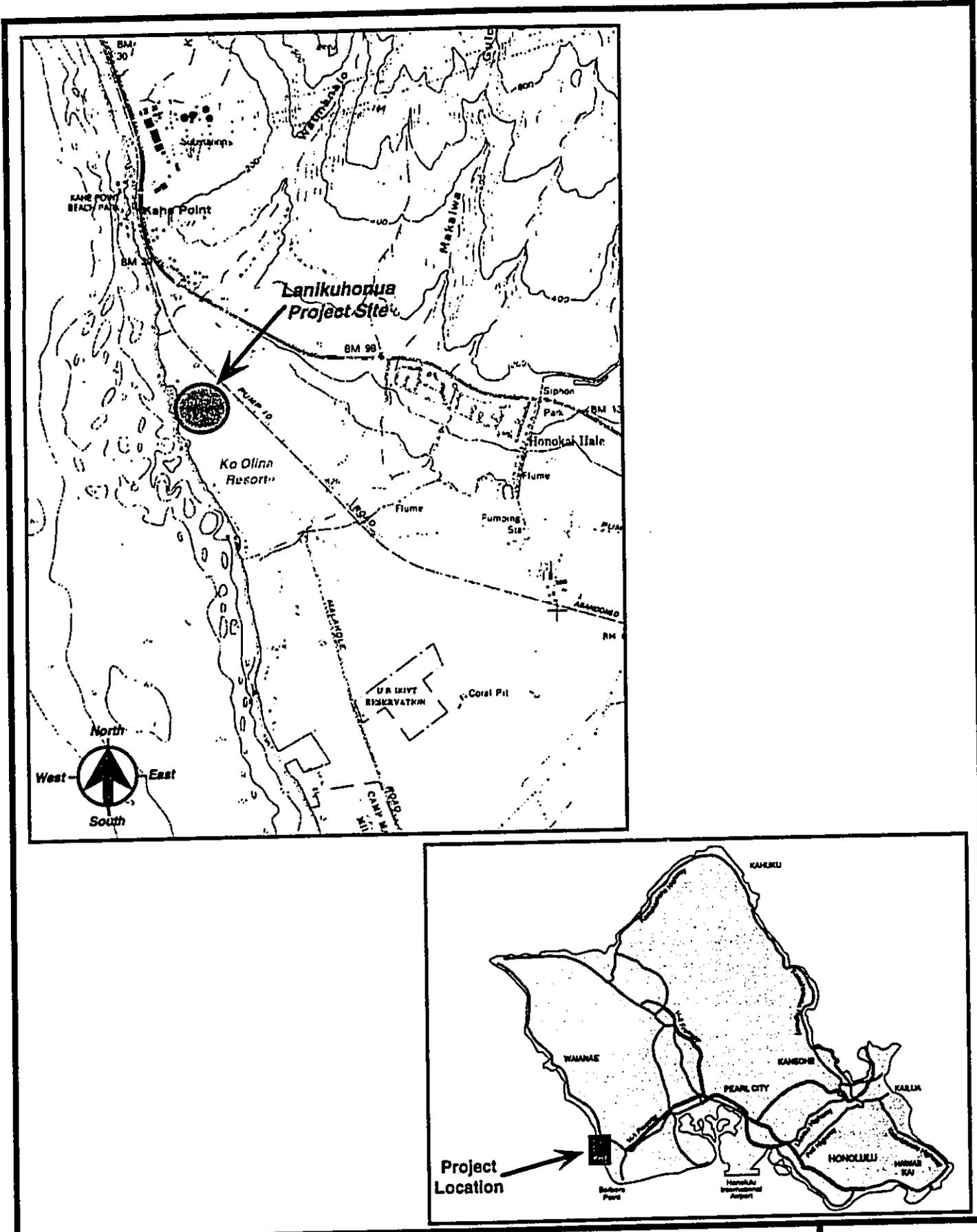
2.1 PROJECT LOCATION AND VICINITY

Lanikuhonua is located within the Ko Olina Resort which is on the southwestern end of the island of Oahu in the recently established Kapolei District (formerly Ewa Beach). The Ko Olina Resort is being developed in phases as a resort to serve as the primary visitor destination area in the Kapolei district, and encompasses a land area of approximately 640 acres. Figure 2.1 shows the general location of Lanikuhonua while Figure 2.2 shows the project site in relation to the Ko Olina Resort.

Lanikuhonua is situated just past the main entrance into the resort area between Paradise Cove and the Ihilani Resort. This site encompasses an area of about 10.8 acres generally bounded by the shoreline to the west, Paradise Cove and Aliinui Drive to the north, and the Ihilani Resort to the east. The parking lot expansion would be situated entirely on the Lanikuhonua site which is identified under Tax Map Key 9-1-57: 27. The parking lot improvements would encompass about 3.2 acres of this site which is situated predominantly on the northeastern end of Lanikuhonua. Figures 2.3 and 2.4 show the proposed Site Plan and Grading Plan, respectively, for this project.

2.2 DESCRIPTION OF PROJECT IMPROVEMENTS

A total of 264 additional parking stalls are proposed to be constructed which would increase the entire Lanikuhonua parking lot to a total of 429 stalls from the existing 165 stalls. Of the 264 additional stalls, 203 stalls would be used for visitors to the adjacent Paradise Cove development and 61 stalls would be for visitors to Lanikuhonua. The additional parking created would consist of both full-sized stalls, compact stalls, and handicapped stalls. Table 2.1 provides a breakdown of both existing and proposed parking stalls for Lanikuhonua by each type. All parking stalls would be constructed in accordance with the development standards and requirements specified under the City's *Land Use Ordinance* (DLU 1994).



WILLIAM
E.
WANKET
INC.
Land Use Consultant

Source:
USGS Ewa
Quadrangle (1983)

Project Location Map

**Figure
2.1**

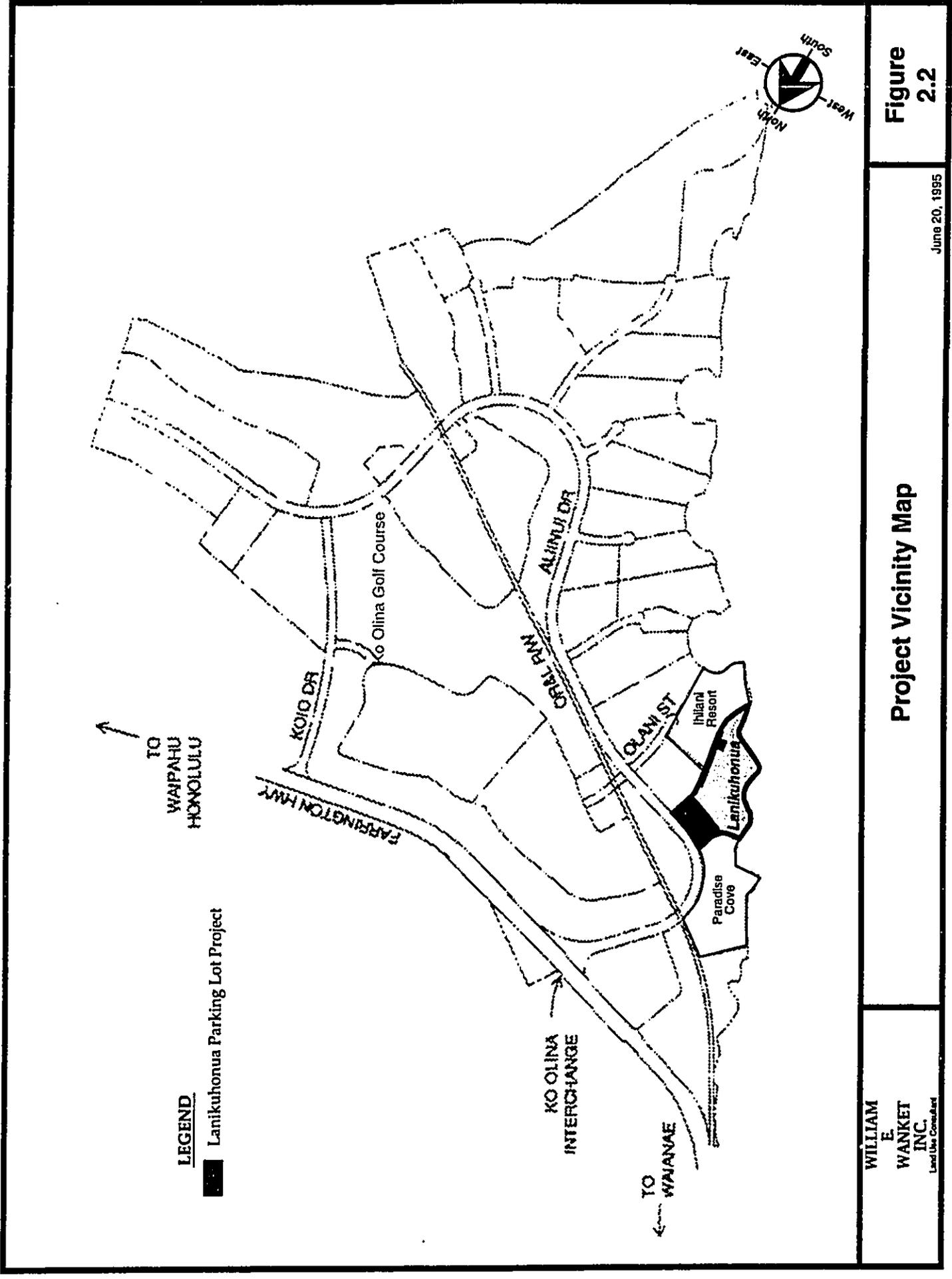
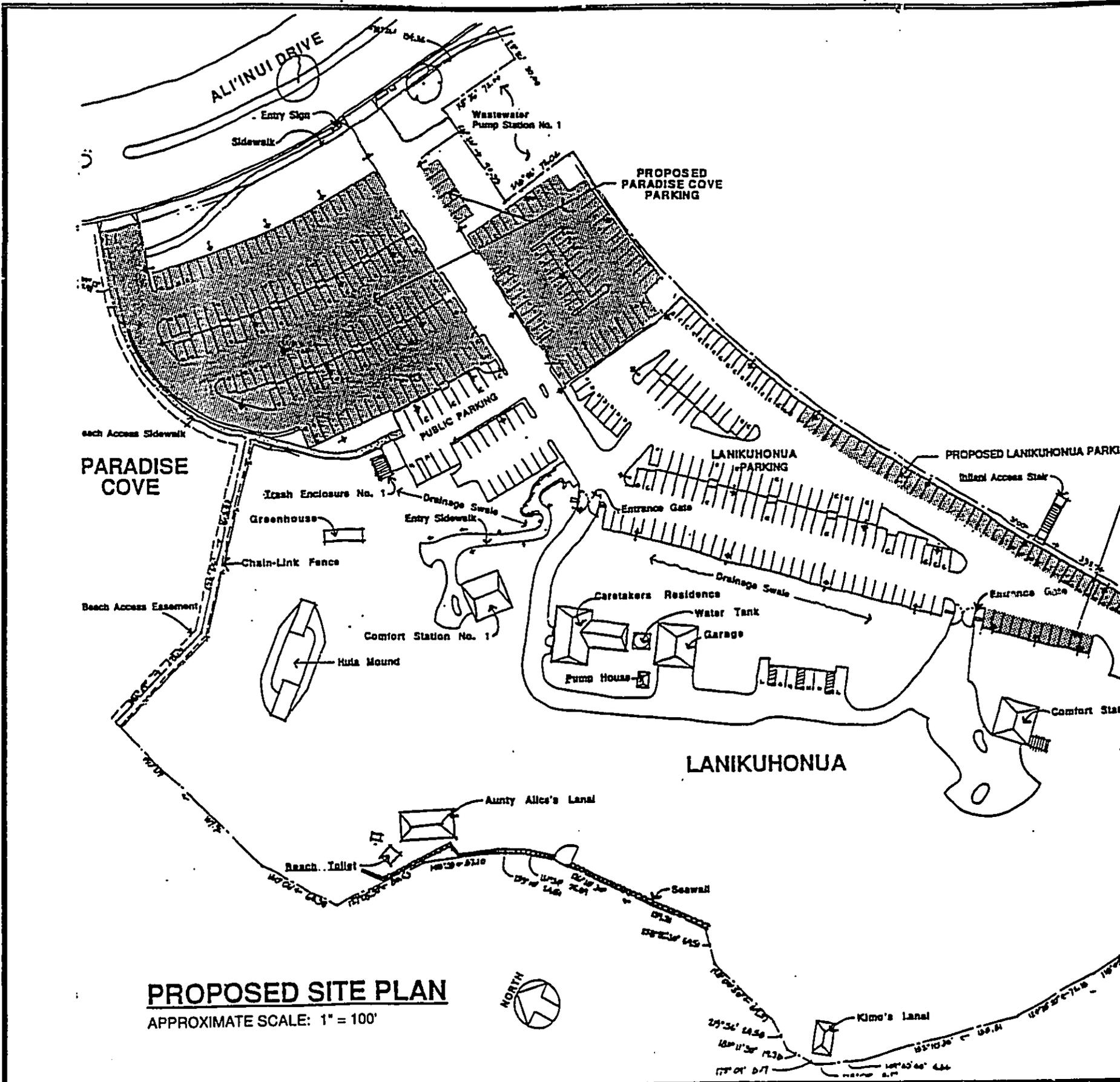


Figure 2.2

Project Vicinity Map

WILLIAM E. WANKET, INC.
 Land Use Consultant

June 20, 1995



PROPOSED SITE PLAN
 APPROXIMATE SCALE: 1" = 100'

WILLIAM
 E.
 WANKET
 INC.
 Land Use Consultant

Source:
 Kauahikaua & Chun Architects

Proposed Lanikuhonua Parking Lot S

EXISTING PARKING SUMMARY

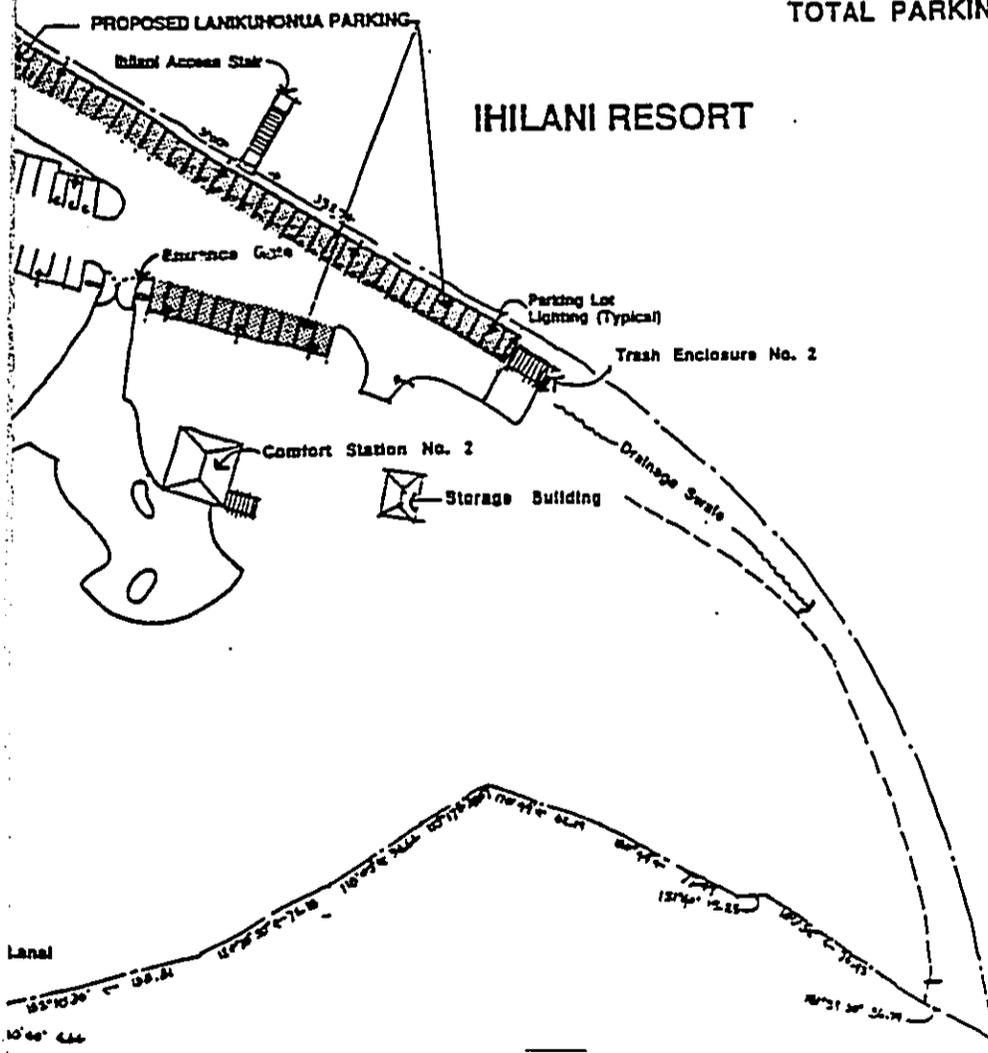
LANIKUHONUA:	Full Size Stalls (8.5' x 19')	104	
	Compact Stalls (7.5' x 15')	40	(27%)
	Handicapped Stalls	4	
	Loading Stalls	2	
LANIKUHONUA SUB-TOTAL		150	
PUBLIC PARKING:	Full Size Stalls (8.5' x 19')	9	
	Compact Stalls (7.5' x 15')	4	(25%)
	Handicapped Stalls	2	
PUBLIC PARKING SUB-TOTAL		15	

TOTAL EXISTING PARKING PROVIDED 165

PROPOSED PARKING SUMMARY

PARADISE COVE:	Full Size Stalls (8.5' x 19')	137	
	Compact Stalls (7.5' x 15')	64	(32%)
	Handicapped Stalls	2	
PARADISE COVE PARKING SUB-TOTAL		203	
LANIKUHONUA:	Full Size Stalls (8.5' x 19')	42	
	Compact Stalls (7.5' x 15')	19	(28%)
LANIKUHONUA PARKING SUB-TOTAL		61	

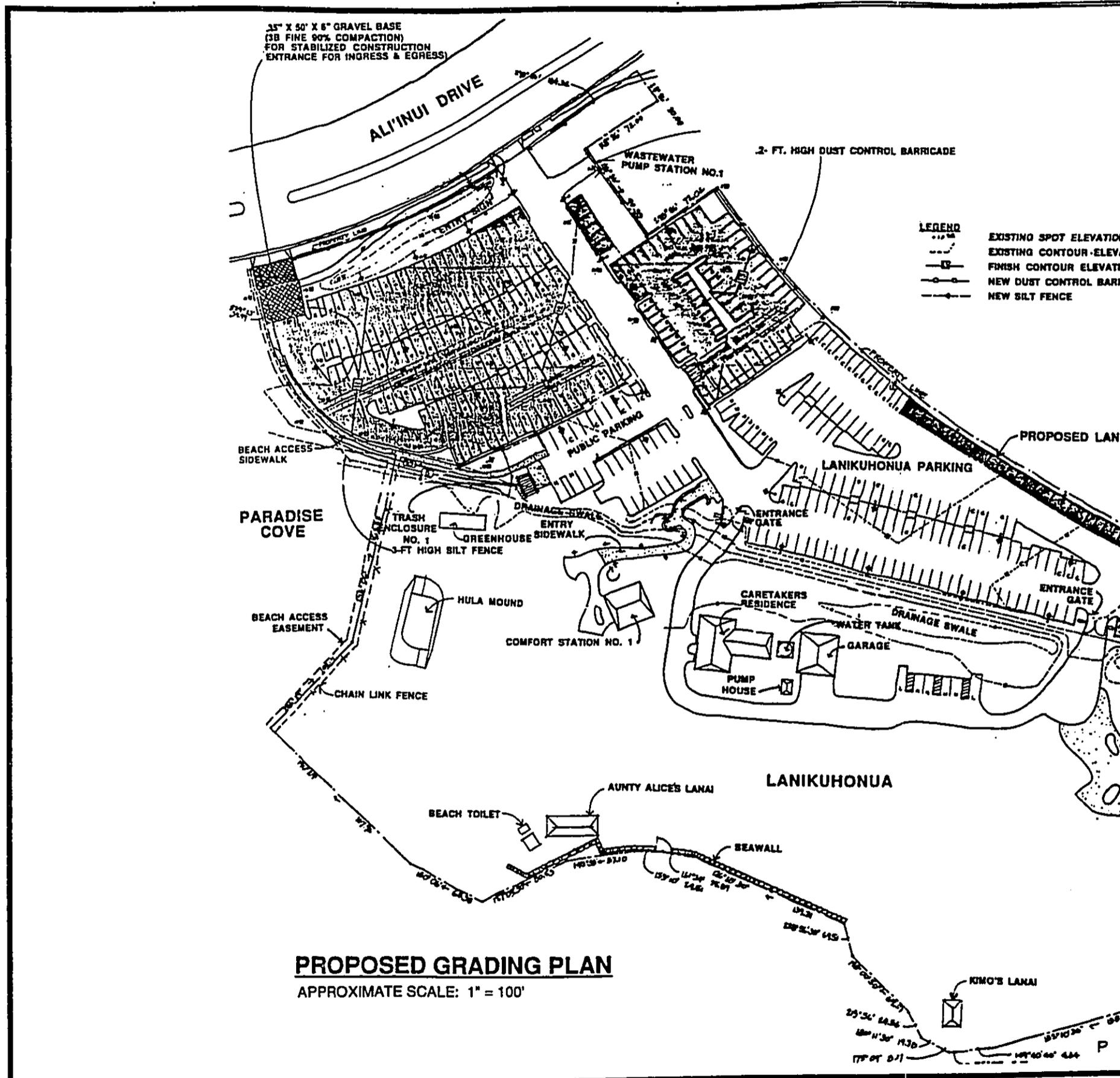
TOTAL PARKING TO BE PROVIDED 429



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 CITY AND COUNTY OF HONOLULU

Lanikuhonua Parking Lot Site Plan

Figure 2.3



WILLIAM
 E.
 WANKET
 INC.
 Land Use Consultant

Source:
 Kauahikaua & Chun Architects

Proposed Parking Lot Grading P

Description Of Stalls By Type	Lanikuhonua	Paradise Cove	Public Parking
Existing Parking Stalls			
Full Size Stalls	104		9
Compact Stalls	40		4
Handicapped Stalls	4		2
Loading Stalls	2		0
Total Existing Stalls	150	0	15
Proposed Parking Stalls			
Full Size Stalls	42	137	
Compact Stalls	19	64	
Handicapped Stalls	0	2	
Total Additional Stalls	61	203	0
Total Parking Stalls Provided	211	203	15

As shown on the Site Plan (Figure 2.3), the parking stalls for Paradise Cove would be situated on the northeast corner of the parking lot near the entrances from Aliinui Drive. This parking area would consist of a multi-laned 90 degree parking design. This location would provide easy access and a short walking distance for visitors to Paradise Cove from the parking lot. The compact parking stalls are generally interspersed with the full-sized stalls, and the two handicapped stalls would be located close to the Paradise Cove entrance along Aliinui Drive.

The 61 stalls proposed for visitors to the Lanikuhonua site and facilities are predominantly located in a single row along the western boundary of the parking lot next to the Ihilani Resort. As shown on Figure 2.3, a few other stalls would be located in the southern corner of the parking lot near one of the two entrances to Lanikuhonua's facilities. These additional stalls would increase the total number of spaces available for Lanikuhonua visitors to 211 parking stalls.

Vehicular Entrance

Two vehicular driveway entrances from Aliinui Drive would be provided for the Lanikuhonua parking lot. One entrance would be located adjacent to Paradise Cove at the northern corner of the parking lot. This entrance would allow the two-way flow of traffic entering or exiting the parking lot from Aliinui Drive. Thus, left-turns into or out of the parking lot onto Aliinui Drive would be permitted.

The second parking lot entrance would be located east of the first entrance near the resort's Wastewater Pump Station Number 1. Vehicular access onto Allinui Drive from this entrance would be limited to only right-turns into and right-turns out of the parking lot due to the existing raised median along Allinui Drive.

Public Easement For Shoreline Access

As part of this project, a new public easement would be provided through the parking lot to the public parking area allowing public access the shoreline via the existing public easement located between Paradise Cove and Lanikuhonua. Figure 2.5 shows this public easement which encompasses a portion of the driveway entrance into Lanikuhonua from Aliinui Drive. From this public parking area, a 5-foot-wide public easement for pedestrian traffic would extend to the existing public access to allow individuals to reach the shoreline. Appropriate signage for these public easements and parking area would be provided in conformance with City standards and regulations, and subject to the review and approval of the Department of Parks and Recreation.

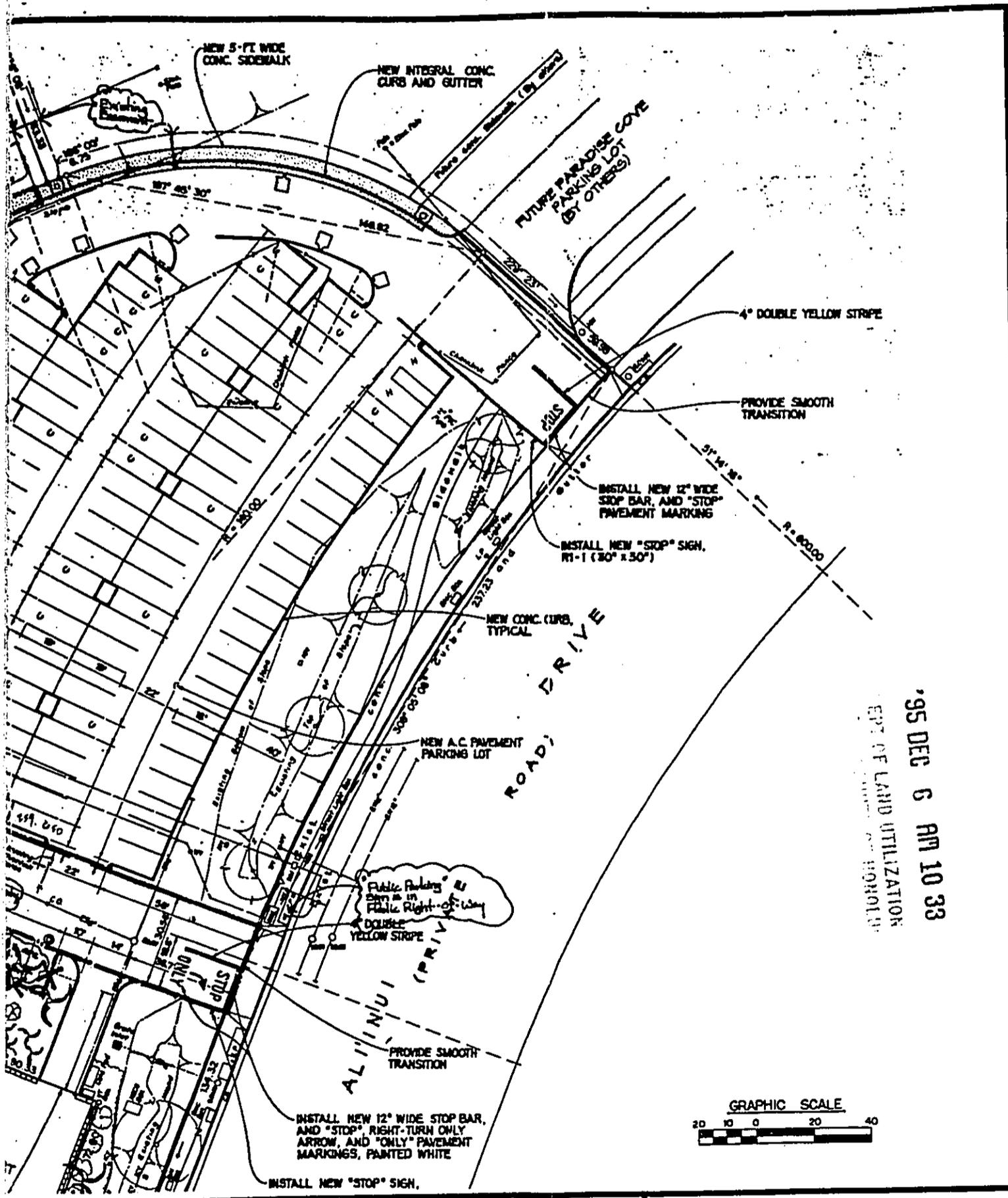
During construction activities, the existing public easement to the shoreline between Paradise Cove and Lanikuhonua would be kept open, and pedestrian access to this easement would be provided. If in the event, construction activities require the temporary closing of this beach access, an alternative route would be provided.

Landscaping Plans

The parking lot would be landscaped in accordance with requirements specified under the *Land Use Ordinance* and other applicable City regulations. A Landscape Plan is shown under Figure 2.6. Under this Landscaping Plan, most of the current landscaping on the parking lot would remain while medians would be grassed with Common Bermuda Grass, and Wiliwili and True Kou trees planted.

