CHARMAINE TAVARES
Mayor

JEFFREY S. HUNT
Director

COLLEEN M. SUYAMA
Deputy Director

JUL - 8 2007

COUNTY OF MAUI
DEPARTMENT OF PLANNING

RECEIVED
'07 JUN 22 P1:18
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

June 21, 2007

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Ms. Salmonson:

RE: Final Environmental Assessment (DEA) for the Kapalua Coastal Trail located at TMK: 4-2-004:004, 010, 012, 014, 015, 016, 017, 024, 025, 032, 034, 037 and 043; and 4-2-005: 041, 042 and 049; Kapalua, Hawai'i (EA 2006/0019) (SM1 2006/0026) (SSD 2006/0009)

The Maui Planning Commission at its regular meeting on June 12, 2007, accepted the Final Environmental Assessment (FEA) for the subject project, and issued a Finding of No Significant Impact (FONSI). Please publish the FEA in the July 8, 2007, Office of Environmental Quality Control (OEQC) Environmental Notice.

We have enclosed a completed OEQC Publication Form and four (4) copies of the FEA. If further clarification is required, please contact Thorne Abbott, Staff Planner, at thorne.abbott@mauicounty.gov or at 270-7520.

Sincerely,

JEFFREY S. HUNT, AICP
Planning Director

Attachment
JSH:TEA:bg
c: Thorne E. Abbott, Staff Planner
Tom Schnell, PBR Hawaii
Yarrow Flower, Maui Land & Pineapple
Kahului Public Library (w/report)
Lahaina Public Library (w/report)
EA Project File (w/ Attachment)
General File
K:\WP_DOCS\PLANNING\EA\2006\0019_Kapalua_Trail\OEQC_FEATrans.wpd

250 SOUTH HIGH STREET, WAILUKU, MAUI, HAWAII 96793
MAIN LINE (808) 270-7735; FACSIMILE (808) 270-7634
CURRENT DIVISION (808) 270-8205; LONG RANGE DIVISION (808) 270-7214; ZONING DIVISION (808) 270-7253

KAPALUA COASTAL TRAIL

FINAL ENVIRONMENTAL ASSESSMENT

Prepared for:
The Approving Agency,
County of Maui Planning Department/Maui Planning Commission
and

MAUI LAND & PINEAPPLE COMPANY, INC.

Prepared by:

PBR HAWAII

June 2007

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OVERVIEW

The Kapalua Coastal Trail will stretch 3.5 miles from Lower Honoapiʻilani Road in the Kapalua Resort to Honolua Bay (Figure 1). It will greatly increase lateral public shoreline access to several coastal recreational areas, including: Kapalua Bay, Oneloa Bay, D.T. Fleming Beach Park, Mokulēʻia Bay, and Honolua Bay.

Two spur trails will allow trail users to detour off of the main Coastal Trail route to experience unique places, such as Hāwea Point and Nāmalu Bay, and an arboretum of Hawaiian plants.

The goal of the Kapalua Coastal Trail is to create a unified trail system that is aesthetically and culturally appropriate to the Kapalua setting, and provide a unique and memorable nature experience for trail users. Trail users will be rewarded with dramatic vistas of the shoreline, neighboring islands, and resort features, as well as exposure to important aspects of Hawaiian culture, geology, and plant and animal life.

The Kapalua Coastal Trail will make the entire shoreline more accessible to the public and expand Kapalua Resort's recreational facilities. The trail is part of the vision to transition the Resort from a predominantly golf community into a lifestyle resort and will be a key amenity in offering visitors (including resort guests and Maui residents) a balance of activities to revitalize their mind, body, and spirit while at Kapalua Resort.

Various public shoreline access points, parking spaces, and related facilities provided within the Kapalua Resort already allow extensive public access to the shoreline, the ocean, and ocean resources. The Kapalua Coastal Trail will link these existing public shoreline access points and facilities within the Kapalua Resort to a continuous, linear trail, thereby greatly increasing lateral public shoreline access from Kapalua Bay to Honolua Bay.

The Kapalua Coastal Trail will provide:

- Increased shoreline access.
- Increased recreational opportunities for Maui residents and visitors.
- Health benefits of exercise.
- Transportation routes providing alternatives to automobile transportation.
- Educational opportunities from interpretive signs along the path.
- Connection of important destinations, such as beaches, areas of cultural and ecological significance, parks, the shoreline, and uses within the Kapalua Resort.
- Increased awareness of coastal geology and ecology.
- Cultural and historic preservation and enhancement.

Portions of the Kapalua Coastal Trail fronting the Coconut Grove condominiums and the Ritz-Carlton Kapalua are already in place as part of those projects, and the portion fronting the Residences of Kapalua Bay (former Kapalua Bay Hotel site) has already been approved. In addition, portions of the trail will connect to existing public access pathways. Therefore, while this EA covers the cumulative impacts of the entire trail, the permits required for the trail pertain to: 1) sections of the trail that have not already been approved or built; and 2) existing public access ways connecting to the trail that need repair.

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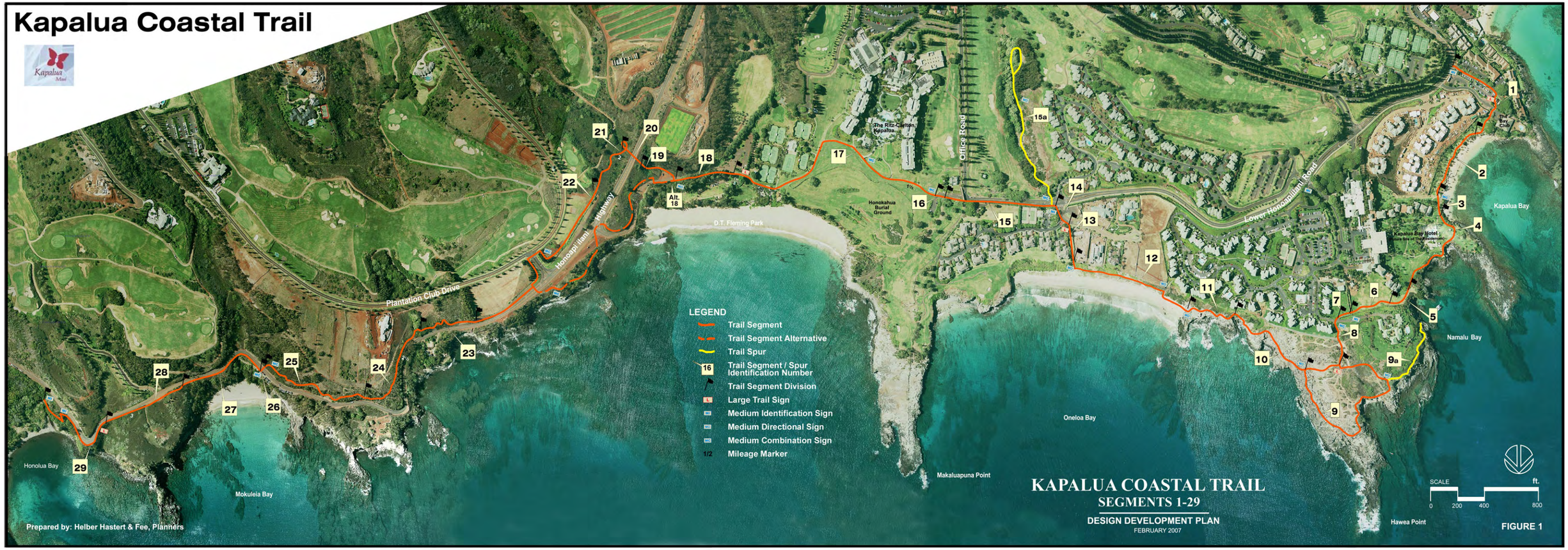


LEGEND

- Trail Segment
- Trail Segment Alternatives
- Trail Spur
- 16a Trail Identification Number

Figure 1
Trail Plan

Kapalua Coastal Trail

Maui Land & Pineapple Company

ISLAND OF MAUI

NORTH

LINEAR SCALE (FEET)

NOT TO SCALE

PBR HAWAII

Q:\Maui\Kapalua Coastal Trail\PDF\Figure 1

1.0 INTRODUCTION

This Final Environmental Assessment (EA) is prepared in accordance with Chapter 343, Hawai'i Revised Statutes (HRS), for the Kapalua Coastal Trail in West Maui, Island of Maui.

1.1 SUMMARY

Project Name:	Kapalua Coastal Trail
Location:	Honolua & Honokahua, West Maui, Maui, Hawai'i
Judicial District:	Lahaina
Applicant:	Maui Land & Pineapple Company, Inc.
Landowner:	Maui Land & Pineapple Company, Inc.
Tax Map Key:	(2) 4-2-04: 04, 10, 12, 15, 16, 17, 24, 25, 32, 34, 37; 4-2-05:41, 42, and 49
Project Area:	Total trail length of 3.5 miles; includes two spur trails and approved/built portions.
Existing Uses:	Shoreline coastal resort; existing trails; shoreline access.
Proposed Use:	Lateral shoreline trail connecting existing shoreline access and paths from Kapalua Bay to Honolua Bay, with two spur trails that detour off the main trail to unique features in the area (Figure 1).
Land Use Designations:	State Land Use: Urban, Agricultural, Conservation Conservation District Subzones: General, Limited, and Resource Community Plan: Open Space (OS), Conservation (C), Agricultural (AG), Park Golf Course (PK(GC)), Project District 1 (PD1), Public/Quasi-Public (P), and Business/Commercial (B) County Zoning: Open Space (O), Agricultural (AG), Public/Quasi-Public (P/QP), Lahaina Project District 1 (PD1), and Resort-Commercial (BR) Special Management Area (SMA): within the SMA
Permits/Approvals Required:	Compliance with Chapter 343, Hawai'i Revised Statutes Special Management Area Use Permit Shoreline Setback Structure/Activity Determination Conservation District Use Permit Permission to perform work within State Highway Right-of-Way Grading/Building Permits
Approving Agency:	Maui Planning Department/Maui Planning Commission
Determination:	Finding of No Significant Impact (FONSI)

1.2 LOCATION

The proposed Kapalua Coastal Trail is located in the Honolua and Honokahua regions of West Maui, within the County of Maui (Figure 2). The trail begins in the Kapalua Resort at Lower Honoapi‘ilani Road at the existing public beach access parking lot next to the Coconut Grove condominiums and the Bay Club, and will run linearly to Honolua Bay with a total length of 3.5 miles. There will also be two spur trails connected to the main trail.

Portions of the Kapalua Coastal Trail fronting the Coconut Grove condominiums and the Ritz-Carlton Kapalua are already in place as part of those projects, and the portion fronting the Residences of Kapalua Bay (former Kapalua Bay Hotel site) has already been approved. In addition, portions of the trail will connect to existing public access pathways. Therefore, while this EA covers the cumulative impacts of the entire trail, the permits required for the trail only pertain to: 1) sections of the trail that have not already been approved or built; and 2) existing public access ways connecting to the trail that need repair.

1.3 LAND OWNERSHIP

Maui Land & Pineapple Company, Inc. owns the lands identified as TMKs (2) 4-2-04: 04, 10, 12, 15, 16, 17, 24, 25, 32, 34, 37; 4-2-05:41, 42, and 49 (Figure 3).

1.4 IDENTIFICATION OF THE APPLICANT

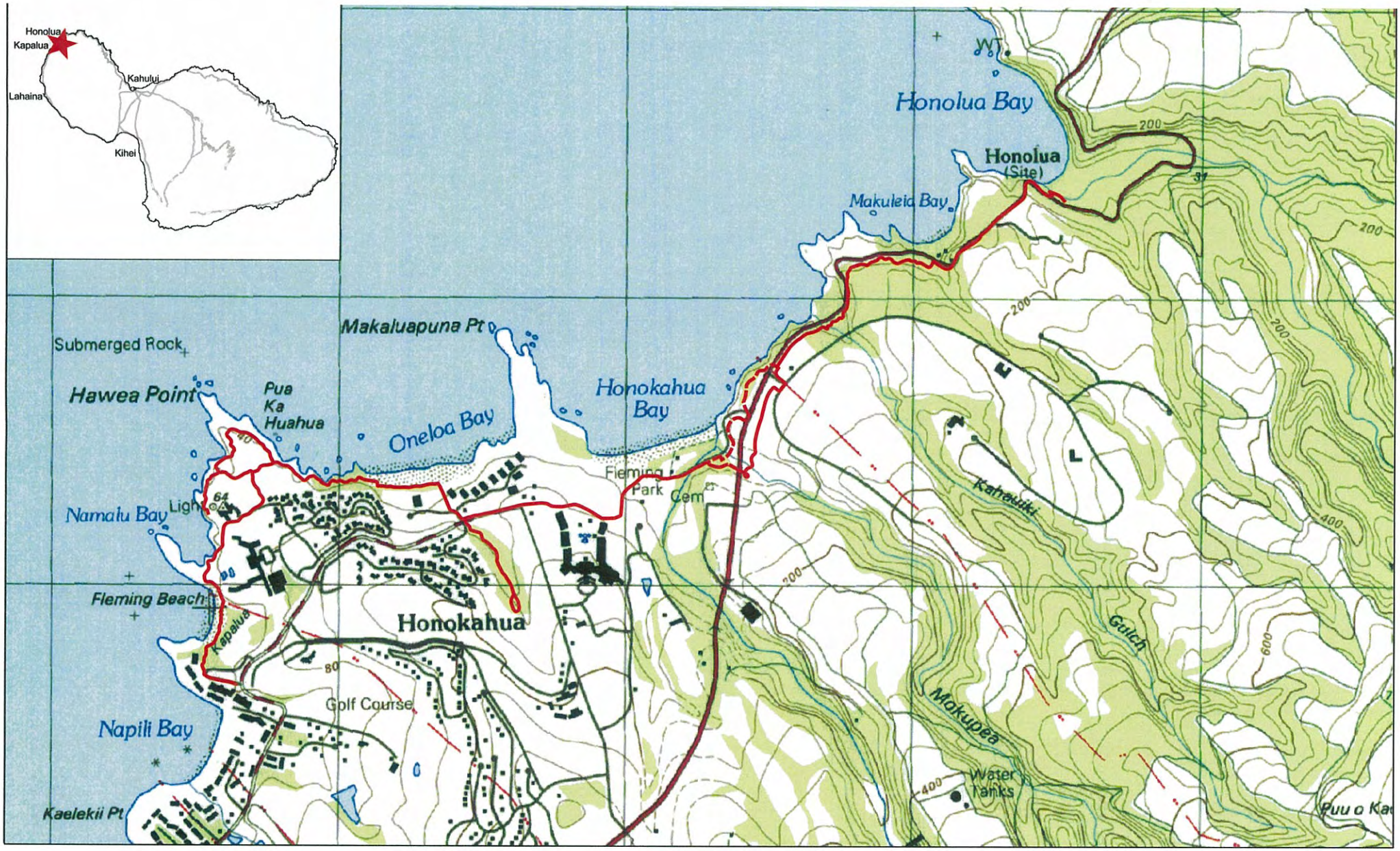
The applicant is Maui Land & Pineapple Company, Inc.

Contact: Maui Land & Pineapple Company, Inc.
Mr. Ryan Churchill
Vice President
1000 Kapalua Drive
Lahaina, Hawai‘i 96761
Phone: (808) 669-5622
Fax: (808) 669-5454

1.5 IDENTIFICATION OF APPROVING AGENCY

In accordance with Chapter 343, HRS, environmental assessments must be approved by the government agency empowered to approve permits for a project. In this instance, the Maui Planning Department/Maui Planning Commission is the approving agency.

Contact: Mr. Jeff Hunt
County of Maui
Planning Department
250 South High Street
Wailuku, Hawai‘i 96793
Telephone: (808) 270-7735
Fax: (808) 270-7634



LEGEND

Kapalua Coastal Trail

Source:
U.S. Geological Survey

Disclaimer:
This map has been prepared for general planning purposes only.

Figure 2
Regional Location Map

Kapalua Coastal Trail

Maui Land & Pineapple Company

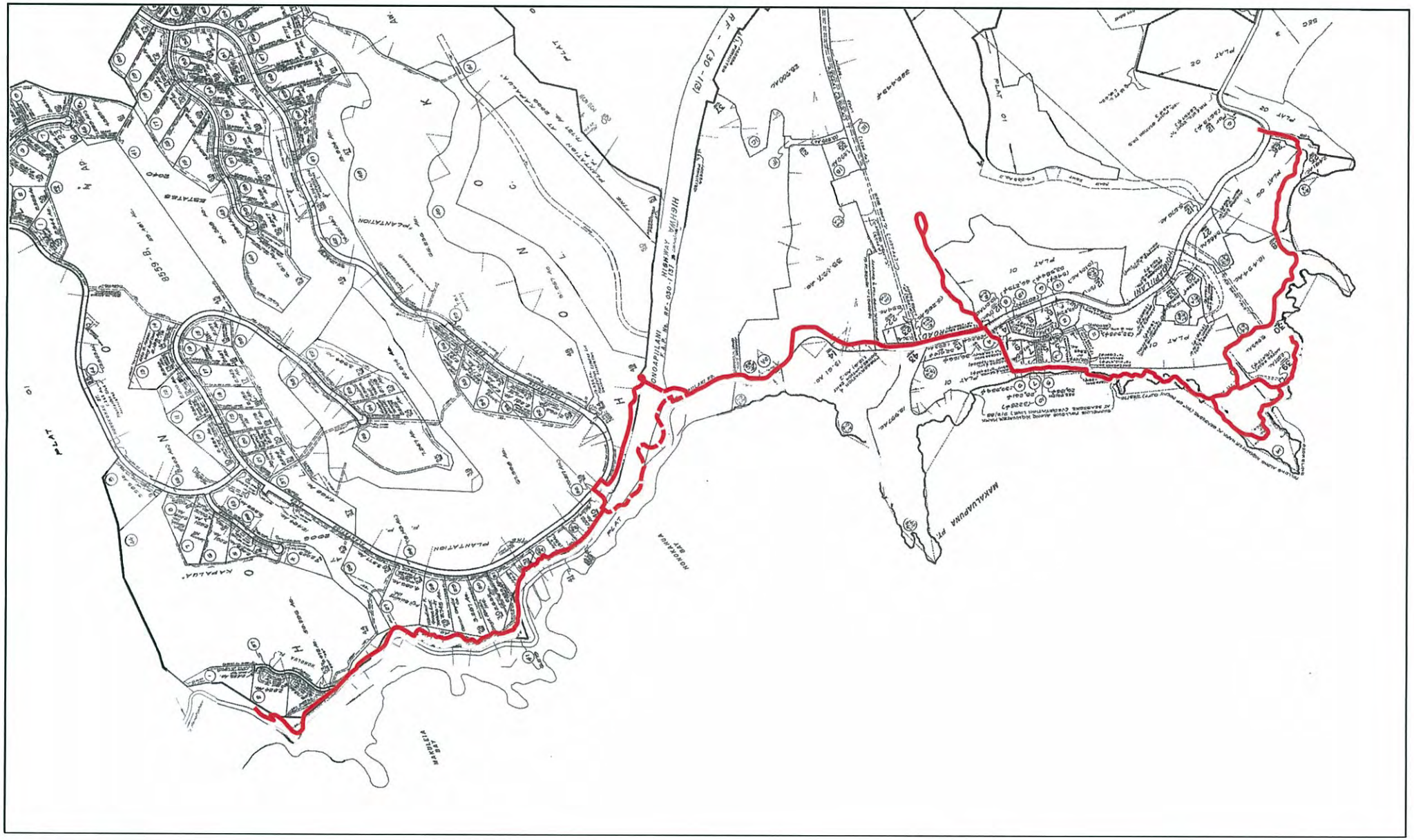
ISLAND OF MAUI

NORTH

LINEAR SCALE (FEET)

0 375 750 1,500 3,000

PBR HAWAII



LEGEND

Kapalua Coastal Trail

Source:
County of Maui (2004)

Disclaimer:
This map has been prepared for general planning purposes only.

Figure 3
Tax Map Key

Kapalua Coastal Trail

Maui Land & Pineapple Company

ISLAND OF MAUI

NORTH

LINEAR SCALE (FEET)

NOT TO SCALE

PBR HAWAII

1.6 IDENTIFICATION OF THE ENVIRONMENTAL CONSULTANT

The environmental consultant is PBR HAWAII.

Contact: Tom Schnell, AICP
PBR HAWAII
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawai‘i 96813
Telephone: (808) 521-5631
Fax: (808) 523-1402

1.7 COMPLIANCE WITH STATE OF HAWAI‘I AND MAUI COUNTY ENVIRONMENTAL LAWS

This document has been prepared in accordance with the provisions of Chapter 343, Hawai‘i Revised Statutes (HRS) and Hawai‘i Administrative Rules (HAR) Title 11, Department of Health, Chapter 200, Environmental Impact Rules. Section 343-5, HRS, establishes nine "triggers" that require either an environmental assessment or an environmental impact statement. Proposed uses within the State Conservation District and within the shoreline area as defined in Section 205A-41, HRS are two of these "triggers." Portions of the trail will be within State Conservation District and shoreline area. As such, this EA is prepared in compliance with provisions of Chapter 343, HRS and HAR Title 11, Department of Health, Chapter 200, Environmental Impact Rules.

Section 343-5, HRS also requires an environmental assessment or environmental impact statement for projects involving the use of State or County lands or funds. Use of State or County lands or funds could include improvements relating to roadway crossings or improvements within State or County roadway right-of-ways. While the specific nature of all potential improvements is not known at this time, this EA is intended to address all current and future instances involving the use of State or County lands or funds relating to The Kapalua Coastal Trail.

1.8 IDENTIFICATION OF AGENCIES/INDIVIDUALS CONSULTED

Public agencies, private institutions, and community individuals and groups were consulted during the course of planning the Kapalua Coastal Trail and for the purposes of this environmental assessment. The consulted include:

Table 1. Consultation

Affiliation	Name	Date
Community	Clifford Nae‘ole	March 22, 2006
State of Hawai‘i	Department of Transportation	June 30, 2006
State of Hawai‘i	DLNR - Forestry & Wildlife	July 5, 2006
Community	Maui Coastal Land Trust	July 26, 2006
Community	Kapalua Place HOA	July 28, 2006
Community	Kapalua Place HOA	August 4, 2006

Affiliation	Name	Date
County of Maui	Planning Department	August 7, 2006
Community	Ironwoods Manager	August 9, 2006
Community	Bay Villas HOA	August 23, 2006
Community	Kapalua Place HOA President	September 4, 2006
Community	Coconut Grove HOA	September 7, 2006
Community	Bill Nguyen (Kalaepiha Point Parcel owner)	September 11, 2006
Community	Maui Coastal Land Trust	September 11, 2006
State of Hawai‘i	Department of Land & Natural Resources	September 12, 2006
County of Maui	Planning Department	September 12, 2006
Community	Maui Coastal Land Trust	September 19, 2006
Community	Bay Villas HOA	October 27, 2006
State of Hawai‘i	Zoe Norcross-Nuu (UH Sea Grant Program)	November 6, 2006
Community	Ridge Villas HOA	November 9, 2006
State of Hawaii	Na Ala Hele Advisory Committee	January 17, 2007
County of Maui	Maui Planning Commission	January 23, 2007
Community	Sierra Club	January 23, 2007
State of Hawai‘i	Maui/Lāna‘i Islands Burial Council	January 25, 2007
Community	Kapalua Place Homeowners’ Association	March 20, 2007
County of Maui	Maui/Lāna‘i Islands Burial Council	April 26, 2007

1.9 STUDIES CONTRIBUTING TO THIS ENVIRONMENTAL ASSESSMENT

The information contained in this report has been developed from site visits, generally available information regarding the characteristics of the site and surrounding areas, and technical studies. Technical studies are provided as appendices to this EA. These studies include:

- Kapalua Coastal Trail, Segments 1-29, Design Development Submittal (Appendix A)
- Letter from the University of Hawaii Sea Grant Extension Service (Appendix B)
- Flora & Fauna Survey (Appendix C)
- Archaeological Inventory Survey (Appendix D)
- Crosswalk Warrant Study (Appendix E)

2.0 DESCRIPTION OF THE KAPALUA COASTAL TRAIL

This section provides site background information and a general description of the Kapalua Coastal Trail.

2.1 BACKGROUND INFORMATION

2.1.1 Location

The proposed Kapalua Coastal Trail is located in the Honolua and Honokahua regions of West Maui, within the County of Maui (Figure 2). The trail begins in the Kapalua Resort at Lower Honoapiʻilani Road, at the existing public beach access parking lot next to the Coconut Grove condominiums and Bay Club, and ends at Honolua Bay. Two spur trails will allow trail users to detour off of the main Coastal Trail route to experience unique places, such as Hāwea Point and Nāmalu Bay, and an arboretum of Hawaiian plants.

Portions of the Kapalua Coastal Trail fronting the Coconut Grove condominiums and the Ritz-Carlton Kapalua are already in place as part of those projects, and the portion fronting the Residences of Kapalua Bay (former Kapalua Bay Hotel site) has already been approved. In addition, portions of the trail will connect to existing public access pathways. Therefore, while this EA covers the cumulative impacts of the entire trail, the permits required for the trail only pertain to sections of the trail that have not already been approved or built.

2.1.2 State Land Use District

Portions of the Kapalua Coastal Trail are within the State Urban, Agricultural, and Conservation Districts (Figure 4). Within the Conservation District, the Trail runs through the following Conservation District Subzones: General, Limited, and Resource (see Figure 5 and Table 2). Trails are a permitted use within the State Urban and Agricultural Districts and an identified use within the Conservation District Subzones, as further discussed in Section 5.1.2 of this EA.

2.1.3 West Maui Community Plan

The West Maui Community Plan Land Use Map designates specific portions of the Kapalua Coastal Trail as Conservation (C), Agricultural (AG), Open Space, Park Golf Course (PK(GC)), Project District 1 (PD1), Public/Quasi-Public (P), and Business/Commercial (B) (see Figure 6 and Table 2). The Kapalua Coastal Trail is in conformance with the West Maui Community Plan as further discussed in Section 5.2.2 of this EA.

2.1.4 County of Maui Zoning

A large portion of the Kapalua Coastal Trail is within the State Conservation District; and therefore, not under County zoning jurisdiction. The portions of the trail outside of the Conservation District are within the County Open Space (O), Agricultural (AG), Lahaina Project District 1 (PD1), Public/Quasi-Public (P/QP), and Resort-Commercial (BR) zoning districts (see Table 2). The Kapalua Coastal Trail will be in conformance with these zoning designations as further discussed in Section 5.2.3 of this EA.