Drainage Improvements

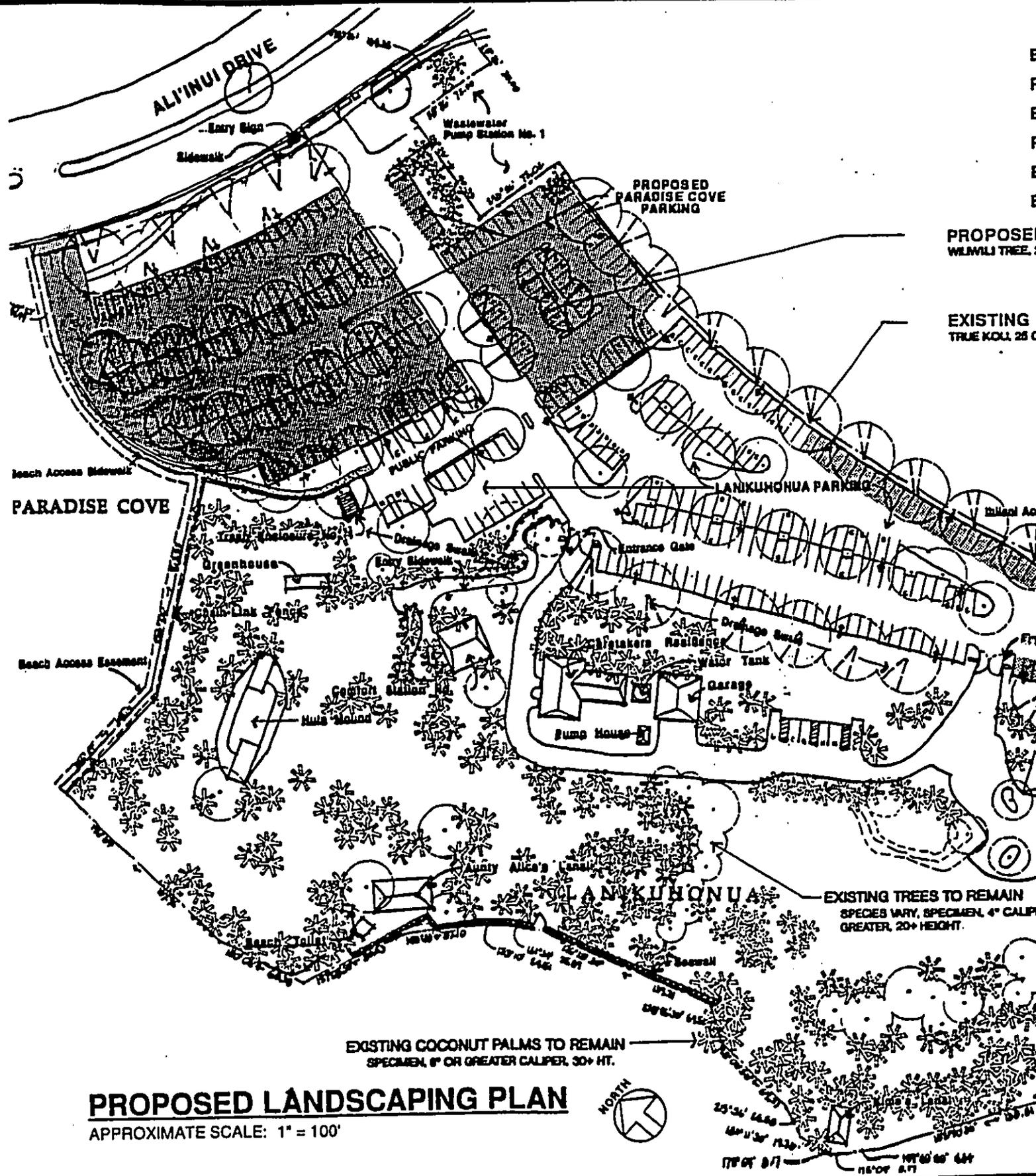
A drainage plan was prepared and approved by the City Department of Public Works (letter dated 4/20/95) to address improvements necessary for the entire Lanikuhonua parking lot site. This Drainage Plan is shown on Figure 2.7, and the accompanying report prepared by William Dean Alcon and Associates and letter are included in Appendix B of this document. Further details of this plan are discussed in Section 4.4.2.



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 HONOLULU

Parking Access Easement

Figure 2.5



PROPOSED LANDSCAPING PLAN

APPROXIMATE SCALE: 1" = 100'

WILLIAM
E.
WANKET
INC.
Land Use Consultant

Source:
Kauahikaua & Chun Architects

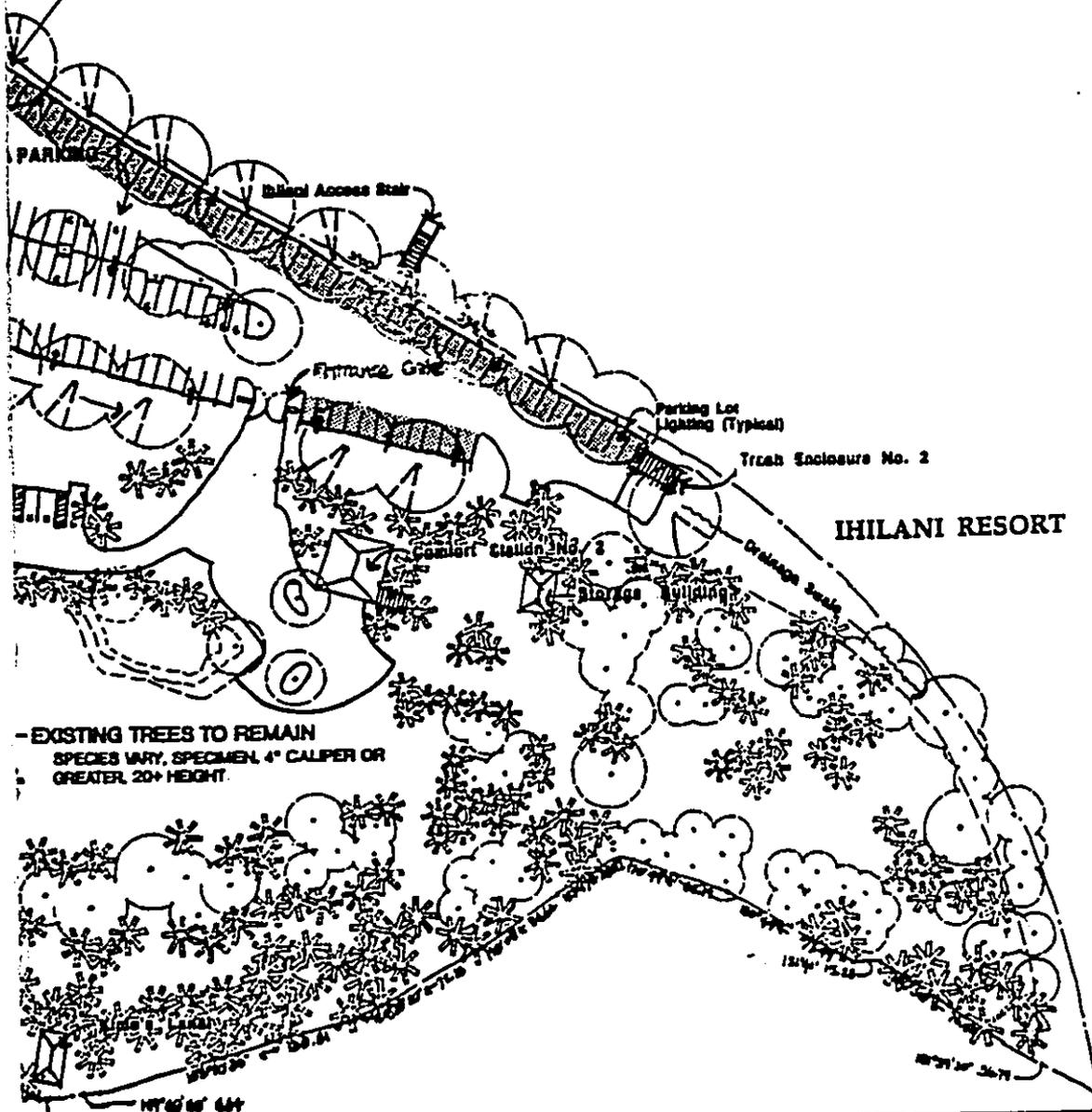
Proposed Landscaping Plan

LEGEND

- EXISTING MEDIUM CANOPY TREE (circle with a dot)
- PROPOSED MEDIUM CANOPY TREE (circle with a cross)
- EXISTING LARGE CANOPY TREE (circle with a vertical line)
- PROPOSED LARGE CANOPY TREE (circle with a diagonal line)
- EXISTING TREES TO REMAIN (circle with a star)
- EXISTING COCONUT PALMS TO REMAIN (circle with a palm frond)

PROPOSED MEDIUM CANOPY TREES
 WILMUTI TREE, 25 GALLON, 2" CALIPER, 8' - 10' HT.

EXISTING LARGE CANOPY TREES TO REMAIN
 TRUE KOU, 25 GALLON, 2" CALIPER, 8' - 10' HT.



- EXISTING TREES TO REMAIN
 SPECIES VARY, SPECIMEN 4" CALIPER OR
 GREATER, 20+ HEIGHT

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 HONOLULU

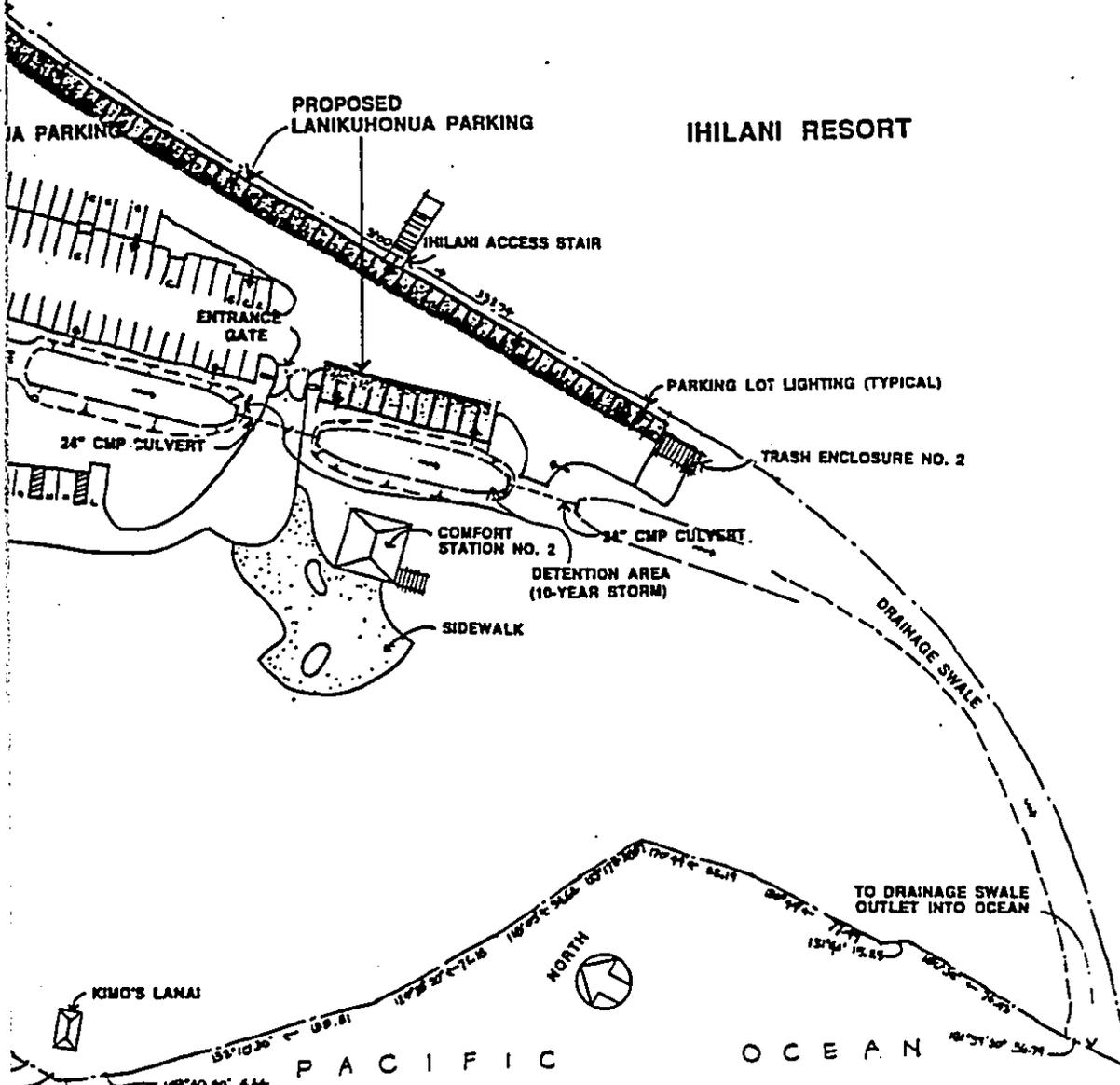
Landscaping Plan

Figure 2.6

COVE PARKING

LEGEND

-  DRAIN HEADWALL
-  DIRECTION OF DRAINAGE FLOW
-  CATCH BASIN
-  PARKING LOT LIGHTING
-  EXISTING DRAINLINE



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ing Lot Drainage Plan

Figure 2.7

Presently, the entire parking lot is divided into two drainage areas which allow surface runoff to sheet flow either into the City's drainage system along Aliinui Drive or into an unlined drainage swale. This drainage swale generally runs through the center of the Lanikuhonua property in a north-south direction and represents the western boundary of the parking lot site. Under the approved drainage plan, the two existing drainage areas would be modified such that one area would serve the Lanikuhonua visitor parking area (Drainage Area "A") while the second would serve the public parking and new Paradise Cove visitor parking area (Drainage Area "B").

Drainage Area "A" would encompass a 1.22-acre area on the southern half of the parking lot site. This paved parking area would be sloped to allow surface runoff to sheet flow into the existing drainage swale. To minimize discharge into the ocean, a detention basin would be provided near the south corner of the parking lot site to detain runoff.

Drainage Area "B" covers about 1.98 acres and would include an underground storm drain system with catch basins routed along with western end of this parking area. This paved parking area would also allow surface runoff to sheet flow into the drainage system which connects to the City's drainage system along Aliinui Drive. Portions of the runoff from this area would be detained within the underground storm drain system with some allowed to enter the City's drainage system.

2.3 PROJECT PHASING AND IMPLEMENTATION

Implementation of the project would consist of completing various phases which are: 1) environmental review and SMP process, 2) obtaining regulatory permits and approvals, and 3) construction of the parking lot. Consequently, completion of the proposed project is estimated to be sometime in late 1996. Construction costs for the project are estimated to be approximately \$1.0 million based upon \$3,800 per stall.

As previously discussed under Section 1.0, this document serves as the Final EA submitted as part of processing requirements for the SMP, and serves as applications for an EUP, and Minor Modification to the EUP. Upon completion of this environmental review through the issuance of a Negative Declaration within a month, a SMP from the City Council will be pursued which could take another four months to complete. Approval of the EUP and EUP-Minor Modification should be completed within this time period.

Upon receiving approvals for these three permits, design and construction plans for the parking lot would be finalized. Other necessary regulatory permits, such as a Building Permit, would be pursued before construction activities begin. Obtaining these permits and construction activities may take another 3 to 4 months before the parking lot is completed.

2.4 PROJECT NEED AND OBJECTIVES

2.4.1 Need And Objectives For Paradise Cove

The parking area proposed for Paradise Cove is needed to accommodate the existing and future projected increase in visitors to this entertainment facility. Therefore, the objective for this parking lot expansion is to assist in implementing the Paradise Cove redevelopment plan previously approved by the City Council under their Resolution 93-318 for a SMP and a Conditional Use Permit (93/CUP2-7) issued by DLU.

Under this redevelopment plan, the existing unpaved visitor parking area fronting Paradise Cove's entrance would be paved and used as a bus loading and unloading area. Consequently, the proposed parking area on Lanikuhonua would provide a new accessible and convenient vehicular parking area to supplement the bus parking area.

Under the approved redevelopment plan, Paradise Cove would also be able to accommodate anticipated increases in the number of visitors to the facility. Based upon projections discussed in the CUP application for Paradise Cove, the maximum number of luau guests being accommodated could increase from 1,000 in 1992 to 2,000 by the year 2005 (WEW 1993). As a result, about 185 visitor parking stalls were estimated to be needed in order to accommodate the projected visitors travelling by car. Consequently, the 203 stalls proposed would provide visitors with adequate parking.

2.4.2 Need And Objectives For Lanikuhonua

The additional parking stalls proposed for visitors to Lanikuhonua are needed to: 1) ensure that an adequate number of parking spaces are available for guests, and 2) make efficient use of otherwise unused space on the site. With the growing popularity of the Ko Olina Resort and availability of facilities for the public, an increase in the number of functions held at Lanikuhonua would be expected. As a result, an increased number of functions held for either Hawaiian cultural activities or social events by both private and community groups are likely to occur.

In 1992 and 1993, about 120 to 135 events were held annually at Lanikuhonua. Last year (1994) 150 events were held at this site which accommodated an annual estimate of over 28,500 guests. Thus, an average of over 12 functions a month are presently held at this site averaging about 190 guests per function. In addition, some functions were estimated to have been attended by as many as 500 guests which is within, but approaching, the 600 maximum guests allowed under the current CUP for the property. As can be seen, the popularity of Lanikuhonua has increased over the years resulting in more frequent use of the property and larger events. Therefore, the additional parking stalls proposed would help provide a comfortable number of spaces for visitors to the site.

With further development of the City of Kapolei, Ko Olina Resort, and Ewa region, it is anticipated that large events may eventually exceed the maximum number of guests (600) allowed under the existing CUP. Therefore, the Minor Modification to the CUP increasing the maximum number of guests allowed is necessary to alleviate limitations on the property's future use by Hawaiian and community groups. Furthermore, this Minor Modification to the CUP would be consistent with the EUP recognizing the property's use as a "Meeting Facility" applied for under this document.

SECTION 3.0 EXISTING SITE CONDITIONS

This section provides a description of the existing site conditions at Lanikuhonua which includes both the parking lot site and Lanikuhonua facilities along with a discussion of activities conducted there. This somewhat detailed description of Lanikuhonua is being provided to meet informational requirements associated with the EUP and EUP-Minor Modification applications.

3.1 LANIKUHONUA BACKGROUND

Lanikuhonua was once the residence of Alice Kamokila Campbell whose property consisted of 21.8 acres along the coastline. Campbell Estate is the current landowner and has leased 11.0 acres of the property to Paradise Cove while retaining the remaining 10.8 acres for Lanikuhonua. Lanikuhonua is leased to the non-profit organization Lanikuhonua Cultural Institute.

Lanikuhonua is a unique recreational attraction within the Ko Olina Resort, and functions as a privately-owned multi-purpose outdoor educational and entertainment facility. This site serves as a Hawaiian cultural activity center along with being a repository for Hawaiian arts, crafts, and artifacts from the Honouliuli area. Activities occurring at this site include non-profit recreational events, such as hula festivals, as well as group functions for both the community and private sector.

3.2 LANIKUHONUA SITE

The Lanikuhonua property has a lot area of 10.813-acres, and is somewhat triangular in shape with about 1,200 feet of shoreline frontage and a maximum elevation of 10 feet above sea level. The lot width and depth varies from a maximum of 480 feet by 1,360 feet. This shoreline property is densely vegetated with several coconut trees ranging from 10 to 60 feet in height along with several other types of trees and vegetation. Exhibits C-2 to C-4 of Appendix C (Site Photographs) include photographs taken of the site along with a location map (Exhibit C-1) identifying where the photographs were taken from.

The aerial photographs taken of Lanikuhonua in Exhibit C-2, including the proposed parking lot area, show the dense vegetation and trees landscaping the property. The shoreline property also has three coves somewhat protected by exposed reefs as shown in Exhibits C-3 and C-4. Open areas on the property used for activities are generally landscaped with grassed lawn as shown on Exhibit C-5 while other areas near the shoreline are covered with sand.

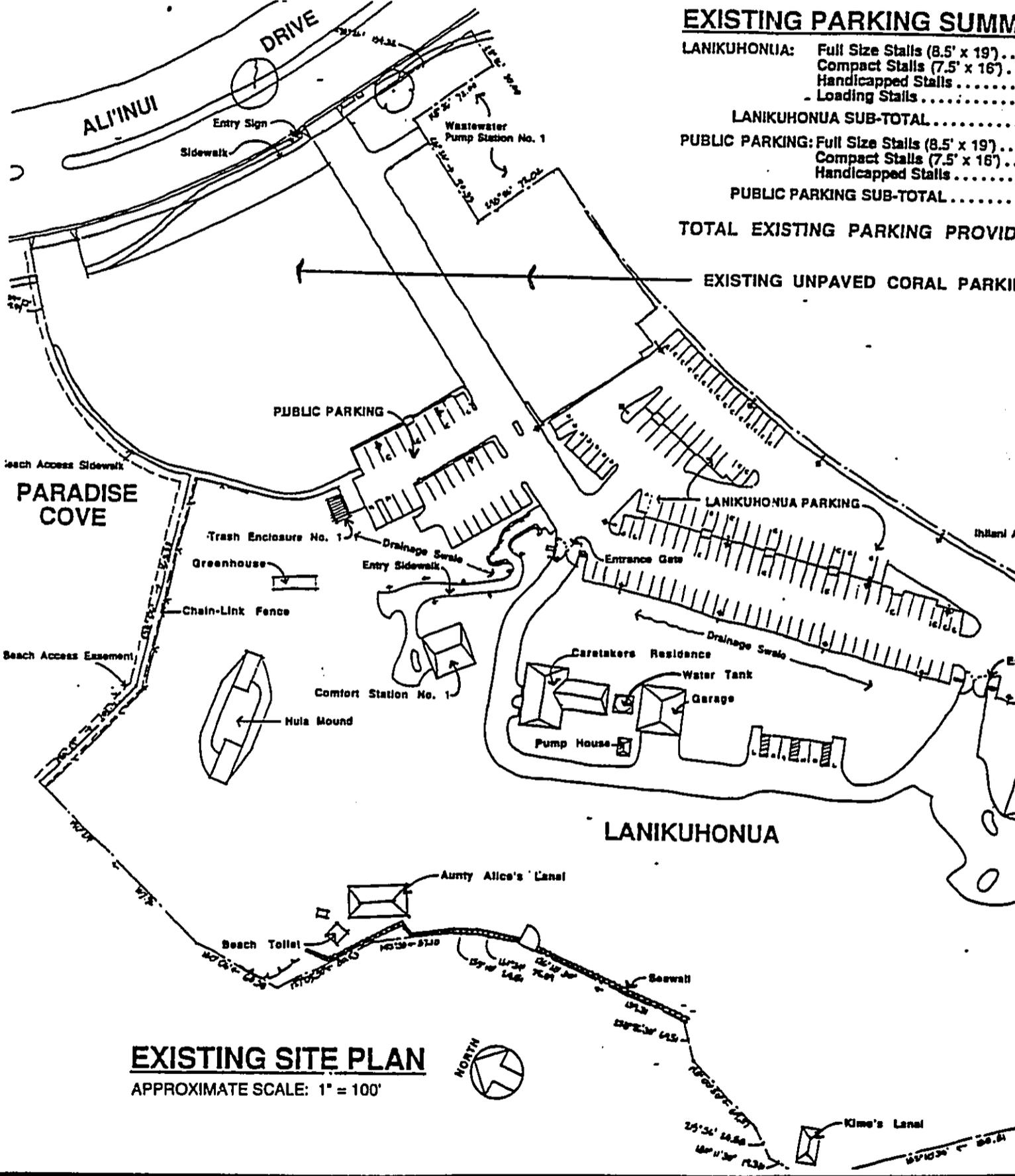
Under the LUO's development standards applicable to the AG-2 zoned property, a front yard setback of 15 feet, and side and rear yard setback of 10 feet are required. All building structures on the property have yard setbacks exceeding these minimum requirements. Building structures associated with Aunty Alice's Lanai and Kimo's Lanai are set back more than 10 feet from the shoreline (rear yard), while other structures on the property have front and side yard setbacks of well over 50 feet.

3.2.1 Existing Facilities

The existing facilities at Lanikuhonua generally consist of a few covered lanai areas for events, the caretaker's residence, comfort stations, storage areas, and two hula mounds. It should be noted that the existing facilities described in this section include the recently approved plans for the 165 stall parking lot which includes landscaping and new trash enclosures. This parking lot is discussed separately under Section 3.2.2. Exhibits C-6 to C-12 include photographs of these facilities and other features of the property. All buildings are single-story with a height of about 25 feet or less with the exception of the water tank.

Figure 3.1 shows a Site Plan of the existing facilities, and Table 3.1 provides a more detailed breakdown of these facilities along with approximate floor areas. As shown on this table, the total floor and building area of these structures is about 5,530 square feet which represents a little over 1 percent of the entire 10.8-acre property. Under the AG-2 zoning for this property, the maximum building area allowed is 10 percent of the lot or about 47,000 square feet (DLU 1994).

Landscaping for the site consists of existing landscaping and improvements permitted under the recently approved 165-stall parking plan. Figure 3.2 shows the Existing Landscaping Plan which includes improvements associated with the parking lot. Existing utilities serving the site include water lines, sewer lines, and underground electrical, cable, and telephone lines. Figure 3.3 shows the existing Site Utilities Plan for the property.



EXISTING PARKING SUMMARY

LANIKUHONUA:	Full Size Stalls (8.5' x 19')
	Compact Stalls (7.5' x 16')
	Handicapped Stalls
	Loading Stalls
LANIKUHONUA SUB-TOTAL
PUBLIC PARKING:	Full Size Stalls (8.5' x 19')
	Compact Stalls (7.5' x 16')
	Handicapped Stalls
PUBLIC PARKING SUB-TOTAL
TOTAL EXISTING PARKING PROVIDED

EXISTING SITE PLAN
 APPROXIMATE SCALE: 1" = 100'

WILLIAM E. WANKET INC.
 Land Use Consultant

Source:
 Kauahikaua & Chun Architects

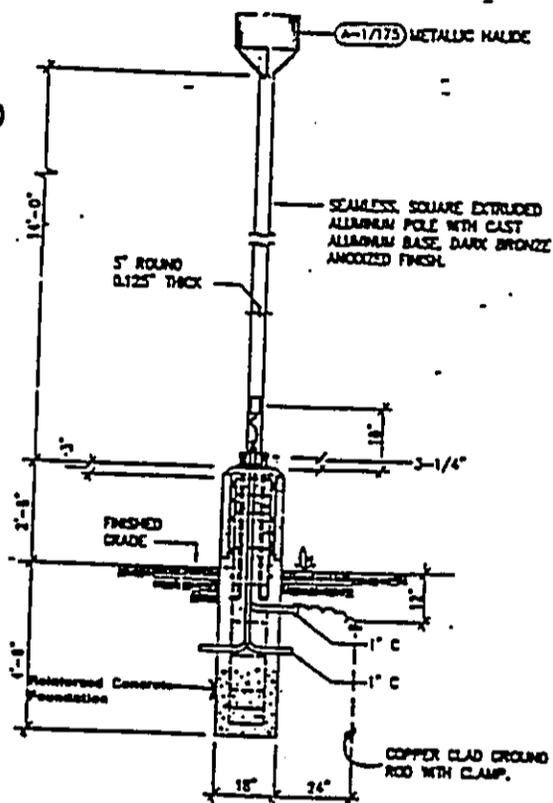
Existing Site Plan For Lanikuhonua

PARKING SUMMARY

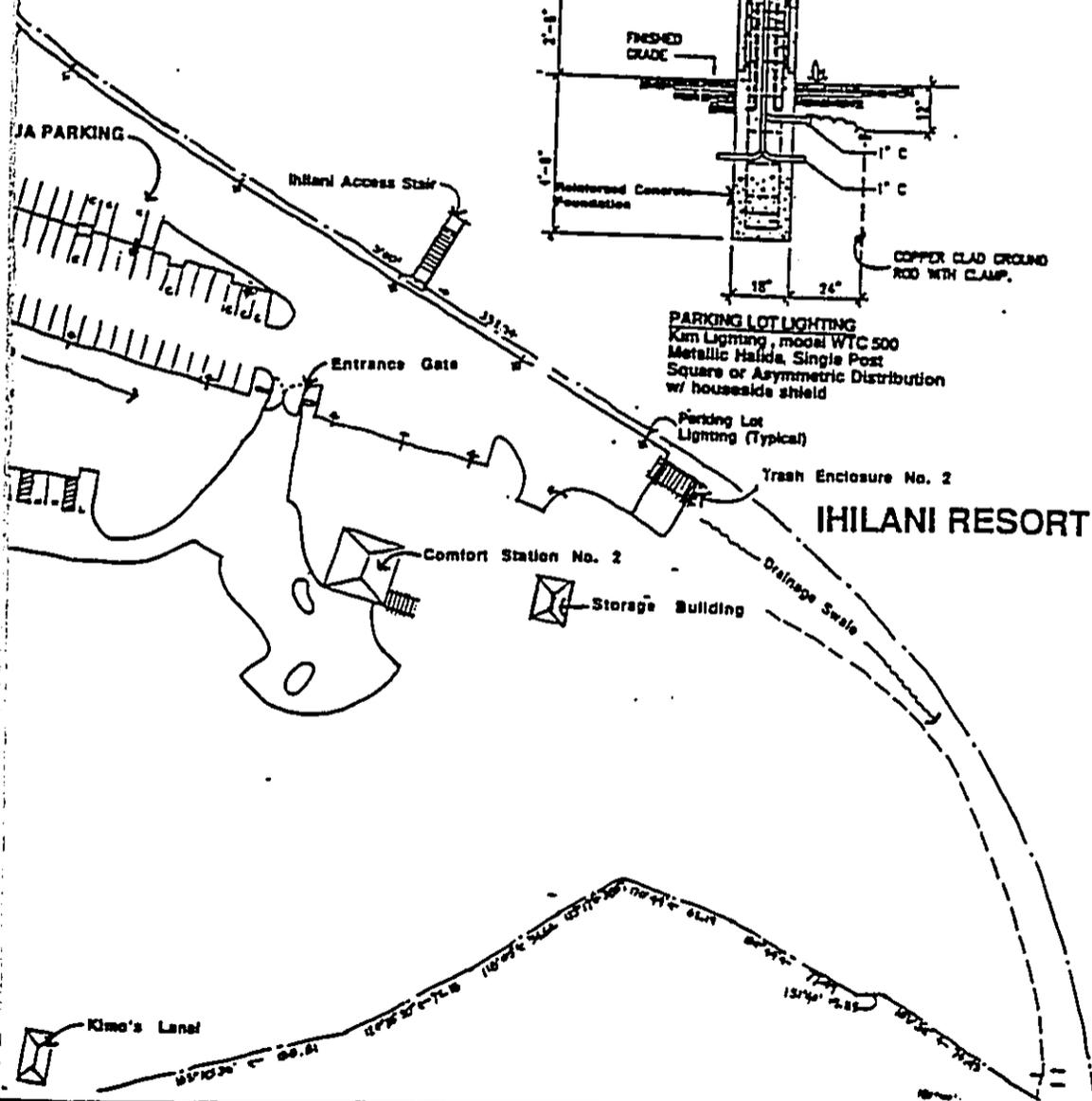
Full Size Stalls (8.5' x 19')	104	
Compact Stalls (7.5' x 16')	40	(27%)
Handicapped Stalls	4	
Loading Stalls	2	
IHLANUI SUB-TOTAL	150	
Full Size Stalls (8.5' x 19')	9	
Compact Stalls (7.5' x 16')	4	(26%)
Handicapped Stalls	2	
PARKING SUB-TOTAL	15	

STING PARKING PROVIDED 165

UNPAVED CORAL PARKING AREAS



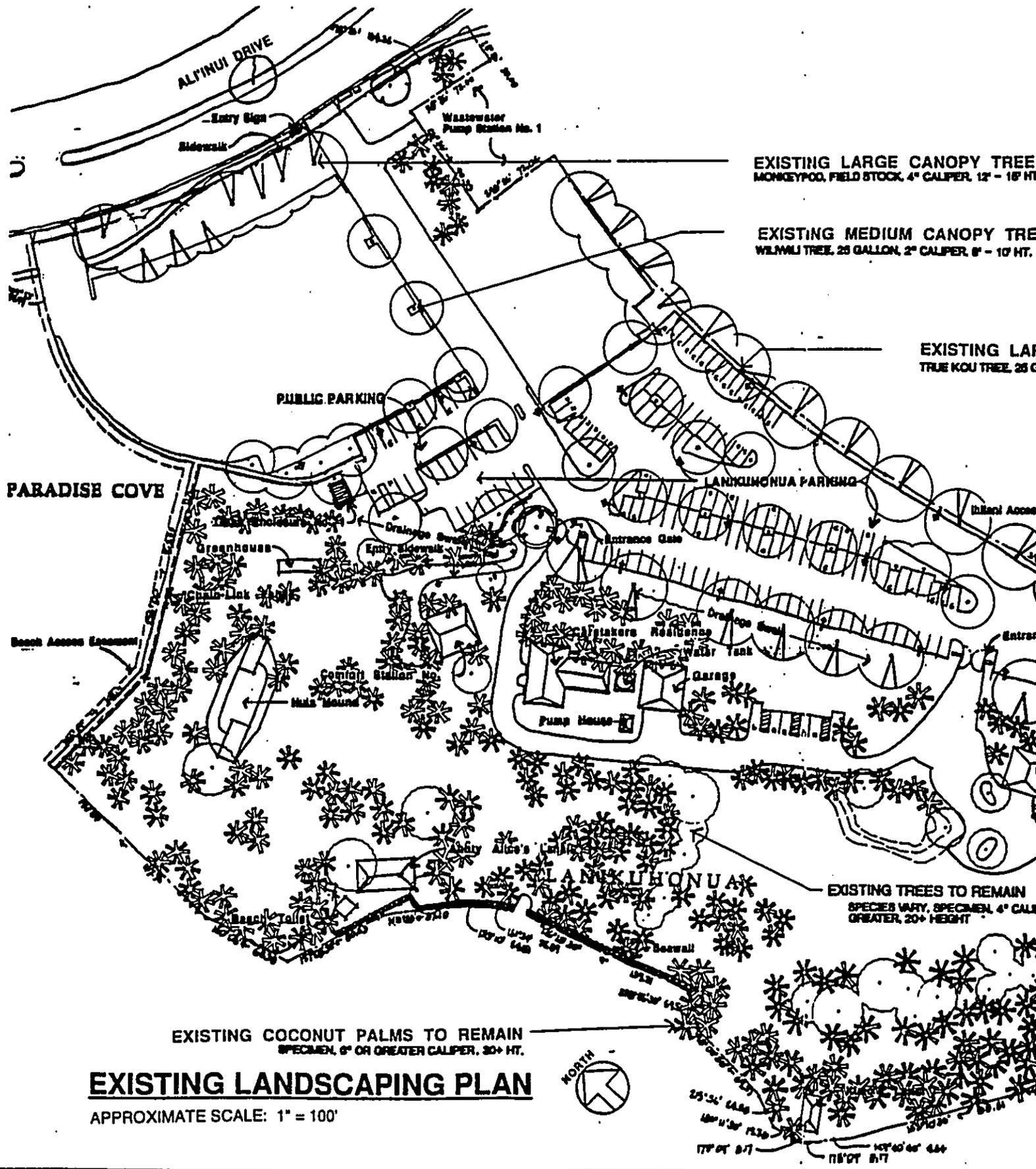
PARKING LOT LIGHTING
 Kim Lighting, model WTC 500
 Metallic Halide, Single Post
 Square or Asymmetric Distribution
 w/ house-side shield



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Plan For Lanikuhonua

Figure 3.1



EXISTING LARGE CANOPY TREE
MONKEYPOO, FIELD STOCK, 4" CALIPER, 12' - 15' HT.

EXISTING MEDIUM CANOPY TREE
WILLOW TREE, 25 GALLON, 2" CALIPER, 8' - 10' HT.

EXISTING LARGE CANOPY TREE
TRUE KOU TREE, 25 GALLON

PARADISE COVE

PUBLIC PARKING

LANIKUHOUUA PARKING

Beach Access Enclosure

Greenhouses

Compost Station No. 1

Maka Mound

Entrance Gate

Cafeteria Residence

Water Tank

Garage

Pump House

Alice's

LANIKUHOUUA

EXISTING TREES TO REMAIN
SPECIES VARY, SPECIMEN, 4" CALIPER OR GREATER, 20' HEIGHT

EXISTING COCONUT PALMS TO REMAIN
SPECIMEN, 6" OR GREATER CALIPER, 30' HT.

EXISTING LANDSCAPING PLAN

APPROXIMATE SCALE: 1" = 100'

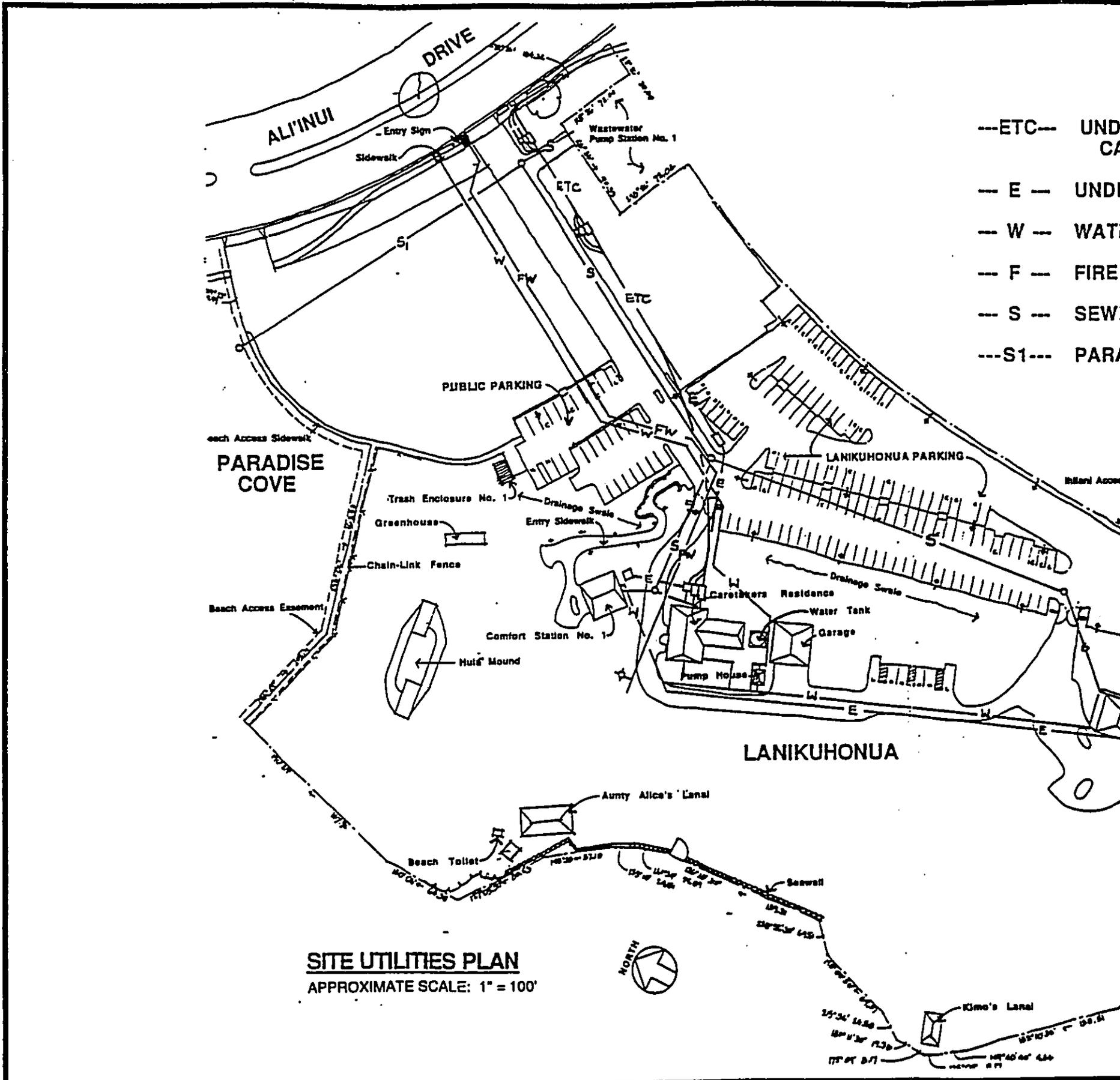


25° 34' 00" 644
140° 00' 00" 1330
177° 00' 00" 877
107° 00' 00" 644
118° 00' 00" 877

WILLIAM
E.
WANKET
INC.
Land Use Consultants

Source:
Kauahikaua & Chun Architects

Existing Landscaping Plan For Lanikuhouua'



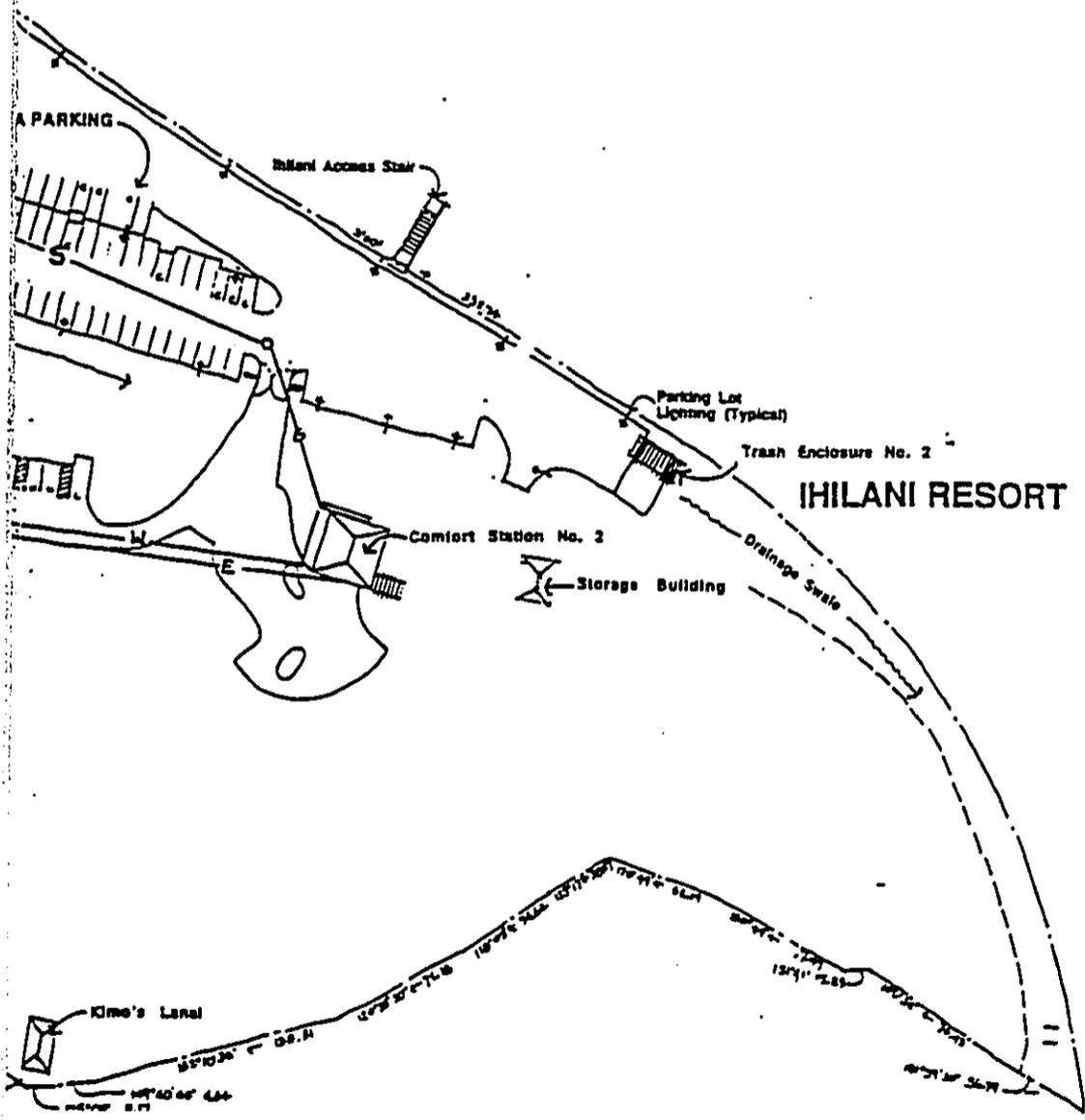
- ETC-- UNDERGROUND
- E -- UNDERGROUND
- W -- WATER
- F -- FIRE
- S -- SEWER
- S1--- PARADISE COVE

WILLIAM
E
WANKET
INC.
Land Use Consultants

Source:
Kauahikaua & Chun Architects

Existing Site Utilities Plan For Lanikuhonua

- ETC-- UNDERGROUND ELECTRICAL/ TELEPHONE/
CABLE TELEVISION SERVICE
- E -- UNDERGROUND ELECTRICAL SERVICE
- W -- WATER SERVICE
- F -- FIRE WATER SERVICE
- S -- SEWER SERVICE
- S1--- PARADISE COVE SEWER SERVICE.



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ies Plan For Lanikuhonua

Figure 3.3

Table 3.1 Description Of Existing Facilities				
Facility Description	Floor Area	Height	Year Built	Building Permit No.
A. Caretaker's Facilities				
Caretaker's Residence	1,560 sf	22' 6"	1985	209262
Garage	230 sf	16' 0"	1985	209262
Water Tank	N/A	42' 0"	N/A	N/A
Pump House	30 sf	10' 0"	1986	224284
B. Restroom Facilities				
Beach Toilet	40 sf	14' 0"	1983	185869
Comfort Station Number 1	580 sf	20' 6"	1986	224284
Comfort Station Number 2	490 sf	20' 6"	1988	256466
C. Entertainment Facilities				
Hula Mound	N/A	3' 0"	1986	224824
Aunty Alice's Lanai	1,260 sf	25' 0"	1983	185869
Kimo's Lanai	320 sf	15' 0"	N/A	N/A
D. Miscellaneous Facilities				
Seawall	N/A	N/A	1983	185869
Trash Enclosure 1	110 sf	N/A	*	*
Trash Enclosure 2	210 sf	N/A	*	*
Underground Utilities	N/A	N/A	1994	353518
Greenhouse & Storage Bldg.	700 sf	8' 0"	1987	256465

*Note: Trash enclosures to be constructed with improvements for 165-stall parking.

N/A: Not applicable or not available.

3.2.2 Parking Lot Site

As shown on the Existing Site Plan (Figure 3.1), a total of 165 paved parking stalls are being provided for both the general public (15 stalls) and for visitors to Lanikuhonua. Access to this parking area would be by a paved driveway connecting to Aliinui Drive. The area near Aliinui Drive is currently an unpaved open area. The applications included with this document are intended to permit improvements to this area to provide parking spaces for Paradise Cove visitors. Exhibits C-13 includes photographs of this parking lot site from Aliinui Drive and from the present Lanikuhonua visitor parking area.

3.2.3 Existing Uses And Activities

Lanikuhonua has two main lawn areas which are used to accommodate functions and Hawaiian events held there. One area is located on the northern end which has the hula mound, Aunty Alice's Lanai, and comfort station 1 for functions. The second area is located on the southern end of which has Kimo's Lanai, comfort station 2, and an elevated grassed stage (Hula Pa) for functions.

Lanikuhonua, serving as a Hawaiian cultural activity center, is used by a variety of groups from both the community and private sector. During the past three years, over one-half of these events were initiated by either non-profit and community groups or for Hawaiian cultural functions. These events included a variety of outdoor functions such as hula festivals and luaus, weddings, group events, awards ceremonies, recreational events, and school functions. Using information from Campbell Estate, the number of events occurring annually has increased to 150 in 1994 (roughly 28,500 visitors) from about 120 to 135 in 1992 and 1993. In 1994, a large majority (over 80%) of these events generally had less than 200 attendees.

The great majority of these functions (over 90%) had occurred during the day (between 8:00 am and 4:00 pm) in 1994. Based upon discussion with Campbell Estate staff, these day functions begin at various times but usually end between 1:00 pm and 4:00 pm depending upon the type of function occurring. However, the majority of these functions usually end between 3:00 to 4:00 pm. Functions held during the evening (after 4:00 pm) generally end around 9:00 pm.

3.2.4 Relationship Of Site To Adjacent Uses

There are two other commercial uses located adjacent to Lanikuhonua which are Paradise Cove and Ihilani Resort. Exhibit C-14, and previous exhibits, include photographs of Lanikuhonua and the parking lot site in relation to these adjacent uses. In addition, the Ko Olina Golf Club is located directly across from Lanikuhonua separated by Aliinui Drive. All of these commercial uses are generally visitor oriented being situated within the Ko Olina Resort, and conform with the principles and controls described under the West Beach Special Area under the Development Plan Special Provisions for Ewa. The Hawaiian cultural events and group functions held at Lanikuhonua are separate from activities conducted at the Ihilani Resort, Paradise Cove, and the golf course. As a result, activities conducted at Lanikuhonua have and should not interfere with activities occurring at these surrounding uses.

Paradise Cove and Lanikuhonua are both owned by Campbell Estate and have been developed for uses and activities of a Hawaiian theme. The luau and entertainment activities conducted at Paradise Cove are separate from the Hawaiian cultural events and functions held at Lanikuhonua. However, both sites have a thematic relationship which complement their approved land uses and activities. The proposed parking lot expansion would further contribute to this relationship by providing vehicular parking on the Lanikuhonua site for Paradise Cove visitors.

Public Easement

A public easement is provided between Lanikuhonua and Paradise Cove to allow the public to access the shoreline and beach areas. This accessway is used for pedestrian traffic to the shoreline and was previously shown on Figure 3.1 (Existing Site Plan). With the proposed project, this public easement would be extended to the public parking area and out to Aliinui Drive (Figure 2.5).

SECTION 4.0

SUMMARY OF AFFECTED ENVIRONMENT AND IMPACTS

This section describes the existing affected environment and discusses the probable impacts resulting from the proposed parking lot expansion. This section is divided into five major headings which are: 1) physical and natural resources, 2) biological and hydrological resources, 3) social and economic factors, and 4) infrastructure and public facilities. If necessary, appropriate mitigative measures proposed to minimize the impacts are discussed.

4.1 PHYSICAL AND NATURAL RESOURCES

Typical weather conditions for the project site and surrounding area are generally warm and dry with average temperature ranging between 77° and 85° Fahrenheit (F) during the day, and between 60° and 70° F at night (Environmental Communications, Inc. 1985). The average annual rainfall for the Ewa plain is about 20 inches with most rainfall occurring during the winter months (Department of Geography 1983). The prevailing trade winds generally flow in a northeast direction and usually dominate from April to November with wind speeds ranging from 5 to 25 miles per hour. Trade winds usually weaken from December to March resulting in the emergence of "Kona" winds from the south to southwest direction.

4.1.1 Geology And Soils

The Ewa plain was once under water for a considerable distance resulting in a layer of topsoil overlaying ancient calcareous reefs that are now above sea level. As a result, the geology of the Ewa plain which encompasses the Lanikuhonua property is underlain by a broad elevated coral reef partly covered by alluvium carried out from the mountains. Previous research of fossils suggest this Ewa plain is of late Pleistocene age (MacDonald 1983).

The Lanikuhonua property is characterized by a relatively flat low lying topography which ranges in elevation from sea level to a maximum of about 10 feet (PBR Hawaii 1985). Most of the increase in the site's elevation occurs within 30 feet from the shoreline which then levels to about 6 to 8 feet in the area below (makai) the parking lot site. A drainage swale cuts across the site in a north-south direction before leading to the shoreline at the southern end. This swale forms a natural boundary separating the parking lot site from the entertainment areas. Above (mauka) this drainage swale, the parking lot site is relatively level about 10 feet in elevation.

Soils located on the property include Jaucas sand (JaC) near the shoreline areas and two types of Keaau clay identified as KmA and KmbA based upon the *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii* (SCS 1972). As a result, the underlying soils associated with the parking lot site are predominantly made up of both Keaau clay types. These soils are overlaid with crushed coral and other fill material used to develop the existing gravel parking lot.

The Keaau series consist of poorly drained soils on coastal plains which developed in alluvium deposited over reef limestone or consolidated coral sand. The Keaau clay (KmA) occurs on coastal plain lowlands, is characterized by slow permeability and runoff, and has no more than a slight erosion hazard. The Keaau clay (KmbA) has the same profile like that of KmA, except that it is strongly affected by salts.

Probable Impacts

The proposed expansion of the Lanikuhonua parking lot should not have a significant impact on the existing topography of the site nor the soil conditions. As previously shown on the proposed Grading Plan in Figure 2.4, minimal grading activities would be required for expansion areas since it is already level. Consequently, the existing topography would essentially remain the same and receive little modifications. The paving of expansion areas would also reduce the erosion of present soils from the site.

Construction activities would be performed using common Best Management Practices in conformance with applicable City regulations concerning soil erosion and sediment control. Various types of mitigative measures would be considered during the project design stage to determine those most feasible to implement during construction. Such measures which would be considered include:

- Conducting grubbing and grading activities during months of low rainfall (April to October).
- Replanting or covering bare areas as soon as grading or construction is completed using soil amendments, fertilizers, and temporary irrigation.
- Using vegetation, mulch, gravel, and porous pavement where feasible to minimize impervious areas.

Section 4.0

4.1.2 Natural Hazards

4.1.2.1 Earthquake Hazards

Although difficult to predict, an earthquake of sufficient magnitude to damage the parking lot may occur in the future. However, except for the island of Hawaii, the Hawaiian islands are not situated in a highly seismic area subject to numerous earthquakes (Macdonald 1983). Most of the earthquakes that have occurred were volcanic earthquakes and caused little or no damage.

Although the parking lot expansion may be subject to some damage from an earthquake of sufficient magnitude, the effects on the ground-level open-spaced parking lot should not be significant since no buildings or major structures are included which could potentially result in further damage to life and property. The island of Oahu is situated in an area having lower seismic activity, and has a lower risk rating of Zone 2 (Furumoto 1973). Furthermore, the project would be constructed in accordance with City building codes and standards which should minimize damages.

4.1.2.2 Hurricane Hazards And Tsunami Inundation

Of the major hazards associated with hurricanes and tsunamis, waves from storm surge and high winds are the primary hazards having the greatest potential to damage the parking lot project. Hurricanes occurring near Hawaii have been relatively frequent events with a total of nine hurricanes having approached within 300 nautical miles from the islands between 1970 and 1992 (FEMA 1992). Major hurricanes affecting the State have been Dot (1959), Iwa (1982), and Iniki (1992) which was the most devastating.

Most tsunamis which affect Hawaii originate in the major earthquake belts which surround the Pacific Ocean. Depending upon the the character of the shore below sea level and the direction in which the wave approaches, the tsunami may cause a relatively gentle rise of water level and flooding of the shoreline, or it may be transformed into a wave with a steep front and much turbulence. In the surrounding area, wave heights recorded during the 1952 and 1960 tsunami's were 6 and 9 feet, respectively (Loomis 1976). Records of past tsunamis and earthquakes indicate that quakes of magnitude less than 6 in the border regions of the Pacific are unlikely to cause tsunamis of dangerous size in Hawaii (Macdonald 1983).

Figure 4.1 shows the project site in relation to the Flood Insurance Rate Map (Community Panel Number 150001 0130C) for the area. As shown on this figure, portions of the site are located in Zone AE (Base Elevation 7 feet) which is identified as a flood hazard area inundated by the 100-year flood. Under the LUO, portions of the site are located in the Flood Fringe District.

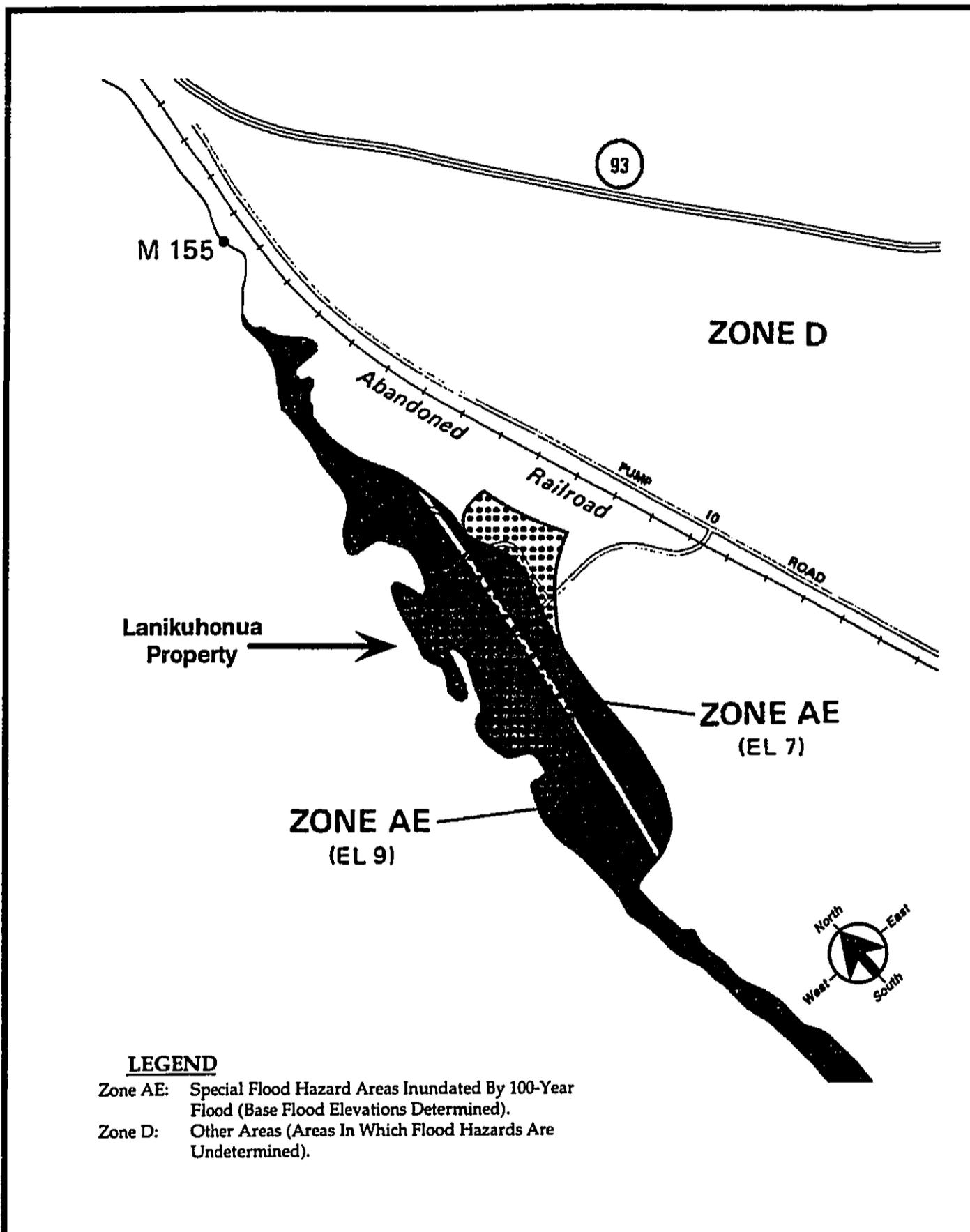
Probable Impacts

Wave surge associated with either a large hurricane or tsunami are not expected to cause significant damage to the parking lot expansion due to the nature of the project. No major building or facilities are included with the improvements, and utilities, such as electrical lines, would be located underground. Furthermore, construction of the project would be done in conformance with the requirements specified under the LUO's section on Flood Hazard Districts.

High winds from a hurricane may inevitably cause some damage to trees and other vegetation used for landscaping in accordance with the LUO. Lighting planned for the parking lot may also be damaged from winds of sufficient strength. However, damages associated with these parking lot improvements should not be significant since they would be constructed in conformance with the City's Uniform Building Code which should minimize potential damages.

4.1.3 Air Quality

The proposed project is not expected to increase visitors to Lanikuhonua and Paradise Cove above that which has already been approved because the additional stalls are only intended to accommodate the vehicular traffic anticipated under the existing development plans. Therefore, the project should not cause an increase in the long-term concentration of air pollutants in the surrounding area and thus not significantly impact air quality. Paving presently gravelled areas should also decrease the emission of dirt and other particulate matter from vehicular traffic through this area. Air quality concerns associated with Paradise Cove's redevelopment have already been addressed under a Final Environmental Assessment filed in 1993 which included an air quality study (WEW 1993).



LEGEND

- Zone AE: Special Flood Hazard Areas Inundated By 100-Year Flood (Base Flood Elevations Determined).
- Zone D: Other Areas (Areas In Which Flood Hazards Are Undetermined).

<p>WILLIAM E. WANKET INC. <small>Land Use Consultant</small></p>	<p>Source: Federal Emergency Management Agency</p>	<p>Designated Flood Zone Boundaries (Flood Insurance Rate Map, Community-Panel No. 150001 0130C, Revised 9/28/90)</p>	<p>Figure 4.1</p>
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Section 4.0

Construction activities would result in some emissions of fugitive dust from vehicle movement and soil excavation along with exhaust emissions from construction-related equipment and vehicles. However, these emissions would be short-term in nature and should not result in concentration levels greater than both National and State Ambient Air Quality Standards. In addition, dust control programs, such as frequent watering, and other normal mitigative measures would be implemented during construction to prevent visible emissions of fugitive dust at the property line in compliance with DOH regulations (State of Hawaii 1992). Carbon monoxide emissions from construction-related vehicles should also be low and insignificant compared to vehicular emissions from surrounding roadways.

4.1.4 Noise Environment

The existing background ambient noise levels in the surrounding environment are predominantly determined by vehicular traffic on surrounding roadways, the ocean, and activities occurring at adjacent properties (Ihilani Resort and Paradise Cove). The project should not have a significant noise impact since it would not cause a long-term increase in vehicular noise levels. Since the parking expansion would only accommodate anticipated vehicular traffic to Lanikuhonua and Paradise Cove under their approved development plans, there should be no further increase in visitors and corresponding traffic to these sites from the project.

Traffic noise associated with Paradise Cove's redevelopment have already been addressed in a noise study included in the Final Environmental Assessment filed in 1993 (WEW 1993). In this noise study, it was determined that the risks of adverse noise impacts from Paradise Cove's increased traffic due to their redevelopment plans were considered low and noise mitigation measures were not necessary.