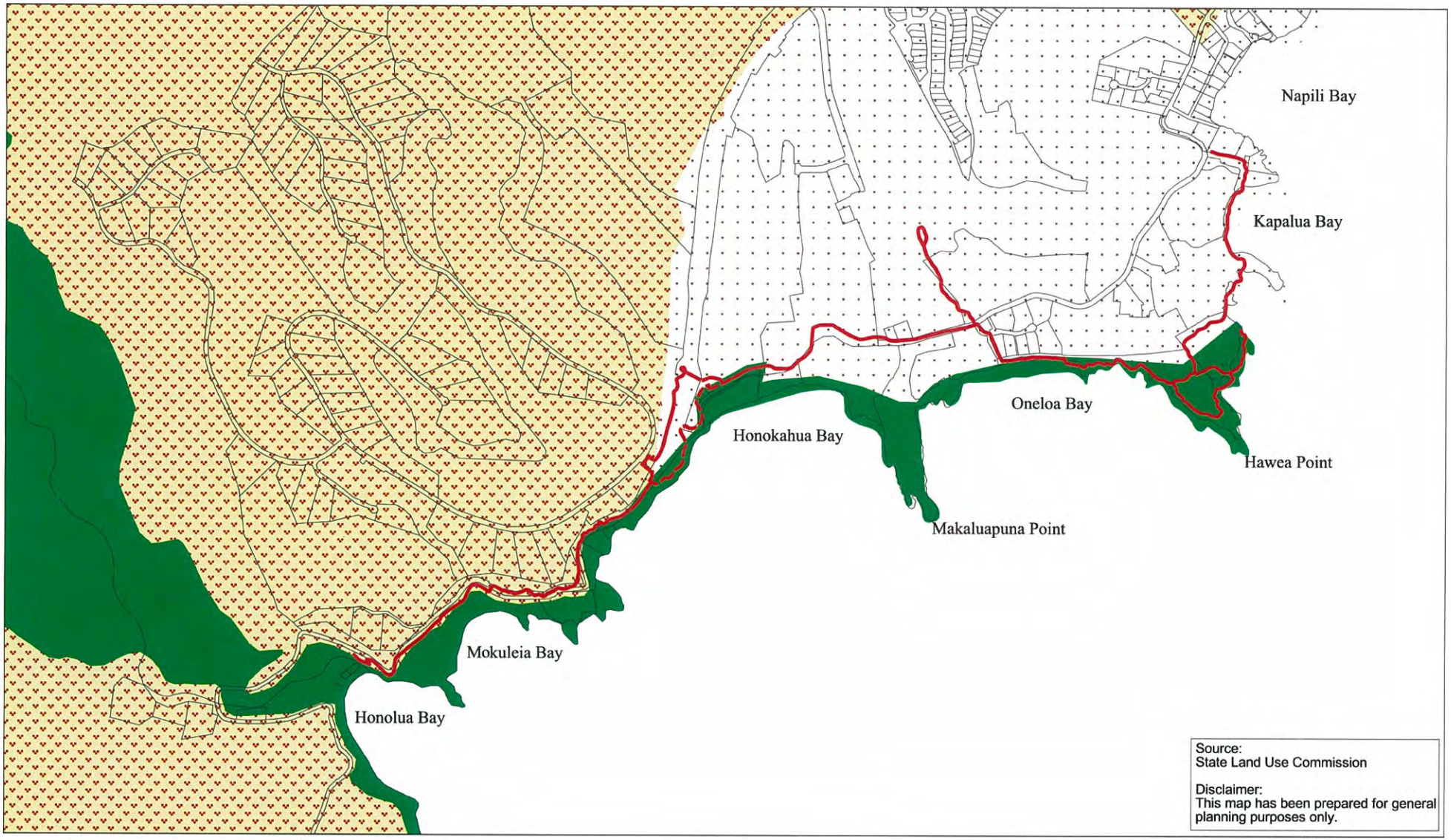
Table 2. Parcel Designations

TMK	State Land Use District	Community Plan*	County Zoning*	SMA*	Description
4-2-04: 25	U	B	BR	Yes	Parking lot and Kapalua Bay public access
4-2-04: 10	C	OS	-	Yes	Hāwea Point and sliver between Kapalua Place and Oneloa Bay beach
4-2-04: 4	U	P	P/QP	Yes	Oneloa Bay beach access path and parking
4-2-04: 12	U	-	-	Yes	Lower Honoapiʻilani Road
4-2-04: 24	U	PK(GC)	O	Yes	Golf Course
4-2-04: 15	C/U	PD1	PD1	Yes	Between Ritz-Carlton and DT Fleming Beach Park.
4-2-04: 16	C	PK	-	Yes	DT Fleming Beach Park
4-2-04: 17	C	C	-	Yes	Narrow strip between DT Fleming Beach Road and beach
4-2-04: 34	C	-	-	Yes	Portion of DT Fleming Beach Road near beach
4-2-04: 37	U	PD1	PD1	Yes	Large parcel mauka of beach DT Fleming Beach Park
4-2-05: 49	A	PK(GC)	AG	No	Large parcel between Plantation and Mahana Estates
4-2-05: 41	A	AG	AG	Yes	Between Plantation Estates and Honoapiʻilani Highway
4-2-05: 42	A	AG	AG	No	Between Plantation Estates and Honoapiʻilani Highway
4-2-04: 32	C	C	-	Yes	Narrow makai strip between Honoapiʻilani Highway and ocean across from entrance to Plantation Estates
4-2-04: 32	C	C	-	Yes	Fronts Mokulēʻia Bay and includes Nguyen parcel

Key

A – Agricultural	AG – Agricultural	B – Business/Commercial
BR – Resort Commercial	C – Conservation	O – Open Space
OS – Open Space	PD1 – Project District 1	PK – Park (GC) Golf Course
P/QP – Public/Quasi-public	U – Urban	

* Subject to confirmation from the Maui County Planning Department's Zoning Administration and Enforcement Division.



LEGEND

- Kapalua Coastal Trail
- Agricultural
- Conservation
- Urban

Figure 4
State Land Use District Boundary

Kapalua Coastal Trail

Maui Land & Pineapple Company

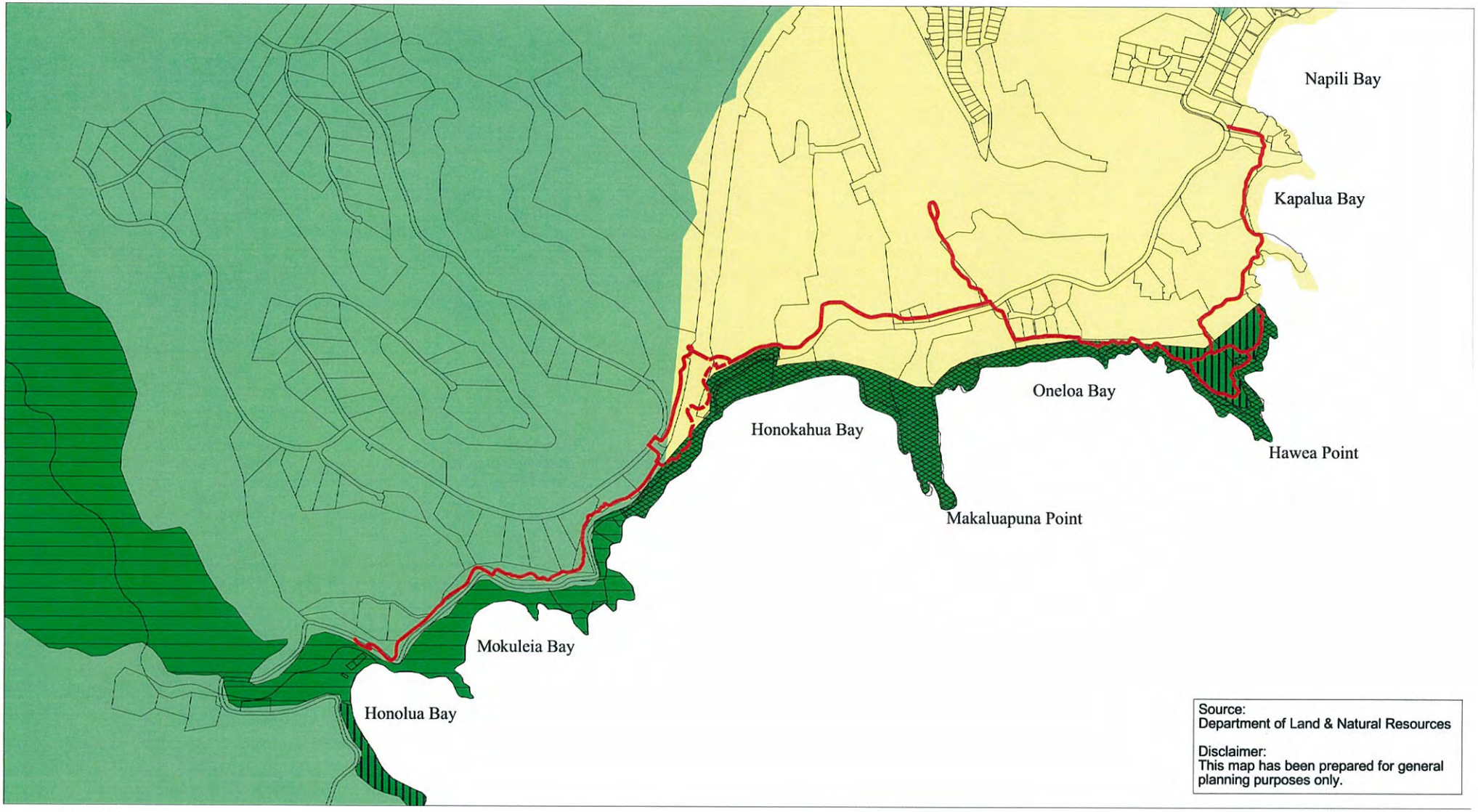
ISLAND OF MAUI

NORTH

LINEAR SCALE (FEET)

0 375 750 1,500 3,000

PBR HAWAII



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Kapalua Coastal Trail

State Land Use Districts
- Agricultural
- Urban
- Conservation

Conservation District Subzones
- General
- Limited
- Resource

Figure 5
State Conservation District Subzones

Kapalua Coastal Trail

Maui Land & Pineapple Company

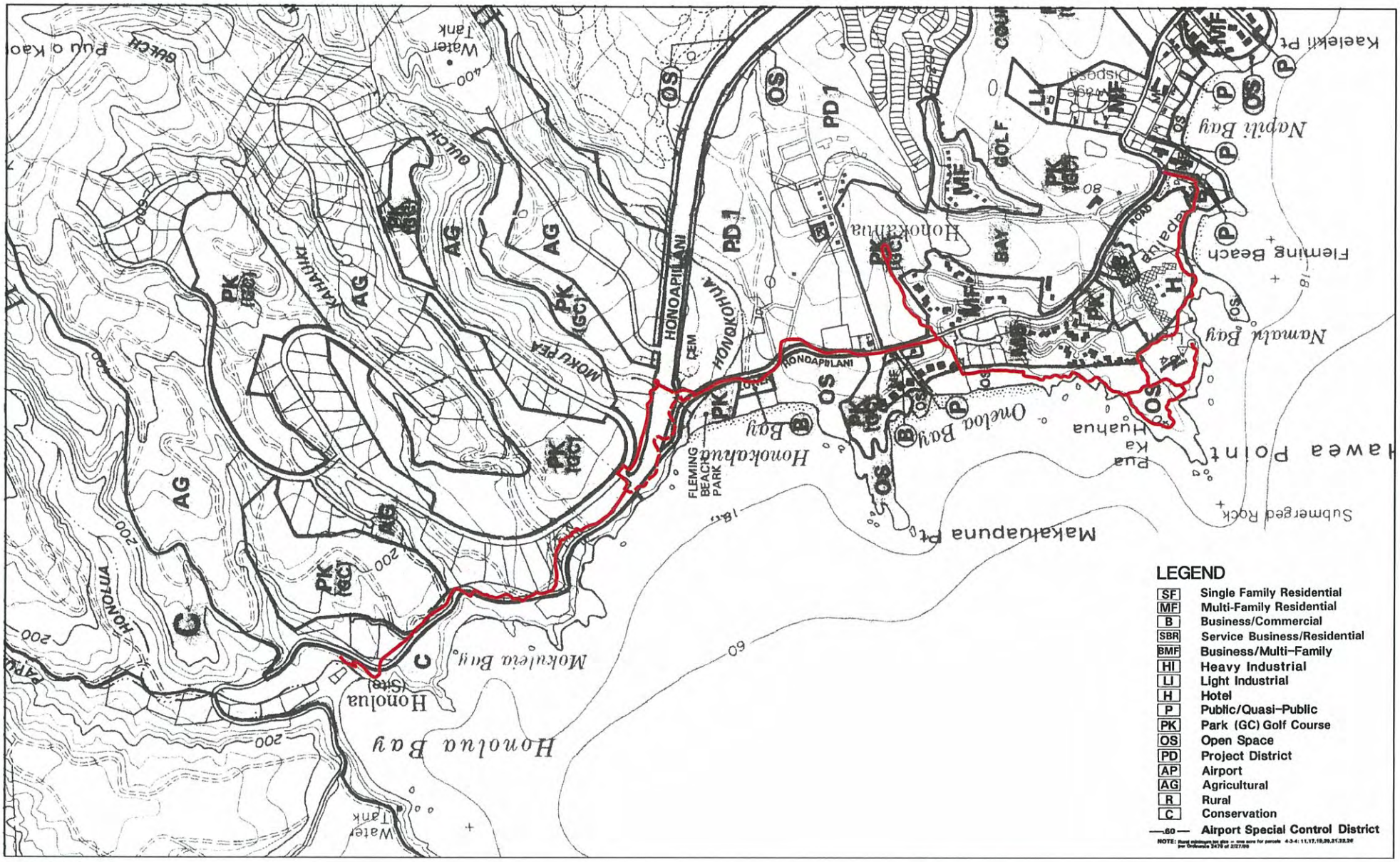
ISLAND OF MAUI

NORTH

LINEAR SCALE (FEET)

0 375 750 1,500 3,000

PBR HAWAII



LEGEND

Kapalua Coastal Trail

Source:
West Maui County Community Plan

Disclaimer:
This map has been prepared for general planning purposes only.

Figure 6
West Maui Community Plan

Kapalua Coastal Trail

Maui Land & Pineapple Company

ISLAND OF MAUI

NORTH

LINEAR SCALE (FEET)

0 375 750 1,500 3,000

PBR HAWAII

2.1.5 Special Management Area

Most portions of the Kapalua Coastal Trail are situated within the Special Management Area (SMA) (see Figure 7 and Table 2). Although established in the Coastal Zone Management Law (Chapter 205A, HRS), SMAs are under the jurisdiction of the counties. Maui Land & Pineapple Company is seeking a SMA Use Permit from the County of Maui for the Kapalua Coastal Trail. Conformance to the SMA rules is further discussed in Section 5.2.4 of this EA.

2.1.6 Shoreline Setback Area

Portions of the Kapalua Coastal Trail are situated with the Shoreline Setback Area. Under the Shoreline Rules for the Maui Planning Commission (Title MC-12 Department of Planning, Subtitle 02, Maui Planning Commission, Chapter 203), certain minor activities and structures are permitted within the Shoreline Setback Area. Maui Land & Pineapple Company has submitted a Shoreline Setback Structure/Activity Determination application to the Maui Planning Department for a determination that the portions of the trail within the Shoreline Setback Area are minor activities or minor structures. Conformance to the Shoreline Rules is further discussed in Section 5.2.5 of this EA.

2.1.7 Surrounding Uses

The area surrounding the trail corridor consists of the ocean/shoreline area, resort properties, condominiums, single-family residences, parks and open space. The Kapalua Coastal Trail runs past the Bay Club, Coconut Grove condominiums, The Residences at Kapalua Bay (former Kapalua Bay Hotel site), the Kapalua Bay Villas, the Bay Golf Course, the Ritz-Carlton Kapalua, D.T. Fleming Beach Park, Plantation Estates, and other residences and open space extending from Kapalua Resort to Honolua Bay.

2.1.8 Kapalua Resort

Kapalua's highly recognized logo of a butterfly with a pineapple in the middle symbolizes Maui Land & Pineapple Company's agricultural heritage within an elegant resort. Today, the Kapalua Resort includes the Ritz-Carlton Kapalua, The Residences at Kapalua Bay, homes and condominiums, tennis facilities, two 18-hole championship golf courses, a shopping village, and several freestanding retail, restaurant, and administrative buildings.

From the outset, Kapalua Resort was envisioned and designed as a master-planned resort. Besides its reputation as one of the world's premier golf destinations, the resort is increasingly becoming known for its commitment to environmental and conservation efforts. Maui Land & Pineapple's trendsetting conservation programs, based on the Hawaiian ahupua‘a model of caring for resources from the mountains to the sea, include: 1) partnership arrangements with the State of Hawai‘i, The Nature Conservancy of Hawai‘i, and Audubon International; 2) the development of a environmental code of ethics; and 3) resort-wide dedication of all properties to the ideal of preserving the unique Hawaiian environment and cultural heritage of which Kapalua Nui is a part.

The Pu‘u Kukui Watershed Preserve encompasses 8,661 acres of Mauna Kahalawai, or the West Maui Mountains, and is the largest private preserve in the state. The Preserve was established to

effectively manage and protect the natural resources of Maui Land & Pineapple Company's conservation lands by sheltering many rare and endangered species and protecting a vital source of water for the West Maui community.

2.1.9 Description of the Trail Corridor

The trail corridor varies in land uses, topography, and soils. The Kapalua Resort has landscaped grounds, while the outlying areas toward Honolua Bay are more rugged and unimproved. Elevations along the trail range from sea level to over 100 feet above mean sea level (msl). Figure 8 contains photographs of areas along the trail corridor.

Portions of the Kapalua Coastal Trail fronting the Coconut Grove condominiums and the Ritz-Carlton Kapalua are already in place as part of those projects, and the portion fronting the Residences of Kapalua Bay (former Kapalua Bay Hotel site) has already been approved. In addition, portions of the trail will connect to existing public access pathways. Therefore, while this EA covers the cumulative impacts of the entire trail, the permits required for the trail pertain to: 1) sections of the trail that have not already been approved or built; and 2) existing public access ways connecting to the trail that need repair.

Some sections of the trail will be sited within the DOT right-of-way along Honoapi'ilani Highway (see Section 2.2.2 for detailed routing and Section 4.3 for discussion).

The trail will be open for pedestrian use only. To preserve sensitive areas near the trail corridor, as well as maintain the integrity of the trail's natural surface, the use of bicycles, rollerblades, skateboards, ATVs, and other forms of recreational vehicles and devices will be prohibited.

As later discussed in Sections 3.5 (Flora), 3.6 (Fauna), and 4.1 (Archaeological and Historic Resources) of this EA, the some segments of the trail run near environmentally and culturally-sensitive areas. The trail has been routed to avoid damaging these sensitive habitats and resources. Educational interpretive signs will be placed along the trail to notify users of sensitive areas and to remind them of the importance to remain on the designated trail.

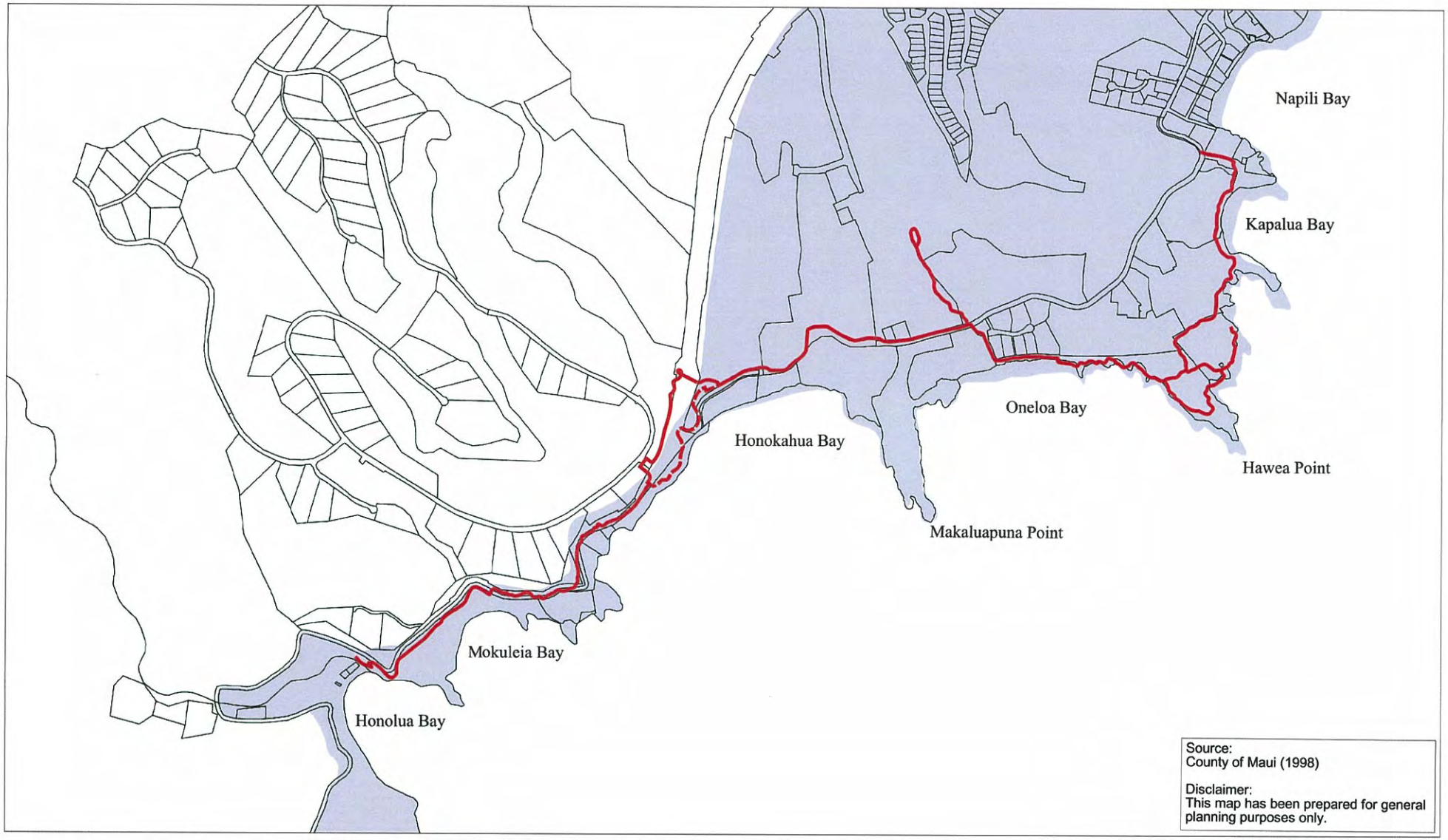
Some sections of the trail will be paved, including trail sections fronting The Residences at Kapalua Bay, The Ritz-Carlton Kapalua, and the spur trail to the arboretum. These paved sections will be accessible to persons with compromised mobility. Rugged, unpaved portions of the trail will not be as accessible. The trail will conform to applicable federal, state, and county accessibility standards.

There are currently no plans for guided tours, by Maui Land & Pineapple Company, or indirectly by private entities.

2.2 GENERAL DESCRIPTION OF THE KAPALUA COASTAL TRAIL

2.2.1 Purpose and Need for the Kapalua Coastal Trail

The Kapalua Coastal Trail will make the entire shoreline more accessible to the public and expand Kapalua Resort's recreational facilities. The trail is part of the vision to transition the Resort from a predominantly golf community into a lifestyle resort. The trail system is viewed as a key amenity in offering visitors (including resort guests and Maui residents) a balance of



LEGEND

Kapalua Coastal Trail

Special Management Area

Figure 7
Special Management Area
Kapalua Coastal Trail

Maui Land & Pineapple Company

ISLAND OF MAUI

NORTH

LINEAR SCALE (FEET)

0 375 750 1,500 3,000

PBR HAWAII

A. The trail starts here, at Lower Honoapiʻilani Road and the entrance to the public beach access parking lot (Segment 1).

B. Existing Maui Coastal Land Trust access path for Hāwea Point (Trail Segment 8).

C. View from Hāwea Point.

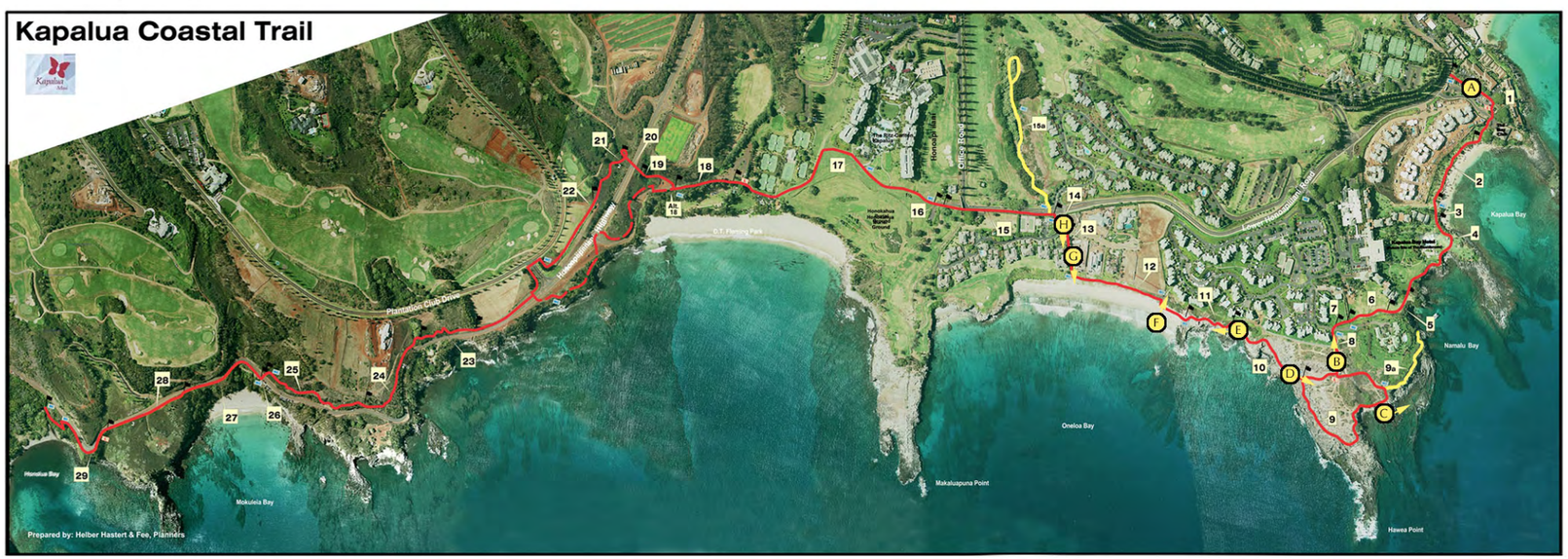
D. Rocky landscape of Hāwea Point.