Audible construction noise would likely occur during construction of the parking lot resulting in a temporary degradation of the surrounding noise environment. However, this increased noise level would be short-term and should not greatly disrupt activities occurring on adjacent properties causing a significant impact. In addition, the DOH's administrative controls regulating noise from construction activities should effectively mitigate this minor short-term impact (State of Hawaii 1981). Furthermore, telephone discussion with staff from the Department of Health in accordance with their December 14, 1994 response memo (Appendix A) indicated the Noise and Radiation Branch had no comments on the project.

4.1.5 Archaeological And Historic Resources

The project is not expected to have a significant impact on historic or archaeological resources because there are no known sites present on the Lanikuhonua parking lot site. The State Historic Preservation Division has similarly determined that the project would have "no effect" on historic sites in their comment letter dated September 12, 1995 included in Appendix A.

Areas proposed for expansion currently consist of gravel and fill material, and the entire parking lot site previously consisted of scrub cane land along with koa haole and varieties of salt resistant groundcovers (PBR Hawaii 1985). In addition, the previous approval for Lanikuhonua (85/CUP-4) did not identify or raise concerns associated with historic or archeological sites. Therefore, the paving of expansion areas, installation of infrastructure and other fixtures, and parking activities conducted should not significantly impact historic or archaeological resources. In the event historic resources, including burials, are uncovered during construction activities, work would stop and the State Historic Preservation Division would be notified.

4.1.6 Visual Resources

Existing visual resources and important views were identified and assessed using a City study on coastal views and urban design principals and controls for the West Beach Special Area. The City's *Coastal View Study* identified the mountain area as an important coastal land form, and the stretch of Farrington Highway near Ko Olina Resort's entrance provides important coastal views (Chu 1987).

The City's Development Plan Special Provisions for Ewa describe urban design principles and controls established for the West Beach Special Area (City and County of Honolulu 1994). Under these regulations, four important views are identified which should be protected. Of these views, two of them are applicable to the parking lot expansion which are: 1) makai view from Farrington Highway at the entrance to West Beach (Ko Olina Resort), and 2) makai view from West Beach coastal roadways makai of Farrington Highway (Section 24-3.2(b)(1)(E)).

Probable Impacts

Using these references, the parking lot expansion should not cause a significant visual impact to views of the coastline and mountain areas. Shoreline views from Farrington Highway are easier seen near Kahe Point but are not quite visible near the project site due to the extensive vegetation surrounding Lanikuhonua (refer to

photographs in Exhibit C-2). As a result, the project would result in minimal changes to the present coastal area which should not diminish the quality of the view from the highway. In addition, mauka views of the mountain range from the site would not be disrupted by the parking lot expansion since no major buildings or tall structures would be constructed blocking this view.

The present view of the coastline near the project site from Aliinui Drive is shown on Exhibit C-13. As shown, the shoreline is not visible due to the extensive vegetation and trees surrounding Lanikuhonua which provides a unique view contrasting with the open gravelled parking lot area. As a result, the project would not negatively impact nor diminish the quality of this coastline view. In addition, the paving of the parking lot and landscaping added should improve this coastline view from Aliinui Drive by providing more complementary uses and scenery.

4.2 BIOLOGICAL AND HYDROLOGICAL RESOURCES

4.2.1 Botanical Resources

The project site lies within the xerotropical vegetation zone which is characterized by low rainfall supporting only sparse vegetation (ECI 1985). Most of this parking lot area previously consisted of scrub cane land along with koa haole and varieties of salt resistant groundcovers (PBR 1985). Presently, the parking lot site is essentially absent of botanical resources with the exception of some grassed areas as shown on photographs in Exhibits C-13 and C-14. Consequently, the project would not have a significant impact on botanical resources since there are no known endangered or threatened plant species located on the site.

4.2.2 Fauna And Avifauna Resources

The project should not have a significant impact on endangered or threatened fauna and avifauna species because they are not present on the site nor does the site provide suitable habitat for these species. There are no wetlands or waterbird habitats, native species or natural communities, or managed preserves on or near the project site (Group 70 International 1994). Thus, endangered bird species are not present nor is it likely that would they use the parking lot site for feeding or other habitat due to the open barren characteristics associated with the site. Feral mammals such as mice or cats may be present on the site, however, the parking lot improvements should not adversely impact their habitat and behavior.

4.2.3 Marine Resources And Water Quality

4.2.3.1 Existing Conditions

Existing Marine Resources

The first comprehensive marine study of the Ko Olina area was completed in 1979 (Bienfang 1980). Since then, other surveys of adjacent nearshore waters and marine inventories have been performed as part of the environmental studies associated with Ko Olina Resort's construction (Brock 1990). The Ko Olina nearshore waters consist of diverse coral communities with about 50 percent of the species known in shallow waters identified in the 1979 survey. In general, the greatest occurrence of coral are found at depths of 3 to 5 meters (10 to 16 feet) at least 100 meters (330 feet) offshore.

Fish communities in the area are reasonably diverse and abundant due to a historically light shoreline fishing presence and low island-wide popularity of the area. The infrequent presence of some commercially important wandering species which usually have no limited home ranges were observed in various surveys conducted between 1979 and 1990. These species included jacks (family Carangidae), opelu (*Decapterus macrellus*), and akule (*Selar crumenophthalmus*). Most of the commercially resident reef fishes observed were juveniles.

Existing Water Quality Conditions

Information on the existing water quality of the ocean near Lanikuhonua was obtained using previous studies prepared for the Ko Olina Resort development by Bienfang and Brock (1980) and OI Consultants, Inc. (1987). These studies encompass the area between Barbers Point Harbor and Kahe Point Beach Park from the shoreline out about 3,000 feet.

The results from these studies indicated that the coastal waters fronting Ko Olina Resort are typical of well-flushed open Hawaiian coastlines. Coastal waters fronting Lanikuhonua and along the resort's shoreline are classified as Class A, Open Coastal Waters by the State DOH (State of Hawaii 1992). The studies also determined that sources of inorganic nutrients from surface runoff following heavy rains along with the diffuse of natural groundwater are present along this coastline. Storm water runoff from mauka areas near the project site are carried via the Waimanalo Gulch which then discharges into the ocean near the Lanikuhonua property.

4.2.3.2 Probable Impacts

The parking lot expansion project is not expected to cause a significant long-term impact on present water quality nor marine resources in the surrounding coastline area near Lanikuhonua due to: 1) implementation of the City approved parking lot drainage plan, and, 2) use of source control measures to enhance the proposed drainage system to effectively remove residual fuel and oil. No significant short-term impacts are also expected since construction activities would be performed using common Best Management Practices in conformance with applicable City regulations concerning soil erosion and sediment control to mitigate non-point source pollution.

The Division of Aquatic Resources, State Department of Land and Natural Resources, has also determined that the project would not have any significant adverse impact on aquatic resource values in the area in their comment letter dated September 12, 1995 (Appendix A). Finally, telephone discussion with staff from the Department of Health in accordance with their December 14, 1994 response letter (Appendix A) indicated the Clean Water Branch had no comments on the project.

No Increase In Peak Discharge

Drainage improvements for the parking lot would cause no increase in the present volume of surface runoff discharging into the coastal waters in accordance with the approved drainage plan. Under this plan, the total peak discharge under a 10-year storm would be 12.10 cubic feet per second (cfs) which is the same as under existing conditions. The peak discharge from the existing drainage swale discharging runoff along the southern border of the Lanikuhonua property would also be reduced from 9.68 cfs to 7.10 cfs with the project. As a result, the project should have minimal impact to nearby marine resources and water quality since there would be no increase in the peak discharge.

In addition, paving of the expanded parking lot area would eliminate the existing gravelled parking area thereby reducing the amount of silt presently entering the ocean from erosion. A detention basin included with the drainage plan at the southern end of the property would also allow any remaining silt or other debris carried by the drainage ditch to be deposited on the site and prevented from entering the ocean. Finally, previous studies conducted on marine communities along the Ko Olina coastline have not identified any negative impact attributable to changes in water quality other than those related to the Barbers Point Harbor expansion which was completed in 1985.

Source Control For Fuels And Oils

The initial discharge of runoff would be of most concern since a storm can contribute pollutant loadings to receiving waters during the first hour. However, subsequent runoff will be cleaner as time goes on since the amount flushed off during each successive time period decreases in a regular pattern. Consequently, source control measures to enhance the proposed drainage system, such as periodic sweeping of the parking lot and other system enhancements, are planned to effectively remove residual fuel and oil from the parking lot. A letter report addressing these pollutants was prepared by AECOS (1995) and is included in Appendix E of this Final EA.

Gasoline and refined oil products applicable to the Lanikuhonua parking lot project have high solubility and vapor pressures making them susceptible to evaporation to the atmosphere and to solution into liquids. Due to the presence of the usually hot sun and trade winds at the Lanikuhonua site, evaporation of volatile fractions from oil and grease deposits would result in a large net loss from the parking lot surface (AECOS 1995). More than 75 percent of a refined fuel product such as gasoline will be lost to the atmosphere within 24 hours, and most is lost within minutes or hours depending on temperature and wind conditions. Other degradative processes will also occur, such as photochemical oxidation, microbial degradation and dilution, dispersion, and emulsification. Oily residues on the Lanikuhonua pavement will be subject to these processes for extended lengths of time, therefore, the more toxic hydrocarbons will be removed while heavier tarry hydrocarbons would remain.

The project site's existing drainage swale (Drainage Area "A") would be grassed or vegetated with appropriate erosion resistant plants to function as a filtration/infiltration method. Vegetated areas and grassed swales can be designed to accept runoff with relatively high oil and grease concentrations from parking lots, and will also prevent erosion, filter sediment, and provide some nutrient uptake (AECOS 1995). This drainage swale would also be periodically mowed (at least twice a year) to stimulate vegetative growth, control weeds, and maintain system capacity.

Runoff from this drainage swale would seldom if ever discharge directly into the ocean since overtopping of the proposed detention basin is expected to be rare. This on-site drainage swale ends near the coastline in a sand and boulder-filled pocket behind a massive limestone bench which allows storm runoff to infiltrate into the ocean. If runoff carrying hydrocarbons does reach coastal waters, negative impacts should not really be noticeable. Acute effects on marine biota and their habitat would occur only if the parking lot had recently suffered a massive oil spill and on-site clean-up was incomplete.

To further mitigate the discharge of remaining hydrocarbons into the ocean beyond the proposed drainage improvements included under the approved plan, "source control" measures would be implemented. Sweeping of the parking lot is an effective method of controlling pollution at the source, and a variety of methods are available. Current sweeper technologies (e.g., abrasive brush and vacuum devices) are generally efficient at picking up solids larger than 43 microns in diameter. A newer method of cleaning available is wet-sweeping with water containing biodegradable soaps or detergents which concentrates on oil and grease removal.

Sweeping would be scheduled as a regular maintenance activity during hours of low use with emphasis placed on more frequent sweeping during the wet season. Given the low amount of rainfall generating runoff in this area during most of the year along with the lower volume of traffic compared with more urban parking lots, less frequent sweeping for oil removal during the dry season, such as monthly intervals, would provide a cost efficient pollutant removal effort without sacrificing effectiveness.

A filtration system is also proposed to be added to the detention basin to enhance its operation in trapping sediments, oil, and other stormwater contaminants. Filter inserts or absorbent blankets would be used which are comprised of sand and organic materials through which runoff percolates. Blankets are particularly effective at reducing concentrations of hydrocarbons in storm water, and a layer of peat, limestone, or topsoil may be added to improve removal efficiency. Filters and blankets should be regularly inspected and replaced semi-annually or as needed.

The Office of State Planning suggested the installation of an oil/water separator to address oil and fuel pollutants. However, such devices are primarily used where oil and grease concentrations are high such as at industrial and commercial centers or other areas with high traffic/parking volumes, and source control methods cannot provide effective mitigation. Experience has shown that the effectiveness of such devices in pollutant removal is limited, and are also not effective for the removal of metals (AECOS 1995). Furthermore, they should not be used unless coupled with frequent and effective clean-out methods. Therefore, the installation of an oil/water separator is not the most appropriate nor cost-effective method for this project as compared to sweeping and other enhancements described.

4.3 SOCIAL AND ECONOMIC FACTORS

4.3.1 Social Factors

The parking lot expansion project should not cause a significant social impact because it is not expected to cause any major changes to the existing community nor the regional character. The project would not effect existing and future housing planned in the region and thus not impact the region's current resident population or demographics.

The project is intended to provide sufficient parking stalls to accommodate visitors to both Lanikuhonua and Paradise Cove in accordance with previously approved development plans. As a result, it would not increase the projected number of visitors to these sites. Social impacts associated with anticipated increases in visitors to Paradise Cove under their approved redevelopment plan were previously addressed under a social impact study conducted for the SMP and Conditional Use Permit applications (WEW 1993).

Parking improvements are also not expected to impact surrounding uses which are the Ihilani Resort, Paradise Cove, and the Ko Olina golf course. The parking lot would not interfere with play at the golf course nor would it disrupt operations occurring at the Ihilani Resort. Construction activities may increase noise levels and increase dust emissions, however, this would only result in a minor disturbance to these uses and occur for a short time period. Furthermore, existing DOH regulations and normal construction best management practices should effectively minimize these disturbances. Paradise Cove would benefit from the project since the parking stalls are being provided to accommodate visitors to this entertainment facility in accordance to the approved SMP (Resolution 93-318) and Conditional Use Permit (93/CUP2-7).

4.3.2 Economic Factors

The project should not cause a significant impact on economic factors such as employment and tax revenues. Construction activities for the parking lot would create several short-term construction-related jobs, however, the impact on the island's overall economic employment base should be relatively minor. Subsequently, State tax revenue generated from these construction-related jobs should generally be minimal. The improved parking lot may increase the property value of the Lanikuhonua site, however, any additional tax revenue received by the City due to this improvement should also be minimal.

4.4 INFRASTRUCTURE AND PUBLIC FACILITIES

This section discusses the probable impacts for the following applicable infrastructure and public facilities: 1) vehicular traffic, 2) drainage, 3) solid waste, 4) water supply, 5) electric utilities, and 6) police and fire protection. The project is not expected to cause any significant long- or short-term impacts on certain infrastructure and public facilities because improvements to these facilities are not required or the project would not change present demands associated with these facilities. These applicable facilities are briefly discussed below:

- Wastewater Treatment Facilities - The project would not affect the current capacity of existing wastewater treatment facilities serving the area or require additional sewer lines.
- Communication Facilities - The project would not require the installation of communication lines or affect the present capacity of such facilities serving the area.
- School Facilities - The project would not affect student enrollments or existing school facilities serving the region since no change in the area's resident population would result.
- Medical Facilities - The project would not affect the quality of medical services or existing facilities serving the area or since no change in the area's resident or visitor population should result.
- Recreation Facilities - The project would not create additional demands for recreational facilities serving the area because no increase in the resident population would occur.

4.4.1 Traffic

The parking lot expansion should not result in a significant impact to traffic conditions in the surrounding area nor require improvements to existing traffic facilities serving the project site. The project is intended to provide vehicular parking stalls for visitors to Paradise Cove under their approved redevelopment plan (Resolution 93-318 and 93/CUP2-7). As a result, the parking lot would not increase the number of visitors to Paradise Cove and thus should not impact traffic conditions. A study was already conducted to address traffic conditions and mitigative measures under the SMP and CUP approval process for Paradise Cove's redevelopment plan (WEW 1993).

The additional parking stalls proposed for visitors to Lanikuhonua are also not expected to have a significant impact on traffic conditions and facilities serving the site. The additional stalls are only intended to make sufficient use of the lot which would

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otherwise be unused, and to provide a convenient number of stalls for visitors to Lanikuhonua under their approved plans (85/CUP-4).

4.4.2 Drainage

A drainage plan was approved by the City Department of Public Works which addressed existing drainage conditions and necessary improvements for the entire Lanikuhonua parking lot site so that no increase in the peak discharge into the ocean would result. This drainage plan was described in Section 2.2 and shown on Figure 2.7.

Existing drainage conditions on the entire ungravelled parking lot site consists of two drainage areas. The first area encompasses a 0.41-acre portion of the site adjacent to Aliinui Drive of which surface runoff sheet flows onto the road before entering the City's catch basin near the northwest corner of the property. The peak discharge from this area under a 10-year storm was estimated to be 2.42 cfs. The second area encompasses the remaining 2.79 acres of the parking lot of which surface runoff sheet flows into an unlined drainage swale along the western boundary of the parking lot site. Runoff from this drainage ditch then discharges into the ocean at the southern end of the Lanikuhonua property. The peak discharge from this area under a 10-year storm was estimated to be 9.68 cfs. Thus, the total peak discharge from the parking lot site is 12.10 cfs.

Probable Impacts

The project would not cause a significant impact to existing drainage conditions because the City approved drainage plan would be implemented to handle increased surface runoff. Under this plan, the total peak discharge from the parking lot site under a 10-year storm would remain unchanged from existing conditions.

With the project, the two existing drainage areas would be modified such that one area would serve the Lanikuhonua visitor parking area (Drainage Area "A") while the second would serve the public parking and new Paradise Cove visitor parking area (Drainage Area "B"). Drainage Area "A" would encompass a 1.22-acre area on the southern half of the site with surface runoff sheet flowing into the drainage swale bordering the western end of the parking lot. The peak discharge from this area under a 10-year storm was estimated to be 5.04 cfs. Drainage Area "B" covers about 1.98 acres and would include an underground storm drain system with catch basins along the western boundary of the parking lot to collect surface runoff. The peak discharge from this area would be 10.57 cfs. Therefore, the total peak discharge under this drainage plan would total 15.61 cfs which is an increase of 3.51 cfs over existing conditions.

To reduce this discharge so that there would be no change from current conditions, a detention system would be incorporated with the planned drainage system. Runoff from Area "A" would be detained within a detention basin constructed near the south corner of the parking lot site. This basin would have a storage volume of 11,880 cubic feet thereby allowing a peak discharge of 7.10 cfs. Runoff from Area "B" would be detained within the underground storm drain system which has a storage capacity of 3,340 cubic feet. Thus, the peak discharge into the City's system along Aliinui Drive would be limited to 5.00 cfs. As a result, the total peak discharge under the proposed system would be 12.10 cfs which is equal to the existing peak discharge.

4.4.3 Solid Waste

The project is not expected to have a significant impact on solid waste facilities such as public landfills or public collection services. Solid waste generated at Lanikuhonu is presently collected by a private collection service, however, no additional permanent trash containers are required for the parking lot expansion. As a result, the project should not generate a long-term increase in solid waste requiring disposal at public landfills. Construction activities would generate some solid waste requiring disposal, however, this would occur only during a short-time period and the nature of the project shouldn't generate large amounts of waste.

4.4.4 Water Supply

Maintenance activities for landscaping of parking lot expansion areas would require water. However, the project should not cause a significant impact on available water supply or the existing system because non-potable water is planned to be used. Ko Olina Resort has separate water systems for both potable and non-potable water use located along Aliinui Drive (WEW 1993). Two water meters provide potable water for domestic consumption on the site and one meter provides non-potable water for irrigation needs. As a result, irrigation improvements for landscaping of the parking lot would involve connecting to an 8-inch non-potable water line along this road. Water supply needed for landscaping is not expected to cause a major impact on the available capacity of non-potable water resources. Furthermore, a letter from the Board of Water Supply, dated April 26, 1995 and included in Appendix A, indicates that the project would not impact their operations.

4.4.5 Electrical Utilities

Underground electrical utilities would be required to power to exterior light fixtures included with parking lot areas being expanded. However, these light fixtures are not expected to place a considerable demand on Hawaiian Electric Company, Inc.'s generation facilities or require improvements to current distribution lines serving the area. As a result, there should not be a significant impact on electrical utilities.

4.4.6 Police And Fire Protection

Police and fire protection services should not be significantly impacted by the project because the expanded parking lot would not require either police or fire protection services. No increase in the resident or visitor population would occur in the area serviced by the police and fire departments nor would their ability to service the resort area diminish. Subsequently, there should be little if any changes to these department's existing services.

SECTION 5.0 CONFORMANCE WITH PLANS AND POLICIES

This section discusses the project's conformance with applicable plans and policies as specified Chapter 25, Article 3 of the Revised Ordinances of Honolulu. The applicable objectives and policies are set forth in Section 205A-2 (Coastal Zone Management Program; Objectives and Policies) and Section 205A-26 (Special Management Area Guidelines) of the Hawaii Revised Statutes (HRS). The applicable plans include the City's General Plan, Development Plan, and Zoning designation.

5.1 GENERAL PLAN

In general, the project would conform to and be consistent with the objectives and policies described under each of the applicable 11 major areas of concern identified in the City's *General Plan*. Those objectives and policies pertinent to the project are provided greater discussion below.

Economic Activity

- Objective B: To maintain the viability of Oahu's visitor industry.
- Policy 6: Permit the development of secondary resort areas in West Beach, Kahuku, Makaha, and Laie.
- Policy 9: Encourage the visitor industry to provide a high level of service to visitors.
- Objective E: To prevent the occurrence of large scale unemployment.
- Policy 1: Encourage the training and employment of present residents for currently available and future jobs.

The parking lot expansion would be consistent with these objectives and policies by helping establish Paradise Cove as a viable visitor attraction and Lanikuhonua as a Hawaiian Cultural Center within the Ko Olina Resort. The additional parking proposed would provide visitors with an adequate and convenient parking location thus improving the facilities and quality of service. As a result, the parking project would provide needed facilities to accommodate the projected visitors to these sites under the approved development plans thereby improving the stability of current and future employment at these sites.

Natural Environment

- Objective A: To protect and preserve the natural environment.
- Policy 4: Require development projects to give due consideration to natural features such as slope, flood and erosion hazards, water recharge areas, distinctive land forms, and existing vegetation.
- Policy 6: Design surface drainage and flood control systems in a manner which will help preserve their natural settings.
- Objective B: To preserve and enhance the natural monuments and scenic views of Oahu for the benefit of both residents and visitors.
- Policy 2: Protect Oahu's scenic views, especially those seen from highly developed and heavily travelled areas.
- Policy 3: Locate roads, highway, and other public facilities and utilities in areas where they will least obstruct important views of the mountains and the sea.
- Policy 4: Provide opportunities for recreational and educational use and physical contact with Oahu's natural environment.

As discussed in the various sections under Section 4.0, the proposed improvements have been designed so that the project would not cause a significant impact on natural resources at the site and to the surrounding environment. A drainage plan was developed and approved by the City which would retain the current peak discharge of surface runoff from the site, and should reduce the amount of silt entering the ocean potentially improving water quality. In addition, source control measures and other enhancements to the drainage plan implemented would mitigate residual fuel and oil pollutants associated with the parking lot.

Important scenic views of the coastline would be retained with the project, and views of the existing unpaved parking area would be improved with paving and landscaping to provide a more visually complementary view of Lanikuhonua. The project would also create a public easement to the public parking area which provides the public access to and along the shoreline for increased recreational opportunities.

Physical Development and Urban Design

- Objective A: To coordinate changes in the physical environment of Oahu to ensure that all new developments are timely, well-designed, and appropriate for the areas in which they will be located.
- Policy 4: Require new developments to provide or pay the cost of all essential community services, including roads, utilities, schools, parks, and emergency facilities that are intended to directly serve the development.

Policy 8: Located community facilities on sites that will be convenient to the people they are intended to serve.

The project would be consistent with these policies since costs for the project's improvements would be privately funded. In addition, application for necessary City land use approvals are being conducted at this time to ensure timely construction of the parking lot to implement the approved land use development plans for Paradise Cove and Lanikuhonua. The location of the parking expansion has also been designed to provide a convenient location for visitors.

Culture and Recreation

- Objective A: To foster the multi-ethnic culture of Hawaii.
- Policy 1: Encourage the presevation and enhancement of Hawaii's diverse cultures.
- Policy 2: Encourage opportunities for better interaction among people with different ethnic, social, and cultural backgrounds.
- Objective D: To provide a wide range of recreational facilities and services that are readily available to all residents of Oahu.
- Policy 6: Provide convenient access to all beaches and inland recreation areas.
- Policy 12: Provide for safe and secure use of public parks, beaches, and recreation facilities.

The project would assist in supporting the activities and viability of Paradise Cove and Lanikuhonua which are uses intended to foster the multi-ethnic culture and provide a range of recreational facilities for visitors and residents. As a result, the parking improvements are consistent with the policies and objectives identified under Culture and Recreation. The improvements would thus make social and community functions held at Lanikuhonua more encouraging for visitors to attend by providing adequate parking stalls which are conveniently located. The public easement provided as part of the project would also provide convenient access to shoreline recreational areas, and the improved parking area would make the movement of vehicular traffic in the parking lot easier and safer for drivers.

5.2 DEVELOPMENT PLAN**5.2.1 Development Plan Land Use And Common Provisions**

Lanikuhonua is presently designated as "Parks and Recreation" under the City's Ewa Development Plan Land Use Map, thus, the parking lot project would be in conformance with this development plan land use category. The project is also consistent with the general urban design principles and controls (Section 24-1.4, ROH) and general principles and controls for parks, recreation and preservation areas (Section 24-1.5, ROH).

5.2.2 Ewa Development Plan And Special Provisions

The project would be in conformance with applicable urban design principles and controls for Ewa (Section 24-3.2) which relate to open space and public views. As previously discussed in Section 4.1.6 (Visual Resources), the project would not have a significant impact on important public views and would maintain open space associated with Lanikuhonua. The project would also conform to the applicable principles and controls for the West Beach Special Area which concern views, compatibility of uses and design integration, and public access to shoreline areas.

5.3 ZONING DESIGNATION

Although Lanikuhonua is zoned AG-2 (General Agricultural District), the approved Variance (94/VAR-70) permits the parking lot expansion to be situated within this zoning designation. Approval of this EUP for Lanikuhonua as a "Meeting Facility" would also allow the parking lot and Lanikuhonua facilities to be recognized as a Meeting Facility land use withing the AG-2 zoning which is a permitted Principal Use.

5.4 COASTAL ZONE MANAGEMENT PROGRAM

The project would conform to and be consistent with the objectives and policies described under the State's Coastal Zone Management Program, Chapter 205A, HRS (State of Hawaii 1992b). Those objectives and policies relevant to the project are provided greater discussion below.

Objectives (§205A-2(b))

- (1) Recreational Resources;
 - (A) Provide coastal recreational opportunities accessible to the public.
- (3) Scenic and open space resources;
 - (A) Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.
- (5) Economic uses;
 - (A) Provide public or private facilities and improvements important to the State's economy in suitable locations.

The project would be consistent with these objectives. The improvements would include a public easement providing easier access to the shoreline thereby enhancing recreational opportunities for the public in this area. The project would also be sensitive to scenic and open space resources and thus not cause an adverse impact as discussed in Section 4.1.6. Expansion areas of the parking lot are located in a suitable and convenient location for visitors to both Lanikuhonua and Paradise Cove which should assist in supporting the economic viability of these uses which serve as important attractions within the Ko Olina Resort.

Policies (§205A-2(c))

- (1) Recreational Resources;
 - (B) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:
 - (iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;
 - (iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation.

The project would be consistent with these recreational policies since a public easement is included with the improvements which would provide convenient access to the public parking area and shoreline. Thus, the parking lot project provides a facility necessary for public recreation in the area.

- (3) Scenic and open space resources;
 - (B) Insure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;

The project is consistent with this policy since the improvements would not significantly impact visual resources in the area. Landscaping and other improvements provided would also ameliorate the existing unpaved parking area making the site more visually compatible with Lanikuhonua's extensive trees and vegetative cover.

- (5) Economic uses;
 - (B) Insure that coastal dependent developments such as harbors and ports, visitor industry facilities, and energy generating facilities are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area

The project would be consistent with this policy by providing a necessary parking lot facility to serve visitors to both Lanikuhonua and Paradise Cove. The results of the environmental assessment discussed under Section 4.0 further supports the minimal, if any, impact to the environment associated with this project. Studies and coordination with City agencies were also conducted during the planning of this project to properly locate parking expansion areas and develop an acceptable drainage plan for the entire parking lot.

- (7) Managing development;
 - (B) Facilitate timely processing of application for development permits and resolve overlapping or conflicting permit requirements;
 - (C) Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life-cycle and in terms understandable to the general public to facilitate public participation in the planning and review process.

This application for City land use approvals are being done at this time to ensure the timely development of the parking lot to accommodate existing and future visitors projected for these uses under approved development plans. The EUP and Minor Modification are also being applied for at this time to recognize the non-conforming status of Lanikuhonua resulting from the City's adoption of the LUO which eliminated the previously approved land use classification for the site. The environmental assessment included with this document also addresses the short and long-term impacts of the project to facilitate public participation in the approval process in conformance with these policies.

5.5 SPECIAL MANAGEMENT AREA

The project would conform to and be consistent with the City's Special Management Area (SMA) Review Guidelines established under §25-3.2, ROH, and the Special Management Area Guidelines established under §205A-26, HRS (Coastal Zone Management). The project's conformance and consistency with the relevant SMA review guidelines are addressed in the discussion below.

(a) **All development in the special management area shall be subject to reasonable terms and conditions set by the council to ensure that:**

- (1) *Adequate access, by dedication or other means, to publicly owned or used beaches, recreation areas, and natural reserves is preserved to the extent consistent with sound conservation principles.*

The project would be consistent with this guideline since improvements include a new public easement from Aliinui Drive to the public parking area. In addition, an easement from this parking area to the public access between Lanikuhonua and Paradise Cove leading to the shoreline would also be provided. A description of this public easement was provided in Section 2.2. Thus, public access to the shoreline for recreational activities would be preserved and improved with the project.

- (2) *Adequate and properly located public recreation areas and wildlife preserves are reserved.*

The project would not impact wildlife preserves since there are none located in the surrounding area. Public recreational areas along the shoreline would also be preserved since the project would not negatively impact these areas. Moreover, public easements associated with the project would actually improve this recreational area by providing a new convenient public access.

- (3) *Provisions are made for solid and liquid waste treatment, disposition, and management which will minimize adverse effects upon special management area resources;*

The project would not require improvements or connections to the existing sewer system serving the property. Therefore, it would not have an adverse effect on special management area resources. Short-term solid waste generated from construction activities should be properly disposed off by the contractor in conformance with normal management practices and thus not negatively impact resources.

- (4) *Alterations to existing landforms and vegetation; except crops, and construction of structures shall cause minimum adverse effect to water resources, and scenic and recreational amenities and minimum danger of floods, landslides, erosion, siltation or failure in the event of earthquake.*

The assessment results discussed under Section 4.0 show that the project would not have a significant negative impact to the resources described under this policy. The present unpaved parking lot site is predominantly level and would thus require minimal grading activities and cause little change to existing landforms on the property. Minimal impacts on water and marine resources in the surrounding vicinity are expected since improvements planned as part of the approved drainage plan would result in no increase in the peak discharge of surface runoff from the site. In addition, source control measures implemented would effectively minimize residual fuel and oil pollutants from entering the ocean. Scenic and recreational amenities would be preserved since the parking lot improvements would not cause a significant impact, and there are no endangered or threatened species known to be present on the site.