E. Shoreline view east from Hāwea Point to Oneloa Beach (Trail Segment 10).

F. View upslope to Bay Villas from Oneloa Beach.

G. Steep sand path to Oneloa Beach from public access.

H. Public access path from Lower Honoapiʻilani Road to Oneloa Beach.



LEGEND

TRAIL SEGMENT

A PHOTO IDENTIFICATION

Figure 8a
Site Photos

Kapalua Coastal Trail

Maui Land & Pineapple Company

ISLAND OF MAUI

LINEAR SCALE (FEET)

NORTH

NOT TO SCALE

PBR HAWAII

Photos taken 7-10-06

I. Existing sidewalk on Lower Honoapiʻilani Road (Segment 15).

J. DT Fleming Beach Park facilities.

K. Stream crossing on DT Fleming Beach Road.

L. Ironwood forest makai of Plantation Estates. (Segment 23)

M. View of Honokahua Bay (Segment 24).

N. Outside guardrail on Honoapiʻilani Highway (Segment 27).

O. Honoapiʻilani Highway turnout above Honolua Bay (Segment 29).

LEGEND

TRAIL SEGMENT

B PHOTO IDENTIFICATION

Figure 8b
Site Photos

Kapalua Coastal Trail

Maui Land & Pineapple Company

ISLAND OF MAUI

LINEAR SCALE (FEET)

NORTH

NOT TO SCALE

PBR HAWAII

Photos taken 7-10-06

activities to revitalize their mind, body, and spirit while at Kapalua Resort. Moreover, the trail will provide the public, including fishers, beachgoers, and other Maui citizens with continuous lateral access to shoreline resources and amenities.

The goal of the Kapalua Coastal Trail is to create a unified trail system that is aesthetically and culturally appropriate to the Kapalua Resort setting, and provide a unique and memorable nature experience for trail users. Various public shoreline access points, parking spaces, and related facilities provided within the Kapalua Resort already allow extensive public access to the shoreline, the ocean, and ocean resources (Figure 9). The Kapalua Coastal Trail will link these existing public shoreline access points and facilities within the Kapalua Resort to a continuous, linear trail, thereby improving lateral shoreline access from Kapalua Bay to Honolua Bay.

The Kapalua Coastal Trail will provide:

- Increased shoreline access.
- Increased recreational opportunities for Maui residents and visitors.
- Health benefits of exercise.
- Transportation routes providing alternatives to automobile transportation.
- Educational opportunities from interpretive signs along the path.
- Connection of important destinations, such as beaches, areas of cultural and ecological significance, parks, the shoreline, and uses within the Kapalua Resort.
- Increased awareness of coastal geology and ecology.
- Cultural and historic preservation and enhancement.

2.2.2 Detailed Routing and Site Improvements

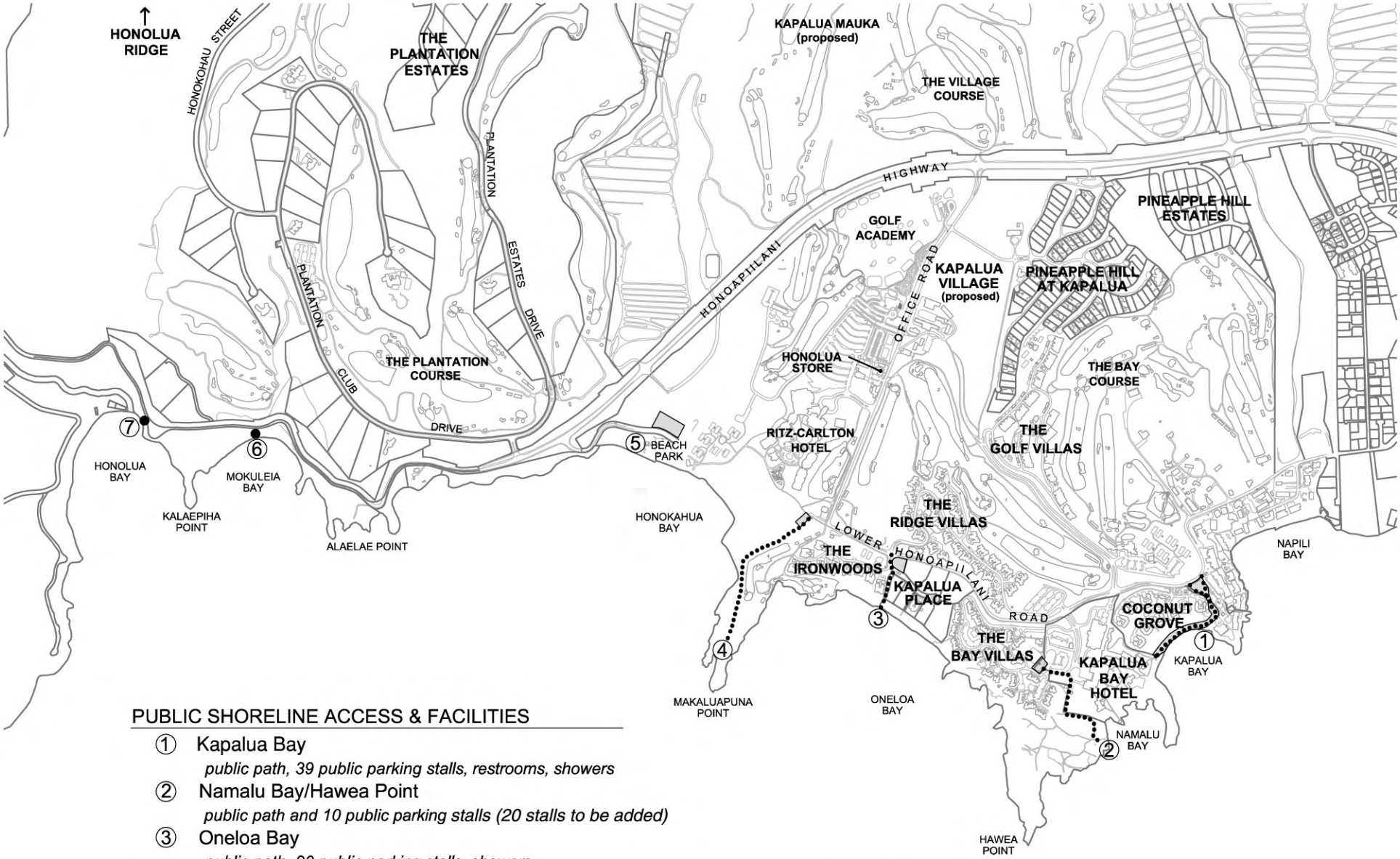
The Kapalua Coastal Trail will stretch 3.5 miles from Lower Honoapiʻilani Road in the Kapalua Resort to Honolua Bay, including two spur trails. It will provide increased lateral shoreline access, sweeping views of Molokaʻi and Lānaʻi, and connect several coastal recreational areas including, Kapalua Bay, Oneloa Bay, D.T. Fleming Beach Park, Mokulēʻia Bay, and Honolua Bay.

Figure 1 illustrates the Kapalua Coastal Trail routing and Appendix A contains design details. Brief descriptions of specific trail segments and status are provided below, and in Table 3 and Figure 10.

The Kapalua Coastal Trail begins in the Kapalua Resort at Lower Honoapiʻilani Road at the existing public beach access parking lot next to the Coconut Grove condominiums and Bay Club. An identification sign will indicate the start of the trail. The trail will first run along a raised median through the parking lot (Segment 1). From here, the trail will pass by the Bay Club and continue along the shoreline in between the Coconut Grove condominiums and Kapalua Bay. The existing beach access steps to Kapalua Bay at the south end of the Bay, which are currently damaged and misaligned, will be reconstructed as part of the implementation of Segment 1.

Table 3. Kapalua Coastal Trail Segments and Status

Segment	From	To	Length	Status
1	Lower Honoapiilani Road	Public beach access	256 ft.	Existing, Needs Repair
2	Public beach access	North end of Kapalua Bay	594 ft.	Existing
3	Residences at Kapalua Bay	Residences at Kapalua Bay	136 ft.	Approved
4	Residences at Kapalua Bay	Residences at Kapalua Bay	1,007 ft.	Approved
5	Residences at Kapalua Bay	Residences at Kapalua Bay	166 ft.	Approved
6	Residences at Kapalua Bay	Public access trail bordering Bay Villas	304 ft.	Existing
7	Public access trail	Public access trail	96 ft.	Existing
8	Public access trail	Public access trail	178 ft.	Existing
9	Public access trail	Hāwea Point	858 ft.	Proposed
Spur 9a	Segment 9	Nāmalu Bay	415 ft.	Existing
10	Hāwea Point	Hāwea Point	704 ft.	Proposed
11	Hāwea Point	Oneloa Bay	615 ft.	Proposed
12	Oneloa Bay	Oneloa Bay access	686 ft.	Proposed
13	Oneloa Bay access	Oneloa Bay access	324 ft.	Existing, Needs Repair
14	Oneloa Bay access	Lower Honoapiʻilani Road	131 ft.	Existing, Needs Repair
15	Lower Honoapiʻilani Road	Parking lot beyond chapel	905 ft.	Existing
Spur 15a	Lower Honoapiʻilani Road	Arboretum and Golf Course	1,527 ft.	Proposed
16	Parking lot beyond chapel	Existing Ritz-Carlton concrete path	1,117 ft.	Existing
17	Ritz-Carlton concrete path	DT Fleming Beach Road and Park	455 ft.	Existing
18	DT Fleming Beach Road	DT Fleming Beach Road	633 ft.	Proposed
19	DT Fleming Beach Road	Honoapiʻilani Highway	129 ft.	Proposed
20	Makai of Honoapiʻilani Highway	Mauka of Honoapiʻilani Highway	150 ft.	Proposed
21	DOT culvert	DOT culvert	332 ft.	Proposed
22	Exit DOT culvert	Plantation Club Drive	1,431 ft.	Proposed
23	Plantation Club Drive	Mauka of Honoapiʻilani Highway	402 ft.	Proposed
24	Mauka of Honoapiʻilani Highway	Mauka of Honoapiʻilani Highway	1,117 ft.	Proposed
25	Mauka of Honoapiʻilani Highway	Honoapiʻilani Highway crossing	464 ft.	Proposed
26	Honoapiʻilani Highway crossing	Mokulēʻia Bay	30 ft.	Proposed
27	Mokulēʻia Bay	Kalaepiha Point	676 ft.	Proposed
28	Kalaepiha Point	Honolua Bay lookout	663 ft.	Proposed
29	Honolua Bay lookout	Honolua Bay	243 ft.	Proposed



PUBLIC SHORELINE ACCESS & FACILITIES

① Kapalua Bay
public path, 39 public parking stalls, restrooms, showers

② Namalu Bay/Hawea Point
public path and 10 public parking stalls (20 stalls to be added)

③ Oneloa Bay
public path, 20 public parking stalls, showers

④ Makaluapuna Point
public path and 10 public parking stalls

⑤ D.T. Fleming Beach Park
beach park, 107 public parking stalls, restrooms, showers

⑥ Mokuleia Bay
public path, MLP partnership with DLNR

⑦ Honolua Bay Diver Access

Figure 9
Kapalua Resort Public Shoreline Access & Facilities

Kapalua Coastal Trail

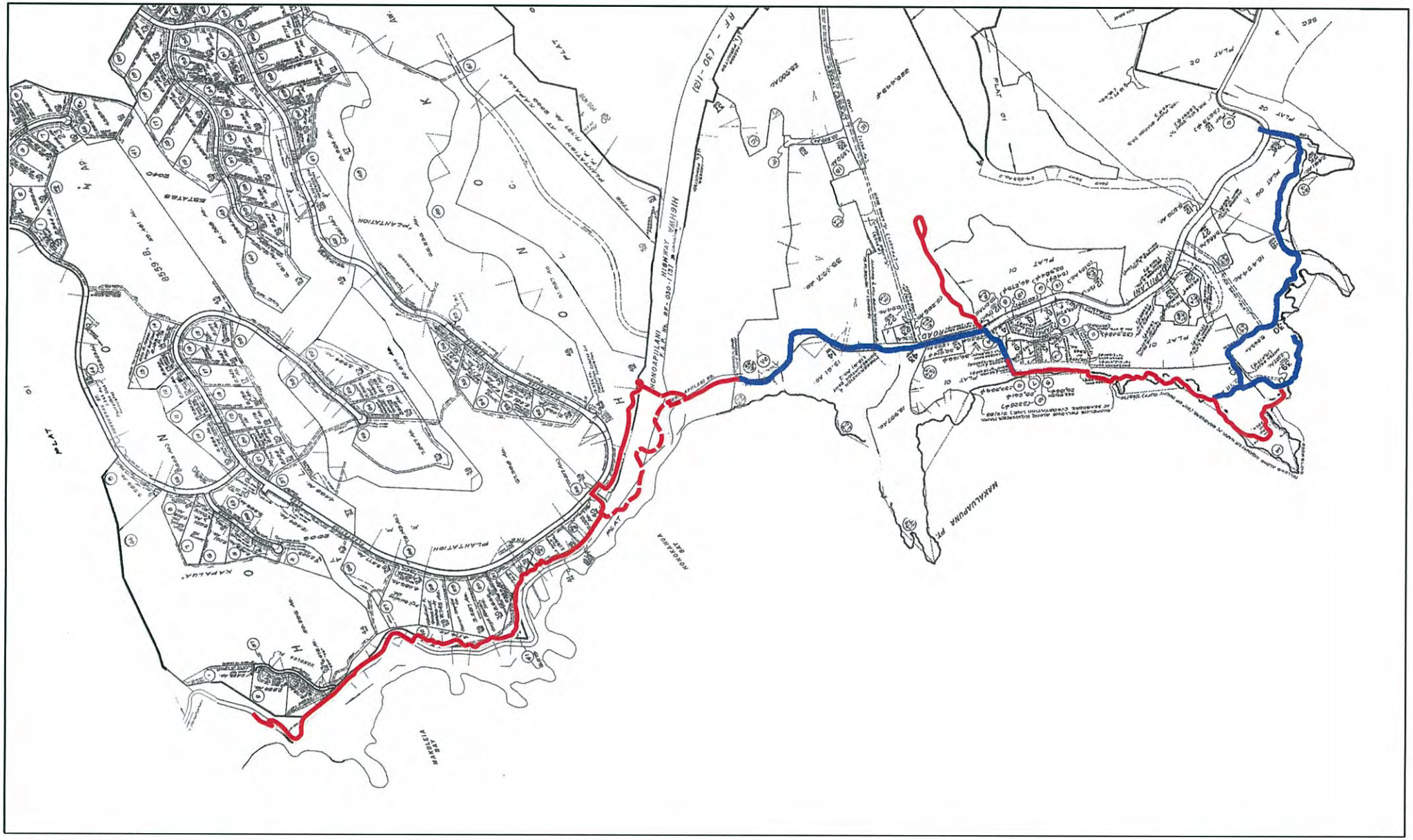
Maui Land & Pineapple Company

ISLAND OF MAUI

NORTH

LINEAL SCALE (FEET)
0 700 1,400 2,800

PBR HAWAII



LEGEND

Proposed Sections

Built or Approved Sections

Source:
County of Maui (2004)

Disclaimer:
This map has been prepared for general planning purposes only.

Figure 10
Trail Segment Status

Kapalua Coastal Trail

Maui Land & Pineapple Company

ISLAND OF MAUI

NORTH

LINEAR SCALE (FEET)

NOT TO SCALE

PBR HAWAII

The paved trail segment fronting the Coconut Grove condominiums is already approved and in place (Segment 2). It is not part of the SMA or other permitting requirements necessary for the implementation of the greater trail outside the boundaries of the Coconut Grove condominium property. However improvements to this existing trail within the Coconut Grove condominium property are necessary and permitting for these improvements will be handled independently of the permitting requirements necessary for the implementation of the greater trail outside the boundaries of the Coconut Grove condominium property. Nonetheless the paved trail segment fronting the Coconut Grove condominiums is considered in this EA in terms of overall (cumulative) impact of the trail.

From the Coconut Grove condominium property, the trail slopes upward as it approaches The Residences at Kapalua Bay (former Kapalua Bay Hotel site) and Nāmalu Bay. Through the Residences' site, the trail will be paved, contain fencing at the cliff's edge and appropriate, site-sensitive landscaping (Segments 3-5). This portion of trail has already been approved as part of The Residences at Kapalua Bay's Planned Development, Special Management Area Permit, and Shoreline Setback Variance approvals from the Maui Planning Commission (SM1 2005/0001) (PD1 2005/0003) (PD2 2005/0003) (SSV 2005/0002).

The trail curves inland to avoid a private beachfront residence neighboring the Residences' site, and follows an existing public shoreline access (Segment 6). The trail curves north to Hāwea Point (Segment 7-8). Here the trail makes a loop, which circumvents known habitat of the endangered ʻāwiwi (*Centaurium sebaeoides*) plant (Segment 9).

The first spur trail branches off from the loop, providing designated access to snorkeling in Nāmalu Bay and additional vistas on Hāwea Point (Segment 9a). All of Segment 9a and portions of Segment 9 fall within a Maui Coastal Land Trust conservation easement. This conservation easement consists of approximately two acres at Hāwea Point adjacent to Nāmalu Bay and is the result of an agreement between the private land owners and Maui Open Space Trust (MOST) in early 2004. The citizens that formed MOST in the 1990s recently decided to convey the easement to the Maui Coastal Land Trust's oversight. The Hāwea Point easement is another key access corridor for the public along Maui's northwestern coastline. The spot is legendary among local fishermen and is a significant area for Wedge-tailed shearwater bird nesting. While Wedge-tailed shearwater birds are not an endangered species, they are a species of special concern and the routing of the trail minimizes adverse impact to habitat (see Section 3.6 for additional information).

From the Hāwea Point loop, the trail continues along the shoreline of Oneloa Bay (Segments 10-12) and past the Bay Villas condominiums. Naupaka (or similar shrub) will be planted along the Bay Villas boundary as screening for the trail. Erosion control steps made from treated lumber (to be aligned with the existing Bay Villas stairway) will be installed. The trail then traverses the sand dunes between Oneloa Beach and the Kapalua Place property boundary (see Section 3.3 for a discussion on alternative routes in this area) and then turns inland at the existing Oneloa Bay public beach access walkway that connects with Lower Honoapiʻilani Road (Segments 13-14). The existing access points at each end of Oneloa Bay, which are damaged, will be repaired and/or replaced.

At Lower Honoapiʻilani Road the second spur trail branches off across the road at a proposed marked pedestrian crossing, and continues mauka to an arboretum of Hawaiian plants (Segment 15a).

The main trail continues along the makai side of Lower Honoapiʻilani Road, along an existing sidewalk, and continues on to the parking lot just beyond the Honolua Chapel (Segment 15).

Segment 16 starts at a marked pedestrian crossing of the existing asphalt driveway to the parking lot beyond the chapel and continues across the parking lot, connecting with Segment 17 at the beginning of the Ritz-Carlton Kapalua pathway.

The trail continues on an existing concrete pathway within the Ritz-Carlton Kapalua property mauka of the Honokahua Burial Ground and extends to D.T. Fleming Beach Road. No additional trail construction or improvements will occur in this area. This routing mauka of the Burial Grounds was undertaken in consultation with the Maui/Lanai Islands Burial Council. Maui Land & Pineapple will be working closely with the Maui/Lanai Islands Burial Council to enclose the Burial Ground and add interpretive signs to educate trail users of the significance of the area.

A sidewalk and improved drainage structure will be installed at the D.T. Fleming Beach parking lot, where the trail connects with the existing concrete pathway (Segment 17).

As the trail exits the central Kapalua Resort area, it runs along the makai side of D.T. Fleming Beach Road, where there is a wider off-road corridor for the trail, and continues toward Honoapiʻilani Highway (Segments 18-19). Separate footbridges makai of the road will provide safe stream crossings while separating users from traffic.

The trail's main crossing of Honoapiʻilani Highway would be at an existing DOT 12-foot culvert running under the highway. The selected culvert does not have water flow through it a majority of the time (Segments 19-21). Maui Land & Pineapple is exploring the feasibility of implementing a system to warn trail users of approaching water flows in the culvert as the result of rainstorms. Such a system may include flashing lights, both outside and inside the culvert.

After exiting the DOT right-of-way, the trail turns west and runs parallel to the highway, utilizing space between two rows of Cook pines fronting the Plantation Estates (Segment 22).

If water levels in the culverts become too high making it too dangerous to cross, such as during a rainstorm, an alternate route can be used which continues on the makai side of D.T. Fleming Beach Road, crosses a stream on a separate pedestrian bridge, and meanders mauka of Lower Honoapiʻilani Road to an at-grade pedestrian crossing. The trail would then briefly cross State DOT right-of-way to the intersection of Honoapiʻilani Highway and Plantation Club Drive (Segment 18a).

The trail crosses the Plantation Estates driveway and continues west along a rolling contour trail, mauka of Honoapiʻilani Highway and downhill of the Plantation Estate parcels (Segments 23-25).

At Mokulēʻia Bay, the trail will cross Honoapiʻilani Highway again at the entrance of the Marine Life Conservation District staircase (Segment 26). The trail will continue on the asphalt makai of the existing guardrail along Honoapiʻilani Highway. Alternative materials for fencing, particularly as a replacement to the current fence near Mokulēʻia Bay, will be considered as part of construction.

Continuing from Mokulēʻia Bay a pedestrian easement exists for the trail as it crosses the Kalaepiha parcel, outside of the DOT right-of-way.

As the trail heads toward Honolua Bay, the trail will consist of a cantilevered boardwalk with an observation deck and a natural surface along the edge of the road (Segments 27-29). The trail terminates at a landing with stone steps down into Honolua Bay from the lookout point.

2.2.3 Elements of the Coastal Trail

The Kapalua Coastal Trail will be designed with various surfaces appropriate to the location of the trail segment. For example, the trail will consist of rugged, natural surfaces on the resort fringes, and variations of paved surfaces for new sections that connect to existing walkways (Figure 11).

To some degree, segments and spurs in both areas will have constructed elements: special surface treatment, paving, signs, fencing, bollards, railings, erosion control steps, footbridges, cantilevered boardwalks, or stairs. Recycled materials, including reclaimed lumber or recycled plastic lumber, will be considered for the constructed elements.

The trail will not serve to fix the shoreline and no seawalls will be constructed to support the trail. Design elements, materials, and installation of constructed elements will have minimal impact on the natural systems and shoreline. The design elements will complement and make reference to the natural materials and the coastal context, creating a connectedness between the various trail segments and the surroundings.

The trail width will range from six to eight feet for paved sections of the trail, and three to five feet for rugged sections of the trail. Eight feet is the minimum amount of space that allows two pairs of pedestrians to pass each other comfortably.

Within the central Kapalua Resort area, portions of the Kapalua Coastal Trail will be a paved surface walkway with routes through the landscaped green spaces next to The Residences at Kapalua Bay and the Ritz-Carlton. The trail will be integrated into a larger central Resort circulation system that will include enhancements to the pedestrian environment along several streets. The paved surfaces of the Kapalua Coastal Trail will include variations of paving stones, colored and stamped concrete, crushed gravel, asphalt, and concrete.

Portions of the Kapalua Coastal Trail will be a rugged, natural surface hiking trail that traverses lava outcrops, winds through heavily vegetated areas, and climbs from sea level to over 100 feet. Natural surfaces will consist of groundcover/soil, aggregate, sand, and lava outcroppings.

Three types of signs will be used on the trail network: 1) large trail signs (approximately three feet by two feet) at major entrances; 2) medium trail signs (approximately 18 inches by 12 inches) for identification, directional, or combination; and 3) small trail signs (approximately 18 inches by six inches) for wayfinding and mileage markers. The signs are designed to be low enough to the ground so as not to compete with the scenery and views or other adjacent signs.

Other elements, such as railing, fencing, and bollards will be incorporated at appropriate sections of the Coastal Trail for safety and to restrict vehicular access to the trail.

Appendix A contains full descriptions of the specific design elements for the Kapalua Coastal Trail.

2.2.4 Conceptual Landscape Plan

The Kapalua Coastal Trail will promote the planting of appropriate trees and plants. The landscape plan for the Kapalua Coastal Trail includes native or Hawaiian cultural trees to provide shade along the trail, and native plant tapestry for screening and creating separation between the trail and private areas.

Naupaka, or a similar shrub, will be used in several locations for screening and creating separation between the trail and private areas. Naupaka is an appropriate plant for such uses, since it is an attractive, indigenous, coastal plant that is already used throughout the Resort. Other species that may also be used are ‘a‘ali‘i, ma‘o hau hele, hau and variegated hau.

Native or Hawaiian cultural trees will provide shade along the trail. The plant materials that will be used will thrive in full sun and be salt-, wind-, and drought-tolerant. The following is a list of proposed species:

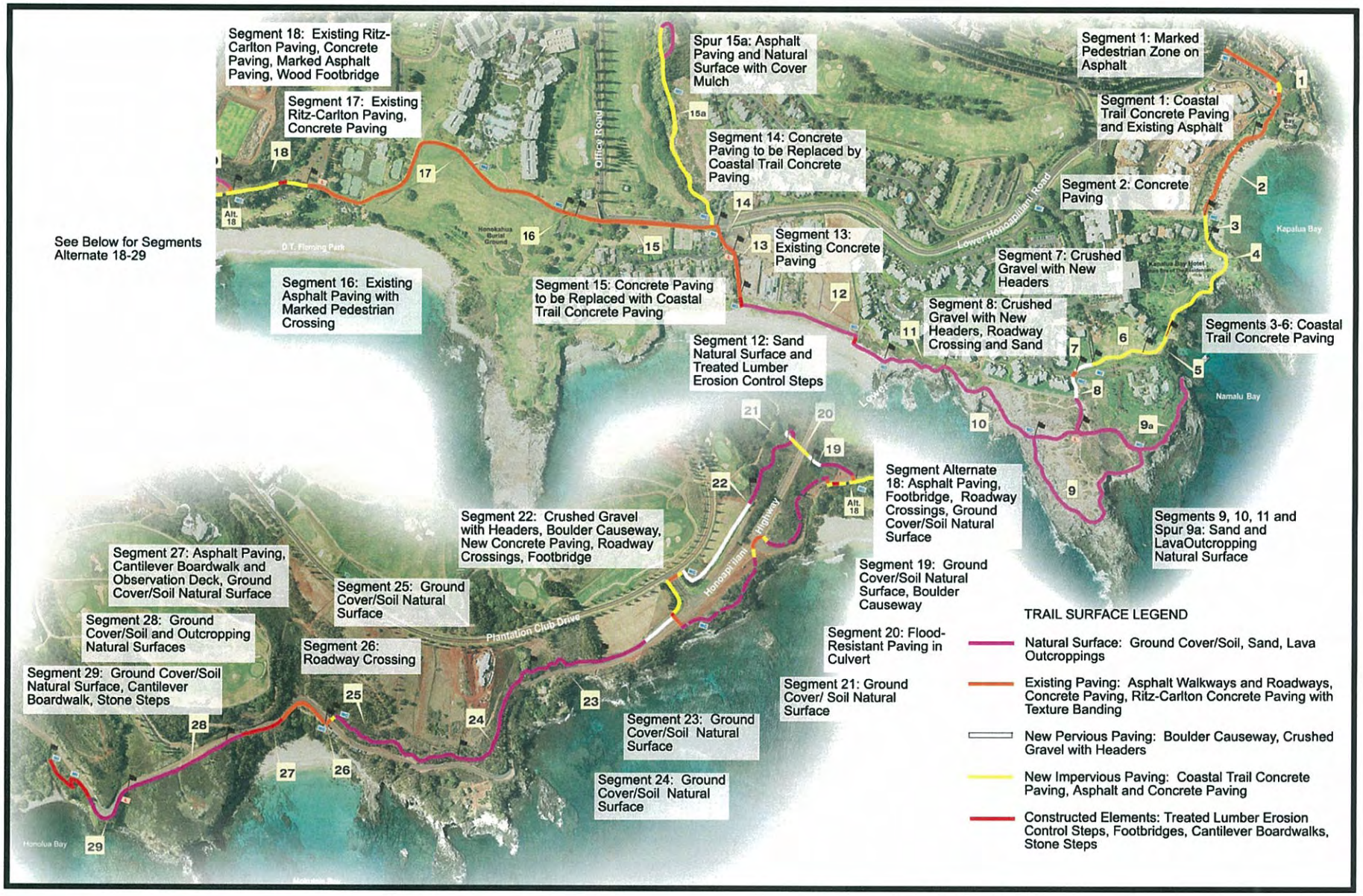
- Native Trees: Hala (*Pandanus tectorius*), kou (*Cordia subcordata*), loulu palm (*Pritchardia affinis*).
- Hawaiian Cultural Trees: Coconut palm (*Cocos nucifera*), milo (*Thespesia populnea*).
- Native Shrubs: ‘A‘ali‘i (*Dodonaea viscosa*), kului (*Nototrichium sandwicense*), naio (*Myoporum sandwicense*), naupaka (*Scaevola sp.,* not *coriacea*).

Specific sections of the Kapalua Coastal Trail will cross habitats of endangered ‘āwiwi (*Centaurium sebaeoides*). To protect the ‘āwiwi plants, barricades and a native plant tapestry will be created. The tapestry will comprise of easy-to-grow coastal and lowland native Hawaiian plants, as recommended in the list below:

Table 4. Species for Native Plant Tapestry

Hawaiian Name	**Botanical Name**
‘A‘ali‘i	*Dodonaea viscosa*
‘Ewa hinahina	*Achyranthes splendens*
‘Akia	*Wikstroemia uva-ursa*
‘Akoko	*Chamaesyce degeneri*
Ma‘o	*Gossypium tomentosum*
Naio papa	*Myoporum sandwicense*
Naupaka	*Scaevola* sp. (not *coriacea*)
‘Ohelo kai	*Lycium sandwicense*
Pa‘u-o-Hi‘iaka	*Jaquemontia ovalifolia subsp. sandwicensis*
Pohinahina	*Vitex rotundifolia*
‘Ulei	*Osteomeles anthyllidifolia*

Non-potable water will be used for any irrigation necessary in relation to the trail.



Prepared by: Helber Hastert & Fee
February 2007

Figure 11
Trail Surface Treatment Plan

Kapalua Coastal Trail

Maui Land & Pineapple Company

ISLAND OF MAUI

NORTH

LINEAR SCALE (FEET)

NOT TO SCALE

PBR HAWAII

2.2.5 Management Plan

The Kapalua Coastal Trail will be maintained by the Kapalua Resort Association (KRA), the master homeowners' association for Kapalua Resort. The costs associated with the maintenance of the trail will be included in the KRA annual budget. The following is a maintenance schedule for the Kapalua Coastal Trail:

Weekly – Trash and Recycling

- Empty rubbish and recycling receptacles.
- Pick up litter from the trail area as needed.

Monthly - Landscaping

- For the areas of the trail within the improved areas of the Kapalua Resort, such as the trail sections adjacent to Coconut Grove, The Residences at Kapalua Bay and The Ritz-Carlton Kapalua, the current landscaping schedule will remain the same. These areas have been and will remain very well manicured.
- The more remote and rugged sections of the trail will be landscaped with naturalized plants that will require little or no landscape maintenance. However, a monthly inspection will result in landscape maintenance as needed in these areas.

Yearly – Trail Surface and Structures

- Once yearly the trail surface will be inspected by the trail contractor or KRA staff trained by the trail contractor to ensure that the trail surfaces and structures are safe and in good repair. The trail is designed to prevent erosion, and inspections will ensure that the erosion prevention methods are working properly. Repairs will be made as needed.

2.3 DEVELOPMENT TIMETABLE AND PRELIMINARY COSTS

Maui Land & Pineapple Company anticipates starting trail construction upon receiving all necessary approvals. The Trail will be constructed in phases beginning at Lower Honoapi'ilani Road at the existing public beach access parking lot next to the Coconut Grove condominiums. Completion is expected within 1-2 years.

Costs to develop the Kapalua Coastal Trail are estimated at approximately $1.5 million.

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3.0 DESCRIPTION OF THE AFFECTED NATURAL ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES

This section describes the existing conditions of the physical or natural environment, potential adverse impacts of The Kapalua Coastal Trail on the environment, and mitigation measures to minimize those impacts.

3.1 CLIMATE

The climate in the Honolua and Honokahua regions of West Maui is generally mild. The average range of temperature between August, the warmest month, and January, the coldest month, is 88 F to 62 F. The average annual rainfall is approximately 14 to 60 inches depending largely on elevation. Rainfall occurs primarily between the months of November and April.

The prevailing wind direction for the Honolua and Honokahua regions is northeast at 16 to 20 knots or approximately 18 miles to 23 miles per hour (Juvik and Juvik 1998). Tradewinds may sometimes attain speeds of up to 45 miles per hour. Winds from the south are infrequent occurring only a few days during the year and mostly in winter in association with Kona storms.

Potential Impacts and Mitigation Measures

The Kapalua Coastal Trail is not expected to have an effect on climatic conditions and no mitigation measures are planned.

3.2 GEOLOGY AND TOPOGRAPHY

Geologically, the island of Maui is characterized as East and West Maui. Juvik and Juvik (1998) describes West Maui as:

> *An extinct volcano whose evolution includes shield, postshield and rejuvenated stages forms West Maui. Numerous cones, domes, dikes, flows, and pyroclastic deposits of mugearite, hawaiite, and trachyte represent the postshield stage, while the only evidence of its rejuvenated stage is a few vents and flows located mainly near Lahaina. Erosion has exposed nearly 4,900 vertical feet (1,490 meters) of volcanic layers on West Maui.* (p. 43)

There are five major geologic units on West Maui:

i. Pliocene and Pleistocene volcanic rocks, including the Wailuku and Honolua volcanic series.
ii. Pleistocene and recent volcanic rocks, including the Lahaina volcanic series.
iii. Pleistocene sediments which include calcareous dunes and consolidated earthy deposits.
iv. Recent sediments which include unconsolidated deposits.
v. Historic volcanic rocks.

Typically, the West Maui basalt is thin-bedded a‘a and pahoehoe created by quiescent flank eruptions along rift zones. The soils of West Maui, which reach depths of about 20 feet, indicate that the volcanic activity probably stopped in the Pliocene or earliest Pleistocene era.

According to MacDonald, Abbott, and Peterson (1983):

> *Stream erosion of West Maui volcano has reached a late youthful to submature stage. Because of the thick armor of Honolua flows, the rainy northeastern slope has reached a less advanced stage of dissection than might otherwise be expected, and broad surfaces that have not been lowered much below the original surface lie between the deep canyons. In contrast, the drier southwestern slope has been much more deeply dissected, leaving sharp-crested ridges between the valleys.* (pp. 386-378)

The topography varies along the proposed trail route, from relatively flat along the resort areas of Kapalua Bay, with a slight incline to the rugged lava on Hāwea Point and a steady incline to D.T. Fleming Beach Park. After the trail route crosses Honoapi‘ilani Highway toward Plantation Estates there is a steady and slight incline across the bluffs above shoreline areas between D.T. Fleming Beach Park and Mokulē‘ia Bay. The trail route descends to road level at Mokulē‘ia Bay and follows the relatively flat/sloping topography of Honoapi‘ilani Highway. The trail route reaches the lookout point above Honolua Bay then descends down a steep slope (via a proposed staircase) to the Bay.

Potential Impacts and Mitigation Measures

Significant geological or topographical impacts are not expected as a result of the Kapalua Coastal Trail. Impacts on the geology of the site could be caused by alterations, such as grading, to accommodate the trail; however, the trail route is designed to be a rolling contour trail that avoids the fall line of flowing water. The proposed trail alignment was surveyed using GPS and flagged in the field following the natural contours of the land, with a maximum trail grade of six percent.

When constructing the sections of natural surface trail, measures will be taken to move water off of the trail as quickly as possible. These include moving and compacting earth to create grade reversals (spots where the trail levels out and then changes direction, dropping subtly before rising again) and constructing the trail to have an outslope (a tilt that encourages water to sheet across and off the trail instead of down its center).

Other trail construction techniques to be employed in specific areas include building switchbacks and/or constructing stairs on steep slopes, adding rock chokes and corrals to further define the trail route and add interest to certain straight sections, and design to stabilize the trail tread through flood prone, low-lying areas.

In addition, appropriate engineering, design, and construction measures will be undertaken to minimize potential erosion due to grading of soils during construction.

3.3 SOILS

There are three soil suitability studies prepared for lands in Hawai‘i whose principal focus has been to describe the physical attributes of land and the relative productivity of different land types for agricultural production. These are: 1) the U.S. Department of Agriculture Natural Resource Conservation Services (NRCS) Soil Survey; 2) the University of Hawai‘i Land Study Bureau Detailed Land Classification; and 3) the State Department of Agriculture's Agricultural Lands of Importance to the State of Hawai‘i (ALISH).

3.3.1 Natural Resources Conservation Service (NRCS)

The *Natural Resources Conservation Service, Soil Survey of the Islands of Kaua‘i, O‘ahu, Maui, Moloka‘i, and Lāna‘i*, classifies the soils of the Kapalua Coastal Trail as Beach Sand (BS), Dune Land (DL), Lava Flows (rLW), Rock Land (rRK), Rough Broken Land (rRR), Kahana Silty Clays (KbB and KbC), Puleha Clay Loam (PsA), and Alaeloa Silty Clays (AeC and AeE) (Figure 12). A brief description of each soil type follows:

Beaches (BS) – Beaches occur as sandy, gravelly, or cobbly areas that are washed and rewashed by ocean waves. The beaches consist mainly of light-colored sands derived from coral and seashells. Beaches have no value for farming. Where accessible and free of stones, beaches are highly suitable for recreational uses and resort development.

Dune Land (DL) – Dune land consists of hills and ridges of sand-size particles drifted and piled by wind. The hills and ridges are actively shifting or are so recently fixed or stabilized that no soil horizons have developed. The sand is primarily from coral and seashells. This land type is used for wildlife habitat and recreational areas and as a source of liming material. Vegetation is sparse, but ironwood trees, koa haole, tropical almond, kiawe, and mixed grasses have gained a foothold in places.

Lava Flows (rLW) – Lava flows, a‘a, consists of areas of geologically recent lava flows. The flows are a mass of clinkery, hard, glassy, sharp pieces of lava on rough to undulating topography. The areas are difficult to traverse. Elevations range from nearly sea level to 8,000 feet. This miscellaneous land type is used for water supply, wildlife habitat, and recreation. Vegetation is limited to lichens, a few grasses, herbs, shrubs, and scrubby trees.

Rough Broken Land (rRR) – Rough Broken Land consists of very steep land broken by numerous intermittent drainage channels. In most places it is not stony. It occurs in gulches and on mountainsides. Slope ranges from 40 to 70 percent. Runoff is rapid and the annual rainfall ranges from 25 to more than 200 inches. This land is primarily used for watershed and wildlife habitat.

Rock Land (rRK) – Rock land is made up of areas where exposed rock covers 25 to 90 percent of the surface. The rock outcrops and very shallow soils are the main characteristics. This land type is nearly level to very steep. The annual rainfall amounts to 15 to 60 inches. This land is used for pasture, wildlife habitat, water supply, and urban development.

Kahana Silty Clays (KbB, KbC) – Kahana Silty Clays developed in material weathered from basic igneous rock. For KbB soils runoff is slow and the erosion hazard is slight. For KbC soils

permeability is moderately rapid, runoff is slow to medium, and the erosion hazard is slight to moderate. The soils are used for sugarcane, pineapple, and homesites. The natural vegetation consists of guava, koa haole, lantana, Natal redtop, and yellow foxtail.

Pulehu Clay Loam (PsA) – This soil is on alluvial fans and stream terraces and in basins. The surface layer is dark-brown clay loam about 21 inches thick. This is underlain by dark-brown, dark grayish-brown, and brown, massive and single grain, stratified loam, loamy sand, fine sandy loam, and silt loam about 39 inches thick. Below this is coarse, gravelly, or sandy alluvium. The soil is neutral in the surface layer and neutral to mildly alkaline below the surface layer. Permeability is moderate. Runoff is slow, and the erosion hazard is no more than slight. The available water capacity is about 1.4 inches per foot in the surface layer and subsoil. In places, roots penetrate to a depth of 5 feet or more. Low areas are subject to flooding.

Alaeloa Silty Clays (AeC and AeE) – These soils are generally well-drained and located in the upland regions of Maui. Elevations range from 100 to 1,500 feet above sea level with slopes ranging from 3 to 70 percent. On slopes greater than 15 percent, annual rainfall amounts are approximately 35 to 60 inches. In areas not previously eroded, the subsoil is approximately 48 inches thick, medium acidic in the surface layer, and strongly acid in the subsoil. The soils are typically used for pineapple, pasture, wild life habitat, homesites, and water supply.

3.3.2 Land Study Bureau Detailed Land Classification

The University of Hawai‘i Land Study Bureau document, *Detailed Land Classification, Island of Maui*, classifies soils based on a five-class productivity rating using the letters A, B, C, D, and E, with A representing the highest class of productivity and E the lowest. There is also a U designation, which means the soils are not classified. The soils of the Kapalua Coastal Trail are classified E (Very Poor) and U (unclassified) by the Detailed Land Classification system (Figure 13).

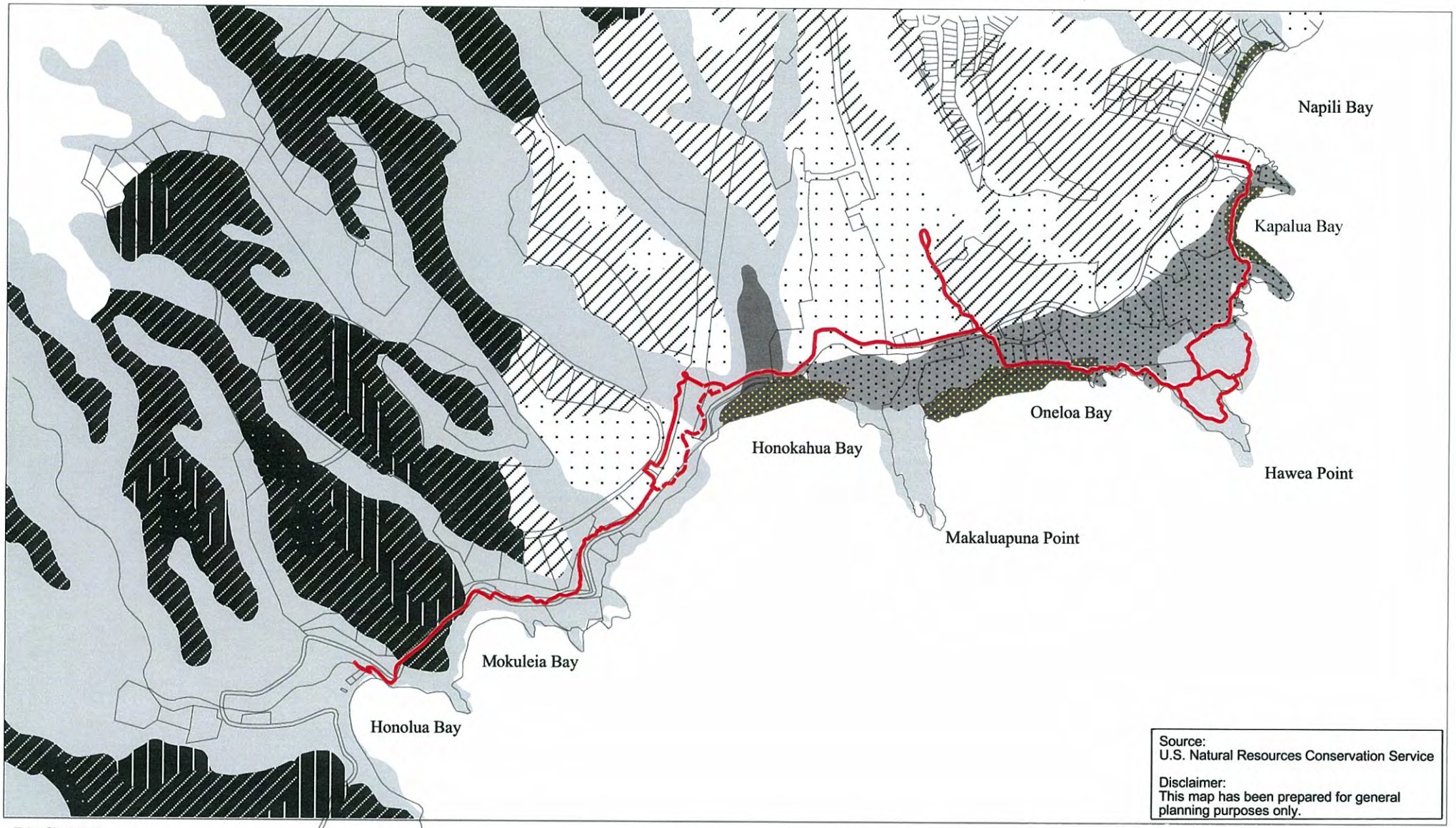
3.3.3 Agricultural Lands of Importance to the State of Hawai‘i (ALISH)

The State of Hawai‘i Department of Agriculture Agricultural Lands of Importance to the State of Hawai‘i (ALISH) system of defining agricultural suitability generally does not classify the soils on Kapalua Coastal Trail that run near the central Resort areas. On the outlying sections moving north toward Honolua Bay, the trail crosses over some lands classified as Prime Agricultural Land (Figure 14).

Potential Impacts and Mitigation Measures

Impacts to the soils of the trail are not expected to be significant, but could include the potential for soil erosion and the generation of dust during construction. Clearing and grubbing activities may temporarily disturb the soil retention values of the existing vegetation and expose soils to erosion forces. Some wind erosion of soils could occur without a proper watering and re-vegetation program. Heavy rainfall could also cause erosion of soils within disturbed areas of land.

There is a significant amount of Dune Land (dune) in the vicinity of Trail Segments 10 to 12, along the Oneloa Bay shoreline (see Figure 12). In particular Segment 12 of the trail crosses a



LEGEND

- Kapalua Coastal Trail
- AeB: Alaeloa Silty Clay, 7-15% Slopes
- AeC: Alaeloa Silty Clay, 7-15% Slopes
- AeE: Alaeloa Silty Clay, 15-35% Slopes
- KbB: Kahana Silty Clay, 3-7% Slopes
- KbC: Kahana Silty Clay, 7-15% Slopes
- PsA: Pulehu Clay Loam, 0-3% Slopes
- Other Soil Types
- BS: Beaches
- DL: Duneland
- rLW, rRK, rRR, rRS, rSM: Rockland

Figure 12
Natural Resources Conservation Service
Soil Survey Map

Kapalua Coastal Trail

Maui Land & Pineapple Company

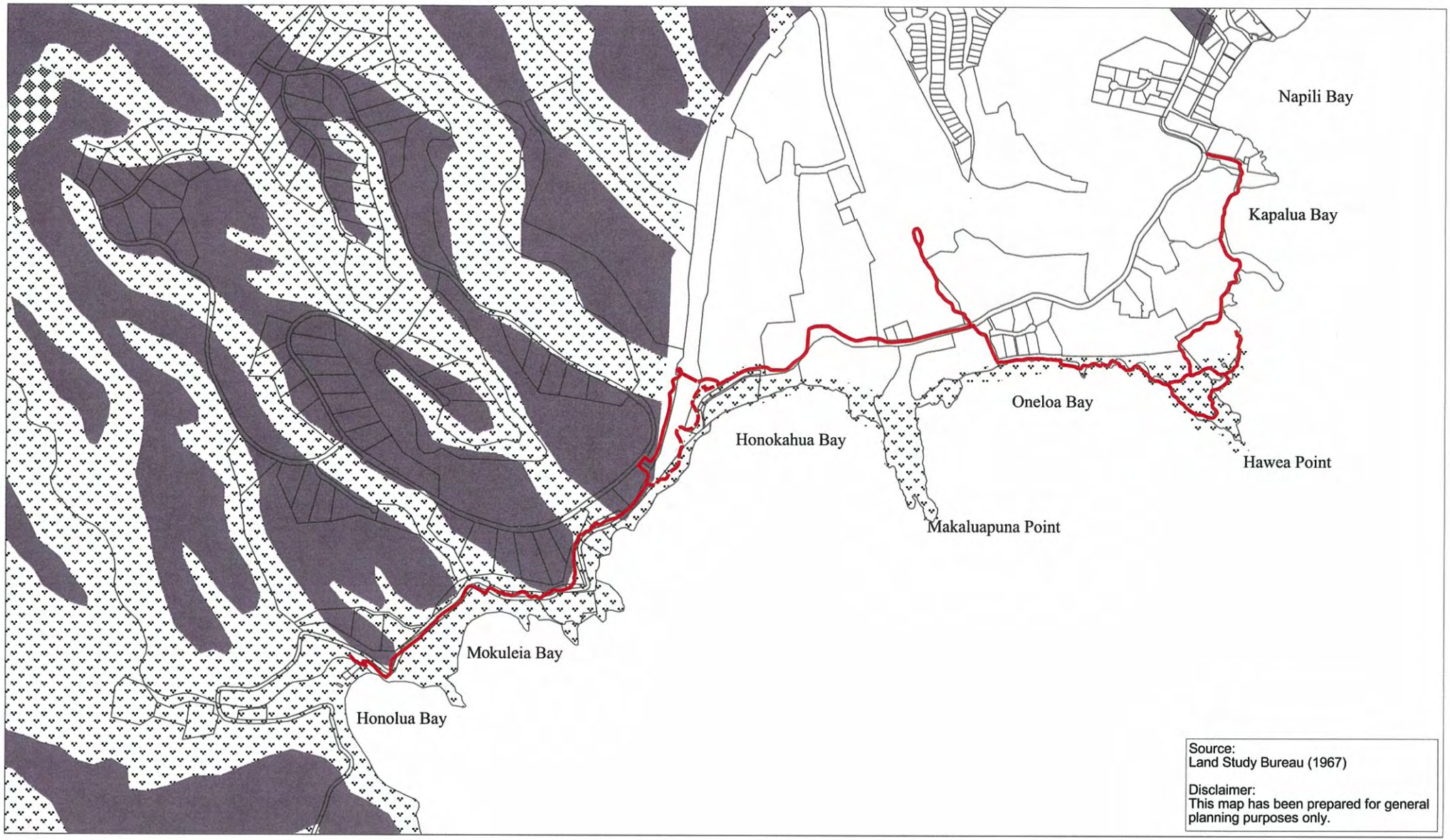
ISLAND OF MAUI

NORTH

LINEAR SCALE (FEET)

0 375 750 1,500 3,000

PBR HAWAII



LEGEND

Kapalua Coastal Trail

- A: Excellent
- B: Good
- C: Fair
- D: Poor
- E: Very Poor
- Not Classified
- Not Rated

Figure 13
Detailed Land Classification

Kapalua Coastal Trail

Maui Land & Pineapple Company

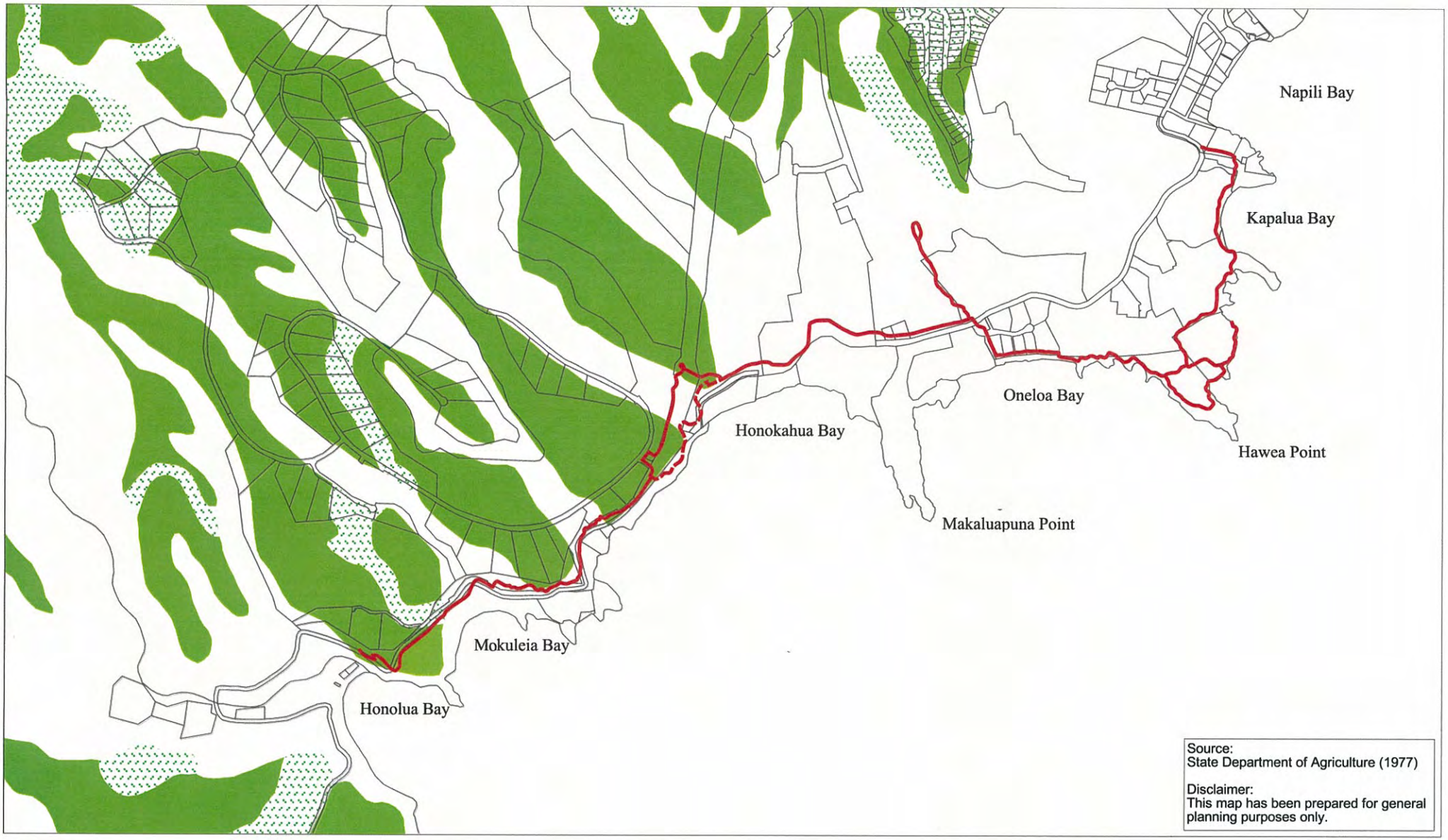
ISLAND OF MAUI

NORTH

LINEAR SCALE (FEET)

0 375 750 1,500 3,000

PBR HAWAII



LEGEND

- Kapalua Coastal Trail
- Prime Agricultural Land
- Other Agricultural Land
- Unclassified Land

Figure 14
Agricultural Lands of Importance to the State of Hawaii (ALISH)

Kapalua Coastal Trail

Maui Land & Pineapple Company

ISLAND OF MAUI

NORTH

LINEAR SCALE (FEET)

0 375 750 1,500 3,000

PBR HAWAII

dune situated between Oneloa Beach and the Kapalua Place property boundary. Three alternative routes are proposed to navigate the dune in this area:

1. Placing the trail furthest back on the dune close to the rock wall that forms the Kapalua Place property boundary. Under this alternative the trail would be either unpaved or elevated on a low boardwalk to protect the dune.
2. Placing the trail mid-way between the Kapalua Place property boundary and the beach. Under this alternative, the trail is proposed to be unpaved with naupaka plants on each side to stabilize the dune and keep people from straying off the path. As an alternative to an unpaved surface, a low boardwalk could be provided.
3. Ending the trail at each end of the beach and providing signs directing trail users across the beach to where trail continues on either end. Under this alternative trail continuity would be broken as the sandy surface of the beach would not provide a stable trail surface.