Portions of the site does lie within the Flood Fringe District (Zone AE), however, all improvements would be implemented in conformance with applicable City permit requirements and design standards. This should minimize damages to the site caused by flooding or other natural disasters which were addressed in Section 4.1.2. The site is not subject to landslides, and present erosion and siltation occurring in the nearby ocean would be significantly reduced due to the paving of the site.

- (b) **No development shall be approved unless the council has first found that:**
- (1) *The development will not have any substantial, adverse environmental or ecological effect except as such adverse effect is minimized to the extent practicable and clearly outweighed by public health and safety, or compelling public interest. Such adverse effect shall include, but not be limited to, the potential cumulative impact of individual developments, each one of which taken in itself might not have a substantial adverse effect and the elimination of planning options.*

No adverse environmental or ecological impacts are expected to occur from the project. Section 4.0 discusses the assessment results performed for various environmental factors and resources.

- (2) *The development is consistent with the objectives and policies set forth in Section 25-3.1 and area guidelines contained in HRS Section 205A-26.*

The project would be consistent with the objectives and policies set forth in Section 25-3.1, ROH, and Section 205A-26, HRS. A discussion of the project's consistency with these objectives and policies are provided in Section 5.4 and this section.

- (3) *The development is consistent with the county general plan, development plans and zoning. Such a finding of consistency does not preclude concurrent processing where a development plan amendment or zone change may also be required.*

The project would be consistent with the City's General Plan, applicable Development Plans, and Zoning designation. A discussion of the project's consistency with these plans were previously provided in Sections 5.1 to 5.3.

- (c) **The council shall seek to minimize where reasonable:**

- (1) *Dredging, filling or otherwise altering any bay, estuary, salt marsh, river mouth, slough or lagoon.*

The project would not alter any bay, estuary, salt marsh, river mouth, slough, or lagoon since none are present on the Lanikuhonua property or in the immediate vicinity.

- (2) *Any development which would reduce the size of any beach or other area usable for public recreation.*

The parking lot expansion would not reduce the size of any public beach or recreational area since the areas proposed for improvements are situated well away from the shoreline.

- (3) *Any development which would reduce or impose restrictions upon public access to tidal and submerged lands, beaches, portions of rivers and streams within the special management area and the mean high tide line where there is no beach.*

There are no submerged lands, rivers, or streams located on the property which would be restricted by the project. A public easement being provided as part of this project would increase public accessibility to surrounding shoreline areas. Thus, the project would not reduce or impose restrictions upon public access to the shoreline area bordering Lanikuhonua or surrounding properties.

- (4) *Any development which would substantially interfere with or detract from the line of sight toward the sea from the state highway nearest the coast.*

As discussed under Section 4.1.6 of this document, the project would not interfere or negatively impact the coastline view from Farrington Highway.

- (5) *Any development which would adversely affect water quality, existing areas of open water free of visible structures, existing and potential fisheries and fishing grounds, wildlife habitats, or potential or existing agricultural uses of land.*

The project would not adversely affect the resources described under this guideline, and a discussion of the assessment conducted is included under Section 4.0. There are no wildlife habitats or agricultural uses on the site or in the surrounding vicinity of Lanikuhonua. Commercial and recreational fishing do occur along the surrounding shoreline, however, the project would not adversely impact these activities since access to the shoreline would be preserved and the approved drainage plan with source control measures should not negatively impact nearby marine resources.

SECTION 6.0 AGENCY CONSULTATION

In conformance with the City DLU's content guide for preparing an environmental assessment for a Special Management Area Use Permit, consultation was performed with various government agencies. This section briefly discusses agency consultation occurring during the preparation of the Draft EA and EUP application along with the subsequent public review period and comments received on the Draft EA.

6.1 PRELIMINARY AGENCY CONSULTATION

The following agencies and community organizations were consulted during the preparation of the initial Draft EA and EUP application (dated June 1995). Letters seeking their comments on the Lanikuhonua parking lot expansion project were sent, and a copy of response letters received is included in Appendix A. Those agencies and organizations which did provide a response are indicated with a "Δ" next to them.

STATE AGENCIES

- Δ Department of Health
- Department of Land and Natural Resources

CITY AND COUNTY OF HONOLULU AGENCIES

- Department of Land Utilization
- Department of Parks and Recreation
- Δ Planning Department
- Δ Department of Public Works
- Department of Transportation Services
- Δ Board of Water Supply
- Δ Building Department

COMMUNITY ORGANIZATIONS

- Honokai Hale/Nanakai Gardens Community Association

6.2 DRAFT EA AGENCY COMMENTS

The Draft EA and EUP application was filed with DLU in July 1995. Subsequently, this document was published in the August 8, 1995 issue of the Office of Environmental Quality Control Bulletin initiating a 30-day public comment period. Copies of the Draft EA and EUP application were distributed by DLU to the following agencies listed below for comments. The deadline for receiving comments was September 7, 1995. A total of 10 comment letters were received from agencies which are identified with a "Δ" next to them. Copies of their comment letters and responses to them are included under Appendix A of this Final EA document.

FEDERAL AGENCIES

- Δ U.S. Department of Interior, Fish and Wildlife Service

STATE AGENCIES

- Δ Department of Health
- Δ Department of Land and Natural Resources
- Δ Department of Transportation
- Δ Office of State Planning

CITY AND COUNTY OF HONOLULU AGENCIES

- Δ Board of Water Supply
- Δ Department of Public Works
- Department of Transportation Services
- Δ Department of Wastewater Management
- Δ Fire Department
- Oahu Civil Defense Agency
- Δ Planning Department

SECTION 7.0 PRELIMINARY DETERMINATION

This document included an assessment of the probable environmental impacts resulting from the proposed parking lot expansion project at Lanikuhonua. This assessment was conducted in conformance with Chapter 25 of the Revised Ordinances of Honolulu and a "Content Guide for Preparing and Environmental Assessment" provided by DLU.

Using the results of the assessment performed, a preliminary determination by DLU would be made whether a Negative Declaration should be issued or the preparation of an Environmental Impact Statement is warranted. Given the Final EA assessment results and review of the Draft EA by several agencies, a Negative Declaration for the project is warranted based upon the SMA review guidelines established under Chapter 25, ROH. The justification supporting this determination was previously provided in Section 5.5 of this document. Furthermore, an August 25, 1995 comment letter from the City Planning Department supports a Negative Declaration justification.

SECTION 8.0 BIBLIOGRAPHY

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- AECOS. 1995. Letter Report Dated October 4, 1995 Regarding Lanikuhonua Parking Lot Expansion. AECOS No. 839. Honolulu.
- Bienfang, P.K. and R.E. Brock. 1980. Predevelopment Reconnaissance of the Water Quality and Macrobiota Conditions Fronting the West Beach Coastline, Oahu, Hawaii. Prepared for Environmental Communications, Inc. Honolulu, Hawaii.
- Brock, R. E. 1990. Biological Reconnaissance of the Marine Resources in the Waters Fronting West Beach, Oahu. Final Report. Prepared for SEA Ltd., Honolulu. Environmental Assessment Company, Honolulu.
- Chu, Michael S. and Robert B. Jones (Chu). 1987. Coastal View Study. Prepared for City and County of Honolulu, Department of Land Utilization. Honolulu.
- City and County of Honolulu. 1994. The Revised Ordinances Of Honolulu 1990. Chapter 24 - Development Plans. Article 3 - Ewa, Part I. Development Plan Special Provisions for Ewa.
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- Environmental Communications, Inc. (ECI). 1985. Final Supplemental Environmental Impact Statement For West Beach. Honolulu.
- Department of Health. no date. Hawaii Air Quality Data, January 1988 - December 1990. State of Hawaii. Clean Air Branch.
- Federal Emergency Management Agency (FEMA). 1992. Hazard Mitigation Report, Hurricane Iniki. In Response to the September 12, 1992 Federal Disaster Declaration. FEMA-961-DR-HI. San Francisco, California.
- Furumoto, Augustine S., Norby N. Nielsen, and William R. Phillips. 1973. A Study of Past Earthquakes, Isoseismic Zones of Intensity, and Recommended Zones for Structural Design for Hawaii. Hawaii Institute of Geophysics. University of Hawaii.

CORRECTION

THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

SECTION 8.0 BIBLIOGRAPHY

- AECOS. 1986. Water Quality Monitoring Study, Barbers Point Deep Draft Harbor, Oahu, Hawaii. Final Report. Prepared for Department of Army, Pacific Ocean Division, Corps of Engineers. Honolulu.
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- Brock, R. E. 1990. Biological Reconnaissance of the Marine Resources in the Waters Fronting West Beach, Oahu. Final Report. Prepared for SEA Ltd., Honolulu. Environmental Assessment Company, Honolulu.
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- City and County of Honolulu. 1994. The Revised Ordinances Of Honolulu 1990. Chapter 24 - Development Plans. Article 3 - Ewa, Part I. Development Plan Special Provisions for Ewa.
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- Federal Emergency Management Agency (FEMA). 1992. Hazard Mitigation Report, Hurricane Iniki. In Response to the September 12, 1992 Federal Disaster Declaration. FEMA-961-DR-HI. San Francisco, California.
- Furumoto, Augustine S., Norby N. Nielsen, and William R. Phillips. 1973. A Study of Past Earthquakes, Isoseismic Zones of Intensity, and Recommended Zones for Structural Design for Hawaii. Hawaii Institute of Geophysics. University of Hawaii.

SECTION 8.0 BIBLIOGRAPHY (CONTINUED)

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- William E. Wanket, Inc. (WEW). 1993. Paradise Cove: Final Environmental Assessment for Special Management Area Use Permit (SMP) and Conditional Use Permit (CUP), Type 2. Prepared for West Beach Estates. Honolulu.

APPENDICES

APPENDIX A

Agency Consultation

EXHIBIT A-1

Preliminary Consultation For Draft EA

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



LAWRENCE MIIKE
DIRECTOR OF HEALTH

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

In reply, please refer to

May 17, 1995

95-067/epo

Mr. William Wanket
William E. Wanket, Inc.
1001 Kamokila Boulevard, Suite 320
Kapolei, Hawaii 96707

Dear Mr. Wanket:

Subject: Pre-Consultation

Lanikuhonua Parking Lot Improvements
Paradise Cove
Ko Olina, Oahu

Thank you for allowing us to review and comment on the subject project. We do not have any comments to offer at this time.

Sincerely,

A handwritten signature in cursive script, appearing to read "Lawrence Miike".

Lawrence Miike
Director of Health

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



LAWRENCE MIKE
DIRECTOR OF HEALTH

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

In reply, please refer to:
EMD / WB

950416

May 3, 1995

Mr. William E. Wanket
William E. Wanket, Inc.
Land Use Consultants
1001 Kamokila Blvd. Suite 320
Kapolei, Hawaii 96707

Dear Mr. Wanket:

Subject: Lanikuhonua Parking Lot Improvements
Estate of James Campbell, Oahu

We have reviewed the material on the subject project submitted by your office. At this time, we have no objections to the proposed parking lot improvements as we concur with the proposed method of wastewater treatment and disposal. It is noted on the proposed site plan, Exhibit B, that there is an existing wastewater pump station, No. 1. As long as disposal is through the municipal sewer service system, we have no objections to the proposal.

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems." We do reserve the right to review the detailed wastewater plans for conformance to applicable rules.

Should you have any further questions, please contact Mr. Harold Yee of the Wastewater Branch at telephone no. 586-4294.

Sincerely,

A handwritten signature in cursive script, appearing to read "Bruce S. Anderson".

BRUCE S. ANDERSON, Ph.D.
Deputy Director for Environmental Health

LK:erm

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



LAWRENCE MIKE
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3372
HONOLULU, HAWAII 96801

In reply, please refer to:

December 14, 1994

TO: Those Persons Requesting Comments on Land Use Documents
FROM: June Harrigan-Lum, Manager *June Harrigan-Lum*
Environmental Planning Office
SUBJECT: Temporary Discontinuance of Land Use Reviews

Because of the lack of funds and resources this year, we are not able to hire someone to coordinate our 1995 legislative activities. As a result, we are using one of our existing staff members to do this work on a full time basis during the legislative session.

The legislative coordinator selected, Mr. Art Bauckham, is also the person who was coordinating the land use reviews and responses. Therefore, starting on January 1, and continuing until May 1, 1995, the Environmental Planning Office (EPO) will not be accepting any land use documents for coordinated replies.

If you would like staff in a specific branch or office (for instance, the Wastewater Branch) to comment on your proposal, you are welcome to contact the staff directly. A list of the Branch/Office names are attached for your reference. If you have already sent a copy of the document to the EPO, and you wish to have us send it to a specific branch, you may call 586-4337 and ask the clerical staff to send it to the appropriate branch. Please describe the document and the date of your cover letter.

Remember, on May 1, 1995 we will again start preparing coordinated responses throughout the Environmental Health Administration.

Thank you for your cooperation and patience in this matter.

Ref: Lanikuhonua Parking Lot Improvements

Branches and Offices in the Environmental Health Administration

Hazard Evaluation and
Emergency Response-----586-4249

Environmental Planning Office--586-4337

Clean Air Branch-----586-4200

X Clean Water Branch-----586-4309

Safe Drinking Water Branch-----586-4258

Office of Solid Waste Mgt.-----586-4240

Hazardous Waste Branch-----586-4226

X Wastewater Branch-----586-4294

X Noise and Radiation Branch-----586-4701

Sanitation Branch-----586-8000

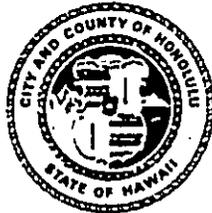
Litter Control Office-----586-8400

Food and Drug Branch-----586-4725

Vector Control Branch-----831-6767

PLANNING DEPARTMENT
CITY AND COUNTY OF HONOLULU

680 SOUTH KING STREET
HONOLULU, HAWAII 96813



JEREMY HARRIS
MAYOR

CHERYL D. SOON
CHIEF PLANNING OFFICER

CAROLL TAKAHASHI
DEPUTY CHIEF PLANNING OFFICER

BS 3/95-0639

April 11, 1995

Mr. William E. Wanket
1001 Kamokila Boulevard
Kapolei Building, Suite 320
Kapolei, Hawaii 96707

Dear Mr. Wanket:

Lanikuhonua Parking Lot Improvements

In response to the subject preliminary Environmental Assessment preparation notice for the subject project, we are offering the following comments.

The subject property is currently designated as "Park & Recreation" on the Development Plan Land Use Map for Ewa.

In addition, the Development Plan Public Facilities Map for Ewa indicates a proposed privately funded (West Beach) drainage line and a proposed non-potable water line along Aliinui Drive.

We have no specific objections to the proposed project at this time.

Thank you for the opportunity to comment on the subject request. Should you have any further questions on the matter, you may contact Brian Suzuki of our staff at 527-6073.

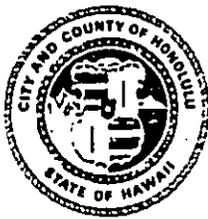
Sincerely,


CHERYL D. SOON
Chief Planning Officer

CDS:ft

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813



JEREMY HARRIS
MAYOR

KENNETH E. SPRAGUE
DIRECTOR AND CHIEF ENGINEER

DARWIN J. HAMAMOTO
DEPUTY DIRECTOR

ENV 95-131

April 12, 1995

Mr. William E. Wanket
William E. Wanket, Inc.
1001 Kamokila Boulevard
Kapolei Building, Suite 320
Kapolei, HI 96707

Dear Mr. Wanket:

Subject: Lanikuhonua Parking Lot Improvements

In response to your letter of March 30, 1995, we wish to inform you that the Draft Environmental Assessment should address storm water quality and mitigative measures during and post construction.

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

Very truly yours,

for Alex Ho
KENNETH E. SPRAGUE
Director and Chief Engineer

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU

630 SOUTH BERETANIA STREET

HONOLULU, HAWAII 96843



April 26, 1995

JEREMY HARRIS Mayor

WALTER O WATSON JR Chairman
MAURICE H YAMASATO Vice Chairman
SISTER M DAVILYN AH CHICK O S F
KAZU HAYASHIDA
MELISSA Y J LUM
FORREST C MURPHY
KENNETH E SPRAGUE

RAYMOND H SATO
Manager and Chief Engineer

Mr. William E. Wanket
William E. Wanket, Inc.
1001 Kamokila Boulevard, Suite 320
Kapolei, Hawaii 96707

Dear Mr. Wanket:

Subject: Your Letter of March 30, 1995 Regarding the Lanikuhonua Parking Lot
Improvements

Thank you for the opportunity to review and comment on the Lanikuhonua Parking Lot Improvements.

We have no comments regarding the proposed project since it will not impact the Board of Water Supply.

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

Very truly yours,


RAYMOND H. SATO
Manager and Chief Engineer

BUILDING DEPARTMENT
CITY AND COUNTY OF HONOLULU

HONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU, HAWAII 96813



JEREMY HARRIS
MAYOR

RANDALL K. FUJIKI
DIRECTOR AND BUILDING SUPERINTENDENT

ISIDRO M. BAQUILAR
DEPUTY DIRECTOR AND BUILDING SUPERINTENDENT

PB 95-256

April 6, 1995

William E. Wanket, Inc.
1001 Kamokila Boulevard, Suite 320
Kapolei, Hawaii 96707

Gentlemen:

Subject: Lanikuhonua Parking Lot Improvements

This is in response to your letter of March 30, 1995
regarding the subject project. We have no comments to offer.

Thank you for the opportunity to offer our comments.

Very truly yours,

A handwritten signature in black ink, appearing to read "Randall K. Fujiki", is written over the typed name.

RANDALL K. FUJIKI
Director and Building Superintendent

cc: G. Tamashiro

EXHIBIT A-2

*Draft EA Agency Comment Letters
And Responses*

73-06806



United States Department of the Interior

FISH AND WILDLIFE SERVICE
PACIFIC ISLANDS ECOREGION
300 ALA MOANA BOULEVARD, ROOM 3108
BOX 50088
HONOLULU, HAWAII 96850
PHONE: (808) 541-3441 FAX: (808) 541-3470

SEP 25 AM 8 22
DEPT OF LAND UTILIZATION
CITY & COUNTY OF HONOLULU

SEP 22 1995

In Reply Refer To: CAW

Patrick T. Onishi
Director of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

SEP 25 AM 8 22
DEPT OF LAND UTILIZATION
CITY & COUNTY OF HONOLULU

Re: Review of the Draft Environmental Assessment for the Special Management Area Use Permit and Existing Use Permit with Minor Modification for Lanikuhonua Improvements, Kapolei, Oahu, Hawaii.

Dear Mr. Onishi:

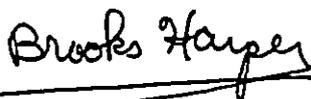
The U.S. Fish and Wildlife Service (Service) has reviewed the Draft Environmental Assessment (EA) for the Special Management Area (SMA) Use Permit and Existing Use Permit with Minor Modification for Lanikuhonua Improvements, Kapolei, Oahu, Hawaii. The applicant is the Estate of James Campbell. The project involves paving the existing gravel parking lot to provide a total of 429 paved stalls for visitor parking.

The Draft EA states that the project will include construction of a detention basin at the southern end of the property in order to detain runoff and minimize discharge into the ocean. The Service recommends that the SMA permit be conditioned to require periodic maintenance (removal of sediment buildup) of the detention basin so that over time the basin will maintain its ability to detain water and prevent uncontrolled runoff into the marine environment.

Provided that the permit is conditioned to reflect the above recommendation, the Service does not believe that paving the parking lot and constructing associated drainage improvements will result in adverse impacts to fish and wildlife resources.

The Service appreciates the opportunity to provide comments. If you have questions regarding these comments, please contact Fish and Wildlife Biologist Christine Willis at 808/541-3441.

Sincerely,



Brooks Harper
Field Supervisor
Ecological Services

cc: DAR, Hawaii

November 28, 1995

WILLIAM
E.
WANKET
INC.

Land Use Consultant

Mr. Brooks Harper
Field Supervisor, Ecological Services
Fish and Wildlife Service
U.S. Department of Interior
300 Ala Moana Boulevard, Room 3108
Honolulu, Hawaii 96850

Dear Mr. Harper:

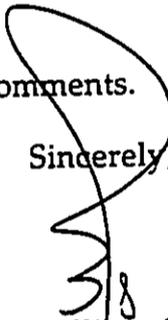
Subject: Draft EA For Lanikuhonua Improvements

Thank you for your September 22, 1995 comment letter on the proposed improvements for Lanikuhonua. We appreciate your comments which have been incorporated into the Final Environmental Assessment. We offer the following response to your comments.

As discussed in your letter, periodic maintenance to remove sediment buildup within the proposed detention basin located at the southern end of the property will be performed.

Again, thank you very much for your comments.

Sincerely,


William E. Wanket
President

1001 Kamokila Blvd.
Kapolei Building
Suite 320
Kapolei, HI 96707
Phone
(808) 674-3517
Fax (808) 674-1064

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



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

95-05269

LAWRENCE MIKE
DIRECTOR OF HEALTH

In reply, please refer to

August 14, 1995

95-067/epo

Mr. Patrick Onishi
Director, Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Onishi:

Subject: Environmental Assessment, Chapter 25, ROH
Project within the Special Management Area

Project Name: Lanikuhonua Improvements
Location: 92-1089 Aliinui Drive
Kapolei, Hawaii
Tax Map Key: 9-1-57: 29

95 APR 17 09 10 53

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

Nonpoint Source Pollution Concerns

Proper planning, design and use of erosion control measures substantially reduces the total volume of runoff generated, thereby decreasing sediment load. Steps should be taken to minimize onsite erosion which may become a source for additional nonpoint source pollution from construction and daily use activities. Suggested measures that should be considered are:

- a. Conduct grubbing and grading activities during the low rainfall months (April - October).
- b. Replant or cover bare areas as soon as grading or construction is completed. New plantings will require soil amendment, fertilizers, and temporary irrigation to become established.
- c. Use vegetation, mulch, gravel, and porous pavement wherever feasible to minimize impervious areas. The increase in impervious areas will increase stormwater runoff volumes.

Mr. Patrick Onishi
August 16, 1995
Page 2

If you should have any questions regarding this matter, please contact Ms. Shirley Nakamura of the Environmental Planning Office at 586-7550.

Sincerely,


for LAWRENCE MIIKE
Director of Health

November 28, 1995

WILLIAM
E.
WANKET
INC.

Land Use Consultant

Dr. Lawrence Miike
Director
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Dr. Miike:

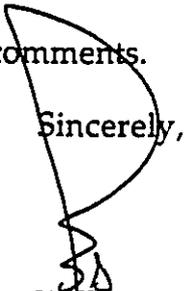
Subject: Draft EA For Lanikuhonua Improvements

Thank you for your August 14, 1995 comment letter on the proposed improvements for Lanikuhonua. We appreciate your comments which have been incorporated into the Final Environmental Assessment, and we have the following response to your comments.

Construction activities would be performed in accordance to applicable City regulations concerning soil erosion and sediment control to minimize on-site erosion. Appropriate mitigative measures, such as those suggested in your letter, will be considered in the project's design and construction.

Again, thank you very much for your comments.

Sincerely,


William E. Wanket
President

1001 Kamokila Blvd.
Kapolei Building
Suite 320
Kapolei, HI 96707
Phone
(808) 674-3517
Fax (808) 674-1064

BENJAMIN I. CAYETANO
Governor of Hawaii



95-05117

Chairperson
MICHAEL D. WILSON
Board of Land and Natural Resources

Deputy Director
GILBERT COLOMA-AGARAN

Aquaculture Development
Aquatic Resources
Boating and Ocean Recreation
Bureau of Conveyances
Conservation and Environmental Affairs
Conservation and Resources Enforcement
Forestry and Wildlife
Historic Preservation
Land Management
State Parks
Water and Land Development

STATE OF HAWAII

REF:OCEA:RS DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. Box 621
Honolulu, Hawaii 96809

File No.: 96-058

The Honorable Patrick T. Onishi
Director
Department of Land Utilization
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

SEP 12 1995

95 SEP 14 AM 7 48
DEPT OF LAND UTILIZATION
CITY & COUNTY OF HONOLULU

Dear Mr. Onishi:

SUBJECT: Draft Environmental Assessment for SMA Use Permit & Existing Use Permit with Minor Modifications
Project Name: Lanikuhonua Improvements
TMK: 9-1-57: 29

The Division of Aquatic Resources (DAR) comments that the applicant's request for the proposed redevelopment of the existing Paradise Cove structures and facilities is not expected to have any significant adverse impact on aquatic resource values in this area. However, mitigation measures should be described in the Environmental Assessment that would minimize erosion and siltation during construction including:

- 1) site work should be scheduled for periods of minimal rainfall;
- 2) lands denuded of vegetation should be replanted or covered as quickly as possible to control erosion; and
- 3) construction materials, petroleum products, debris and landscaping products should be prevented from falling, blowing or leaching into the aquatic environment.

DAR supports the applicant's proposed action of providing public parking at the Lanikuhonua parking lot for the existing public access way easement to the shoreline along the southern boundary line between Paradise Cove and Lanikuhonua.

Mr. Patrick T. Onishi

- 2 -

File No.: 96-058

The Historic Preservation Division notes that this project proposes parking lot improvements including grading to a 3.2 acre site at Lanikuhonua. A review of our records shows that there are no known historic sites at the project location, although several burials have been recovered from the sandy soils at Paradise Cove and along this coastline. The project area was commercially cultivated with sugar cane for many years and it is unlikely that significant historic sites will be found on them. Present conditions consist of gravel and fill material placed during the creation of the current parking lot. Therefore, we believe that this project will have "no effect" on historic sites.

It is possible that historic sites, including human burials, will be uncovered during routine construction activities. Should this be the case all work in the vicinity must stop and the Historic Preservation Division must be contacted at 587-0047.

If you have any questions regarding this response, please contact Roy Schaefer of our Office of Conservation and Environmental Affairs at 587-0377.

Aloha,

Michael D. Wilson
- MICHAEL D. WILSON

November 28, 1995

WILLIAM
E.
WANKET
INC.

Land Use Consultant

Mr. Michael D. Wilson, Chairperson
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Wilson:

Subject: Draft EA For Lanikuhonua Improvements

Thank you for your September 12, 1995 comment letter on the proposed improvements for Lanikuhonua. We appreciate your comments which have been incorporated into the Final Environmental Assessment. We offer the following response to your comments.

Division Of Aquatic Resources Comments

Your comment that the proposed project is not expected to have any significant adverse impact on aquatic resource values in the area has been noted. Construction activities would be performed in accordance to applicable City regulations concerning soil erosion and sediment control. Appropriate mitigative measures, including those identified in your letter, will be followed in the project's design and construction.

Historic Preservation Division Comments

Your comment that the proposed project should have "no effect" on historic sites has been noted. In addition, your office will be contacted in the event historic sites are uncovered during construction activities.

Again, thank you very much for your comments.

Sincerely,



William E. Wanket
President

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BENJAMIN J. CAYETANO
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097
August 15, 1995

95-05268

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
JERRY M. MATSUDA
GLENN M. OKIMOTO

IN REPLY REFER TO:
HWY-PS
2.6891

Mr. Patrick T. Onishi, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Onishi:

Subject: Environmental Assessment, Special Management Area Permit
Application; Existing Use and Minor Modification
Application, 95/SMA-039 and 95/SPR-14, Lanikuhonua
Improvements, Kapolei, Oahu; TMK: 91-57: 29

Thank you for the opportunity to review the subject applications.

We have the following comments:

1. The project is near the Pearl Harbor Bike Path Extension Project which will connect to the West Loch Bike Path and to Ko Olina using the existing O R & L right-of-way. Funds for preliminary engineering were appropriated in the FY 1995-96 budget, with construction funds appropriated in the 1996-97 budget. When this project is completed, we expect fairly heavy bicycle usage, as it will connect the Ewa Plain to Pearl Harbor and be the main bicycle path across Ewa.

Accordingly, we recommend including space and parking racks for 43 bicycles in the proposed expansion of the parking lot.

2. Applicant should provide us project plans for our review and approval.

Very truly yours,

Handwritten signature of Kazu Hayashida in cursive.

KAZU HAYASHIDA
Director of Transportation

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HWY-PS
2.8272

Mr. Patrick T. Onishi, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

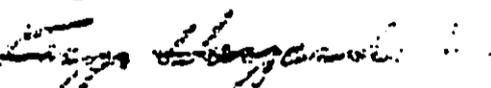
Dear Mr. Onishi:

Subject: Bicycle Condition for Lanikuhonua,
Environmental Assessment, Special Management Area
Permit Application; Existing Use and Minor
Modification Application, 95/SA-039 and 95/SPR-14,
Kapolei, Oahu, TMK: 9-1-57: 29

On August 15, 1995, we recommended to the Department of Land Utilization that the expansion of the Lanikuhonua parking lot include space and parking racks for 43 bicycles (see attached letter HWY-PS 2.6891). By this letter, we amend our recommendation for bicycle parking from 43 to 26. The location of the bicycle racks should be convenient for bicyclists and should be coordinated with our Highway Division and Campbell Estate.

The previous number was based on an erroneous interpretation that the permit application requested 429 new stalls (165 for Paradise Cove plus 264 for Lanikuhonua). We have calculated 43 bike stalls using our standard recommendation for bicycle parking at 10 percent of automobile parking in areas of high bicycle ridership. With construction of the Pearl Harbor Bike Path Extension planned for 1997, we anticipate heavy usage of the bike path in the vicinity of Lanikuhonua. Our amended recommendation of 26 bicycle stalls is based on Lanikuhonua's requested 264 additional stalls.

Very truly yours,


KAZU HAYASHIDA
Director of Transportation

Enclosure

AW:gm

c: DEP-JM, STP, HWY-C, -D, -I, -T, -PS (95-316, Re: 95-240)

December 1, 1995

WILLIAM
E.
WANKET
INC.

Land Use Consultant

Mr. Kazu Hayashida
Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Hayashida:

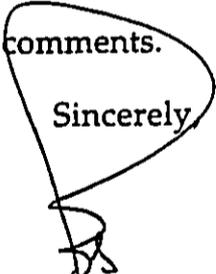
Subject: Draft EA For Lanikuhonua Improvements

Thank you for your comment letters dated August 15, 1995 and December 1, 1995 on the proposed improvements for Lanikuhonua. We appreciate your comments which have been incorporated into the Final Environmental Assessment. We offer the following response to your comments.