Maui Land & Pineapple Company consulted with the University of Hawaii Sea Grant Extension Service (Sea Grant) regarding the trail route in this area and potential impacts to the dune. Appendix B contains a letter from Sea Grant Coastal Processes Extension Agent Zoe Norcross-Nu‘u. Ms Norcross-Nu‘u’s opinion is that the trail should be located next to or very close to the rock wall that forms the Kapalua Place property boundary, or routed across the beach. Ms. Norcross-Nu‘u states: “The dune system, particularly at the north end of the beach, is too fragile to be able to support regular pedestrian traffic anywhere other than near the walls.” Ms. Norcross-Nu‘u suggests that an elevated boardwalk near the rock wall would help to minimize potential negative impacts to the dune by removing the erosional effect of foot traffic that leads to destruction of vegetation, dune blowouts, erosional gullies, and windblown sand losses.

As summarized in the Sea Grant letter, boardwalks can be placed directly on the ground (e.g. roughly 6-12 inches in elevation depending on board dimensions), or they can be elevated up to several feet on posts. A boardwalk placed directly on the ground is preferable over walking directly on the sand because it removes the erosional effect of foot traffic, but a boardwalk raised by several feet may be even more beneficial, depending on the location and orientation of the path relative to the prevailing wind direction.

All construction activities will comply with all applicable federal, State, and County regulations and rules for erosion control. To minimize degradation to the water quality of nearshore waters, best management practices (BMPs) will be implemented during the construction phase. Before issuance of a grading permit by the County of Maui, an erosion control plan and best management practices will be prepared describing the implementation of appropriate erosion control measures. Design will comply with the County’s Soil Erosion and Sedimentation Control regulations (Chapter 20.08, Maui County Code), as applicable, which may include consulting with a coastal scientist or an engineer with experience in coastal processes. All construction activities will also comply with the provisions of Chapter 11-60.1, Hawai‘i Administrative Rules, Section 11-60.1-33, Fugitive Dust.

After construction, trail design, various surface treatments, and establishment of permanent landscaping will provide long-term erosion control.

3.4 NATURAL HAZARDS

Natural hazards impacting the Hawaiian Islands include hurricanes, tsunamis, volcanic eruptions, earthquakes, and flooding.

Devastating hurricanes have impacted Hawai‘i twice since 1980: Hurricane ‘Iwa in 1982 and Hurricane ‘Iniki in 1992. While it is difficult to predict these natural occurrences, it is reasonable to assume that future events could be likely given the recent record.

Tsunamis are large, rapidly moving ocean waves triggered by a major disturbance of the ocean floor, which is usually caused by an earthquake but sometimes can be produced by a submarine landslide or a volcanic eruption. About 50 tsunamis have been reported in the Hawaiian Islands since the early 1800s. Seven caused major damage, and two of these were locally generated. The Kapalua Coastal Trail is within the Civil Defense Tsunami Evacuation Zone.

Volcanic hazards in the Kapalua area are considered minimal due to the extinct status of the volcano comprising West Maui. No lava flows have impacted the West Maui region for at least 20,000 years (MacDonald, Abbott, & Peterson 1983).

In Hawai‘i, most earthquakes are linked to volcanic activity. Each year thousands of earthquakes occur in Hawai‘i, the vast majority of them are so small and detectable only with highly-sensitive instruments. However, moderate and disastrous earthquakes have been known to occur. The 1938 Maui Earthquake, with a magnitude of 6.7-6.9 and an epicenter six miles north of Maui, created landslides and forced the closure of the road to Hāna. Damaged water pipes and ground fractures also were reported in Lahaina.

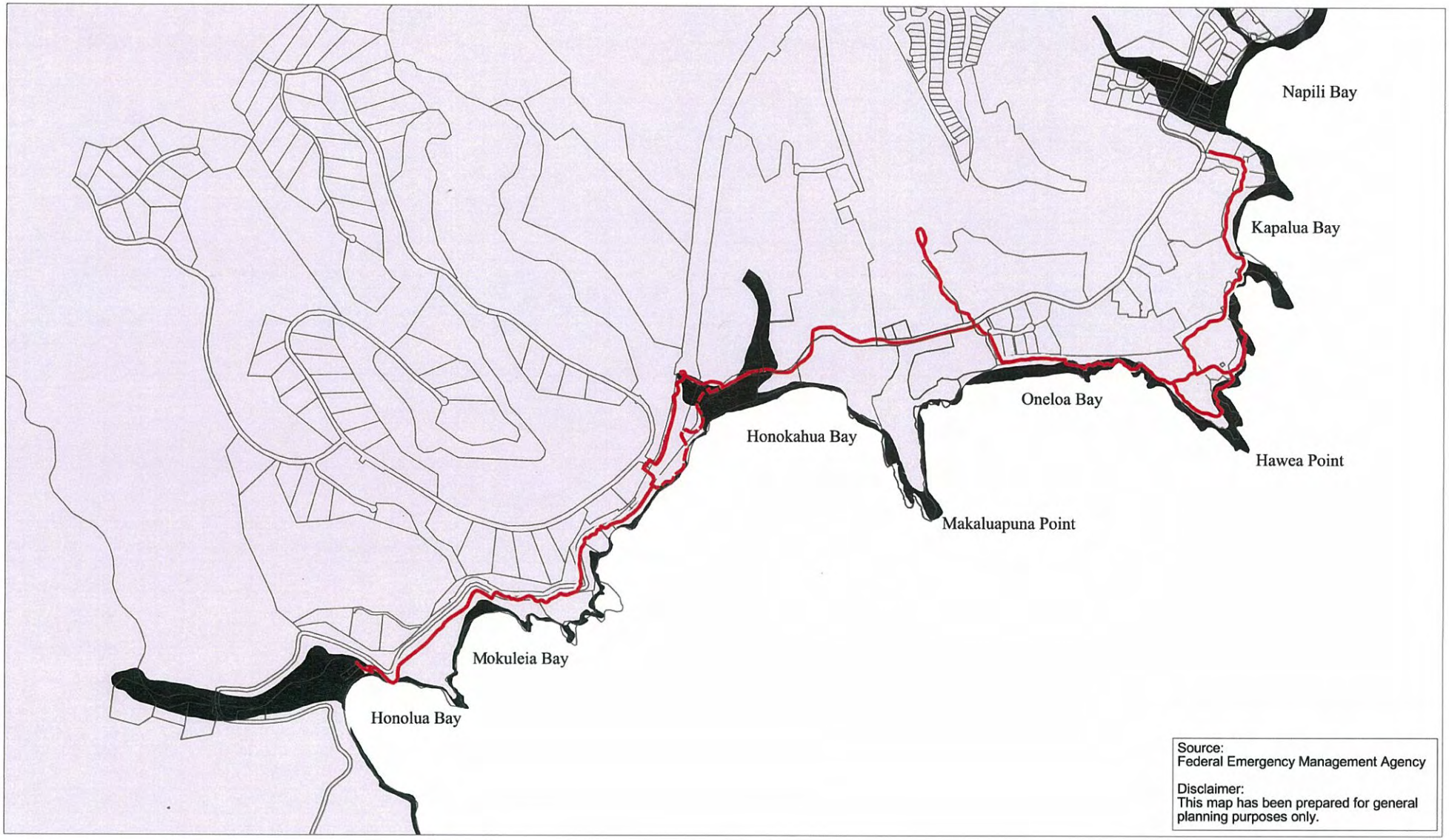
Flood hazards are primarily identified by the Flood Insurance Rate Map (FIRM) prepared by the Federal Emergency Management Agency (FEMA) National Flood Insurance Program (Figure 15). According to FIRM Community Panel Number 150003 0138 B (June 1, 1981), the Flood Zone Designations for the Kapalua Coastal Trail are Flood Zones C and A4. Zone C indicates an area of minimal flooding outside of the 500-year flood plain. Sections of the trail located directly adjacent to the ocean are located in Zone A4, identified as an area affected by the 100-year flood plain with base flood elevation +18.0 feet msl.

Potential Impacts and Mitigation Measures

The Kapalua Coastal Trail will not exacerbate any hazard conditions. There will be no buildings or structures on the trail that would obstruct view planes or use open space (See Section 4.6 for full discussion).

Volcanic impacts to the Kapalua Coastal Trail are considered unlikely; however, mitigation of lava flow hazards is limited to provision of adequate evacuation routes and a civil defense warning system designed to provide area residents with as much advance notice of a threatening lava flow as possible.

Impacts from tsunamis can be mitigated through compliance with Civil Defense tsunami evacuation procedures.



LEGEND

Kapalua Coastal Trail

Zone A: 100-Year Floodplain
Zone X: 500-Year Floodplain
Outside Floodplains
Undetermined Flood Hazard

Figure 15
Flood Insurance Rate Map

Kapalua Coastal Trail

Maui Land & Pineapple Company

ISLAND OF MAUI

NORTH

LINEAR SCALE (FEET)

0 375 750 1,500 3,000

PBR HAWAII

The trail will be designed to stabilize the trail tread through flood prone, low-lying areas. The trail surface will also be engineered to withstand flooding in major storms.

3.5 FLORA

Robert W. Hobdy conducted a biological resources survey of the Kapalua Coastal Trail corridor. Appendix C contains the complete survey.

The vegetation along the Kapalua Coastal Trail corridor can be placed into four broad categories: coastal bluffs, developed areas, undeveloped brushlands, and Arboretum.

During the course of the survey, 183 species of plants were recorded in the four habitat categories. Of these, six were endemic to Hawai‘i, 18 were indigenous to Hawai‘i as well as to other Pacific islands, nine were of Polynesian origin. The remaining 150 species were non-native, including 18 landscape ornamentals and 132 wild or weedy species. Only one of the 183 species is federally listed as an Endangered (USFWS 1999) species. It is the koki‘o ‘ula‘ula (*Hibiscus clayi*) that was planted in the Arboretum about 30 years ago.

One federally protected endangered Hawaiian species, ‘āwiwi (*Centarium sebaeoides*), that has been seen in recent years at Hāwea Point, was not observed during the survey. ‘Āwiwi is an ephemeral annual herb that sometimes appears following winter rains. When conditions are not favorable, the seeds remain in the soil, often for several years, waiting for the right conditions.

The coastal bluffs include a rather narrow zone of vegetation that is influenced by the ocean, wind, and salt. It extends from one end of the project to the other with rugged, rocky headlands interspersed with white sand beaches. A large percentage of the vegetation here is native, and includes naupaka kahakai (*Scaevola taccada*), ‘akulikuli (*Sesuvium portulacastrum*), ‘ōhelo kai (*Lycium sandwicense*), ‘aki‘aki (*Sporobolus virginicus*) pā‘ū o Hi‘iaka (*Jacquemontia ovalifolia subsp. sanwicensis*) and ‘akia (*Wikstroemia uva-ursi*). Non-native species observed are common ironwood (*Casuarina equisetifolia*) and Long-leaf ironwood (*Casuarina glauca*) that form dense clumps of small trees, and a few species of hardy grasses.

The developed areas include resorts, residential areas, golf courses, and beach parks, which have intensively managed landscapes. The vegetation includes: extensive areas of lawns and fairways with such grasses as manienie (*Cynodon dactylon*) and zoysia (*Zoysia matrella*); hedges such as hibiscus (*Hibiscus rosa-sinensis*), bougainvillea (*Bougainvillea spectabilis*), Natal plum (*Carissa macrocarpa*), oleander (*Nerium oleander*), naupaka kahakai; and a variety of ornamental trees such as coconut (*Cocos nucifera*), milo (*Thespesia populnea*), kamani (*Calophyllum inophyllum*) and African tulip-tree (*Spathodea campanulata*).

The undeveloped brushlands are peripheral to and between presently developed areas, sometimes close to the coast and sometimes slightly inland. Vegetation is mostly unmanaged, wild, and dense. The vegetation is composed primarily of common ironwood, kiawe (*Prosopis pallida*), java plum (*Syzygium cumini*), koa haole (*Leucaena leucocephala*), Guinea grass (*Panicum maximum*), and sourgrass (*Digitaria insularis*).

The Arboretum is a distinctive area within a densely wooded valley, which was once the focus of a plan to develop an arboretum featuring native and Polynesian plants. The principal tree here is kukui (*Aleurites moluccana*). Other species include ki (*Cordyline fruticosa*), ‘ape (*Alocasia*

macrorrhizos), ‘awapuhi (*Zingiber zerumbet*) and ulu (*Artocarpus altilis*). A few rare species were planted such as ‘anapanapa (*Colubrina asiatica*), two koki‘o ke‘oke‘os (*Hibiscus arnottianus*) and (*Hibiscus waimeae*), and the Endangered koki‘o ‘ula‘ula (*Hibiscus clayi*).

Potential Impacts and Mitigation Measures

The biological resources survey concludes that the “Kapalua Coastal Trail should have no significant negative impacts on the botanical resources in this part of West Maui” (Hobdy 2006). It is expected that the trail will enhance the unique plant species in the area by preserving them and educating trail users of their importance.

The coastal bluffs contain nearly all of the naturally occurring native plants, and the populations at Hāwea Point form the most diverse and intact communities within the corridor. These two areas constitute a special habitat that is worthy of protection. Therefore, the trail alignments through these areas have been carefully laid out to avoid damaging these plants. In addition, the trail will include interpretative signs educating trail users of the native plant resources.

As previously discussed in Section 2.2.4, at specific sections where the Kapalua Coastal Trail passes near endangered ‘āwiwi habitats, barricades of native plants will be created for its protection.

The Arboretum area contains a few rare species, which were planted there. A proposed spur trail segment will visit the Arboretum area and include interpretive signs enhancing the protection of these species and featuring them as items of interest.

The landscape plan will include Native or Hawaiian cultural trees that will provide shade along the trail. Naupaka, or a similar shrub, will be used in several locations for screening and creating separation between the trail and private areas. Other species that may also be used are ‘a‘ali‘i, ma‘o hau hele, and variegated hau.

The plants used along the trail will be species that thrive in full sun and that are salt-, wind-, and drought-tolerant. The following is a list of proposed species:

- Native Trees: Hala (*Pandanus tectorius*), kou (*Cordia subcordata*), loulu palm (*Pritchardia affinis*).
- Hawaiian Cultural Trees: Coconut palm (*Cocos nucifera*), kamani (*Calophyllum inophyllum*), milo (*Thespesia populnea*).
- Native Shrubs: ‘A‘ali‘i (*Dodonaea viscosa*), kului (*Nototrichium sandwicense*), naio (*Myoporum sandwicense*), naupaka (*Scaevola sp., not coriacea*).

3.6 FAUNA

Robert W. Hobdy conducted a biological resources survey of the Kapalua Coastal Trail corridor. Appendix C contains the complete survey.

No endangered, threatened, or protected animal species were observed during the survey. Only three species of mammals were observed in the area: mongoose, roof rats, and domestic dogs. Although not observed during the survey, mice and cats would also be expected in the area.

Twelve species of birds were recorded during three visits, including one indigenous seabird (the ‘ua‘u kani), and eleven common, introduced birds. Below is a list of the observed species:

- Common myna (*Acridotheres tristis)*
- Zebra dove (*Geopelia striata)*
- Northern cardinal (*Cardinalis cardinalis)*
- House sparrow (*Passer domesticus)*
- House finch (*Carpodacus mexicanus)*
- ‘ua‘u kani, Wedge-tailed shearwater (*Puffinus pacificus)*
- Japanese white-eye (*Zosterops japonica)*
- Red-crested cardinal (*Paroaria coronata)*
- Gray francolin (*Francolinus pondicerianus)*
- Rock dove (*Columbia livia)*
- Spotted dove (*Streptopelia chinensis)*
- Chicken (*Gallus gallus)*

Potential Impacts and Mitigation Measures

The Kapalua Coastal Trail is not expected to have any significant negative impacts on the fauna resources in this part of West Maui. Of the twelve species of birds seen, only one, the ‘ua‘u kani (wedge-tailed shearwater), is native to Hawai‘i. While still relatively common on offshore islands, the ‘ua‘u kani that choose to nest on the main islands struggle to survive due to predators and habitat disturbance. Efforts are underway to protect these colonies where they occur in cooperation with DLNR and the Maui Coastal Land Trust. The colony at Hāwea Point represents one such effort. The proposed trail will avoid the burrow sites and chokes or natural barricades of native plant tapestry will be created to keep trail users away from sensitive sites. Interpretive signs will also be placed nearby to educate trail users not to disturb this native species.

In addition, a number of existing tertiary trails will be consolidated into one main trail to foster habitat protection and restoration. By focusing trail users onto a primary defined trail, tertiary trails can be restored to natural habitat to foster greater nesting success of Wedge-tailed shearwater birds.

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4.0 ASSESSMENT OF THE HUMAN ENVIRONMENT, POTENTIAL IMPACTS AND MITIGATION MEASURES

This section describes the existing conditions of the human environment, potential impacts of the Kapalua Coastal Trail, and mitigation measures to minimize any impacts.

4.1 ARCHAEOLOGICAL AND HISTORIC RESOURCES

Scientific Consultant Services, Inc. (SCS) conducted an archaeological inventory survey to assess the presence/absence of archaeological sites within the corridor of the proposed Kapalua Coastal Trail route. The survey also served to determine the probability of archaeological deposits occurring in subterranean depths along the proposed route. The results of the survey have allowed the trail to be re-routed around known sites and archaeologically sensitive areas. Appendix D contains the complete survey report.

Immediate Vicinity

Previous archaeological research conducted for the Kapalua area included areas in the immediate vicinity of the proposed Kapalua Coastal Trail corridor. A review of the past archaeological research for the area aided SCS in locating known sites and estimating the prospect of encountering new archaeological sites.

Kirch (1973a) conducted the first systematic archaeological survey of the Honolua Development Area, which extends from Kapalua to Honokahua, and includes mostly seashore and near-shore lands with some (limited) mauka uplands. The proposed Kapalua Coastal Trail is included in this previous study area. Kirch (1973a, 1973b) documented a total of nine, mostly traditional, archaeological sites in the Honolua Development Area. Most of these sites were located in and around Honokahua, and included the Honokahua Burial Site (Bishop Museum Site D13-9; State Site 50-50-01-1342).

The Honokahua Burial Site is located north of the proposed Kapalua Coastal Trail route on TMK: 4-2-04:14. First reported by Kirch (1973a), the site represents one of the largest traditional Native Hawaiian cemeteries ever recorded, with over 1,000 sets of human remains recovered during excavation (Donham 1986, 1989, 2000; Pietrusewsky et al. 1991). The Honokahua Burial Site represents the single, most informative sample of human remains from traditional Native Hawaiian times. The Honokahua Burial Site (-1342) is included with five other traditional sites in the Honokahua Archaeological District (-1340). The burial site, which is included on the National Registry of Historic Places, was used by Native Hawaiians presumably as early as A.D. 700–800, to as late as the early 19th century (Donham 2000).

In addition to the Honokahua Burial Site, Kirch (1973a) also documented several other features including: 1) a stone enclosure (Bishop Museum D13-4, interpreted as a traditional house site) on a terraced area, with informal paving and midden, on Makāluapuna Point, northwest of the Honokahua Burial Site; 2) a series of relatively recent, historic walls (D13-5, interpreted as cattle pens), west of the Honokahua Burial Site; 3) an historic midden (D13-8) east of the Honokahua Burial Site and an eroding shell midden with a hammerstone (D13-6, interpreted as representing

temporary, pre-Contact occupation): and 4) a large basalt grinding stone (D13-7) on a large (1.6 m by 1.0 m) boulder, east of the Honokahua Burial Site.

Spriggs (1989) visited the coastal area around Makāluapuna Point, between Oneloa Bay and Honokahua Bay, and described several previously unreported sites in the area surveyed by Kirch (1973a). These additional sites were all located on the northeastern side of the point and included a ko‘a (fishing shrine), eroding midden, possible earth ovens (imu), a stone ramp, and a remnant section of a trail.

Archaeological Inventory Survey Results

The Archaeological Inventory Survey (SCS 2007), conducted along the 3.5-mile trail corridor, revealed the presence of multiple, previously recorded surface archaeological sites. No previously unrecorded sites were identified during survey. Of the 29 trail segments surveyed (see Section 2.2.2 for detailed routing information), five segments and a spur of one segment contained previously recorded archaeological sites (Segments 4, 9, 9a, 16, 18, and 29).

Near trail Segment 4 (Hāwea Point), although no surface archaeological sites were observed, available archival research (Monahan 2005) recorded a buried prehistoric cultural layer (State Site Number 50-50-01-5565) approximately 10 meters from the proposed trail route. On-going Archaeological Monitoring by SCS in this area has been conducted since April, 2006. At present, only a subsurface hearth was documented. Further inland, far removed from the proposed trail (100 + meters), several burials have been identified.

Near Trail Segment 9 (Hāwea Point), the current survey led to the re-identification of several archaeological sites identified by then-Bishop Museum archaeologist Kirch (1973): a complex of eight features functioning as a temporary settlement during marine resource acquisition and an additional shelter. Additional features associated with the complex identified by Kennedy (1990) were also re-identified during the current survey.

As a result of the current survey, all sites and component features on Hāwea Point have been re-identified and will be preserved. The Kapalua Coastal Trail has been re-routed around the sites and will not be paved through this segment; it will remain a natural surface, similar to what currently exists.

Near Trail Spur 9a, one feature (a platform) of a site previously documented by Kirch (1973) was cleared and again recorded during the current survey. This feature is near an existing trail and this spur of the Kapalua Coastal Trail will remain as is without modifications.

Segment 16 has been re-routed mauka of the Honokahua Burial Grounds to connect with an existing pathway within the Ritz-Carlton-Kapalua property. The trail in this section is restricted to the existing walkway, the existing lawn area will not be disturbed in any form, and no added trail surfaces will be added to this area.

Near Trail Segment 18, no surface archaeological sites were observed during the present study as the segment primarily occurs in a road right of way. However, *in situ* human remains were previously discovered during a sewer line trenching at D.T. Fleming Beach Park, far removed from the trail segment.

Segment 29 is the final trail segment, which terminates within Honolua Valley near Honolua Bay. There are several recorded sites within Honolua Valley, but no sites within the trail segment.

Potential Impacts and Mitigation Measures

The Kapalua Coastal Trail will not cause any adverse impacts to known archaeological or historic sites. The results of the survey have allowed the trail to be re-routed around known sites and archaeologically sensitive areas. All the sites recommended for preservation will be preserved. A preservation plan outlining interim and permanent preservation measures will be submitted to the SHPD for review prior to any work being completed on the Kapalua Coastal Trail.

Because the Kapalua Coastal Trail is not designed to intrude into subsurface deposits, the Archaeological Survey Report does not recommend full-time monitoring of each segment. However, there are segments which contain the combination of beach sand/dune land which will require surface clearance due to vegetation overgrowth. It is recommended that an archaeological monitor be present during surface clearing work within the following segments: Segment 9 (Spur 9a), Segment 10, Segment 11, and Segment 12. Any excavation work within segments on the makai flank of the highway containing sandy or silty clay deposits will also be subject to monitoring due to the potential for identifying human remains and/or cultural deposits. In addition, an initial archaeological monitor will be present where vegetation overgrowth prevented full observation of the ground surface at Segments 19 through 21 as well as 23 through 29. Clearance and monitoring may occur concurrently.

Maui Land & Pineapple Company, Inc., and its contractors will comply with all State and County laws and rules regarding the preservation of archaeological and historic sites. Should historic remains, such as artifacts, burials, concentrations of shell, or charcoal, be encountered during the construction activities, work will cease immediately in the immediate vicinity of the find and the find will be protected from further damage. The contractor shall immediately contact the State Historic Preservation Division, which will assess the significance of the find and recommend appropriate mitigation measures, if necessary.

4.2 CULTURAL RESOURCES

The traditional district (moku) of Kāʻanapali consisted of five major stream valleys (Honokōwai, Kahana, Honokahua, Honolua, and Honokōhau), all of which were extensively terraced for wet taro (loʻi) in early historic and later times. Honokahua Valley, just northeast of the Kapalua Resort, has been described as having wet taro (loʻi) lands, although not in great abundance (Sterling 1998). Sweet potatoes were reportedly grown between Honokōhau and Kahakuloa Ahupuaʻa, presumably on lower kula lands. South of Kapalua Resort, Kahana Ahupuaʻa, was known as a place of salt gathering for the people of Lahaina (Sterling 1998).

There are six bays located on Maui's west shore whose names begin with the word Hono. These bays and coves are collectively known as Hono a Piʻilani (the bays beginning with Hono, ruled by Kihapiʻilani), which referred to a vision predicting the prominence of Kihapiʻilani over his brother, Lonoapiʻilani in ruling Maui in the early 1600s (Clark 1980, Cordy 2000, Manu 1884). Kapalua is situated along this coast between Honokahua and Honokeana. The coastal and

marine environments in the area would have provided rich resources for traditional subsistence foragers and fishermen in ancient times.

Traditionally, trails extended from the coast to the mountains, linking the two for both economic and social reasons. The Kāʻanapali District is noted for an alaloa (a path or trail) that reportedly encircled the entire island. Walker (1931, p. 301) wrote:

> *The north end of Maui also is traversed by a paved trail. Sections of it can be seen from Honolua to Honokohau to Kahakuloa. It is paved with beach rocks and has a width of four to six feet. Disregarding elevations and depressions it takes the shortest route between two points that is possible for foot travel. This trail is also spoken of as the Kihapiilani Trail.*

Interviews

As part of a cultural assessment of Kapalua for the Residences at Kapalua Bay (SCS 2005), individuals were interviewed to obtain information concerning their knowledge of Kapalua or the vicinity. Summaries of these interviews follow below.