As indicated in your December 1, 1995 letter, 26 bike racks will provided on the parking lot site. We will continue working with your department in determining a suitable location for these racks, and construction plans will be provided for your staff's review with respect to these bike racks.

Again, thank you very much for your comments.

Sincerely,


William E. Wanket
President

1001 Kamokila Blvd
Kapolei Building
Suite 320
Kapolei, HI 96707
Phone
(808) 674-3517
Fax (808) 674-1064

95-05181



OFFICE OF STATE PLANNING

Office of the Governor

MAILING ADDRESS: P.O. BOX 3540, HONOLULU, HAWAII 96811-3540
STREET ADDRESS: 250 SOUTH HOTEL STREET, 4TH FLOOR
TELEPHONE: (808) 587-2848, 587-2800

95 AUG 15 10 35 AM '95
BENJAMIN J. CAYETANO, Governor
FAX: Director's Office 587-2848
Planning Division 587-2824

Ref. No. C-1364

August 11, 1995

The Honorable Patrick T. Onishi
Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Onishi:

These comments are based upon our review of the environmental assessment of the proposed Lanikuhonua improvements in Kapolei.

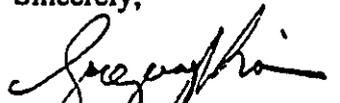
The Special Management Area Use Permit process requires special consideration be given to protecting water quality from nonpoint source water pollution. HRS §§ 205A-2(c)(1)(B)(vi), 205A-2(c)(4)(C), 205A-2(c)(4)(D), 205A-2(c)(6)(B), 205A-26(1)(C), 205A-26(1)(D), 205A-26(3)(D) all emphasize the importance of protecting coastal water quality from contamination.

Paving more than 3 acres of parking lot at Lanikuhonua may decrease sediment runoff into coastal water, but will likely increase the amount of oil entering the ocean. Oil and other automotive fluids will much more easily be transported across the parking lot and into the ocean. This impact has not been adequately addressed in the environmental assessment. In order to minimize adverse effects upon special management area resources, the applicant should be required to install an oil/water separator.

Additionally, HRS 205A-26(1)(a) requires that conditions be set to ensure adequate access to public beaches. Given the problems of ensuring public access in this area, special provisions should be made to guarantee that the public can exercise its rights. The environmental assessment is unclear as to the type of signage that will be provided to ensure that the public understands its access rights. Any SMA permit should specifically require adequate signage of the public parking area and the easement. Signs should be posted on Ali'inui Drive and between the public parking area and the pedestrian beach access easement. These signs should clearly inform the public of its access rights.

Should you have any questions regarding these comments, please contact David Frankel at 587-2839 or the CZM Program at 587-2876.

Sincerely,


Gregory G. A. Pai, Ph.D.
Director

November 28, 1995

WILLIAM
E.
WANKET
INC.

Land Use Consultant

Dr. Gregory G. Y. Pai
Director
Office of State Planning
Office of the Governor
State of Hawaii
P.O. Box 3540
Honolulu, Hawaii 96811-3540

Dear Dr. Pai:

Subject: Draft EA For Lanikuhonua Improvements

Thank you for your August 11, 1995 comment letter on the proposed improvements for Lanikuhonua. We appreciate your comments which have been incorporated into the Final Environmental Assessment. We offer the following response to your comments.

A letter report has been prepared by AECOS to address oil-related runoff impacts along with your department's concern with the installation of an oil/water separator for the project. The results of this report have been incorporated into the Final Environmental Assessment, and a copy of this report is enclosed for your use.

The results of this report determined that an oil/water separator would not effectively remove metals and many other residues from runoff associated with the parking lot, and would not be a cost-effective method for addressing these discharges. After expected high evaporative losses (>75%) of pollutants to the atmosphere, source control can remove nearly all remaining residual oil and grease on the proposed parking lot. Consequently, a combination of management practices which enhance planned drainage improvements is recommended. These practices would include periodic sweeping, maintaining vegetation in drainage swales, and the use of filters or absorbent blankets within detention basin overflows where practical.

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Page - 2 -

The applicant has and would continue to provide sufficient public access to the shoreline in conformance with applicable regulations. As discussed in the Draft Environmental Assessment, the project would create a new public easement to the public parking area from Aliinui Drive, and to the existing public shoreline easement from this parking area. Adequate signage for the public parking area and shoreline easement would be provided in conformance with City standards and regulations.

Again, thank you very much for your comments.

Sincerely,



William E. Wanket
President



AECOS

970 N. Kalaheo Avenue, Suite C300 • Kailua, Hawaii 96734
Telephone: (808) 254-5884

AECOS No. 839

October 4, 1995

William E. Wanket, Inc.
1001 Kamokila Boulevard
Kapolei Building, Suite 320
Kapolei, Hawaii 96707

Subject: Lanikuhonua Parking Lot Expansion

Dear Mr. Wanket,

In response to your request dated September 26, 1995, we are providing the following information regarding runoff impacts from the proposed Lanikuhonua Improvements Project. This paper has been prepared by AECOS, Inc. to address the potential for increased transport of oil and grease to the ocean resulting from the subject project and to review available mitigation methods.

This paper represents the views of AECOS, Inc. based on our knowledge of the fate and transport of petroleum-based hydrocarbons, review of existing nonpoint source pollution guidelines, and consultation with experts in engineering practices. If you have any questions or comments, please direct them to Eric Guinther or Hilary Maybaum.

INTRODUCTION

The applicant proposes to expand the existing Lanikuhonua visitor parking lot to include an additional 264 parking stalls, for a total of 429 parking stalls. The parking lot improvements would encompass an area of about 3.2 acres on the northeastern portion of the site. This activity is proposed within a Special Management Area (SMA) and thus requires a Use Permit (SMP) from the City and County of Honolulu. A Draft Environmental Assessment (EA) has been submitted and comments received.

The Office of State Planning (OSP) has expressed its concern that the proposed improvements will increase the amount of oil entering the coastal zone at the project site. OSP is requesting that the applicant be required to install an oil/water separator to mitigate this potential impact.

REGULATORY FRAMEWORK

The Coastal Zone Act Reauthorization Amendments of 1990 recognize the impact of nonpoint source pollution on coastal waters. Under Section 6217(g), states are required

to develop an approved coastal zone management program which includes a Coastal Nonpoint Pollution Control Program. These programs are currently under development in Hawaii and throughout the United States. At present, there are no promulgated regulations for managing stormwater runoff from parking lots. Such nonpoint source discharges are not currently under National Pollutant Discharge Elimination System (NPDES) purview. The Environmental Protection Agency (EPA) published *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters* (EPA, 1993) encourages the use of alternative designs and maintenance strategies for impervious parking lots.

IMPACT ASSESSMENT

Parking lot runoff can account for a significant percentage of nonpoint source pollution in commercial areas (EPA, 1993) and may contain high hydrocarbon loadings and metal concentrations relative to average urban areas (Woodward-Clyde, 1991). Fuels and oils contain soluble petrochemicals and other organic compounds. By definition, soluble petrochemicals are the hydrocarbons in mineral oil (or its refined derivatives) that can dissolve in water. Most fuel components are not soluble in water, or are only slightly soluble. Despite the low solubility of petrochemicals as a group, toxicity of the soluble fraction is relatively high. Therefore, concern about their presence in the marine environment is justified. Metals used in the formulation of these compounds or otherwise associated with may also be harmful but to an undetermined extent.

Runoff during the first hour of a storm can contribute high pollutant loadings to receiving waters. Of the total amount of material that could conceivably be flushed off by a given rainfall intensity, the amount flushed off during each successive time period decreases in a regular pattern (Sartor and Boyd, 1972). In other words, while the first runoff discharge may be quite "dirty," subsequent runoff will be cleaner as time goes on. Therefore, it is the initial discharge of runoff that is of most concern.

An existing drainage swale traverses the Lanikuhonoa site and leads to the shoreline at the southern property boundary. The parking lot is level at approximately 10 feet above the swale. Under the approved drainage plan, the parking lot will be divided into two drainage areas: a 1.22-acre southern part (drainage area "A") and a 1.98-acre northern part (drainage area "B"). The peak discharge from the swale into which runoff flow from drainage area "A" will be directed will be 7.1 cubic feet per second for a 10-year design storm (reduced from that which currently exists). In addition, a detention basin will be installed at the southern end of the property for onsite containment of silt and other debris.

Runoff from drainage area "B" will be directed into an underground storm drain system. The peak discharge from this area will be 10.57 cfs under a 10-year storm, more than is presently estimated to occur from sheet flow onto Alii Nui Drive. The new drainage system will include two underground catch basins and connect to the street drain system. Only in the event of peak flows in excess of 5 cfs will runoff from the parking lot be directed into the drainage swale for onsite accumulation and infiltration.

Although the catch basins for both systems are designed to reduce peak flows to pre-project values, these catchment features alone may not prevent loading of hydrocarbons or metals to receiving waters.

In order to assess potential impacts from motor oils and related substances, it is useful to review the fate and transport of these substances once they are deposited on the site. The eventual fate of petrochemicals largely depends on their initial composition. In the case of the Lanikuhonua project, gasoline and refined oil products are the compounds of concern. Gasoline is a mixture of mostly saturated hydrocarbons containing substantial amounts of paraffins, olefins, naphthenes, and aromatics. Oil or lubricant is typically composed of 20% kerosene, 20% dispersant, 60% lubricating oil (hydrocarbons) and a trace amount of other additives (Dicks and Bayley, 1983). Light, gaseous hydrocarbons found in refined fuel and motor oil are highly mobile. Their high solubility and vapor pressures makes them susceptible to evaporation to the atmosphere and to solution into liquids (Brooks, 1976).

In the presence of hot sun and trade winds at the Lanikuhonua site, evaporation of volatile fractions from oil and grease deposits would result in a large net loss from the parking lot surface. More than 75% of a refined fuel product such as gasoline will be lost to the atmosphere within 24 hours (RCEP, 1981) and most is lost within minutes or hours depending on temperature and wind conditions (Dicks and Bayley, 1983). Other degradative processes will occur, such as photochemical oxidation (breakdown of organic compounds by sunlight), microbial degradation (activity of bacteria that utilize hydrocarbons as an energy source), and dilution, dispersion, and emulsification (physical processes that spread the fuel, promoting its movement or physical removal from the area). Any oily residues on the Lanikuhonua pavement will be subject to such processes for extended lengths of time. Thus, the more toxic hydrocarbons will be removed and heavier, tarry hydrocarbons will remain.

The onsite drainage swale (for drainage area "A") ends in a sand and boulder-filled pocket behind a massive limestone bench. Storm runoff infiltrates into the adjacent ocean. Furthermore, a detention basin is proposed further upslope to retain runoff during heavy rains. Overtopping of either basin is expected to be rare, so the swale seldom if ever would discharge directly into the ocean. If runoff carrying hydrocarbons reaches the coastal waters, negative impacts would not really be noticeable. Acute effects on marine biota and their habitat would occur only if the parking lot had recently suffered a massive oil spill and onsite clean-up was incomplete. Chronic impacts resulting from toxic components of petroleum would be extremely difficult to detect although are possible unless proactive management measures designed for onsite control and treatment are implemented.

MITIGATION MEASURES

The preferred system to reduce pollutant loadings from the Lanikuhonua parking lot is a combination of management practices including incorporation of existing or planned facilities (i.e., drainage swale and detention basin) and source control, of which "good

housekeeping" is a primary concern. Use of asphaltic concrete will further prevent deterioration of the parking lot pavement and subsequent runoff of particulates.

Sweeping is an effective method of controlling pollution at the source and is highly recommended for this project. Current sweeper technologies (e.g., abrasive brush and vacuum devices) are generally efficient at picking up solids larger than 43 microns (μ) in diameter. A computer model has shown that for paved commercial parking lots, a 3- to 28-day sweeping cycle produces a pollutant removal range of 60% to 20%, respectively; as the quantity of residue increases, sweeper efficiency also increases (Broward County Planning Council, 1982). A newer, more promising method of cleaning that concentrates on oil and grease removal is wet-sweeping with water containing biodegradable soaps or detergents (Silverman et al., 1986). Sweeping will be facilitated, and expense decreased, if the lot can be constructed with minimal parking bumpers or medians dividing them. Based upon these and other studies, it can be suggested that sweeping should be scheduled as a regular maintenance activity (e.g., weekly or biweekly) to occur during hours of low site use. However, given the small amount of rainfall generating runoff in this part of O'ahu most of the year and the lower volume of traffic compared with more urban lots, less frequent sweeping for oil removal during the dry season (for example, monthly intervals) would decrease the cost of pollutant removal effort without sacrificing efficacy.

The existing drainage swale is expected to function as a filtration/infiltration method. Its effectiveness will be greatly enhanced if grassed or otherwise vegetated with erosion-resistant plants appropriate to the local climate. Vegetated areas and grassed swales can be designed to accept runoff with relatively high oil and grease concentrations from parking lots (EPA, 1993). Additionally, vegetation will prevent erosion, filter sediment, and provide some nutrient uptake (USDA-SCS, 1988). To be fully effective, the swale should be mowed at least twice each year to stimulate vegetative growth, control weeds, and maintain system capacity. It should not be mowed shorter than three to four inches (Bassler, undated).

Addition of a filtration system to the detention basin is also recommended. Filter inserts or absorbent blankets can be used. These are comprised of sand and organic materials through which runoff percolates. They are effective in trapping sediments, oil, and other storm water contaminants. Blankets are particularly effective at reducing concentrations of hydrocarbons in storm water (Barrett Consulting Group, 1995). A layer of peat, limestone, and/or topsoil may be added to improve removal efficiency. Filters and blankets must be regularly inspected and replaced semi-annually or as needed. If the parking lot will have grated inlets to collect storm water, use of filter or absorbent pad inserts or absorbent blankets is also recommended for these.

To prevent clogging by sediment generated during the construction process or unstabilized soil runoff, all infiltration/filtration systems should be installed after construction has been completed and the site has been permanently stabilized. Following installation, maintenance of all measures should occur at regular intervals by one or more individuals trained in proper inspection and maintenance of runoff facilities.

OSP recommends installation of an oil/water separator at Lanikuhonua. Such devices are primarily used where concentrations of oil and grease compounds are high and source control cannot provide effective mitigation. In an oil separator, free oil floats to the surface of a tank, where it is skimmed off. In the process, other undesirable pollutants such as grit are removed. Oil separators are becoming more popular as a method of reducing hydrocarbon loadings from commercial and other areas with high traffic/parking volumes. However, experience has shown that the effectiveness of pollutant removal by such devices is limited and, furthermore, that they should not be used unless coupled with frequent and effective clean-out methods (Schueler et al., 1992). Oil separators are not effective for removal of metals. Operation and maintenance requirements, including frequent cleaning and proper disposal, are plentiful and associated costs may be significantly high (EPA, 1993).

SUMMARY AND CONCLUSIONS

Source control can remove most of the residual oil and grease on the Lanikuhonua parking lot after expected high evaporative losses to the atmosphere. A slight possibility exists for potential inputs of heavier hydrocarbons to the coastal environment, a possibility that would not be removed by the use of oil/water separators. Although installation of an oil/water separator has been suggested by OSP, this approach is probably not a cost-effective method for this project and will not effectively remove metals and many other other residues from the runoff. A combination of management practices that enhance existing or planned features at moderate cost is thus recommended. These practices include sweeping, maintaining vegetation in the drainage swales, and use of filters or absorbent blankets within the detention basin overflows where practical.

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William E. Wanket, Inc.
October 4, 1995
Page 6

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Prepared by:


for Hilary L. Maybaum, Project Scientist

95-05664

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU

630 SOUTH BERETANIA STREET

HONOLULU, HAWAII 96843



August 30, 1995

JEREMY HARRIS Mayor

WALTER O. WATSON, JR. Chairman
MAURICE H. YAMASATO Vice Chairman

KAZU HAYASHIDA
MELISSA Y. J. LUM
FORREST C. MURPHY
KENNETH E. SPRAGUE

RAYMOND H. SATO
Manager and Chief Engineer

TO: PATRICK T. ONISHI, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: *Raymond H. Sato*
RAYMOND H. SATO, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

SUBJECT: YOUR MEMORANDUM OF JULY 27, 1995 ON THE DRAFT ENVIRONMENTAL ASSESSMENT (DEA) FOR THE PROPOSED LANIKUHONUA IMPROVEMENTS PROJECT, TMK: 9-1-57: 29, ALIINUI DRIVE, KAPOLEI, OAHU, HAWAII

Thank you for the opportunity to review the DEA for the proposed improvements project. We have the following comments:

1. There are three water meters currently serving the proposed project site. Two meters provide potable water for domestic consumption and fire protection and one meter provides nonpotable water for irrigation.
2. The developer will be required to obtain a water allocation from the Estate of James Campbell or West Beach Estates.
3. The availability of water will be confirmed when the building permit application is submitted for our review and approval. If water is provided for by West Beach Estates, the applicant will be assessed the prevailing Water System Facilities Charges for transmission.
4. The on-site fire protection requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.
5. A Board of Water Supply approved reduced pressure principle backflow prevention assembly should be installed on the domestic water line immediately after the property valve prior to any branch piping.

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

November 28, 1995

WILLIAM
E.
WANKET
INC.

Land Use Consultant

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

Dear Mr. Sato:

Subject: Draft EA For Lanikuhonua Improvements

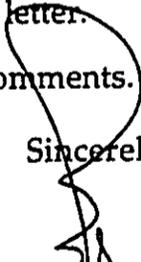
Thank you for your August 30, 1995 comment letter on the proposed improvements for Lanikuhonua. We appreciate your comments which have been incorporated into the Final Environmental Assessment.

We offer the following response to your comments:

1. Your information on the three water meters serving the project site has been noted.
2. The project will not require additional potable water since only non-potable water will be used for irrigation of parking lot landscaping. However, a non-potable water allocation from The Estate of James Campbell confirming quantities needed and available source will be obtained based upon discussion with your staff.
3. On-site fire protection requirements will be coordinated with the Fire Department.
4. A Board of Water Supply approved backflow prevention assembly has already been installed as specified in your letter.

Again, thank you very much for your comments.

Sincerely,


William E. Wanket
President

1001 Kamokila Blvd
Kapolei Building
Suite 320
Kapolei HI 96707
Phone
(808) 674-3517
Fax (808) 674-1064

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

1995 AUG 15 AM 8 01

95-05182

JEREMY HARRIS
MAYOR



KENNETH E. SPRAGUE
DIRECTOR AND CHIEF ENGINEER

DARWIN J. HAMAMOTO
DEPUTY DIRECTOR

ENV 95-232

August 14, 1995

MEMORANDUM:

TO: PATRICK T. ONISHI, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: *fr* KENNETH E. SPRAGUE
DIRECTOR AND CHIEF ENGINEER *AS/STP*

SUBJECT: ENVIRONMENTAL ASSESSMENT (EA)
LANIKUHONUA IMPROVEMENTS
TMK: 9-1-57: 29

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

1. Standard drop driveways should be constructed.
2. All construction within the City's right-of-way shall be in accordance with City standards as well as the Americans with Disabilities Act Accessibility Guidelines.

Should you have any questions, please contact Alex Ho,
Environmental Engineer, at Local 4150.

bcc: Eng

November 28, 1995

WILLIAM
E.
WANKET
INC.

Land Use Consultant

Mr. Kenneth E. Sprague
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Sprague:

Subject: Draft EA For Lanikuhonua Improvements

Thank you for your August 14, 1995 comment letter on the proposed improvements for Lanikuhonua. We appreciate your comments which have been incorporated into the Final Environmental Assessment.

In response to your comments, all improvements would be constructed in conformance to applicable City regulations and standards such as those identified in your letter. As such, standard drop driveways would be provided, and improvements within the City's right-of-way would be in accordance with the Americans with Disabilities Act Accessibility Guidelines.

Again, thank you very much for your comments.

Sincerely,



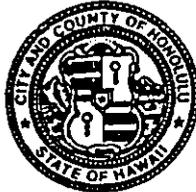
William E. Wanket
President

1001 Kamokila Blvd.
Kapolei Building
Suite 320
Kapolei, HI 96707
Phone
(808) 674-3517
Fax (808) 674-1064

95-05234

DEPARTMENT OF WASTEWATER MANAGEMENT
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

JEREMY HARRIS
MAYOR



FELIX B. LIMTIACO
DIRECTOR
CHERYL K. OKUMA-SEPE
DEPUTY DIRECTOR

WPP 95-402

August 16, 1995

MEMORANDUM

TO: PATRICK T. ONISHI, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: FELIX B. LIMTIACO, DIRECTOR
DEPARTMENT OF WASTEWATER MANAGEMENT

SUBJECT: ENVIRONMENTAL ASSESSMENT, CHAPTER 25, ROH
PROJECTS WITHIN THE SPECIAL MANAGEMENT AREA

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
95 AUG 17 AM 8 01

We have reviewed the Environmental Assessment for the Lanikuhonua Improvement project submitted by Department of Land Utilization Memorandum of July 27, 1995, and find no significant impact on the wastewater system.

If there are any questions, please contact Carl Arakaki of the Division of Planning and Service Control at 523-4671.

Cheryl K. Okuma-Sepe
FELIX B. LIMTIACO
Director

November 28, 1995

WILLIAM
E.
WANKET
INC.

Land Use Consultant

Mr. Felix B. Limtiaco
Director
Department of Wastewater Management
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Limtiaco:

Subject: Draft EA For Lanikuhonua Improvements

Thank you for your August 16, 1995 comment letter on the proposed improvements for Lanikuhonua. We appreciate your comments which have been incorporated into the Final Environmental Assessment.

Your comment that the proposed project would not have a significant impact on the wastewater system based upon your department's review of the Draft Environmental Assessment has been noted.

Again, thank you very much for your comments.

Sincerely,


William E. Wanket
President

1001 Kamokila Blvd.
Kapolei Building
Suite 320
Kapolei, HI 96707
Phone
(808) 674-3517
Fax (808) 674-1064

95-04961

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

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

195 AUG 7 PM 2 22

DEPARTMENT OF LAND UTILIZATION
HONOLULU, HAWAII

JEREMY HARRIS
MAYOR



ANTHONY J. LOPEZ, JR.
FIRE CHIEF

ATTILIO K. LEONARDI
FIRE DEPUTY CHIEF

August 4, 1995

TO: PATRICK T. ONISHI, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: ATTILIO K. LEONARDI, FIRE DEPUTY CHIEF
HONOLULU FIRE DEPARTMENT

SUBJECT: APPLICATION FOR AN EXISTING USE AND MINOR
MODIFICATION, LANIKUHONUA IMPROVEMENTS
TAX MAP KEY: 9-1-57: 29

We have reviewed your application and have made an on-site assessment of your request.

We have no objections to the proposal to allow the expansion of the current parking lot at Lanikuhonua.

Should additional information or assistance be required, please call Acting Captain Stephen Kishida of our Fire Prevention Bureau at 523-4186.

Attilio K. Leonard
ATTILIO K. LEONARDI
Fire Deputy Chief

SK:jl

November 28, 1995

WILLIAM
E.
WANKET
INC.

Land Use Consultant

Mr. Attilio K. Leonardi
Fire Deputy Chief
Honolulu Fire Department
City and County of Honolulu
3375 Koapaka Street, Suite H425
Honolulu, Hawaii 96819-1869

Dear Mr. Leonardi:

Subject: Draft EA For Lanikuhonua Improvements

Thank you for your August 4, 1995 comment letter on the proposed improvements for Lanikuhonua. We appreciate your comments which have been incorporated into the Final Environmental Assessment.

Your comment that your department has no objections to the proposed project based upon an on-site assessment has been noted.

Again, thank you very much for your comments.

Sincerely


William E. Wanket
President

1001 Kamokila Blvd.
Kapolei Building
Suite 320
Kapolei, HI 96707
Phone
(808) 674-3517
Fax (808) 674-1064

95-05594

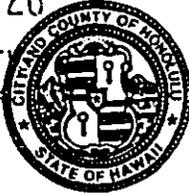
PLANNING DEPARTMENT
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

'95 AUG 24 PM 3 20

JEREMY HARRIS
MAYOR

DEPT. OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU



CHERYL D. SOON
CHIEF PLANNING OFFICER

CAROLL TAKAHASHI
DEPUTY CHIEF PLANNING OFFICER

BS 7/95-1486

August 24, 1995

MEMORANDUM

TO: PATRICK T. ONISHI, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: CHERYL D. SOON, CHIEF PLANNING OFFICER
PLANNING DEPARTMENT

SUBJECT: APPLICATION FOR AN EXISTING USE AND MINOR MODIFICATION,
LANIKUHONUA IMPROVEMENTS, 95/SMA-039 AND 95/SPR-14,
TAX MAP KEY 9-1-57: 29

In response to the subject application for the proposed project, we are offering the following comments.

The subject property is currently designated "Parks and Recreation" on the Development Plan Land Use Map for Ewa.

We have no objections to the proposed project at this time.

Thank you for the opportunity to comment on the subject request. Should you have any further questions on the matter, you may contact Brian Suzuki of our staff at 527-6073.

Cheryl D. Soon
CHERYL D. SOON
Chief Planning Officer

CDS:js

95-05595

PLANNING DEPARTMENT
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

1995 AUG 28 PM 3 20

JEREMY HARRIS
MAYOR

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU



CHERYL D. SOON
CHIEF PLANNING OFFICER

CAROLL TAKAHASHI
DEPUTY CHIEF PLANNING OFFICER

BS 7/95-1483

August 25, 1995

MEMORANDUM

TO: PATRICK T. ONISHI, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: CHERYL D. SOON, CHIEF PLANNING OFFICER
PLANNING DEPARTMENT

SUBJECT: ENVIRONMENTAL ASSESSMENT, CHAPTER 25, ROH,
PROJECTS WITHIN THE SPECIAL MANAGEMENT AREA,
LANIKUHONUA IMPROVEMENTS, TAX MAP KEY 9-1-57: 29

In response to the subject Environmental Assessment report for the proposed project, we are offering the following comments. Based on our review, we would agree with the anticipated issuance of a "Negative Declaration" for the subject report. We have no objections to the proposed project at this time.

Thank you for the opportunity to comment on the subject request. Should you have any further questions on the matter, you may contact Brian Suzuki of our staff at 527-6073.

Cheryl D. Soon

CHERYL D. SOON
Chief Planning Officer

CDS:ft

November 28, 1995

WILLIAM
E.
WANKET
INC.

Land Use Consultant

Ms. Cheryl D. Soon
Chief Planning Officer
Planning Department
City and County of Honolulu
650 South Beretania Street
Honolulu, Hawaii 96813

Dear Ms. Soon:

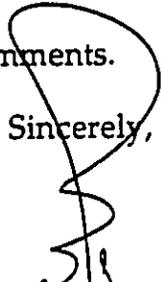
Subject: Draft EA For Lanikuhonua Improvements

Thank you for your August 24 and 25, 1995 comment letters on the proposed improvements for Lanikuhonua. We appreciate your comments which have been incorporated into the Final Environmental Assessment.

Your comment that a Negative Declaration should be issued for the this project based upon your department's review of the Draft Environmental Assessment has been noted.

Again, thank you very much for your comments.

Sincerely,


William E. Wanket
President

1001 Kamokila Blvd.
Kapolei Building
Suite 320
Kapolei, HI 96707
Phone
(808) 674-3517
Fax (808) 674-1064

APPENDIX B

**Drainage Report For Lanikuhonua
Visitor Parking Lot**

Prepared By: William Dean Alcon And Associates

808-647-2444

ALCON & ASSOC

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

JEREMY HARRIS
MAYOR



KENNETH E. SPRAGUE
DIRECTOR AND CHIEF ENGINEER

IN REPLY REFER TO:

95-12-0173

April 20, 1995

Mr. Wes Toyota
Wm. Dean Alcon & Associates, Inc.
905 Umi Street, Suite 101
Honolulu, Hawaii 96819

RECEIVED

APR 24 1995

Kauchi & Chun
AK

Dear Mr. Toyota:

Subject: Drainage Report for Lanikuhonua Visitor Parking Lot
Tax Map Key: 9-1-57: 27

We have reviewed the Lanikuhonua Visitor Parking Lot drainage report and find it acceptable. However, you are required to obtain a drain connection permit.

If you have any questions, please contact Scott Nakamatsu of the Division of Engineering at 527-6247.

Very truly yours,

KES
KENNETH E. SPRAGUE
Director and Chief Engineer

RECEIVED APR 22 1995

Drainage Report
for
Lanikuhonua Visitor Parking Lot
T.M.K.: 9-1-57: 27

Prepared By:
Wm. Dean Alcon and Associates

February 21, 1995

1 References

- a. City and County of Honolulu, Dept. of Public Works. Storm Drainage Standards, dated 1988.
- b. United States Dept. of Agriculture, Soil Conservation Service. Urban Hydrology for Small Watersheds, Technical Release 55, dated 1986.
- c. Clark, Viessman, et. al. Water Supply and Pollution Control, 3rd ed. McGraw Hill, 1977.
- d. State of Hawaii, Department of Land and Natural Resources. Rainfall Frequency Study for Oahu, Report R-73, dated 1984.
- e. Lanikuhonua Visitor Parking Lot Plan prepared by Wm. Dean Alcon and Associates, dated October 1994.

2 Project Location

The project site, Tax Map Key: 9-1-57: 27, is an unpaved coral parking lot which covers approximately 3.2-acres (Ac) in West Beach, Oahu. The site is abutted by Paradise Cove and Lanikuhonua Visitor Center to the west and the Ihilani Resort to the east. Ingress and egress to the site is via Alii Nui Drive to the south of Farrington Highway. The site will serve as the primary parking lot for both Lanikuhonua Visitor Center and Paradise Cove.

3 Existing Conditions

The existing parking lot can be divided into two drainage areas. A 0.41-ac portion of the site adjacent to Alii Nui Drive sheet flows onto Alii Nui Drive and the runoff eventually enters the City catch basin near the northwest corner of the site. The peak discharge from this area under a 10-year storm is estimated to be 2.42 cubic feet per second (cfs) using SCS Methods outlined in Reference (b).

The remaining 2.79-ac of the site sheet flows into a drainage ditch along the western boundary of the site. The drainage ditch discharges into the ocean 500 feet to the south of the site. The peak discharge from this area under a 10-year storm is 9.68-cfs. The total peak discharge from the site under a 10-year storm is 12.10-cfs.

4 Proposed Conditions

Under the proposed conditions, the site shall be divided into two drainage areas. Drainage Area "A" shall be the proposed 1.22-Ac Lanikuhonua Visitor Parking Lot which encompasses the southern half of the site. This paved parking area shall slope toward the drainage ditch at an average slope of 0.5-percent. The peak discharge from Area "A" under a 10-year storm will be 5.04-cfs which will sheet flow into the drainage ditch.