Clifford Naeʻole, the Cultural Advisor for the Ritz-Carlton Hotel in Kapalua, feels that access to the beach is important for fishermen, people gathering coastal resources, and just for "plain meditation." "Access with dignity" is a term used by Naeʻole to refer to local people being able to park their cars and go down to the coast without being made to feel "shame." Naeʻole believes that the rights of the visitors and the local residents should not be infringed upon. Naeʻole feels that "access with dignity" is necessary for the local fishermen, practitioners of hula, chant, etc. He is also concerned about proper protocol, ceremonies, and notification of the Burial Council in the case that ʻiwi are uncovered. Naeʻole said, "It's just vital the ʻhostʼ and ʻhostedʼ feel equally as comfortable within the confines or shores of this island."

Wesley Nohara, Vice President of Production for Maui Pineapple Company, was born and raised in one of the plantation camps near the Honolua Store. The store is still in operation within the Kapalua Resort. Both his father and grandfather worked for the pineapple company. Nohara's memories of the area included a Boy Scout Camp grounds near the site of the former Kapalua Bay Hotel, a beach club built by the Plantation and used for various functions, an open grassy area with coconut trees, a restroom facility, and the peacefulness of the Kapalua Bay, which he considers ideal for children. Kapalua Bay was called Fleming's Beach in those days. Nohara would go spear fishing there because it was so calm, but it was mostly popular as a family snorkeling area. Some fishing occurred on the two points on either side of the bay. H□wea Point was a popular fishing spot. His father would go to a particular area to pick ogo, a Japanese seaweed. Nohara mentioned that there were about five places where people can access the beach and stated: "Actually, in terms of access, in terms of distance-wise, it's better now than when I was a kid!"

Potential Impacts and Mitigation Measures

Based on interviews with people knowledgeable with the Honolua and Honokahua areas, primary cultural concerns pertain to access to the shoreline. In particular, as Clifford Naeʻole termed it, "access with dignity," meaning that local people should be able to access the coast without being made to feel uncomfortable, is a particular concern.

The goal of the Kapalua Coastal Trail is to create a unified trail system that is aesthetically and culturally appropriate to the Kapalua Resort setting and provide a unique and memorable nature experience for trail users.

Various public shoreline access points, parking spaces, and related facilities provided within the Kapalua Resort already allow extensive public access to the shoreline, the ocean, and ocean resources (Figure 9). The Kapalua Coastal Trail will link these existing public shoreline access points and facilities within the Kapalua Resort, to a continuous, linear trail, thereby improving lateral shoreline access from Kapalua Bay all the way to Honolua Bay.

Traditional gathering rights and shoreline access will be enhanced by the Kapalua Coastal Trail. The existing access points and new trail provide for "access with dignity" for local fishermen, practitioners of hula, chant, and others seeking to enjoy the benefits and opportunities afforded by the coastline and the ocean.

In creating the Kapalua Coastal Trail, Maui Land & Pineapple Company will follow proper protocol, ceremonies, and notification of the Maui/Lānaʻi Islands Burial Council and the SHPD in case ʻiwi or other significant cultural or archaeological sites are discovered.

4.3 ROADWAYS, PARKING, AND TRAFFIC

Sections of the Kapalua Coastal Trail will run alongside the following roadways:

- **Lower Honoapiʻilani Road –** An arterial road oriented in the north-south direction. This road runs parallel to Honoapiʻilani Highway starting at Kapalua Resort and extending south to Honokowai before intersecting Honoapiʻilani Highway.
- **D.T. Fleming Beach Road** – A beach access road (formerly part of Lower Honoapiʻilani Road) that connects from Honoapiʻilani Highway to the beach parking lot. The road is located north of D.T. Fleming Beach Park.
- **Honoapiʻilani Highway –** As the primary roadway in area, Honoapiʻilani Highway provides regional access within West Maui, and connects to other regional highways serving other parts of Maui. North of the intersection of Lower Honoapiʻilani Road, Honoapiʻilani Highway is a two-way, two-lane, undivided roadway.

Within the Kapalua Resort, public parking for shoreline access is provided at the following public shoreline access points (as shown in Figure 9):

- **Kapalua Bay –** 39 public parking stalls at the public access path to Kapalua Bay.
- **Nāmalu Bay and Hāwea Point –** 10 public parking stalls at the start of the path located on the north side of the Residences at Kapalua Bay property near the Bay Villas boundary (the site is currently under construction; however all spaces will be retained when construction is completed). An additional 20 public parking stalls will be provided as part of the Residences at Kapalua Bay project in a parking lot mauka of Lower Honoapiʻilani Road.
- **Oneloa Bay –** 20 public parking stalls at the public access to Oneloa Bay adjacent to the Kapalua Place residential properties.

- **Makāluapuna Point –** 10 public parking stalls at the public access to Makāluapuna Point near the intersection of Lower Honoapi‘ilani Road and Office Road.
- **D.T. Fleming Beach Park –** 107 public parking stalls at D.T. Fleming Beach Park at Honokahua Beach.

Potential Impacts and Mitigation Measures

The Kapalua Coastal Trail is not expected to impact traffic flows in the region and may serve to reduce automobile trips within the Kapalua Resort and surrounding area by providing a safe pedestrian pathway linking various resort facilities and scenic features.

The Kapalua Coastal Trail is primarily located along the shoreline and on property owned by Maui Land & Pineapple Company. However, to provide a continuous route, small portions of the trail are proposed to run within the State Department of Transportation's Honoapi‘ilani Highway right-of-way. These include two portions that run adjacent to Honoapi‘ilani Highway and four highway crossings: three at-grade and one under-grade. An additional at-grade crossing is proposed as part of a Segment 18 alternative.

Instances where the trail runs adjacent to the highway, but within the DOT right-of-way, include:

- Near Mokulē‘ia Bay: a cantilevered boardwalk from the Mokulē‘ia Bay crossing to and easement in the Kalaepiha parcel will run along the outside of the guardrail to separate pedestrians from traffic (see Figures 59, 60, and 61 in Appendix A).
- At the turnout above Honolua Bay: due to the steep cliff edge at the turnout, the trail will be routed inside the guardrail with a marked pedestrian zone. After the turnout, the trail will be routed back to the outside of the guardrail onto a cantilevered boardwalk leading to a proposed stairway down to Honolua Bay (see Figure 63 and 64 in Appendix A).

The Honoapi‘ilani Highway crossings include:

- Under the highway at D.T. Fleming Beach Park through one of three existing 12-foot culverts. The selected culvert does not have water flow through it the majority of the time (see Figure 40 in Appendix A).
- At-grade crossing of D.T. Fleming Beach Road at Honoapi‘ilani Highway. (Figure 38 in Appendix A).
- At-grade crossing near Plantation Estates Drive, which will serve as an alternate trail for people who do not wish to cross in the culvert described above, or during times when the culvert may be closed (see Figure 45 in Appendix A).
- At-grade crossing near the entrance to Mokulē‘ia Bay. For the safety of trail users and due to shorter sight distance at this crossing, flashing lights signaling the crossing are recommended (see Figure 59 in Appendix A).

A crosswalk warrant study conducted by Wilson Okamoto Corporation (December 2006) concludes that all of the at-grade crossings of Honoapi‘ilani Highway warrant marked crosswalks. Appendix E of this EA contains the complete study.

Field measurements indicate that the available sight distances at the crossing locations at D.T. Fleming Beach Road/Honoapi‘ilani Highway and Plantation Estates Drive/Honoapi‘ilani Highway are sufficient for typical crossing maneuvers. However, field measurements indicate that there is insufficient sight distance at the crossing along Honoapi‘ilani Highway near the

stairway to Mokulēʻia Bay. To provide safe pedestrian crossing at this crosswalk it is recommended that weight-activated sensors connected to lighted warning signs be provided for both directions of vehicular traffic to heighten pedestrian visibility.

While not a recommendation of the crosswalk warrant study, Maui Land & Pineapple Company will request that the pavement preceding pedestrian crossings be serrated to produce an audible cue to approaching motorists. The Department of Transportation will make final decisions regarding pavement treatment.

Maui Land & Pineapple Company is consulting with the DOT Maui office to request an occupancy agreement with the DOT to allow trail routings within the DOT right-of-way.

Regarding parking, there will be no loss of any public parking facilities in relation to the Kapalua Coastal Trail. As noted above, an additional 20 public parking stalls will be provided as part of the Residences at Kapalua Bay project in a parking lot mauka of Lower Honoapiʻilani Road. The Kapalua Coastal Trail will link existing parking and public shoreline access points within the Kapalua Resort to a continuous, linear trail, thereby improving lateral shoreline access from Kapalua Bay to Honolua Bay.

4.4 NOISE

The Kapalua Coastal Trail site is currently exposed to daytime ambient noise from wind, the ocean, the highway, and occasional distant aircraft. Nearby noise sensitive areas include neighboring residential areas and the golf course.

Potential Impacts and Mitigation Measures

Potential impacts to the acoustic environment of the site and neighboring properties will primarily relate to construction activity noise, which will be temporary and confined to the period of construction.

All construction activities will comply with the Administrative Rules of the Department of Health (DOH), Chapter 11-46, Community Noise Control. Proper mitigating measures will be employed to minimize construction-related noise and comply with all federal and state noise control regulations. Increased noise activity due to construction will be limited to daytime hours and persist only during the construction period. When construction noise exceeds, or is expected to exceed, the DOH's allowable limits, a permit will be obtained from the DOH. Specific permit restrictions for construction activities are:

- No permit shall allow any construction activities that emit noise in excess of the maximum permissible sound levels before 7:00 a.m. and after 6:00 p.m. of the same day, Monday through Friday.
- No permit shall allow any construction activities that emit noise in excess of the maximum permissible sound levels before 9:00 a.m. and after 6:00 p.m. on Saturday.
- No permit shall allow any construction activities that would emit noise in excess of the maximum permissible sound levels on Sundays and holidays.

The use of pile drivers, hoe rams, jack hammers 25 lbs. or larger, and high-pressure sprayers are not expected to be needed, but if required, will be restricted to 8:00 a.m. to 5:30 p.m., Monday through Friday. Construction equipment and on-site vehicles or devices requiring an exhaust of

gas or air must be equipped with mufflers. In addition, construction vehicles must satisfy the DOH's vehicle noise requirements.

4.5 AIR QUALITY

Regional and local climate, together with the amount and type of human activity, generally dictate the air quality of a given location. In Kapalua, winds are predominantly trade winds. During winter, occasional storms may generate strong winds from the south (Kona winds) for brief periods. When the trade winds or Kona winds are weak or absent, landbreeze-seabreeze circulations may develop.

Generally, air quality in the vicinity of the Kapalua Resort is thought to be very good and well within both State and Federal Air Quality Standards.

Potential Impacts and Mitigation Measures

It is anticipated that no State or Federal air quality standards will be violated during or after the creation of the Kapalua Coastal Trail. The only anticipated issues related to air quality would be during the actual construction of the trail; however, construction activities such as site clearing and grading, would be temporary. Long-term negative impacts related to air quality are not expected.

An effective dust control plan will be implemented as necessary. All construction activities will comply with the provisions of Chapter 11-60.1, Hawaii Administrative Rules, Section 11-60.1-33, Fugitive Dust. Measures to control dust during various phases of construction include:

- Providing an adequate water source at the site prior to start-up construction activities.
- Irrigating the construction site during periods of drought or high winds.
- Landscaping and rapid covering of bare areas, including slopes, starting from the initial grading phase.
- Disturbing only the areas of construction that are in the immediate zone of construction to limit the amount of time that the areas will be subject to erosion.
- Providing adequate dust control measures during weekends, after hours, and before daily start-up of construction activities.
- Installing silt screening in the areas of disturbance.

4.6 VISUAL RESOURCES

Elevations along the trail range from sea level to over 100 feet above mean sea level (msl). Views of Moloka‘i (to the northwest) and Lāna‘i (to the southwest) are available from the trail. The trail corridor also offers many scenic bay views from the trail, such as Kapalua Bay, Nāmalu Bay, Oneloa Bay, Honokahua Bay, Mokulē‘ia Bay, and Honolua Bay. Views looking mauka from the shoreline include Kapalua Resort and the West Maui Mountains.

Other scenic features include an arboretum of Hawaiian plants and Hāwea Point.

Figure 8 contains site photographs from sections of the trail corridor.

Potential Impacts and Mitigation Measures

The Kapalua Coastal Trail will be compatible with the existing visual environment and will preserve the scenic beauty of the coastline. The construction of the Kapalua Coastal Trail does not include any buildings or structures that would obstruct view planes or obstruct visual resources. Therefore, view planes to and from the shoreline will not be negatively impacted. In addition, the trail will preserve existing open space and provide increased opportunities for the enjoyment of the scenery by the general public. The trail, by its very nature, affords users views of the ocean, some of which do not presently exist in a publicly accessible manner.

The landscape plan for the Kapalua Coastal Trail includes native or Hawaiian cultural trees to provide shade along the trail, and native plants for screening and creating separation between the trail and private areas.

4.7 SOCIO-ECONOMIC CHARACTERISTICS

4.7.1 Community Character

West Maui, generally, and Kāʻanapali and Kapalua Resort specifically, are among the most desirable resort/residential areas in Hawaiʻi, with an exceptional and diverse visitor industry offering a strong employment base, a historic town offering a range of modern services, a superior climate, lush natural beauty, and a variety of recreational resources.

While areas adjacent to Kāʻanapali Beach and Lahaina have become more urbanized in character, Kapalua Resort has maintained a character and a reputation as a relaxed vacation area.

The intent of the Kapalua Resort has been to provide a luxurious resort atmosphere removed from the Lahaina-Kāʻanapali area. From the outset, Kapalua Resort was envisioned and designed as a master-planned resort community.

Besides its reputation as one of the world's premier golf destinations, the resort is increasingly becoming known for its commitment to environmental and conservation efforts.

Potential Impacts and Mitigation Measures

The Kapalua Coastal Trail will support and enhance the existing character of the Kapalua Resort area by expanding opportunities to recreational and cultural activities along the shoreline. The trail will make the entire shoreline more accessible to the public and is part of the vision to transition the Resort from a predominantly golf community into a lifestyle resort.

By providing approximately 3.5 miles of linear public shoreline access, the trail will be a significant addition to the Kapalua Resort and the existing public shoreline access system in West Maui.

The trail system is viewed as a key amenity in offering visitors (including resort guests and Maui residents) a balance of activities to revitalize their mind, body, and spirit while at Kapalua. The goal of the Kapalua Coastal Trail is to create a unified trail system that is aesthetically and culturally appropriate to the Kapalua Resort setting and provide a unique and memorable nature experience for trail users.

Trail improvements will be minor in size and scale, and will not significantly change existing conditions along the shoreline. The trail will increase access to scenic areas, views, and landscapes.

4.7.2 Population

The 2000 United States Census reported that resident population of Maui County was 128,094 people in 2000. This is more than double the 1980 total of 62,823 persons.

Population projections commissioned by the Maui Planning Department and calculated by SMS Research indicate that the Maui County population will reach 139,573 people in 2005 (SMS 2002).

For the West Maui region (Lahaina, Kā‘anapali, Nāpili-Honokōwai, and Kapalua) the United States Census reported a population of 17,748 people in 2000. The SMS Research projections indicated that the West Maui population would reach 19,779 people in 2005 (SMS 2002).

In addition to the resident population, for the year 2005 it is projected that approximately 46,865 non-residents populate Maui County on any given day. Approximately 25,069 (53.5 percent of total) of these visitors are in the West Maui region (SMS 2002).

Combining resident and visitor populations, the de facto population of Maui is estimated to be 186,438 people in 2005. The de facto population of West Maui is estimated to be 44,848 people in 2005.

Potential Impacts and Mitigation Measures

The Kapalua Coastal Trail is not expected to impact Maui County population; therefore, no mitigation measures are proposed.

The Kapalua Coastal Trail will be open to the public, opening the use of this recreational amenity to a wide range of people. The trail will have long-term social benefits of providing, increased shoreline access, alternative transportation routes, fishing sites access, additional recreational opportunities, and promotion of healthy lifestyles.

4.7.3 Economy

The ten-mile urban strand stretching close by the coastline from Puamana to the Ritz-Carlton Kapalua Hotel has been the economic engine that changed Maui from a primarily agricultural-based community to a world-class vacation destination boasting the finest in tourism infrastructure.

West Maui region provides nearly one-quarter of all Maui jobs, generates upwards of $3 billion in economic activity annually, and represents almost 30 percent of the island tax base and more than 20 percent of countywide assessed real property value.

Potential Impacts and Mitigation Measures

The Kapalua Coastal Trail itself is not expected to have significant direct economic impacts. A primary economic impact of the trail would be short-term, construction-related jobs. The trail is not expected to generate significant new direct operational jobs as compared to new commercial or retail developments.

Maui Land & Pineapple Company may require a few additional maintenance staff to assist current staff with maintenance activities along the trail corridor. This small number should not have significant impact on economic conditions.

The Kapalua Coastal Trail, however, will become an integral feature of the Kapalua Resort, a premier destination in West Maui, and indirectly provide economic benefits to the area. As an improvement to existing visitor facilities, the trail will be a valuable amenity to the Kapalua Resort without increasing room count. The trail will provide access to active and passive recreational activities in the coastal area such as snorkeling at Nāmalu and Mokulēʻia Bay, fishing along the shoreline, and educational opportunities along the route.

The construction of the Kapalua Coastal Trail would generate additional tax revenue to the State through general excise taxes (GET) on development expenses.

County revenues are primarily limited to tax revenues on privately-owned property and improvements. Therefore, the Kapalua Coastal Trail is not expected to generate significant direct tax revenue for the County of Maui.

4.8 INFRASTRUCTURE

4.8.1 Drainage

Because of the natural shoreline setting, most areas along the Kapalua Coastal Trail corridor are unimproved, pervious surfaces, which allow for infiltration. Extensive runoff that does not infiltrate the ground generally sheet flows with no consistent flow pattern. There is no existing drainage system for collecting and transporting stormwater runoff along most of the proposed Kapalua Coastal Trail corridor.

Potential Impacts and Mitigation Measures

With the addition of the Kapalua Coastal Trail, runoff and drainage is not expected to significantly change from existing conditions. Except for certain sections within central Kapalua Resort, most of the trail will be unpaved and left as natural surface. The trail will be developed using accepted trail construction practices regarding slope and grade and the use of water-bars so that excessive runoff and erosion are avoided. Where appropriate, engineering, design, and construction measures will be undertaken to provide drainage features along the trail corridor to locally dissipate runoff and accommodate minor flows.

The Kapalua Coastal Trail route is designed to be a rolling contour trail that avoids the fall line of flowing water. The proposed trail alignment was surveyed using GPS and flagged in the field following the natural contours of the land, with an average trail grade of 5 percent. When constructing the sections of natural surface trail, additional measures will be taken to move water

off of the trail as quickly as possible. These include moving and compacting earth to create grade reversals (spots where the trail levels out and then changes direction, dropping subtly before rising again) and constructing the trail to have an outslope (a tilt that encourages water to sheet across and off the trail instead of down its center).

Other trail construction techniques to be employed in specific areas include building switchbacks on steep slopes, adding rock chokes and corrals to further define the trail route and add interest to certain straight sections, and design to stabilize the trail tread through flood prone, low-lying areas. The trail surface will be engineered to withstand flooding in major storms.

4.8.2 Water

The source of The Kapalua Resort's potable water is two deep wells located between elevations 768 and 796 feet above mean sea level (msl) mauka of Honoapi'ilani Highway. These wells each have a capacity of 1.0 million gallons per day (MGD). Water from the wells is pumped into a 100,000 gallon glass-lined steel control tank at elevation 820 feet. It is then transmitted by gravity into a one million gallon reinforced concrete storage reservoir at elevation 428 msl. From this storage reservoir water is conveyed to Kapalua Resort by means of a 16-inch line that runs along Office Road and Kapalua Drive. This line is augmented by a 12-inch line that runs along Village Road and Lower Honoapi'ilani Road. The water system is owned and operated by Maui Land & Pineapple Company, Inc., or its subsidiaries.

Drinking fountains are located along the trail route at the public parking and beach access area near Kapalua Bay and at D.T Fleming Beach Park (see Figure 9). Showers are also located at these locations and at the public beach access route at Oneloa Bay.

Potential Impacts and Mitigation Measures

The Kapalua Coastal Trail is not expected to generate significant increased demand for potable water over existing conditions. If necessary, non-potable water will be used for dust control during construction. Non-potable water will also be used for any irrigation necessary in relation to the trail.

To protect ground, surface, and coastal water resources, Best Management Practices (BMPs) will be used in relation to the trail, including during the construction phase.

4.8.3 Wastewater

There are two 15-inch sewer interceptor lines within the Kapalua Resort area. The first, located between 100 to 150 feet inland of the shoreline, receives wastewater from the Residence at Kapalua Site (formerly the Kapalua Bay Hotel), the Bay Villas, the Ironwoods, and other homes and facilities along the coastline. The second handles wastewater flows from the Ridge, Pineapple Hill, the Golf Villas, the Ritz-Carlton Hotel, and the commercial and office buildings along Office Road. The sewer system within Kapalua Resort is owned, operated, and maintained by Maui Land & Pineapple Company or its subsidiaries.

Wastewater from Kapalua Resort is collected and directed into the County's sewer pump station No. 6 located in TMK 4-2-04:25. From this point, a series of County-owned pump stations, force mains, and gravity collectors on Lower Honoapi'ilani Road transport the wastewater for

processing and disposal to the Lahaina Wastewater Reclamation Facility located north of Kāʻanapali, mauka of the Honoapiʻilani Highway/Lower Honoapiʻilani Road intersection.

Restrooms are located along the trail route at the public parking and beach access areas near Kapalua Bay and at D.T Fleming Beach Park (see Figure 9).

Potential Impacts and Mitigation Measures

The Kapalua Coastal Trail is not expected to generate significant amounts of waste water over existing conditions.

4.8.4 Solid Waste

The Kapalua Resort is an active participant in recycling programs. Waste that cannot be recycled is collected by private refuse haulers and taken to the County's Central Maui Sanitary Landfill, located four miles southeast of the Kahului Airport on Pūlehu Road.

Potential Impacts and Mitigation Measures

The Kapalua Coastal Trail will include rubbish cans along the route at approximately half-mile intervals. Recycling bins may also be incorporated into the Kapalua Coastal Trail route. Rubbish that cannot be recycled will be collected by private refuse collection agency contracted by Kapalua Resort.

Because of minimal disturbance to the natural environment, significant amounts of solid waste are not expected during construction of the trail. Whenever practical, solid waste will be minimized and recycled during construction. Green waste from grubbing will either be chipped into mulch for use on site or will be taken the Resort's green waste recycling center.

4.8.5 Electrical and Communication Systems

Maui Electric Company (MECO) provides electricity for West Maui from its Māʻalaea Power Plant. Hawaiian Telcom provides telephone service to the Kapalua Resort and related facilities. Oceanic Time Warner Cable provides cable television service and high-speed internet access.

The existing electric service to Kapalua Resort is from a 277/480-volt (V), three-phase, four-wire system from the Nāpili substation, located about 1,300 feet above Honoapiʻilani Highway across from the Pineapple Hill subdivision. The existing distribution line is located underground along Bay Drive (access road to the hotel).

Hawaiian Telcom provides telephone service to Resort and surrounding area from the system located along Lower Honoapiʻilani Road.

Oceanic Time Warner Cable provides service for Resort and surrounding area from a main underground cable located along Lower Honoapiʻilani Road.

Potential Impacts and Mitigation Measures

The Kapalua Coastal Trail will not require significant electrical consumption or communication systems. Most trail segments, especially the outlying segments toward Honolua Bay, will not have lighting. However, certain trail segments within the Resort area (such as in front of the Coconut Grove condominiums and the Residences at Kapalua Bay) either already have lighting or will have lighting. All lighting will be incompliance with Chapter 20.35 of the Maui County Code, which regulates outdoor lighting to limit degradation of the night visual environment by minimizing light glare, pollution, and trespass.

4.9 PUBLIC SERVICES

4.9.1 Police Protection

Police protective services on Maui are provided by the Maui Police Department. The Kapalua Resort falls within the Maui Police Department's (MPD) District IV – Lahaina. This district is serviced by one police station located at the Lahaina Civic and Recreation Center (1850 Honoapiʻilani Highway), approximately five miles from The Kapalua Resort. There is also a police substation located in the Nāpili Plaza Shopping Center approximately one-half mile from the resort. In addition, Kapalua Resort has its own onsite security.

Potential Impacts and Mitigation Measures

The Kapalua Coastal Trail is not expected to increase the need for police protective services in the region. Access for police and emergency vehicles will be available at points along the trail corridor.

4.9.2 Fire Protection

Two fire stations cover the Lahaina region: the Lahaina Fire Station and the Nāpili Fire Station. The Lahaina Fire Station is responsible for the Lahaina, Olowalu, and Kāʻanapali areas. The Nāpili Fire Station is responsible for the Honokōwai, Nāpili, and Kapalua, areas. The Nāpili Fire Station is located near the Nāpili Shopping Center at 4950 Hanawai Street, approximately one-half mile from the resort.

Potential Impacts and Mitigation Measures

The Kapalua Coastal Trail is not expected to increase the need for fire protective services in the region. Access for emergency vehicles will be available at reasonable points along the trail corridor.

4.9.3 Health Care Services

The Maui Memorial Medical Center in Wailuku provides health care services in Maui. This center has 196 beds and provides emergency, acute, and general medical care. Routine and non-emergency medical services for West Maui residents are provided by medical and dental offices located in communities of West Maui. An urgent care facility is also located in Lahaina.

Potential Impacts and Mitigation Measures

The Kapalua Coastal Trail is not expected to significantly increase the need for health care services. Access for emergency vehicles will be available at reasonable points along the trail corridor.

4.9.4 Recreation Facilities

The Lahaina region has a well-developed park system, with over 10.3 acres of sub-regional and special-use park land per 1,000 residents. The sub-regional park system in the Lahaina area consists of 23 neighborhood parks. The greater West Maui community currently has access to two tennis courts, two sports fields, a gym, and a community center (Lahaina Civic Center), in addition to the many supplemental facilities offered by resorts in the area. The following major public parks are available in the region:

- Hanakaʻōʻō Beach Park
- Wahikuli Beach Park
- Wahikuli State Wayside Park
- Māla Beach Park
- Kelawea Park
- Paunau Park
- Maluʻulu O Lele Park
- Nāpili Park

Potential Impacts and Mitigation Measures

The Kapalua Coastal Trail will increase recreational facilities in West Maui and is not expected to impact existing recreational facilities. The Kapalua Coastal Trail will expand public access to shoreline by providing a safe, convenient, and aesthetic corridor for visitors and residents. The trail will connect various recreational areas along the shoreline and within Kapalua Resort. The trail itself will provide an additional recreational outlet for the West Maui region and will enhance access for fishers to cliff and beach fishing spots.

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5.0 LAND USE CONFORMANCE

State of Hawai‘i and County of Maui land use plans and polices relevant to the Kapalua Coastal Trail and required permits and approvals are described below.

5.1 STATE OF HAWAI‘I

5.1.1 Chapter 343, Hawai‘i Revised Statutes

This document has been prepared in accordance with the provisions of Chapter 343, Hawai‘i Revised Statutes (HRS) and Hawai‘i Administrative Rules (HAR) Title 11, Department of Health, Chapter 200, Environmental Impact Rules. Section 343-5, HRS, establishes nine "triggers" that require either an environmental assessment or an environmental impact statement. Proposed uses within the State Conservation District and within the shoreline area as defined in Section 205A-41, HRS are two of these "triggers." Portions of the trail will be within State Conservation District and shoreline area. As such, this EA is prepared in compliance with provisions of Chapter 343, HRS and HAR Title 11, Department of Health, Chapter 200, Environmental Impact Rules.