Drainage Area "B" shall encompass the proposed Paradise Cove Parking Lot and the area designated for public parking. Area "B" which covers approximately 1.98-Ac will also be paved with average cross-slopes of 0.5-percent. An underground storm drain system shall be installed to collect surface runoff. The runoff from Area "B" shall be collected through two catch basins. CB "B3" shall collect runoff from the public parking area while CB "B1" shall collect runoff from

the Paradise Cove Parking Lot (See Figure 1). The peak discharge from Area "B" under a 10-year storm will be 10.57-cfs.

The peak discharge from the site under the proposed conditions will increase by 3.51-cfs for a total discharge of 15.61-cfs.

4.1 On Site Detention of Runoff

The maximum allowable peak discharge from the site under the proposed conditions is 12.10-cfs, the peak discharge from the site under existing conditions. To reduce the peak discharge under the proposed conditions to pre-development levels, an detention system shall be incorporated into the proposed drainage system.

Runoff from Area "A" will be detained within a regraded drainage ditch near the south corner of the Lanikuhonua Parking Lot. A reinforced concrete pipe (RCP) culvert will be constructed to limit the discharge from the drainage ditch. The resulting detention basin will have a storage volume of 11,880 cubic feet (cf) with a corresponding peak discharge through the pipe culvert of 7.10-cfs under a 10-year storm.

Runoff from Area "B" will be detained within the underground storm drain system which will be composed of two catch basins, two storm drain manholes and 435-feet of 36-inch CMP piping. The total storage capacity of the storm drain system will be approximately 3340-cf. The corresponding peak discharge from Area "B" into the City storm drain system will be limited to 5.00-cfs based primarily on an existing hydraulic grade line of 7.4-ft within the City system at the point of connection. Overflow from the on site storm drain system will be released into the drainage ditch from SDMH "B4".

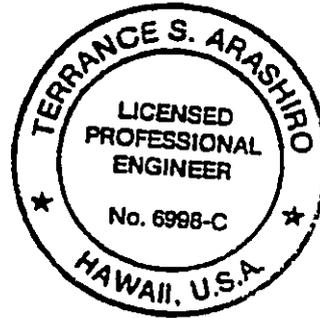
4.2 Effects of the Proposed Development

The runoff quantities under a 10-year storm will have no negative impact upon the water quality of coastal waters in terms of runoff from the site entering the existing drainage ditch. The peak discharge from the drainage ditch will be reduced from 9.68-cfs to 7.10-cfs under the proposed conditions. The quality of the discharged runoff will also be improved because of the proposed surfacing of the parking lot and the use of the drainage ditch as an on site detention area. Surfacing the parking lot will prevent runoff from eroding the existing coral surface and transporting the silt downstream into the receiving ocean waters. Also, because of the detention area, any remaining silt carried by the runoff into the drainage ditch will be deposited on site; the runoff entering the receiving ocean waters can be expected to be predominantly free of silt.

The runoff entering the City storm drain system will increase from 2.42-cfs to 5.00-cfs. Although the peak discharge into the City storm drain system from the site will increase, the quality of the runoff entering the system will be improved. As mentioned above, paving the parking lot will reduce the silt carried away by surface runoff, and the use of a detention area will allow silt in the runoff to be deposited prior to leaving the site.

5 Summary

The total peak discharge from the site under a 10-year storm will remain unchanged under the proposed conditions as calculated using SCS Methods. The peak discharge from the site under the proposed condition will match the existing peak discharge of 12.10-cfs through the use of an on site detention system with a total volume of approximately 15,220-cf. The site improvements and use of a detention system will also have a secondary benefit of improving the quality of runoff discharged into the receiving ocean waters and the City storm drain system.



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.

Terrance S. Arashiro
SIGNATURE

DOCUMENT CAPTURED AS RECEIVED

WM. DEAN ALCON & ASSOCIATES, INC.
 Engineers & Surveyors
 905 Umi St. Suite 101
 HONOLULU, HI 96819
 (808) 842-0300
 FAX (808) 847-0444

JOB: ANILIPUNIA - WAKA'OLE LOT
 SHEET NO. 2 OF
 CALCULATED BY: DATE:
 CHECKED BY: DATE:
 SCALE:

$T = 0.2 \cdot 0.200 \cdot 5 = 0.020 \rightarrow$ use $T/E = 0.15$ (existing volume)

Area A: $T_e = 14 \text{ min}$

$Q_p = 350 \text{ csm/min}$ (see type 2 rainfall distribution)

$A_{in} = 1245 \text{ sq ft} = 0.028 \text{ mi}^2$

$Q_p = 350 \cdot 0.028 \cdot 1.20 = 1.26 \text{ cfs}$

Area B: $T_e = 9 \text{ min}$

$Q_p = 450 \text{ csm/min}$

$A_{in} = 1245 \text{ sq ft} = 0.028 \text{ mi}^2$

$Q_p = 450 \cdot 0.028 \cdot 1.20 = 1.64 \text{ cfs}$

Estimate Runoff Storage Volume

Area B and Area A are separated by a ridge. Area A is a dry pond system. Area B is a pond. The ridge is 10 ft high. The water level in Area A is 10 ft above the ridge. The water level in Area B is 10 ft above the ridge. The water level in Area A is 10 ft above the ridge. The water level in Area B is 10 ft above the ridge.

$V = V_A + V_B = 52.35 \cdot 1.20 + 1.26 \cdot 1.20 = 1.94 \text{ Ac-ft}$

$Q_{pond} = 9.70 \text{ cfs}$ (Q_p existing)

$Q_{pond} = 14.90 \text{ cfs}$ (Q_p unused)

$Q_{in}/Q_{pond} = 9.70/14.90 = 0.65 \rightarrow$ use $T_e = 0.140$ (see 2, Fig. 3-1)

$V_s = V_s/V_p \cdot V_p = 0.140 \cdot 1.94 = 0.27 \text{ Ac-ft} = 11,830 \text{ cu ft}$

DOCUMENT CAPTURED AS RECEIVED

WM. DEAN ALCON & ASSOCIATES, INC.
Engineers & Surveyors
905 Umi St. Suite 101
HONOLULU, HI 96819
(808) 842-0300
FAX (808) 847-0444

JOB: ANIKIHEKONA - PARKIN 2 1997
SHEET NO. 5 OF _____
CALCULATED BY: [Signature] DATE: _____
CHECKED BY: _____ DATE: _____
SCALE: _____

$Q = 12.10 \text{ cfs}$
 $V = 6.36 \text{ fps}$
 $Q = 5.00 \text{ cfs}$ into city CB
 (3) discharge from retention basin
 $Q_{allow} = 12.10 \cdot 5.00 = 478 \text{ cfs}$ allowable discharge from basin
 $V = 1.12 \text{ ft}$ (calculated depth of flow assuming 18" ϕ)
 Assume depth of 1.75 ft as show in (2A) below.

DOCUMENT CAPTURED AS RECEIVED

WM. DEAN ALCON & ASSOCIATES, INC.
Engineers & Surveyors
905 Umi St. Suite 101
HONOLULU, HI 96819
(808) 842-0300
FAX (808) 847-0444

JOB KAHUKOHOA PARKING LOT
SHEET NO. 2 OF _____
CALCULATED BY VIT DATE 11-1-15
CHECKED BY _____ DATE _____
SCALE _____

$z = 4.79$ cfs. (allowance from basin)

$z = 1.75$ ft. (depth of run-off in discharge pipe)

ASSUME $v = 2.0$ ft/sec. Allowance = $4.79 \times 0.705 = 6.09$ cfs. (12" pipe)

$f = 0.037$ (from design table)

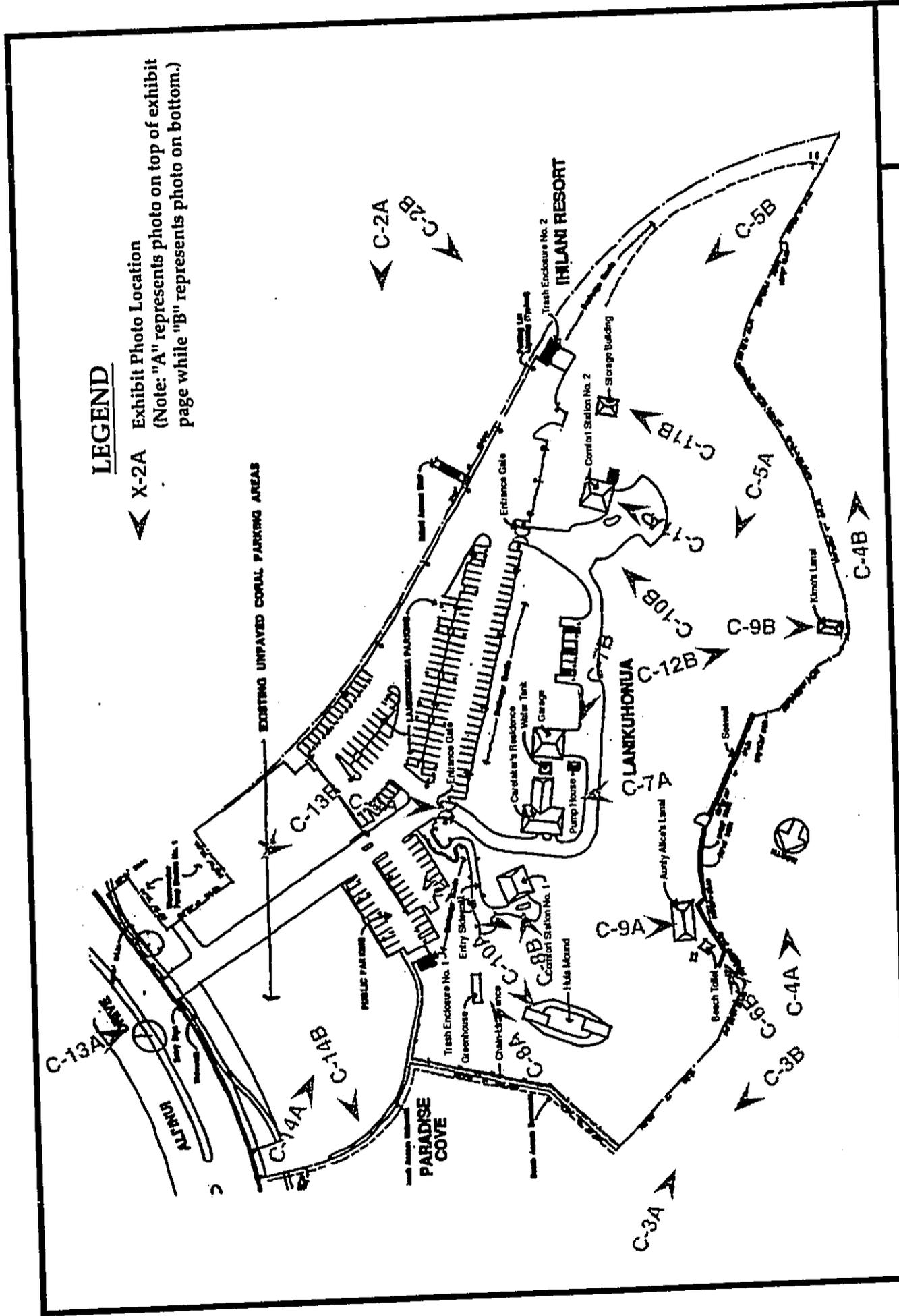
$L = 9.5$ ft. (length of discharge pipe)

$z = \frac{(6.09)^2}{2g} + 0.037 \times 9.5 = 1.75$ ft. (above top of discharge pipe)

$y = 1.75$ ft. (depth of run-off in discharge basin)

APPENDIX C

**Photographs Of Existing
Lanikuhonua Property**



LEGEND

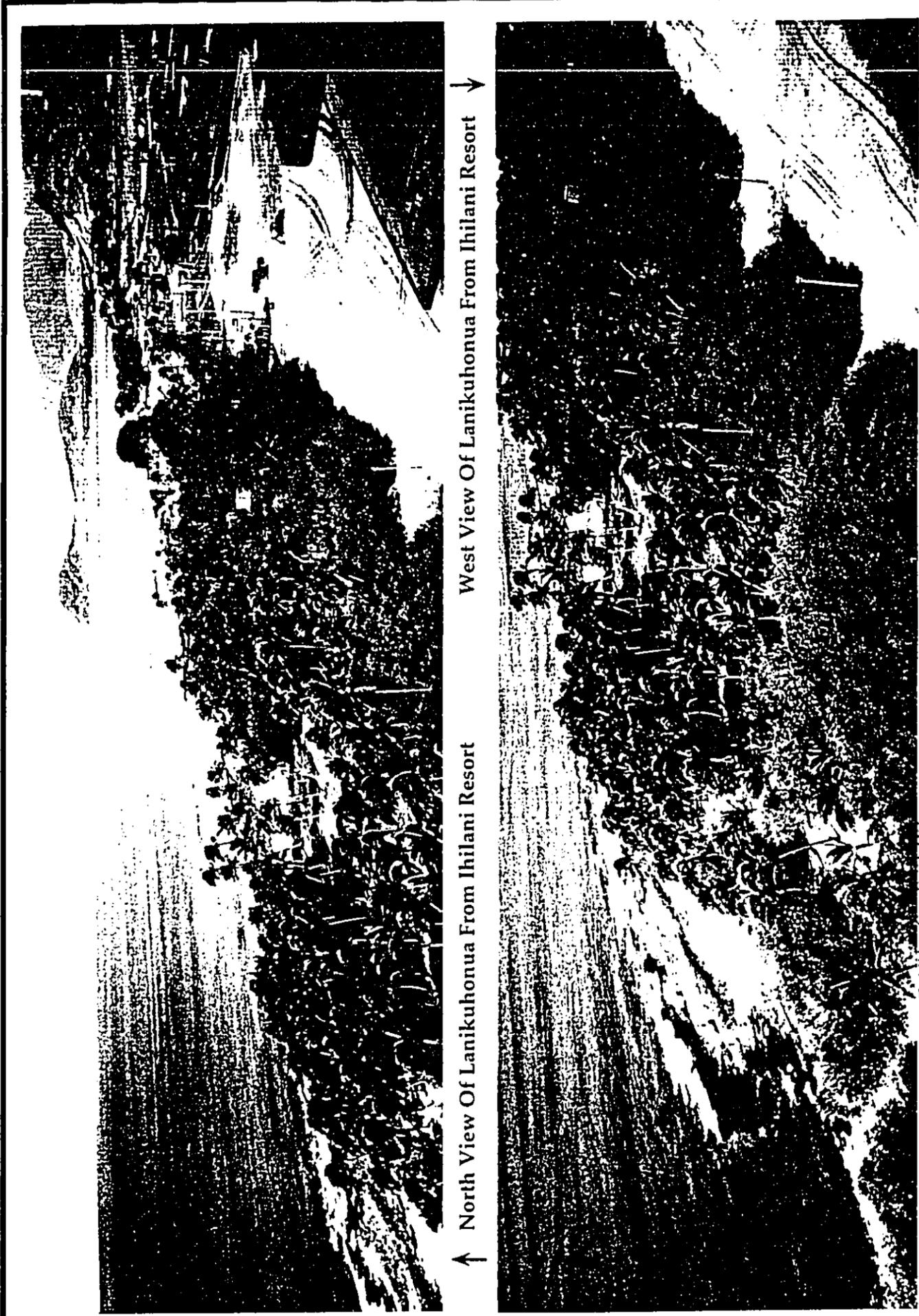
X-2A Exhibit Photo Location
 (Note: "A" represents photo on top of exhibit
 page while "B" represents photo on bottom.)

Exhibit C-1

Plan Showing Locations Of Photographs

WILLIAM
 E. WANKET
 INC.
 Land Use Consultant

Source:
 Kaunahikaua & Chun
 Architects (Photos)



↑ North View Of Lanikuhonua From Ihilani Resort

↓ West View Of Lanikuhonua From Ihilani Resort

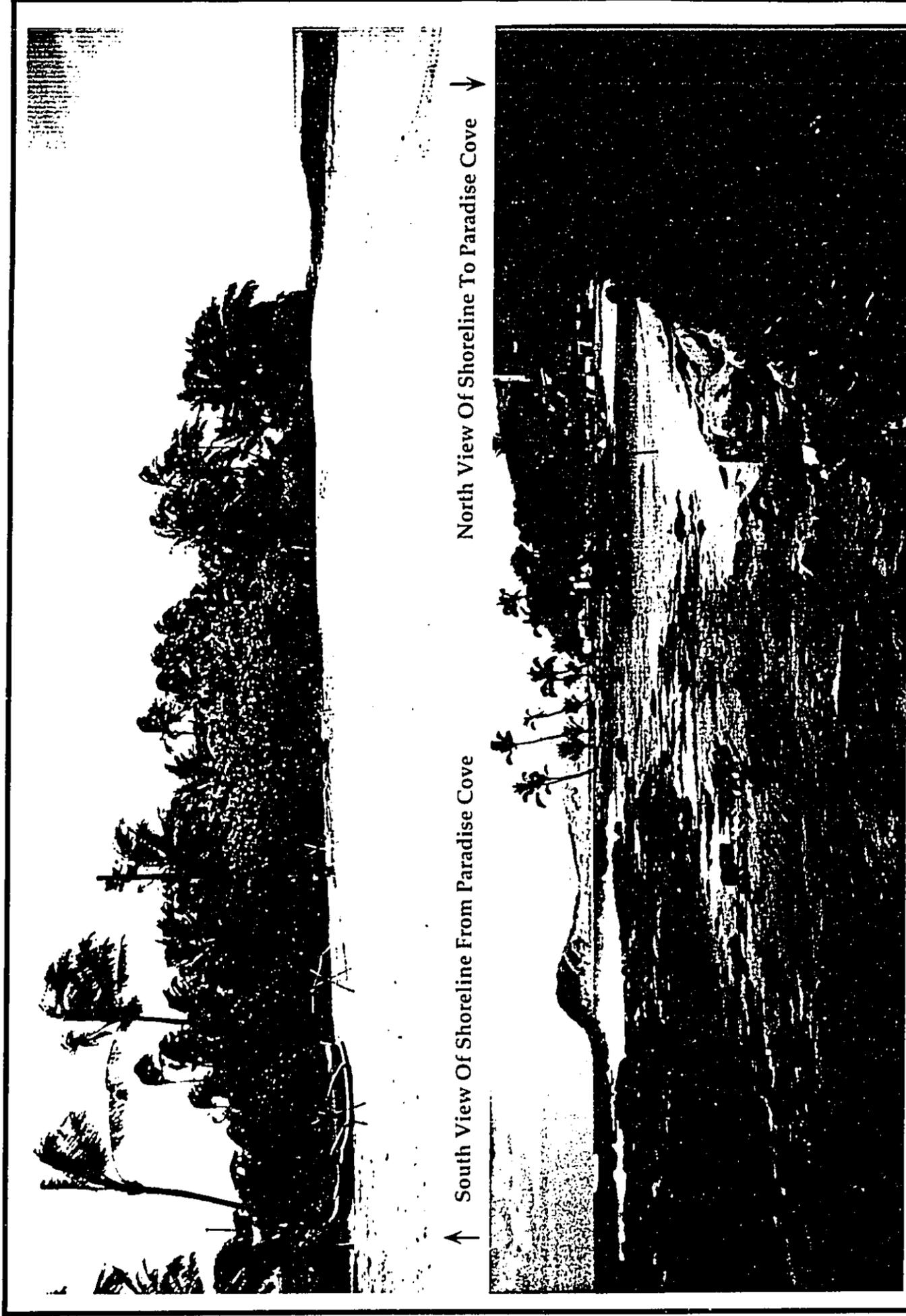
82-01-10-0-11155

WILLIAM
E.
WANKET
INC.
Landscape Architect

Photographs Of Existing Lanikuhonua Site

Exhibit C-2

DOCUMENT CAPTURED AS RECEIVED



↑ South View Of Shoreline From Paradise Cove

North View Of Shoreline To Paradise Cove ↓

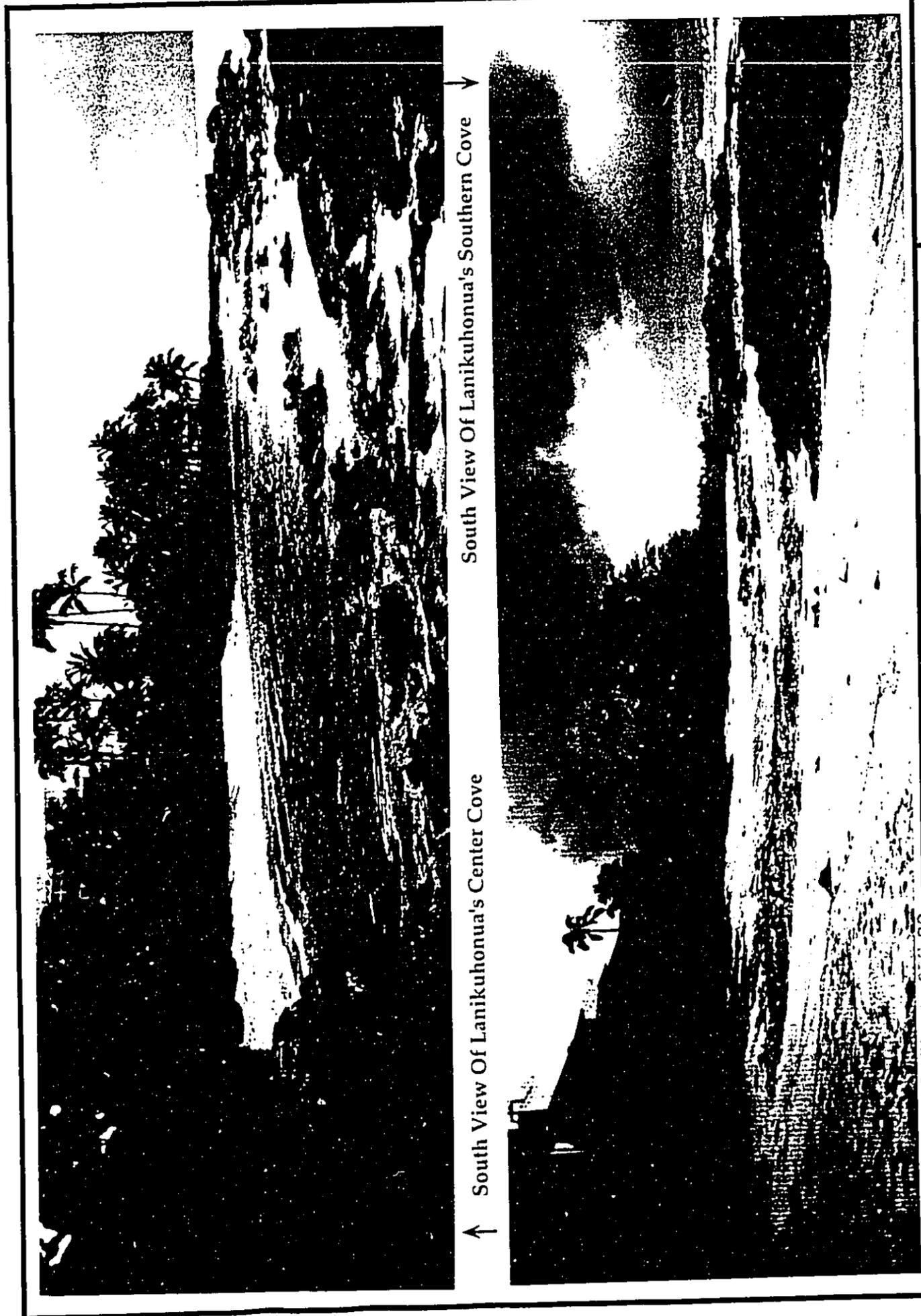
WILLIAM
E.
WANKET
INC. 88 01 111
LAND USE CONSULTANTS

95 DEC 15

Photographs Of Existing Lanikuhonua Shoreline Area

Exhibit C-3

DOCUMENT CAPTURED AS RECEIVED



↑ South View Of Lanikuhonua's Center Cove

→ South View Of Lanikuhonua's Southern Cove

WILLIAM 88 01 00
E.
WANKET
INC.
Lanikuhonua

J. 03 56

Photographs Of Existing Lanikuhonua Shoreline Area

Exhibit C-4

DOCUMENT CAPTURED AS RECEIVED



↑ North View Of Lanikuhonua's Center Lawn

↓ Northeast View Of Lanikuhonua's Southern Cove Clearing

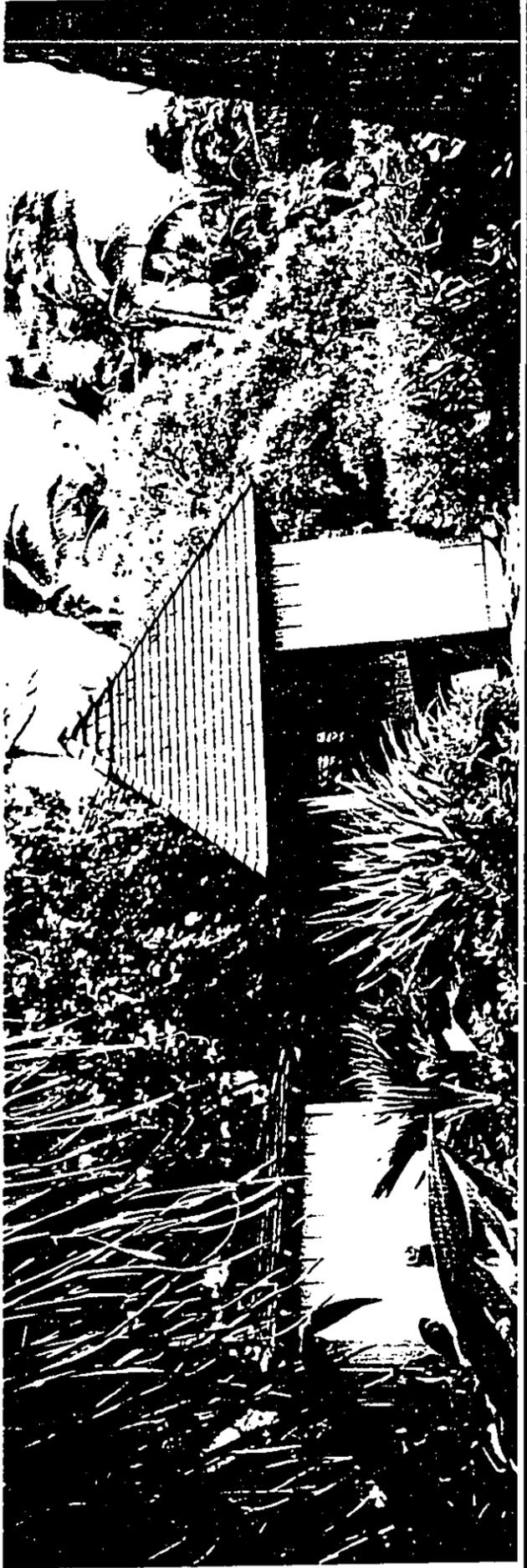
WILLIAM
E.
WANKET
INC.
LANDSCAPE ARCHITECT

Photographs Of Existing Lanikuhonua Lawn Area And Grounds

Exhibit C-5



← West View Of Lanikuhonua's Main Entrance



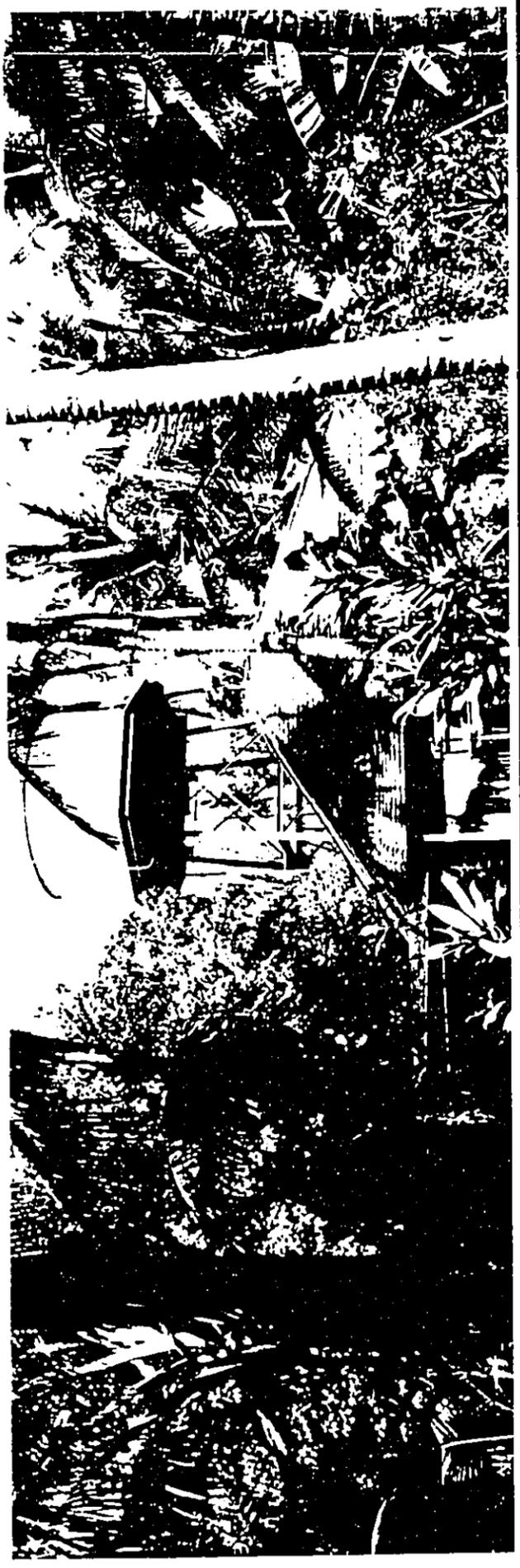
↓ East View Of Beach Toilet Near Auntie Alice's Lanai

WILLIAM OHLVIG E. WANKET INC. LAND SURVEYORS	PHOTOGRAPHS OF LANIKUHONUA ENTRANCE AND STRUCTURES DEC 10 1985	EXHIBIT C-6
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DOCUMENT CAPTURED AS RECEIVED