Section 343-5, HRS also requires an environmental assessment or environmental impact statement for projects involving the use of State or County lands or funds. Use of State or County lands or funds could include improvements relating to roadway crossings or improvements within State or County roadway right-of-ways. While the specific nature of all potential improvements is not known at this time, this EIS is intended to address all current and future instances involving the use of State or County lands or funds relating to The Kapalua Coastal Trail.

5.1.2 State Land Use Law Chapter 205, Hawai‘i Revised Statutes

The State Land Use Law (Chapter 205, HRS) establishes the State Land Use Commission (LUC). This body has authority to designate all lands in the State into one of four districts: Urban, Rural, Agricultural, or Conservation. Permitted uses within the State Land Use Districts are prescribed under Title 13, Chapter 205, HRS, and the State LUC's Administrative Rules under Title 15, Subtitle 3, Chapter 15, Hawai‘i Administrative Rules (HAR).

The Kapalua Coastal Trail is within the State Urban, Agricultural, and Conservation Districts (Figure 4). The trail is a permitted or identified use in all districts as discussed below.

State Urban District

Land uses within the Urban District are governed by the ordinances or regulations of the county which the urban district is situated. The proposed Kapalua Coastal Trail is consistent with the County's zoning ordinances, which are discussed later in Section 5.2.4 (County Zoning), and therefore, a permitted use within the Urban District.

State Agricultural District

The Kapalua Coastal Trail corridor is an open area type recreational use permitted within the State Agricultural District.

State Conservation District

Many portions of the Kapalua Coastal Trail run through the Conservation District (Figure 4). Within the Conservation District, the trail runs through the following subzones: Limited, Resource, and General (Figure 5). Trails are an identified use within the Limited, Resource, and General subzones, provided a permit is obtained from the Department of Land and Natural Resources. Maui Land & Pineapple Company is submitting a Conservation District Use Application (CDUA) as a prerequisite to obtaining a Conservation District Use Permit to allow the Kapalua Coastal Trail within the Conservation District.

5.1.3 State Conservation District Administrative Rules

The State Conservation District Administrative Rules (HAR, Title 13, DLNR, Subtitle 1 Administration, Chapter 5, Conservation) provide for identified land uses within Conservation District subzones. As stated above, trails are an identified use within the Limited, Resource, and General subzones, provided a permit is obtained from the DLNR. In evaluating the merits of a proposed land use, the DLNR applies the criteria listed under Section 13-5-30, HAR. Below each criterion is listed, along with a discussion of how the Kapalua Coastal Trail conforms to the specific criterion.

(1) The proposed land use is consistent with the purpose of the conservation district;

Discussion: According to HAR §13-5-30, the purpose of the Conservation District is to "regulate land use in the conservation district for the purpose of conserving, protecting, and preserving the important natural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare."

The Kapalua Coastal Trail will provide for appropriate management and use of Conservation District lands by providing a designated pathway along the shoreline. This will allow access to scenic areas while keeping trail users within a defined alignment. The trail will be routed around sensitive plants and other resources and interpretive signs will educate users about unique environmental features. Thus important natural resources will be conserved, protected, and preserved.

The Kapalua Coastal Trail will promote long-term sustainability and public health, safety, and welfare by providing increased and improved recreational opportunities and access to the ocean.

(2) The proposed land use is consistent with the objectives of the subzone of the land on which the use will occur;

Discussion: The objective of the Limited subzone is "to limit uses where natural conditions suggests constraints on human activities" (HAR §13-5-12).

The objective of the Resource subzone is "to develop, with proper management, areas to ensure sustained use of the natural resources of those areas" (HAR §13-5-13).

The objective of the General subzone is "to designate open space where specific conservation uses may not be defined, but where urban use would be premature" (HAR §13-5-14).

The Kapalua Coastal Trail meets all the above objectives. The Kapalua Coastal Trail will provide increased shoreline access but is designed to limit uses where natural conditions suggest constraints on human activities, such as near sensitive plants. In addition, the trail will provide for proper management of conservation areas to ensure sustained use of natural resources. Further, the trail will provide designated access to open space where urban use is not proposed.

(3) The proposed land use complies with provisions and guidelines contained in chapter 205A, HRS, entitled "Coastal Zone Management," where applicable;

Discussion: The Kapalua Coastal Trail complies with the provisions and guidelines contained in Chapter 205A, HRS, entitled "Coastal Zone Management" as discussed in Section 5.1.4 of this EA.

(4) The proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community, or region;

Discussion: The Kapalua Coastal Trail will not cause adverse impact to existing natural resources within the surrounding area, community, or region. The trail will be routed around sensitive plants and other resources and interpretive signs will educate users about unique environmental features. Thus, important natural resources will be conserved, protected, and preserved.

(5) The proposed land use, including buildings, structures and facilities, shall be compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels.

Discussion: The Kapalua Coastal Trail provides a recreational outlet, creates a safe corridor that encourages walking (a non-polluting form of transportation), protects sensitive environmental areas, and provides public access to beaches, the shoreline, and other open space resources. These are all benefits compatible with the locality and surrounding area.

(6) The existing physical and environmental aspects of the land such as natural beauty and open space characteristics, will be preserved or improved upon, whichever is applicable;

Discussion: The Kapalua Coastal Trail will preserve the existing physical and environmental aspects of the land and provide for appropriate management and use of Conservation District lands by providing a designated pathway along the shoreline.

(7) Subdivision of land will not be utilized to increase the intensity of land uses in the conservation district; and

Discussion: The Kapalua Coastal Trail does not involve subdivision of land.

(8) The proposed land use will not be materially detrimental to the public health, safety and welfare.

Discussion: The Kapalua Coastal Trail will be beneficial to public health, safety, and welfare by providing increased access to the shoreline and greater recreational opportunities.

5.1.4 Coastal Zone Management Act, Chapter 205A, Hawai‘i Revised Statutes

The Coastal Zone Management Area as defined in Chapter 205A, HRS, includes all the lands of the State. As such, the Kapalua Coastal Trail is within the Coastal Zone Management Area.

The relevant objectives and policies of the Hawai‘i Coastal Zone Management (CZM) Program pertaining to the Kapalua Coastal Trail, along with a discussion of how the project conforms to these objectives and policies, is discussed below.

RECREATIONAL RESOURCES

Objective: Provide coastal recreational opportunities accessible to the public.

Policy B: Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:

(i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;

(ii) Requiring replacement of coastal resources having significant recreational value, including but not limited to surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;

(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;

(v) Ensuring public recreational uses of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;

(vi) Adopting water quality standards and regulating point and nonpoint sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;

(viii) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of section 46-6.

Discussion: The Kapalua Coastal Trail will expand public access to shoreline resources by providing a safe, convenient, pathway for pedestrians. The trail will increase accessibility to the shoreline and beaches, including Kapalua Bay, Oneloa Bay, D.T. Fleming Beach Park, Mokulē‘ia Bay, and Honolua Bay.

The Kapalua Coastal Trail will provide access to and outlets for diverse recreational activities in the coastal area such as snorkeling at Nāmalu and Mokulē‘ia Bays, and learning about the area from interpretive signs along the trail.

The construction of the Kapalua Coastal Trail will also comply with applicable rules and regulations designed to control or reduce pollution, including point and non-point source water

pollution, and to conserve both the natural resources and the recreational value of the affected coastline.

HISTORIC RESOURCES

Objective: Protect, preserve and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

Policy A: Identify and analyze significant archaeological resources;

Policy B: Maximize information retention through preservation of remains and artifacts or salvage operations; and

Policy C: Support state goals for protection, restoration, interpretation, and display of historic resources.

Discussion: An archaeological inventory survey was conducted for the Kapalua Coastal Trail corridor (see Section 4.1 for full discussion). The trail will not cross any archaeological sites. In areas where the trail runs near archaeological sites, a vegetation buffer will be placed between the site and trail to deter entry. Interpretive signs will be placed on the trail to identify nearby sites and to educate trail users about preserving and not disturbing archaeological and historic sites.

Maui Land & Pineapple Company and all of its contractors will comply with all State and County laws and rules regarding the preservation of archaeological sites should any be found on the properties during construction.

SCENIC AND OPEN SPACE RESOURCES

Objective: Protect, preserve and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Policy A: Identify valued scenic resources in the coastal zone management area;

Policy B: Ensure 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;

Policy C: Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and

Policy D: Encourage those developments which are not coastal dependent to locate in inland areas.

Discussion: The Kapalua Coastal Trail will be compatible with the existing visual environment and will preserve the valuable scenic beauty of the coastline. View planes to and from the shoreline will not be negatively impacted. In addition, the trail will preserve existing open space and provide increased opportunities for the enjoyment of the scenery by the general public. The Kapalua Coastal Trail is coastal dependent by nature and conducive to preservation of this important coastal area. Further, the trail, by its very nature, affords users views of the ocean, some of which do not presently exist in a publicly accessible manner (see Section 4.6 for full discussion).

COASTAL ECOSYSTEMS

Objective: Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

Policy A: Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;

Policy B: Improve the technical basis for natural resource management;

Policy E: Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.

Discussion: Measures will be taken to ensure that the Kapalua Coastal Trail will not negatively impact nearby ocean resources. To minimize degradation to the water quality of nearshore waters, best management practices (BMPs) will be implemented during the construction phase. Design will comply with the County's Soil Erosion and Sedimentation Control regulations (Chapter 20.08, Maui County Code).

As previously discussed in Section 4.8.1 (Drainage), except for certain sections within the central Kapalua Resort, the trail will mostly be unpaved and left as rugged, natural surface. Therefore, runoff and drainage is not expected to significantly change from existing conditions. Appropriate engineering, design, and construction measures that will be undertaken where needed to provide drainage features along the trail corridor.

ECONOMIC USES

Objective: Provide public or private facilities and improvements important to the State's economy in suitable locations.

Policy A: Concentrate coastal dependent development in appropriate areas;

Discussion: The Kapalua Coastal Trail will become an integral feature of the Kapalua Resort, a premier destination in West Maui. The trail, which is coastal dependent, will help preserve the important coastal area.

COASTAL HAZARDS

Objective: Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence and pollution.

Policy A: Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;

Policy B: Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint source pollution hazards;

Discussion: The Kapalua Coastal Trail will not exacerbate any hazard conditions. There will be no buildings or structures on the trail that would increase flood potential. The trail will be designed to stabilize the trail tread through flood prone, low-lying areas. The trail surface will also be engineered to withstand flooding in major storms.

MANAGING DEVELOPMENT

Objective: Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Policy A: Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;

Policy B: Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and

Policy 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 public to facilitate public participation in the planning and review process.

Discussion: The Kapalua Coastal Trail will be in compliance with all laws and regulations regarding development within the Special Management Area and Shoreline Setback Area. The Special Management Area Use Permit process requires public hearings and public decisions by the Maui Planning Commission. This process ensures public input at numerous stages before the granting of approvals.

PUBLIC PARTICIPATION

Objective: Stimulate public awareness, education, and participation in coastal management.

Policy A: Promote public involvement in coastal zone management processes;

Policy B: Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and

Policy C: Organize workshops, policy dialogues, and site- specific mediations to respond to coastal issues and conflicts.

Discussion: This EA provides an opportunity for public comments on the trail. In addition, the Special Management Area Use Permit process requires public hearings and public decisions by the Maui Planning Commission. This process ensures public input at numerous stages before the granting of approvals.

A "Notice of Application" and public hearing dates along with location maps will be published in the Maui News. Also, a "Notice of Public Hearing" will be sent to the owners within 500 feet of the proposed trail corridor. The public will be allowed to participate in the public hearing portion of the Maui Planning Commission review process.

BEACH PROTECTION

Objective: Protect beaches for public use and recreation.

Policy A: Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;

Policy B: Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and

Policy C: Minimize the construction of public erosion-protection structures seaward of the shoreline.

Discussion: As previously discussed in Section 4.8.1 (Drainage), appropriate engineering, design, and construction measures will be undertaken to minimize potential erosion due to grading of soils during construction. Further, no shoreline hardening is proposed, and any structures will not interrupt beach and sand transport processes.

MARINE RESOURCES

Objective: Implement the State's ocean resources management plan.

Policy A: Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;

Policy B: Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;

Discussion: The Kapalua Coastal Trail will not have a negative impact on coastal and marine resources. Also the trail will not serve to fix the shoreline and no seawalls will be constructed to support the trail. Appropriate design measures will be incorporated to minimize impacts to near-

shore waters such as the use of best management practices and aligning the trail so that runoff, if any, is directed away from the ocean. In addition, the trail will be designed to avoid environmentally-sensitive areas.

5.2 COUNTY OF MAUI

County-specific land use plans and ordinances pertaining to the Kapalua Coastal Trail include the General Plan of the County of Maui 1990 Update, the West Maui Community Plan, and the Maui County Code. The following subsections present relevant elements of these guidelines and regulations, and accompanied discussions of how the Kapalua Coastal Trail complies with the specific provisions.

5.2.1 General Plan of the County of Maui

The County of Maui Charter requires that the Maui General Plan address the development-related needs and concerns of the citizens of Maui County. In doing so, it must set forth the desired patterns and characteristics of future growth, and assess the social, economic, and environmental effects of such change. Various objectives and policies have been established in the plan to satisfy these goals. The General Plan objectives and policies relevant to the Kapalua Coastal Trail are discussed below.

LAND USE

Objective 1: To preserve for present and future generations existing geographic, cultural and traditional community lifestyles by limiting and managing growth through environmentally sensitive and effective use of land in accordance with the individual character of the various communities and regions of the County.

> *Policy c: Identify and preserve significant historic and cultural sites.*
> *Policy e: The County will explore ways to develop a Maui County Open Space Program which will preserve important scenic, cultural, recreational, environmental and open space resources*

Objective 2: To use the land within the County for the social and economic benefit of all the County's residents.

> *Policy a: Mitigate environmental conflicts and enhance scenic amenities, without having a negative impact on natural resources.*
> *Policy b: Encourage land use patterns that foster a pedestrian oriented environment to include such amenities as bike paths, linear parks, landscaped buffer areas, and mini-parks.*

Discussion: As previously discussed in Sections 3.6 and 4.1, in areas where the Kapalua Coastal Trail runs near the sensitive coastal habitats and archaeological sites, a landscape buffer and interpretive signs will be placed on the trail to educate users of the presence of sites nearby. Interpretive signs will enhance the trail experience and educate visitors about the importance of preserving the archaeological sites, and protecting the coastal geology and ecology.

To preserve important scenic and open space resources, the Kapalua Coastal Trail will not include any buildings or structures that would obstruct view planes. The trail will provide increased opportunities for the enjoyment of the scenery and open space by the general public.

Recreational resources will be enhanced by the Kapalua Coastal Trail. The trail will be an additional recreational outlet, as well as a connection to various recreational destinations, such as beaches, parks, the shoreline, and the Kapalua Resort. The trail offers free and healthy recreation

for people of all ages, and will be a social and economic benefit for all of the County's residents as well as visitors.

The Kapalua Coastal Trail will provide a pedestrian-oriented environment as an alternative form of transportation to the automobile, thereby reducing fuel consumption, pollution, and road congestion. In addition, the trail will be a safe mode of transportation and recreation that includes landscaped buffer areas.

ENVIRONMENT

Objective 1: To preserve and protect the County's unique and fragile environmental resources.

> *Policy a: Preserve for present and future generations the opportunity to experience the natural beauty of the islands.*
> *Policy b: Preserve scenic vistas and natural features.*
> *Policy d: Support programs to protect rare and endangered species and programs which will enhance their habitat.*
> *Policy e: Discourage the introduction of noxious foreign species into Maui County's unique island ecosystems.*

Objective 2: To use the County's land-based physical and ocean-related coastal resources in a manner consistent with sound environmental planning practice.

> *Policy a: Preserve, enhance and establish traditional and new environmentally sensitive access opportunities for mountain and ocean resources.*
> *Policy b: Evaluate all land-based development relative to its impact on the County's land and ocean ecological resources.*
> *Policy e: Establish shoreline rules to maintain traditional beach access, beach use and lateral access along shorelines.*

Discussion: As previously discussed in Sections 3.6 and 4.1, in areas where the Kapalua Coastal Trail runs near the sensitive coastal habitats and archaeological sites, a landscape buffer and interpretive signs will be placed on the trail to educate users of the presence of sites nearby.

To preserve important scenic and open space resources, the Kapalua Coastal Trail will not include any buildings or structures that would obstruct view planes. The trail will provide increased opportunities for the enjoyment of the scenery and open space by the general public.

The Kapalua Coastal Trail will discourage the use of noxious foreign species into Maui's ecosystem. As previously discussed in Section 2.2.4, the conceptual landscape plan for the Kapalua Coastal Trail will include native or Hawaiian cultural trees to provide shade along the trail, and native plant tapestry for screening and creating separation between the trail and private areas.

The Kapalua Coastal Trail will increase public access to the shoreline and several coastal recreational areas including, Kapalua Bay, Oneloa Bay, D.T. Fleming Beach Park, Mokulēʻia Bay, and Honolua Bay.

CULTURAL RESOURCES

Objective 1: To preserve for present and future generations the opportunity to know and experience the arts, culture and history of Maui County.

> *Policy b: Encourage the recordation and preservation of all cultural and historic resources, to include culturally significant natural resources.*

Policy c: Establish programs to restore, maintain and interpret significant cultural districts, sites and artifacts in both natural and museum settings.
Policy e: Identify and maintain an inventory of significant and unique cultural resources for special protection.

Discussion: An archaeological inventory survey was conducted for the Kapalua Coastal Trail corridor (see Section 4.1 for full discussion). The trail will not run through any archaeological sites, and at areas where the trail runs near archaeological sites, a vegetation buffer may be placed between the site and trail. Interpretive signs will be placed on the trail to identify nearby sites and to educate trail users about preserving and not disturbing archaeological and historic sites.

In addition, Maui Land & Pineapple Company, and all of its contractors, will comply with all State and County laws and rules regarding the preservation of cultural, archaeological, and historic sites should any be found on the property during construction.

VISITOR INDUSTRY

Objective 1: To encourage exceptional and continuing quality in the development of visitor industry facilities.

Policy e: Encourage enhancement of existing visitor facilities without substantial increases in room count.

Objective 3: To ensure that visitor industry facilities shall not disrupt agricultural and social pursuits and will not be allowed to negatively impact the County's natural and cultural resources.

Policy c: Encourage developers to minimize urban encroachment of ocean front lands by establishing increased shoreline setbacks and by requiring the public dedication of continuous lateral access parallel with the shoreline.

Objective 4: To develop a visitor industry which will enhance the social and economic lifestyles of Maui County's residents.

Policy d: Promote water, beach and open space conservation in areas devoted to services for visitors.

Discussion: The Kapalua Coastal Trail provides continuous lateral access parallel with the shoreline from Kapalua to Honolua Bay. The trail will also enhance the existing Kapalua Resort without increasing room count, disrupting agricultural and social pursuits, or negatively impacting the County's natural and cultural resources.

TRANSPORTATION

Objective 1: To support an advanced and environmentally sensitive transportation system which will enable people and goods to move safely, efficiently and economically.

Policy f: Support the development of a county-wide network of bikeways and pedestrian paths.

Objective 3: To develop a Maui County transportation system linked to land use planning that is less dependent on the automobile as its primary mode of moving people.

Discussion: Maui Land & Pineapple Company supports the development of a county-wide network of pedestrian paths with the creation of the Kapalua Coastal Trail. Although the proposed Kapalua Coastal Trail runs from Kapalua to Honolua Bay, with the support of the County and other landowners, possibilities exist for further connections to the trail that can run mauka or extent toward Lahaina.

The Kapalua Coastal Trail will provide a pedestrian-oriented environment as an alternative form of transportation to the automobile, thereby reducing fuel consumption, pollution, and road congestion. In addition, the trail will be a safe mode of transportation and passive recreation that will serve as a connection to various destinations within Kapalua, such as beaches, parks, shoreline, and the Kapalua Resort.

RECREATION AND OPEN SPACE

Objective 1: To provide high-quality recreational facilities to meet the present and future needs of our residents of all ages and physical ability.

Policy a: Maintain and upgrade existing recreational facilities to meet the community needs.
Policy b: Maintain recreational facilities for both active and passive pursuits.
Policy c: Maintain the natural beauty of recreational areas.
Policy d: Develop facilities that will meet the different recreational needs of the various communities.
Policy e: Develop multipurpose recreational facilities.
Policy g: Expand, improve and create new beach rights-of-way, parks, campsites, and other facilities designated for family use.

Objective 2: To provide a wide range of recreational, cultural and traditional opportunities for all our people.

Policy d: Foster an increased awareness of the ethnic and cultural heritage of our people.
Policy e: Encourage the identification, restoration, and preservation of important archaeological, historical and cultural sites.
Policy f: Accelerate the expansion and upgrading of Maui County's beach access facilities, to include parking, and both mauka/makai and lateral access.
Policy i: Encourage the use of public lands to expand and enhance outdoor recreational and cultural opportunities.

Discussion: The Kapalua Coastal Trail offers free and healthy recreation for people of all ages, and will be a social and economic benefit for all of the County's residents as well as visitors. As part of trail improvements Maui Land & Pineapple Company will maintain and upgrade existing recreational resources, such as short beach access paths from various parking areas throughout Kapalua (Figure 9) Resort to connect with the Kapalua Coastal Trail.

The Kapalua Coastal Trail will be an additional recreational outlet, as well as a connection to various recreational destinations, such as beaches, parks, shoreline, and the Kapalua Resort. The trail will provide access to active and passive recreational activities in the coastal area such as snorkeling at Nāmalu and Mokulē‘ia Bay, fishing along the shoreline, and educational opportunities along the route.

An archaeological inventory survey was conducted for the Kapalua Coastal Trail corridor (see Section 4.1 for full discussion). The trail will not run through any archaeological sites, and at areas where the trail runs near archaeological sites, a vegetation buffer will be placed between the site and trail. Interpretive signs will be placed on the trail to identify nearby sites and to educate trail users about preserving and not disturbing archaeological and historic sites.

The beaches and shoreline are public resources for all residents of Maui County. The Kapalua Coastal Trail supports the expansion and upgrading of Maui beach access facilities, and encourages the use of public lands to expand and enhance outdoor recreational and cultural opportunities.

5.2.2 West Maui Community Plan

The West Maui Community Plan is one of nine community plans developed to address both the general policies of the Maui County General Plan and the unique aspects of each region. According to the West Maui Community Plan Land Use Map, the Kapalua Coastal Trail is designated Conservation (C), Agricultural (AG), Open Space (OS), Park Golf Course (PK(GC)), Project District 1 (PD1), Public-Quasi-Public (P), and Business/Commercial (B) (Figure 6). The community plan objectives and policies relevant to the Kapalua Coastal Trail are discussed below.

LAND USE

Goal

An attractive, well-planned community with a mixture of compatible land uses in appropriate areas to accommodate the future needs of residents and visitors in a manner that provides for the stable social and economic well being of residents and the preservation and enhancement of the region's open space areas and natural environmental resources.

Objectives and Policies

2. *Preserve and enhance the mountain and coastal scenic vistas and open space areas of the region.*
5. *Preserve the current State Conservation District and the current State Agriculture District boundaries in the planning region, in accordance with this Community Plan and its land use map. Lands north of Kapalua and south of Puamana to the region's district boundaries should ensure the preservation of traditional lifestyles, historic sites, agriculture, recreational activities and open space.*
10. *Provide and maintain parks and beach access for the present and future needs of residents and visitors…*

Discussion: The Kapalua Coastal Trail will preserve the valuable scenic beauty of the coastline. The trail will provide scenic vistas of the shoreline, including Kapalua Bay, Nāmalu Bay, Oneloa Bay, Honokahua Bay, Mokulēʻia Bay, and Honolua Bay. Views looking mauka from the shoreline include Kapalua Resort and the West Maui Mountains. The trail will not include any buildings or structures that would obstruct view planes or use open space (See Section 4.6 for full discussion). The trail will provide increased opportunities for the enjoyment of the scenery and open space by the general public.

The Kapalua Coastal Trail does not require changes to any State land use district and therefore will preserve current State Conservation and Agricultural District boundaries in accordance with the West Maui Community Plan. As previously discussed in Section 5.1.2, the Kapalua Coastal Trail is a permitted or identified use within all the State land use districts it runs through.

The Kapalua Coastal Trail will provide and maintain beach access for the present and future needs of residents and visitors by expanding public access to shoreline and a continuous lateral pathway linking several coastal recreational areas including, Kapalua Bay, Oneloa Bay, D.T. Fleming Beach Park, Mokulēʻia Bay, and Honolua Bay.

ENVIRONMENT

Goal

A clean and attractive physical, natural and marine environment in which man-made developments on or alterations to the natural and marine environment are based on sound environmental and ecological practices, and important scenic and open space resources are preserved and protected for public use and enjoyment.

Objectives and Policies

2. *Preserve agricultural lands and open space with particular emphasis on natural coastal areas along major highways.*
5. *Encourage soil erosion prevention measures and the installation of siltation basins to minimize downstream sedimentation and degradation of nearshore and offshore water quality.*
9. *Promote recycling programs to reduce solid waste disposal in landfills.*
13. *Promote the planting of trees and other landscape planting to enhance streetscapes and the built environment.*
14. *Protect the shoreline and beaches by preserving waterfront land as open space wherever possible. This protection shall be based on a study and analysis of the rate of shoreline retreat plus a coastal hazard buffer zone...*
15. *Promote drainage and stormwater management practices that prevent flooding and protect coastal water quality.*

Discussion: The Kapalua Coastal Trail preserves agricultural lands and open space with particular emphasis on natural coastal areas along major highways by not changing the existing resources; instead, the trail enhances them. The Kapalua Coastal Trail will not include any buildings or structures that would use open space or agricultural land. With the addition of the Kapalua Coastal Trail, natural coastal areas will be retained as open space for the enjoyment and use of the general public.

As previously discussed in Sections 3.2 (Geology & Topography) and 4.8.1 (Drainage), soil erosion prevention measures will be designed into the trail to minimize downstream sedimentation and degradation of nearshore and offshore water quality. The trail will be developed using accepted trail construction practices regarding slope and grade to avoid excessive runoff and erosion.

The Kapalua Resort is an active participant in recycling programs. Provisions for recycling, such as collection systems bins for recyclables, will be incorporated along the trail.

The Kapalua Coastal Trail will promote the planting of trees and other landscape planting to enhance streetscapes and the built environment. As previously discussed in Section 2.2.4, the conceptual landscape plan for the Kapalua Coastal Trail includes native or Hawaiian cultural trees to provide shade along the trail, and native plant tapestry for screening and creating separation between the trail and private areas.

ECONOMIC ACTIVITY

Goal

A diversified economy that provides a range of stable employment opportunities for residents, allows for desired commercial services for the community, and supports the existing visitor and agricultural industries, all in a manner that will enhance both the community's quality of life and the environment.