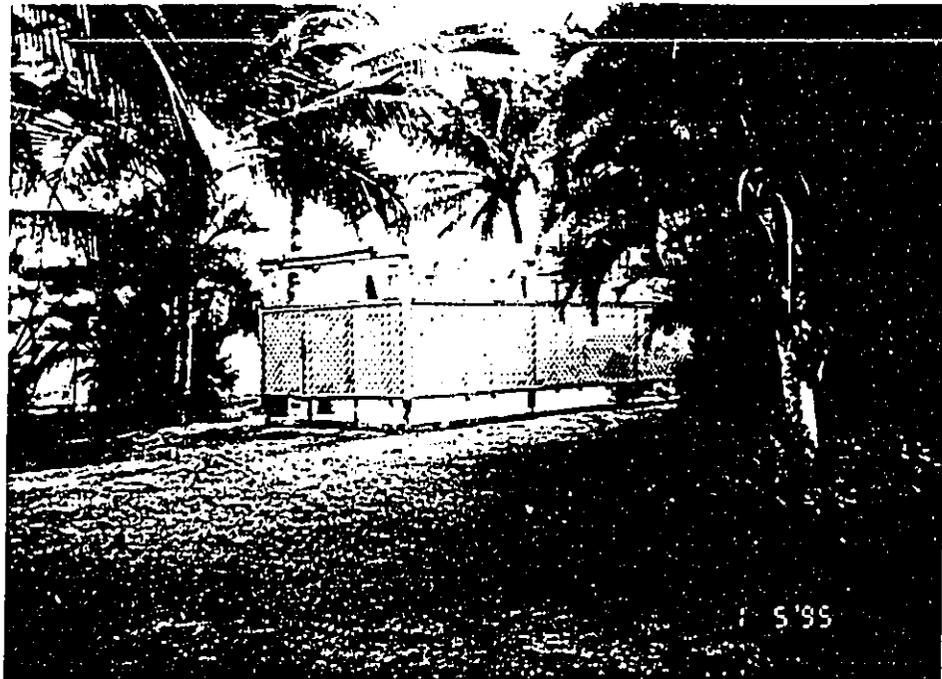


↑ East View Of Caretaker's Residence



↓ North View Of Garage, Pump House, And Water Tower

WILLIAM E. J. WANKET INC. 1000 S. ST. J. B. I. V. 0711 CC	Photographs Of Caretaker's Residence And Structures	Exhibit C-7
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East View Of Greenhouse



South View Of Comfort Station No. 1

95 DEC 6 AM 10 39
OFFICE OF LAND UTILIZATION

WILLIAM
E.
WANKET
INC.
Land Use Consultant

Photographs Of Existing Structures

Exhibit C-8



West View Of Auntie Alice's Lanai



West View Of Kimo's Lanai

95 DEC 6 AM 10 39

WILLIAM
E.
WANKET
INC.
Land Use Consultant

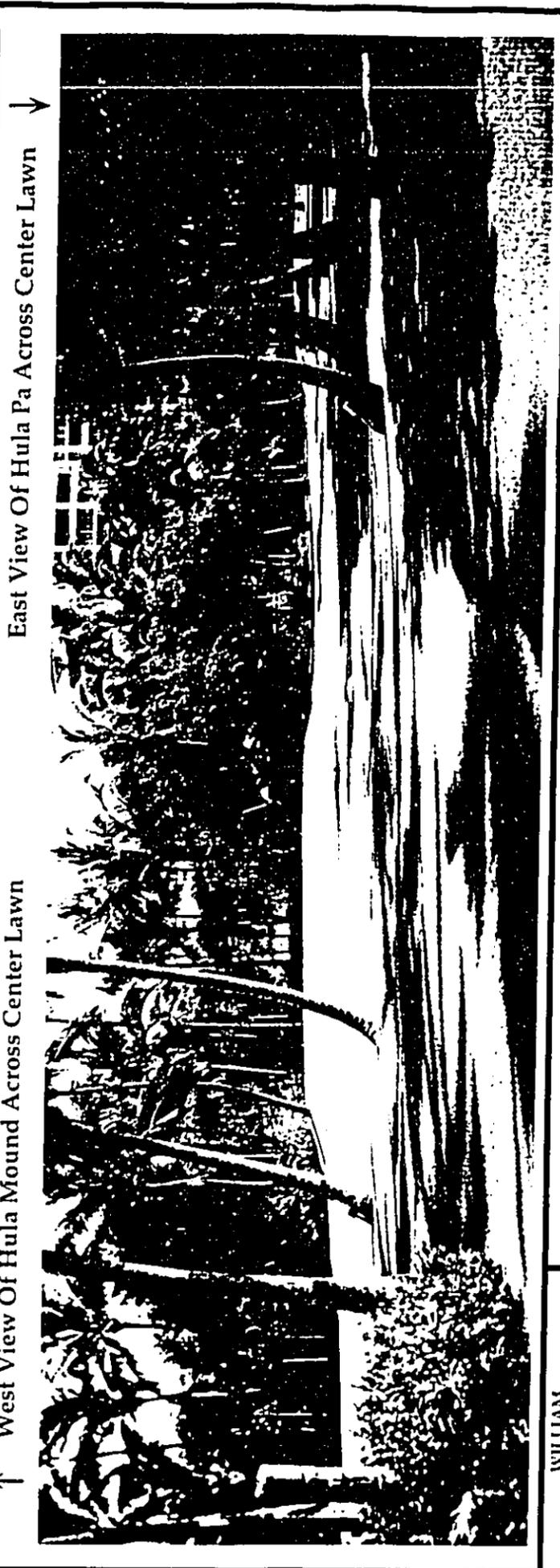
Photographs Of Existing Structures

Exhibit C-9

DOCUMENT CAPTURED AS RECEIVED



↑ West View Of Hula Mound Across Center Lawn



↓ East View Of Hula Pa Across Center Lawn

WILLIAM
E.
WANKET
INC.
Landscape Contractor

Photographs Of Hula Mounds

Exhibit C-10

06 SEP 19 09 10 40
06 SEP 19 09 10 40



East View Of Comfort Station No. 2



East View Of Storage Building

95 DEC 6 AM 10 40
SUN COAST UTILIZATION

WILLIAM
E.
WANKET
INC.
Land Use Consultant

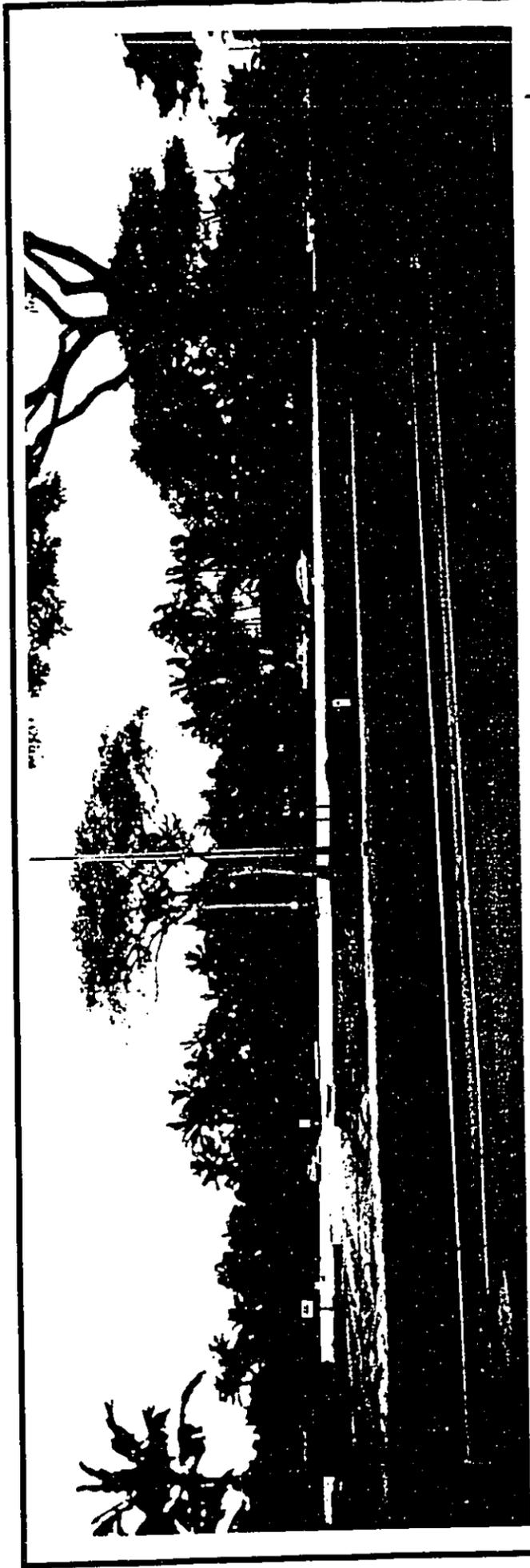
Photographs Of Existing Structures

Exhibit C-11

DOCUMENT CAPTURED AS RECEIVED

	<p>↑ West View Of Lawn And Aunty Alice's Lanai</p> <p>Southeast View Of Lawn And Kimo's Lanai ↓</p> 	Exhibit C-12
WILLIAM E. OH WANKET INC. LAWSON COLONY	SEP 10 1985	388 Photographs Of Lanikuhouua Lawn Areas And Facilities

DOCUMENT CAPTURED AS RECEIVED



↑ Southwest View Of Parking Lot From Aliinui Drive

↓ Northeast View From Parking Lot



WILLIAM E. WANKET INC. <small>LAND USE CONSULTANTS</small>	0h 01	09 30	Photographs Of Existing Lanikuhonua Parking Lot	Exhibit C-13
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↑ South View Of Lanikuhonua Guest Parking



↓ West View Of Paradise Cove From Parking Lot

WILLIAM
E.
WANKET
INC.
LANDSCAPE ARCHITECT

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Photographs Of Existing Lanikuhonua Parking Lot

Exhibit C-14

APPENDIX D

Project-Related Agency Letters

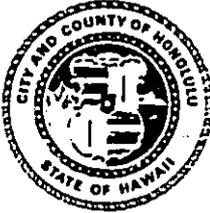
EXHIBIT D-1

DLU Letter Dated June 2, 1995

Minor Modification Approval For 85/SMA-16 And 85/CUP-4

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 523-4432



JEREMY HARRIS
MAYOR

PATRICK T. ONISHI
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

June 2, 1995

95-02826 (ASK)
85/SMA-016
85/CUP-004

Mr. William E. Wanket
Kapolei Building
1001 Kamokila Boulevard, Suite 320
Kapolei, Hawaii 96707

Dear Mr. Wanket:

Request for Modification to 85/SMA-16 and 85/CUP-4
for Construction of a 165-Stall Parking Lot
at Lanikuhonua, Tax Map Key: 9-1-57: 27

We are in receipt of the drainage plan which was submitted relative to your October 24, 1994 request to construct a 165-stall parking lot at Lanikuhonua in West Beach. We have reviewed the project and find that it will not result in significant impacts to coastal resources nor surrounding land uses. As such, a minor modification to 85/SMA-16 and 85/CUP-4 is hereby APPROVED.

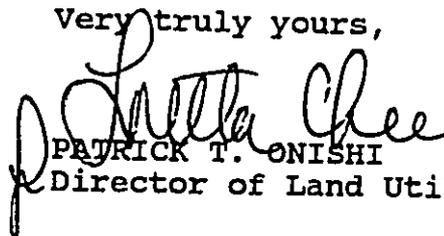
Of the 165 parking stalls, 150 stalls will serve Lanikuhonua and 15 stalls are for public parking in conjunction with the beach access.

The project must meet applicable Land Use Ordinance development standards, including parking lot landscaping requirements.

A copy of this letter should accompany construction permit applications.

Should you have any questions, please contact Ardis Shaw-Kim of our staff at 527-5349.

Very truly yours,


PATRICK T. ONISHI
Director of Land Utilization

PTO:am

A:wanket7.as7
G:wanket7.ask

EXHIBIT D-2

DLU Letter Dated September 15, 1994

Lanikuhonua Parking Lot Expansion Approval Requirements

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 523-4432



JEREMY HARRIS
MAYOR

DONALD A. CLEGG
DIRECTOR

LORETTA K. C. CHEE
DEPUTY DIRECTOR

94-05892 (LC)
Lanikuhonua
SMA-85/CUP-4

September 15, 1994

Mr. William E. Wanket, Inc.
1001 Kamokila Boulevard
Suite 320
Kapolei, Hawaii 96707

Dear Mr. Wanket:

This responds to your letter of August 26, 1994, in which you make proposals for the improvement of the existing graveled parking lot at Lanikuhonua.

Lanikuhonua presently operates under a Special Management Area Use Permit (SMP), approved by Resolution No. 85-396 and a validly issued Conditional Use Permit (CUP) (85/CUP-4), for an outdoor recreational facility.

Your client proposes to improve the existing graveled parking lot for 150 cars, and add 15 parking stalls for public parking by adding pavement and landscaping to meet the Land Use Ordinance (LUO) requirements. We are willing to process this request as modifications to both permits above, under certain requirements outlined below.

In addition, we understand that the above proposal is part of a larger improvement program to allow the expansion of the parking lot from 165 parking stalls to 415 parking stalls, 250 of which would be provided for the adjacent Paradise Cove facility. These will be treated as major modifications, and cannot be processed under current permits, but will require new permits, as discussed below.

Mr. William E. Wanket, Inc.
September 15, 1994
Page 2

MINOR MODIFICATIONS:

1. The Director of the Department of Land Utilization (DLU) will grant a minor modification to the approved SMP, to allow the improvement of the 150 stall parking lot and the addition of 15 public parking stalls, provided that upon review of additional information, regarding impacts of surface runoff on coastal waters, it can be determined that the impacts of a 165-car parking lot on water quality will be non-significant or can be mitigated. We will require the following information before we can make this determination:
 - a. The volume of surface runoff generated by the parking area so that we can gauge impacts of drainage on coastal waters;
 - b. Where the surface runoff would drain to, i.e., to the public roadway and drainage system;
 - c. What impacts this drainage would have on coastal waters, if any;
 - d. What, if any, mitigative measures are proposed to handle the impacts of runoff; and
 - e. How the development of the parking stalls would be phased, i.e., exactly where the 165 stalls would be located.
2. If the minor modification to the SMP is granted, the Director will grant a minor modification to the CUP for the outdoor recreational facility (85/CUP-4), to allow the existing graveled parking lot to be improved with pavement and landscaping and the construction of the additional 15 parking stalls for public parking.

In the event, that the information indicates that impacts will be major, the request will be processed as a new application for a major SMP. This would require an Environmental Assessment (EA), subsequent issuance of a Negative Declaration, a public hearing by the Department and subsequent transmittal of a recommendation to the City Council for action. In this circumstance, you should consider incorporating the request for the additional 250 stall parking lot.

Mr. William E. Wanket, Inc.
September 15, 1994
Page 3

MAJOR MODIFICATIONS:

The proposal to pave and landscape an additional 250-stall parking area for the adjoining Paradise Cove facility, is considered a major modification which requires: 1) a use variance; 2) a major SMA permit; and, 3) reconsideration of the CUP for the outdoor recreational facility.

1. A zoning variance is required to provided off-site parking in the AG-2 zoning district. Off-site parking in an AG-2 Agricultural District is not permitted as a principal or CUP permit. Since this is a use variance, action on the use variance must precede the SMP.
2. The site is in the Special Management Area (SMA). The 250 stall parking lot will exceed \$125,000 in cost, and thus, requires a major SMP.

You will be required to submit An Environmental Assessment (EA). It is likely that a Negative Declaration will be issued. A public hearing would be held by the Department and the recommendation would be transmitted to the City Council for final action.

3. The site presently operates under an approved CUP as an outdoor recreational facility.

Note: The uses approved under the CUP 85/CUP-4 for an outdoor recreational facility do not meet the current definition of the LUO. The existing and proposed uses more appropriately fall under the land use definition "meeting facility."

The Department will consider the granting of an existing use (EU) for a meeting facility and a subsequent minor modification, to allow the construction of a 250-stall paved and landscaped parking lot, if it can be determined, upon review of the proposal, that the impacts to the neighborhood will be minimal. If it is determined that impacts will be major; a new Site Plan Review (SPR) for a meeting facility will be required.

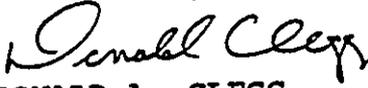
Mr. William E. Wanket, Inc.
September 15, 1994
Page 4

To determine whether we will process as an EU or SPR, you are required to submit the following information:

1. Updated site plan, showing all existing and proposed structures;
2. A landscape plan, generally identifying canopy trees, hedges, ground cover; etc.
3. Identify existing and proposed uses, normal projected attendance, and hours of operation;
4. Plans showing the parking layout and landscaping plan; and
5. Any other information you may consider to be pertinent to the Director's decision to determine whether the proposal is a minor or major modification.

Please contact me at 523-4432, or my deputy, Mrs. Lorrie Chee, at 523-4433, if you should have any questions.

Very truly yours,


DONALD A. CLEGG
Director of Land Utilization

DAC:ea

Laniltr.ka

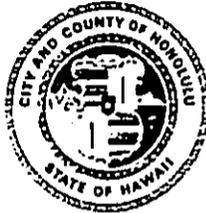
EXHIBIT D-3

DLU Letter Dated March 23, 1995

Lanikuhonua Zoning Variance Approval (94/VAR-70)

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 523-4432



JEREMY HARRIS
MAYOR

PATRICK T. ONISHI
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

(PD)

March 23, 1995

Mr. William E. Wanket
William E. Wanket, Inc.
1001 Kamokila Boulevard, Suite 320
Kapolei, Hawaii 96707

Dear Mr. Wanket:

Request : Zoning Variance No. 94/VAR-70
Applicant : James Campbell Trust Estate
Agent : William E. Wanket, Inc.
Location : 92-1089 Aliinui Drive - Honouliuli
Tax Map Key: 9-1-57: 27

The Director of Land Utilization has APPROVED the above variance, subject to certain conditions. A copy of the Director's Findings of Fact, Conclusions of Law, and Decision and Order, including the conditions of approval, is attached.

NOTE: If the variance conditions contain time limits, the applicant is responsible to comply within those time limits, or the variance will lapse. If the variance is "after-the-fact", and it lapses because of failure to comply with the conditions, the applicant will be in violation of the zoning code and subject to enforcement proceedings. A new application for the same variance will not be accepted within 12 months of the lapse date.

This variance is limited to those sections of the Land Use Ordinance stated in the Findings of Fact and/or Decision and Order; and shall not be construed as approval of any other permit or review by the Department of Land Utilization or by any other agency.

Any party (to the case) wishing to appeal the Director's action must submit a written petition to the Zoning Board of Appeals (ZBA) within 30 calendar days from the date of mailing or personal service of the Director's written decision. (Zoning Board of Appeals Rules Relating to Administrative Procedure, Rule 3.2(a), APPEAL DEADLINE). Essentially, the Zoning Board of Appeals rules require that a petitioner show that the Director based his action

Mr. William E. Wanket

Page 2

March 23, 1995

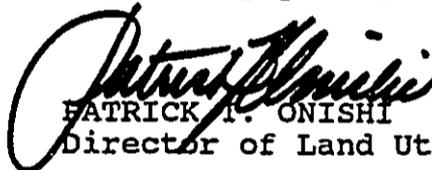
on an erroneous finding of a material fact, and/or that the Director acted in an arbitrary or capricious manner, or manifestly abused his discretion. The ZBA can only consider the evidence previously presented to the Director of Land Utilization.

Failure to comply with the ZBA Rule 3, Procedure for Appeal from Action of the Director, may result in the dismissal of the appeal. Copies of the ZBA rules are available at the Department of Land Utilization. Appeals should be addressed to:

Zoning Board of Appeals
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

If you have any questions or need additional information concerning this variance, please contact Pamela Davis of our staff at 523-4807.

Very truly yours,



PATRICK P. ONISHI
Director of Land Utilization

PTO:nt
T94VAR70.ntt
Encl.

cc: James Campbell Trust Estate

APPENDIX E

**Letter Report On Lanikuhonua
Parking Lot Expansion**

Prepared By: AECOS, Inc.



AECOS

970 N. Kalaheo Avenue, Suite C300 • Kailua, Hawaii 96734
Telephone: (808) 254-5884

AECOS No. 839

October 4, 1995

William E. Wanket, Inc.
1001 Kamokila Boulevard
Kapolei Building, Suite 320
Kapolei, Hawaii 96707

Subject: Lanikuhonua Parking Lot Expansion

Dear Mr. Wanket,

In response to your request dated September 26, 1995, we are providing the following information regarding runoff impacts from the proposed Lanikuhonua Improvements Project. This paper has been prepared by AECOS, Inc. to address the potential for increased transport of oil and grease to the ocean resulting from the subject project and to review available mitigation methods.

This paper represents the views of AECOS, Inc. based on our knowledge of the fate and transport of petroleum-based hydrocarbons, review of existing nonpoint source pollution guidelines, and consultation with experts in engineering practices. If you have any questions or comments, please direct them to Eric Guinther or Hilary Maybaum.

INTRODUCTION

The applicant proposes to expand the existing Lanikuhonua visitor parking lot to include an additional 264 parking stalls, for a total of 429 parking stalls. The parking lot improvements would encompass an area of about 3.2 acres on the northeastern portion of the site. This activity is proposed within a Special Management Area (SMA) and thus requires a Use Permit (SMP) from the City and County of Honolulu. A Draft Environmental Assessment (EA) has been submitted and comments received.

The Office of State Planning (OSP) has expressed its concern that the proposed improvements will increase the amount of oil entering the coastal zone at the project site. OSP is requesting that the applicant be required to install an oil/water separator to mitigate this potential impact.

REGULATORY FRAMEWORK

The Coastal Zone Act Reauthorization Amendments of 1990 recognize the impact of nonpoint source pollution on coastal waters. Under Section 6217(g), states are required

to develop an approved coastal zone management program which includes a Coastal Nonpoint Pollution Control Program. These programs are currently under development in Hawaii and throughout the United States. At present, there are no promulgated regulations for managing stormwater runoff from parking lots. Such nonpoint source discharges are not currently under National Pollutant Discharge Elimination System (NPDES) purview. The Environmental Protection Agency (EPA) published *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters* (EPA, 1993) encourages the use of alternative designs and maintenance strategies for impervious parking lots.

IMPACT ASSESSMENT

Parking lot runoff can account for a significant percentage of nonpoint source pollution in commercial areas (EPA, 1993) and may contain high hydrocarbon loadings and metal concentrations relative to average urban areas (Woodward-Clyde, 1991). Fuels and oils contain soluble petrochemicals and other organic compounds. By definition, soluble petrochemicals are the hydrocarbons in mineral oil (or its refined derivatives) that can dissolve in water. Most fuel components are not soluble in water, or are only slightly soluble. Despite the low solubility of petrochemicals as a group, toxicity of the soluble fraction is relatively high. Therefore, concern about their presence in the marine environment is justified. Metals used in the formulation of these compounds or otherwise associated with may also be harmful but to an undetermined extent.

Runoff during the first hour of a storm can contribute high pollutant loadings to receiving waters. Of the total amount of material that could conceivably be flushed off by a given rainfall intensity, the amount flushed off during each successive time period decreases in a regular pattern (Sartor and Boyd, 1972). In other words, while the first runoff discharge may be quite "dirty," subsequent runoff will be cleaner as time goes on. Therefore, it is the initial discharge of runoff that is of most concern.

An existing drainage swale traverses the Lanikuhonoa site and leads to the shoreline at the southern property boundary. The parking lot is level at approximately 10 feet above the swale. Under the approved drainage plan, the parking lot will be divided into two drainage areas: a 1.22-acre southern part (drainage area "A") and a 1.98-acre northern part (drainage area "B"). The peak discharge from the swale into which runoff flow from drainage area "A" will be directed will be 7.1 cubic feet per second for a 10-year design storm (reduced from that which currently exists). In addition, a detention basin will be installed at the southern end of the property for onsite containment of silt and other debris.

Runoff from drainage area "B" will be directed into an underground storm drain system. The peak discharge from this area will be 10.57 cfs under a 10-year storm, more than is presently estimated to occur from sheet flow onto Alii Nui Drive. The new drainage system will include two underground catch basins and connect to the street drain system. Only in the event of peak flows in excess of 5 cfs will runoff from the parking lot be directed into the drainage swale for onsite accumulation and infiltration.

Although the catch basins for both systems are designed to reduce peak flows to pre-project values, these catchment features alone may not prevent loading of hydrocarbons or metals to receiving waters.

In order to assess potential impacts from motor oils and related substances, it is useful to review the fate and transport of these substances once they are deposited on the site. The eventual fate of petrochemicals largely depends on their initial composition. In the case of the Lanikuhonua project, gasoline and refined oil products are the compounds of concern. Gasoline is a mixture of mostly saturated hydrocarbons containing substantial amounts of paraffins, olefins, naphthenes, and aromatics. Oil or lubricant is typically composed of 20% kerosene, 20% dispersant, 60% lubricating oil (hydrocarbons) and a trace amount of other additives (Dicks and Bayley, 1983). Light, gaseous hydrocarbons found in refined fuel and motor oil are highly mobile. Their high solubility and vapor pressures makes them susceptible to evaporation to the atmosphere and to solution into liquids (Brooks, 1976).

In the presence of hot sun and trade winds at the Lanikuhonua site, evaporation of volatile fractions from oil and grease deposits would result in a large net loss from the parking lot surface. More than 75% of a refined fuel product such as gasoline will be lost to the atmosphere within 24 hours (RCEP, 1981) and most is lost within minutes or hours depending on temperature and wind conditions (Dicks and Bayley, 1983). Other degradative processes will occur, such as photochemical oxidation (breakdown of organic compounds by sunlight), microbial degradation (activity of bacteria that utilize hydrocarbons as an energy source), and dilution, dispersion, and emulsification (physical processes that spread the fuel, promoting its movement or physical removal from the area). Any oily residues on the Lanikuhonua pavement will be subject to such processes for extended lengths of time. Thus, the more toxic hydrocarbons will be removed and heavier, tarry hydrocarbons will remain.

The onsite drainage swale (for drainage area "A") ends in a sand and boulder-filled pocket behind a massive limestone bench. Storm runoff infiltrates into the adjacent ocean. Furthermore, a detention basin is proposed further upslope to retain runoff during heavy rains. Overtopping of either basin is expected to be rare, so the swale seldom if ever would discharge directly into the ocean. If runoff carrying hydrocarbons reaches the coastal waters, negative impacts would not really be noticeable. Acute effects on marine biota and their habitat would occur only if the parking lot had recently suffered a massive oil spill and onsite clean-up was incomplete. Chronic impacts resulting from toxic components of petroleum would be extremely difficult to detect although are possible unless proactive management measures designed for onsite control and treatment are implemented.

MITIGATION MEASURES

The preferred system to reduce pollutant loadings from the Lanikuhonua parking lot is a combination of management practices including incorporation of existing or planned facilities (i.e., drainage swale and detention basin) and source control, of which "good

housekeeping" is a primary concern. Use of asphaltic concrete will further prevent deterioration of the parking lot pavement and subsequent runoff of particulates.

Sweeping is an effective method of controlling pollution at the source and is highly recommended for this project. Current sweeper technologies (e.g., abrasive brush and vacuum devices) are generally efficient at picking up solids larger than 48 microns (μ) in diameter. A computer model has shown that for paved commercial parking lots, a 9- to 28-day sweeping cycle produces a pollutant removal range of 60% to 20%, respectively; as the quantity of residue increases, sweeper efficiency also increases (Broward County Planning Council, 1982). A newer, more promising method of cleaning that concentrates on oil and grease removal is wet-sweeping with water containing biodegradable soaps or detergents (Silverman et al., 1986). Sweeping will be facilitated, and expense decreased, if the lot can be constructed with minimal parking bumpers or medians dividing them. Based upon these and other studies, it can be suggested that sweeping should be scheduled as a regular maintenance activity (e.g., weekly or biweekly) to occur during hours of low site use. However, given the small amount of rainfall generating runoff in this part of O'ahu most of the year and the lower volume of traffic compared with more urban lots, less frequent sweeping for oil removal during the dry season (for example, monthly intervals) would decrease the cost of pollutant removal effort without sacrificing efficacy.

The existing drainage swale is expected to function as a filtration/infiltration method. Its effectiveness will be greatly enhanced if grassed or otherwise vegetated with erosion-resistant plants appropriate to the local climate. Vegetated areas and grassed swales can be designed to accept runoff with relatively high oil and grease concentrations from parking lots (EPA, 1993). Additionally, vegetation will prevent erosion, filter sediment, and provide some nutrient uptake (USDA-SCS, 1988). To be fully effective, the swale should be mowed at least twice each year to stimulate vegetative growth, control weeds, and maintain system capacity. It should not be mowed shorter than three to four inches (Bassler, undated).

Addition of a filtration system to the detention basin is also recommended. Filter inserts or absorbent blankets can be used. These are comprised of sand and organic materials through which runoff percolates. They are effective in trapping sediments, oil, and other storm water contaminants. Blankets are particularly effective at reducing concentrations of hydrocarbons in storm water (Barrett Consulting Group, 1995). A layer of peat, limestone, and/or topsoil may be added to improve removal efficiency. Filters and blankets must be regularly inspected and replaced semi-annually or as needed. If the parking lot will have grated inlets to collect storm water, use of filter or absorbent pad inserts or absorbent blankets is also recommended for these.

To prevent clogging by sediment generated during the construction process or unstabilized soil runoff, all infiltration/filtration systems should be installed after construction has been completed and the site has been permanently stabilized. Following installation, maintenance of all measures should occur at regular intervals by one or more individuals trained in proper inspection and maintenance of runoff facilities.

OSP recommends installation of an oil/water separator at Lanikuhonua. Such devices are primarily used where concentrations of oil and grease compounds are high and source control cannot provide effective mitigation. In an oil separator, free oil floats to the surface of a tank, where it is skimmed off. In the process, other undesirable pollutants such as grit are removed. Oil separators are becoming more popular as a method of reducing hydrocarbon loadings from commercial and other areas with high traffic/parking volumes. However, experience has shown that the effectiveness of pollutant removal by such devices is limited and, furthermore, that they should not be used unless coupled with frequent and effective clean-out methods (Schueler et al., 1992). Oil separators are not effective for removal of metals. Operation and maintenance requirements, including frequent cleaning and proper disposal, are plentiful and associated costs may be significantly high (EPA, 1993).

SUMMARY AND CONCLUSIONS

Source control can remove most of the residual oil and grease on the Lanikuhonua parking lot after expected high evaporative losses to the atmosphere. A slight possibility exists for potential inputs of heavier hydrocarbons to the coastal environment, a possibility that would not be removed by the use of oil/water separators. Although installation of an oil/water separator has been suggested by OSP, this approach is probably not a cost-effective method for this project and will not effectively remove metals and many other other residues from the runoff. A combination of management practices that enhance existing or planned features at moderate cost is thus recommended. These practices include sweeping, maintaining vegetation in the drainage swales, and use of filters or absorbent blankets within the detention basin overflows where practical.

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William E. Wanket, Inc.
October 4, 1995
Page 6

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Prepared by:


for Hilary L. Maybaum, Project Scientist