Objectives and Policies

4. *Maintain a stable and viable visitor industry.*
    b. *Encourage the renovation and improvement of existing visitor facilities without a substantial increase in the room count. Promote activities and industries that compliment and support the use of existing visitor industry facilities, such as sporting events, eco-tourism and conferences.*

Discussion: The Kapalua Coastal Trail will become an integral feature of the existing Kapalua Resort, without increasing room count. The trail will support tourism by providing access to active and passive recreational activities in the coastal area such as snorkeling at Nāmalu and

Mokulēʻia Bay, fishing along the shoreline, and learning about Hawaiian culture from interpretive signs along the trail.

CULTURAL RESOURCES

Goal

To preserve, protect and restore those cultural resources and sites that best represent and exemplify the Lahaina region's pre-contact, Hawaiian Monarchy, missionary and plantation history.

Objectives and Policies

1. *Preserve and protect significant archaeological, historical and cultural resources that are unique in the State of Hawaiʻi and Island of Maui.*
3. *Encourage and protect traditional shoreline and mountain access, cultural practices and rural/agricultural lifestyles. Ensure adequate access to our public shoreline areas for public recreation, including lateral continuity.*
4. *Establish programs to restore, maintain and interpret significant cultural districts, sites and artifacts in both natural and museum settings.*
5. *Promote distinct cultural resources as an identifying characteristic of the region.*
6. *Ensure that new projects or developments address potential impacts on archaeological, historical, and cultural resources and identify all cultural resources located within the project area as part of initial studies. Further require that all proposed activity adequately mitigate potential adverse impacts on cultural resources.*
10. *Ensure that site identification and interpretation is not damaging to any historical or archaeological sites.*
11. *Recognize the importance of buffer areas to enhance and protect historical or archaeological sites.*
12. *Recognize areas of historic vegetation and significant native vegetation zones as cultural resources.*
13. *Encourage community stewardship of historic sites.*
15. *Encourage cultural and educational programs to perpetuate Hawaiian and other ethnic heritages.*
16. *General site types and areas that should be flagged for possible preservation include the following:*
    - *d. Nearshore marine cultural resources*
    - *f. Significant native vegetation zones*
    - *h. Religious structures (shrines, churches and heiau)*
    - *m. Burials*
17. *Important site types and areas in the West Maui region include but are not limited to the following:*
    - *f. Sites and structures within the National Historic District*
    - *m. Honolua archaeological district*

Discussion: An archaeological inventory survey was conducted for the Kapalua Coastal Trail corridor (see Section 4.1 for full discussion). To preserve important archaeological and cultural sites, a landscape buffer and interpretive signs will be placed on the trail to educate users of the presence of sites nearby. Interpretive signs along the path enhance the trail experience and educate visitors about the importance of preserving the archaeological sites, and protecting culturally significant natural resources.

In addition, Maui Land & Pineapple Company, and all of its contractors, will comply with all State and County laws and rules regarding the preservation of cultural, archaeological, and historic sites should any be found on the property during construction.

URBAN DESIGN

Goal

An attractive and functionally integrated urban environment that enhances neighborhood character, promotes quality design at the resort destinations of Kaanapali and Kapalua, defines a unified landscape planting and beautification theme along major public roads and highways, watercourses, and at major public facilities, and recognizes the historic importance and traditions of the region.

Objectives and Policies

3. *Improve pedestrian and bicycle access within the region.*
4. *Establish, expand and maintain parks, public facilities and public shoreline areas outside of Lahaina town.*
10. *Incorporate drought-tolerant plant species in future landscape planting.*
11. *Use native plants for landscape planting in public projects to the extent practicable.*
12. *Existing and future public rights-of-way along roads and parks shall be planted with appropriate trees, turfgrass and ground covers.*

Discussion: The Kapalua Coastal Trail will improve pedestrian access within the region. The trail provides a pedestrian-oriented environment as an alternative form of transportation to the automobile, thereby reducing fuel consumption, pollution, and road congestion.

The Kapalua Coastal Trail will provide and maintain beach access for the present and future needs of residents and visitors by expanding public access to shoreline resources through a safe, designated corridor for pedestrians. The trail will increase accessibility to the shoreline and to several coastal recreational areas including, Kapalua Bay, Oneloa Bay, D.T. Fleming Beach Park, Mokulēʻia Bay, and Honolua Bay.

The Kapalua Coastal Trail will promote the planting of appropriate trees and plants to enhance streetscapes and public right-of-ways. As previously discussed in Section 2.2.4, the conceptual landscape plan for the Kapalua Coastal Trail includes native or Hawaiian cultural trees to provide shade along the trail, and native plants for screening and creating separation between the trail and private areas.

INFRASTRUCTURE

Goal

Timely and environmentally sound planning, development, and maintenance of infrastructure systems which serve to protect and preserve the safety and health of the region's residents, commuters, and visitors through the provision of clean water, effective waste disposal and efficient transportation systems which meets the needs of the community.

Transportation

Objectives and Policies

3. *Support improvements for the safe and convenient movement of people and goods, pedestrians and bicyclists in the Lahaina region particularly along Honoapiilani Highway, Front Street and Lower Honoapiilani Road and seek to establish a regional network of bikeways and pedestrian paths.*
5. *Promote residential communities that provide convenient pedestrian and bicycle access between residences and neighborhood commercial areas, parks and public facilities, in order to minimize use of the automobile.*

Discussion: The Kapalua Coastal Trail will improve pedestrian access within the Kapalua region by creating a safe, designated corridor for pedestrians to move around the region. The Kapalua Coastal Trail is intended to become an integral feature of the Kapalua Resort,

connecting the various communities and beaches within the area. The trail provides a pedestrian-oriented environment as an alternative form of transportation to the automobile, thereby reducing fuel consumption, pollution, and road congestion.

Liquid and Solid Waste
Objectives and Policies

2. *Reduce the disposal of solid waste in landfills through expanded recycling programs and the provision of convenient drop-off facilities.*

Discussion: The Kapalua Resort is an active participant in recycling programs. Provisions for recycling, such as collection systems bins for recyclables, will be incorporated along the trail.

Drainage
Objectives and Policies

1. *Construct and maintain, as needed, desilting basins along major drainage channels.*
2. *Construct necessary drainage improvements in flood-prone areas, incorporating landscaped swales and unlined channels to provide open space continuity. Urge the use of landscaped/green belt drainage channels as opposed to concrete-lined channels or culverts.*

Discussion: As previously discussed in Sections 3.2 (Geology & Topography) and 4.8.1 (Drainage), soil erosion prevention measures will be designed into the trail to minimize downstream sedimentation and degradation of nearshore and offshore water quality. The trail will be developed using accepted trail construction practices regarding slope and grade to avoid excessive runoff and erosion.

SOCIAL INFRASTRUCTURE

Goal

Develop and maintain an efficient and responsive system of public services which promotes a safe, healthy, and enjoyable lifestyle, and offers opportunities for self improvement and community well being.

Recreation and Open Space
Objectives and Policies

3. *Provide resource-oriented regional park facilities and public access along the shoreline for picnicking, camping, informal play, swimming, sunbathing, and other coastal-related activities along coastal lands makai of the existing or future realigned coastal highways from Honokahua Bay to the district's north boundary and from Puamana to the district's south boundary, except for the agriculture designated lands makai of the highway at Olowalu.*
7. *Ensure adequate public access to shoreline areas, including lateral access to establish the continuity of public shorelines.*

Discussion: The Kapalua Coastal Trail will expand public access to shoreline resources by providing a safe designated corridor for pedestrians. The trail will provide continuous lateral access that runs parallel with the shoreline from Kapalua to Honolua Bay, increasing accessibility to the shoreline and coastal recreational areas including, Kapalua Bay, Oneloa Bay, D.T. Fleming Beach Park, Mokulēʻia Bay, and Honolua Bay.

The trail will connect users to active and passive recreational activities in the coastal area such as snorkeling at Nāmalu and Mokulēʻia Bay, fishing along the shoreline, and educational opportunities along the route.

5.2.3 County Zoning

A large portion of the Kapalua Coastal Trail is within the State Conservation District; and therefore, not under County zoning jurisdiction. The portions of the trail outside of the Conservation District are within the County Open Space (O), Agricultural (AG), Lahaina Project District 1 (PD1), Public/Quasi-Public (P/QP), and Resort-Commercial (BR) zoning districts. The Kapalua Coastal Trail is in conformance with these zoning designations.

5.2.4 Special Management Area

Portions of the Kapalua Coastal Trail will be situated within the Special Management Area (SMA) (Figure 7), as established by the State Coastal Zone Management Act (Chapter 205A, HRS) and the Special Management Area Rules for the Maui Planning Commission (SMA Rules). These provisions regulate development within the SMA.

According to Section 12-202-10 of the SMA Rules, the objectives and policies of the SMA Rules are the same as the Coastal Zone Management Program's objectives and policies. Accordingly, the Kapalua Coastal Trail's conformance to the objectives and policies of Coastal Zone Management Program (Section 205A-2, HRS) and SMA Rules are discussed in the previous Section 5.1.4 (Coastal Zone Management Program).

Development within the SMA requires a SMA Use Permit. Maui Land & Pineapple Company is seeking a County of Maui SMA Use Permit for the Kapalua Coastal Trail.

5.2.5 Shoreline Setback Area

Portions of the Kapalua Coastal Trail will be situated with the Shoreline Setback Area. The Shoreline Rules for the Maui Planning Commission regulate land use and activities within the Shoreline Setback Area. According to Section 12-203-2 of the Shoreline Rules:

> *…the purpose of this chapter is to establish shoreline rules which regulate the use and activities of land within the shoreline environment in order to protect the health, safety, and welfare of the public by providing minimum protection from known coastal natural hazards; and to ensure that the public use and enjoyment of our shoreline resources are preserved and protected for future generations in accordance with the Hawaii coastal zone management law, HRS chapter 205A.*

Under the Shoreline Rules, certain minor activities and structures are permitted within the Shoreline Setback Area. The portions of the trail (including landscaping) within the Shoreline Setback Area will be a minor activity. In addition, there will be four minor structures associated with the trail: 1) a pedestrian bridge next to D.T Fleming Beach Road (see Appendix A, Figures 35, 36, 37); 2) a cantilevered boardwalk parallel to Honoapiʻilani Highway near Mokulēʻia Bay (see Appendix A, Figures 58, 60, and 61); 3) an additional boardwalk near Honolua Bay; and 4) stone steps descending from the lookout above Honolua Bay to Honolua Bay.

Maui Land & Pineapple Company has submitted a Shoreline Setback Structure/Activity Determination application to the Maui Planning Department for a determination that the portions of the trail within the Shoreline Setback area are minor activities or minor structures.

The Kapalua Coastal Trail is consistent with the purpose of the Shoreline Rules and:

- Ensures that public use and enjoyment of shoreline resources are preserved and protected for future generations.
- Facilitates increased public access to the shoreline.
- Facilitates public views to and along the shoreline.
- Is in conformance with the Coastal Zone Management Program (Chapter 205A) (see Section 5.1.3 of this EA).
- Is a private facility and improvement that is clearly in the public interest.
- Does not harden or fix the shoreline.
- Does not prevent the natural movement of sand resources.

The Kapalua Coastal Trail will not: 1) adversely affect beach processes; or 2) artificially fix the shoreline.

5.3 APPROVALS AND PERMITS

An approximate list of permits and approvals required for the Kapalua Coastal Trail is presented below.

Table 5. Required Permits and Approvals

Permit/Approval	Responsible Agency
Chapter 343, HRS compliance	Maui Planning Department/ Maui Planning Commission Office of Environmental Quality Control
Conservation District Use Permit	State of Hawai‘i Department of Land and Natural Resources
Special Management Area Use Permit	Maui Planning Department/Maui Planning Commission
Shoreline Setback Structure/Activity Determination	Maui Planning Department
Permission to perform work within State Highway Right-of-Way	State of Hawai‘i Department of Transportation
Grading/Building Permits	County of Maui Department of Public Works and Environmental Management

6.0 ALTERNATIVES

In compliance with the provisions of Title 11, Department of Health, Chapter 200, Environmental Impact Statement Rules, Section 11-200-17(f), an environmental assessment must discuss potential alternatives to the proposed action.

Three alternatives were considered: 1) No action; 2) Route alternatives; and 3) Trail element alternatives. These alternatives are discussed below.

6.1 NO ACTION

Currently, there is no designated pedestrian coastal trail connecting all the beaches that run from Kapalua Bay to Honolua Bay. Residents and visitors inclined to walk from Kapalua Bay to Honolua Bay must either walk along roadways or traverse their own path along the beaches and rocky shorelines. Neither option is optimal for pedestrians.

The "no action" alternative would not be consistent with the Maui County General Plan policy to support the development of a county-wide network of pedestrian paths and the objective to develop a transportation system linked to land use planning that is less dependent on the automobile.

The "no action" alternative would also not be consistent with West Maui Community Plan polices to "ensure adequate access to our public shoreline areas for public recreation, including lateral continuity" and improve pedestrian access within the region.

The "no action alternative" also would deny the public of the potential benefits associated with the Kapalua Coastal Trail. Some of these benefits include:

- Increased shoreline access.
- An alternative form of transportation to the automobile.
- Educational opportunities from interpretive signs along the path.
- Connection of important destinations, such as beaches, areas of cultural and ecological significance, parks, the shoreline, and uses within the Kapalua Resort.
- Increased awareness of coastal geology and ecology.
- Cultural and historic preservation and enhancement.
- Increased views to, and along, the shoreline.

The "no action" alternative does not provide a safe, designated pedestrian corridor and would not provide increased beach access or continuous lateral access along the shoreline. The "no action" alternative also upholds the public's reliance on automobiles for transportation within the Kapalua area. For these reasons, the "no action" alternative is not preferred.

6.2 ROUTE ALTERNATIVES

Various trail alignments were considered. Any adjustments to the trail alignment had to consider property lines, shoreline conditions, plant and animal habitats, archaeological sites, reasonable safety for trail users, proximity to the golf course (for safety reasons), and the need for creating buffers to separate public and private areas.

In the Draft EA, Segment 16 of the trail was proposed to run between the Honokahua Burial Ground and the ocean. A trail spur to Makāluapuna Point ("Dragon's Teeth") was also proposed. However, based on concerns expressed by the Maui/Lanai Islands Burial Council, the trail was re-routed mauka of the Honokahua Burial Grounds to connect with an existing concrete pathway within the Ritz-Carlton-Kapalua property and the trail spur to Makāluapuna Point ("Dragon's Teeth") has been eliminated. These changes were presented to the Maui/Lanai Islands Burial Council and were well received. Maui Land & Pineapple will be working closely with the Burial Council to enclose the Burial Ground and add additional interpretive signs to educate trail users of the significance of the area.

At Segment 20, an alternative to the Honoapiʻilani Highway crossing through the DOT culvert would be to use the Segment 18 alternate, and then cross the highway at Plantation Club Drive. This alternate 18 route, however, would result in two at-grade pedestrian crossings instead on only one at-grade crossing.

At Segment 12, which is situated between Oneloa Beach and the Kapalua Place property boundary, three alternatives have been proposed to navigate the dune in this area:

1. Placing the trail furthest back on the dune close to the rock wall that forms the Kapalua Place property boundary. Under this alternative the trail would be either unpaved or elevated on a low boardwalk to protect the dune.
2. Placing the trail mid-way between the Kapalua Place property boundary and the beach. Under this alternative, the trail is proposed to be unpaved with naupaka plants on each side to stabilize the dune and keep people from straying off the path. As an alternative to an unpaved surface, a low boardwalk could be provided.
3. Ending the trail at each end of the beach and providing signs directing trail users across the beach to where trail continues on either end. Under this alternative trail continuity would be broken as the sandy surface of the beach would not provide a stable trail surface.

Maui Land & Pineapple Company consulted with the University of Hawaii Sea Grant Extension Service (Sea Grant) regarding the trail route in this area and potential impacts to the dune. Appendix B contains a letter from Sea Grant Coastal Processes Extension Agent Zoe Norcross-Nuʻu. Ms Norcross-Nuʻu's opinion is that the trail should be located next to or very close to the rock wall that forms the Kapalua Place property boundary, or routed across the beach. Ms. Norcross-Nuʻu states: "The dune system, particularly at the north end of the beach, is too fragile to be able to support regular pedestrian traffic anywhere other than near the walls." Ms. Norcross-Nuʻu suggests that an elevated boardwalk near the rock wall would help to minimize potential negative impacts to the dune by removing the erosional effect of foot traffic that leads to: destruction of vegetation, dune blowouts, erosional gullies, and windblown sand losses.

As summarized in the Sea Grant letter, boardwalks can be placed directly on the ground (e.g. roughly 6-12 inches in elevation depending on board dimensions), or they can be elevated up to several feet on posts. A boardwalk placed directly on the ground is preferable over walking directly on the sand because it removes the erosional effect of foot traffic, but a boardwalk raised by several feet may be even more beneficial, depending on the location and orientation of the path relative to the prevailing wind direction.

Trail design will comply with the County's Soil Erosion and Sedimentation Control regulations (Chapter 20.08, Maui County Code), as applicable, which may include consulting with a coastal scientist or an engineer with experience in coastal processes.

6.3 TRAIL ELEMENT ALTERNATIVES

One alternative would be to pave the entire trail. This alternative, however, was not chosen in order to keep portions of the trail outlying the resort area in a natural state. Crushed gravel also may be used as an alternative to permanent paved surfaces.

At Segment 13, an alternative would be to leave the public beach access as is, rather than providing a stepped down grade (see Figure 8). This alternative, however, poses safety risks with the steep slope and loose sand. Another option would be to install concrete stairs. The preferred construction would be to use lumber-framed steps instead of concrete because the steps would serve to control erosion as well as create a safer path for accessing the beach. These steps would be installed in small sections so that during very large storm events if one portion is impacted by high surf, the remaining portions remain intact.

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7.0 FINDINGS, SUPPORTING REASONS, AND ~~ANTICIPATED~~ DETERMINATION

To determine whether the Kapalua Coastal Trail may have a significant impact on the physical and human environment, all phases and expected consequences of the trail have been evaluated, including potential primary, secondary (direct and indirect), short-range, long-range, and cumulative impacts. Based on this evaluation, the Approving Agency (the Maui Planning Commission/Maui Planning Department) has issued a Finding of No Significant Impact (FONSI) for the Kapalua Coastal Trail. The supporting rationale for this finding is presented in this chapter.

7.1 PROBABLE IMPACT, INCLUDING CUMULATIVE IMPACTS

Impacts, including cumulative impacts, of the Kapalua Coastal trail include increased:

- Public shoreline access.
- Recreational opportunities for Maui residents and visitors.
- Health benefits of exercise.
- Transportation routes providing alternatives to automobile transportation.
- Educational opportunities from interpretive signs along the path.
- Connection of important destinations, such as beaches, areas of cultural and ecological significance, parks, the shoreline.
- Awareness of coastal geology and ecology.
- Cultural and historic preservation and enhancement.
- Increased views to, and along, the shoreline.

The Kapalua Coastal Trail will not result in significant negative impacts, including cumulative impacts. No degradation of environmental quality is anticipated.

7.2 PROBABLE ADVERSE ENVIRONMENTAL IMPACTS THAT CAN BE AVOIDED

Chapters 3 and 4 of this EA elaborate on probable environmental impacts associated with the Kapalua Coastal Trail and provide proposed mitigation measures. Significant adverse environmental impacts have been avoided.

7.3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

There is no significant irreversible and irretrievable commitment of resources associated with the Kapalua Coastal Trail. The Kapalua Coastal Trail will involve the commitment of the land trail for the trail corridor and building materials necessary for the limited construction of specific sections of the trail. Commitment of these resources is not irreversible or irretrievable.

7.4 SIGNIFICANCE CRITERIA

According to the Environmental Impact Statement Rules (Section 11-200-12), an applicant or agency must determine whether an action may have a significant impact on the environment. In

making the determination, the Rules establish "Significance Criteria" to be used as a basis for identifying whether significant physical and/or human environmental impacts will occur. According to the Rules, an action shall be determined to have a significant impact on the environment if it meets any one of the specific criteria. The determination of impacts potentially resulting from the Kapalua Coastal Trail, and the associated rationale supporting that determination are organized based on these criteria, as follows:

(1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resources;

The Kapalua Coastal Trail will not cause irrevocable loss or destruction of natural or cultural resources. The trail has been carefully routed to avoid sensitive habitats or archaeological sites. In areas where the trail runs near sensitive habitats or archaeological sites, a vegetation buffer may be placed between the site and trail. Interpretive signs will be placed on the trail to identify nearby sites and to educate trail users about preserving and not disturbing habitats and archaeological sites.

(2) Curtails the range of beneficial uses of the environment;

The Kapalua Coastal Trail increases, rather than curtails, the beneficial uses of the environment. The trail will connect users to active and passive recreational activities provided by the coastal environment such as snorkeling at Nāmalu and Mokulēʻia Bay, fishing along the shoreline, and educational opportunities along the route.

(3) Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS; and any revisions thereof and amendments thereto, court decisions, or executive orders;

The Kapalua Coastal Trail provides a recreational outlet, creates a safe corridor that encourages walking (a non-polluting form of transportation), promotes the preservation of archaeological sites, protects sensitive environmental areas, and provides public access to beaches, shoreline, and other open space resources. The trail is not anticipated to have negative impacts on the environment, and therefore, is consistent with the environmental policies established in Chapter 344, HRS.

(4) Substantially affects the economic or social welfare of the community or state;

The Kapalua Coastal Trail will provide a positive impact on the Maui community in the short-term with construction-related employment opportunities, and in the long-term with enhanced and improved recreational opportunities, alternative transportation, access to open space, increased coastal views, and the added recreational value of the trail.

(5) Substantially affects public health;

The Kapalua Coastal Trail will have positive impacts on public health. The trail provides a pedestrian-oriented environment as an alternative form of transportation to the automobile, thereby reducing air pollution and stress from road congestion. Benefits to public health include clean air, exercise, and better quality of life.

(6) Involves substantial secondary impacts, such as population changes or effects on public facilities;

The Kapalua Coastal Trail will not involve substantial secondary impacts, such as population changes or effects on public facilities. It is hoped that use of the trail would result in a reduction in automobile traffic between Kapalua Bay and Honolua Bay.

(7) Involves a substantial degradation of environmental quality;

The Kapalua Coastal Trail will not degrade the environment. No significant impacts to water quality, air quality, or noise levels are anticipated.

(8) Is individually limited but cumulatively has considerable effect on the environment, or involves a commitment for larger actions;

The Kapalua Coastal Trail will be sited away from environmentally-sensitive areas, and does not commit resources or energy for a larger action.

(9) Substantially affects a rare, threatened, or endangered species or its habitat;

The Kapalua Coastal Trail will not affect rare, threatened, or endangered species or habitats. As previously discussed in Section 3.5 (Flora) and 3.6 (Fauna), the trail has been carefully routed to avoid sensitive habitats. In addition, interpretive signs will be placed on the trail to educate users of the presence of sensitive environmental sites nearby and unique coastal species.

(10) Detrimentally affects air or water quality or ambient noise levels;

The Kapalua Coastal Trail will not detrimentally affect air, water quality, or ambient noise levels. Measures will be taken during construction to mitigate any short-term impacts.

(11) Affects or is likely to suffer damage by being located in an environmentally sensitive area, such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, freshwater, or coastal waters.

The Kapalua Coastal Trail will be aligned away from environmentally-sensitive areas. As previously discussed in Section 3.2 (Geology & Topography), special consideration has been made in the trail design to minimize erosion effects.

(12) Substantially affects scenic vistas and view planes identified in county or state plans or studies;

The Kapalua Coastal Trail corridor offers many scenic bay views from the trail, such as Kapalua Bay, Nāmalu Bay, Oneloa Bay, Honokahua Bay, Mokulēʻia Bay, and Honolua Bay. Views looking mauka from the shoreline include Kapalua Resort and the West Maui Mountains.

The Kapalua Coastal Trail will be compatible with the existing visual environment and will preserve the valuable scenic beauty of the coastline. The construction of the Kapalua Coastal Trail does not include any buildings or structures that would obstruct view planes or obstruct

visual resources. Further, the trail, by its very nature, affords users views of the ocean, some of which do not presently exist in a publicly accessible manner.

(13) Requires substantial energy consumption.

The Kapalua Coastal Trail will not require substantial energy consumption. Most trail segments, especially the outlying segments toward Honolua Bay, will not have lighting. However, certain trail segments within the Resort area (such as in front of the Coconut Grove condominiums and the Residences at Kapalua Bay) either already have lighting or will have lighting.

7.5 DETERMINATION

On the basis of impacts and mitigation measures examined in this document and analyzed under the above criteria, it is determined that the Kapalua Coastal Trail will not have a significant effect on the local, County, or Statewide physical, natural, coastal, or human environments. Pursuant to Chapter 343, Hawai‘i Revised Statutes, the Approving Agency, which in this case is the Maui Planning Commission/Planning Department, has determined and issues a Finding of No Significant Impact (FONSI).

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9.0 COMMENTS ON THE DRAFT ENVIRONMENTAL ASSESSMENT AND RESPONSES

The Draft Environmental Assessment (EA) was sent to the following agencies, organizations, and individuals. The public comment period on the Draft EA was from November 23, 2006 to December 26, 2006. Where indicated, the agency, organization, or individual submitted comments.

AGENCY	DRAFT EA MAIL DATE	COMMENT DATE
STATE		
Office of Environmental Quality Control (OEQC)	11-21-06	12-14-06
Department of Accounting and General Services (DAGS)	11-21-06	-
Department of Business, Economic Development & Tourism (DBEDT) – Planning Office, Land Use Division	11-21-06	-
Department of Health – Environmental Planning Office	11-21-06	12-26-06
Department of Health – Maui District Office	11-21-06	11-30-06
Department of Land & Natural Resources (DLNR) – Land Division	11-21-06	1-3-07
DLNR – Office of Conservation & Coastal Lands	11-21-06	12-26-06
DLNR – Commission on Water Resource Management	12-20-06	4-16-07
State Historic Preservation Division (SHPD)	11-21-06	2-2-07
Department of Transportation (DOT) Statewide Planning Office	11-21-06	12-26-06
Disability and Communication Access Board	3-28-07	4-16-07
Office of Hawaiian Affairs	11-21-06	12-26-06
UH Environmental Center	11-21-06	-
UH Marine Programs	11-21-06	-
UH Sea Grant Extension Office	11-21-06	-
COUNTY		
Department of Fire Control & Public Safety	11-21-06	-
Department of Parks & Recreation	11-21-06	-
Department of Planning/Maui Planning Commission	11-21-06	2-26-07
Police Department	11-21-06	-
Department of Public Works & Environmental Services Management	11-21-06	-
Department of Water Supply	11-21-06	12-4-06
FEDERAL		
US Fish & Wildlife Service	11-21-06	-
US Natural Resources Conservation Service (Maui)	11-21-06	11-24-06
US Army Corps of Engineers	11-21-06	-
Private Companies, Organizations, and Individuals		
Lahaina Public Library	11-21-06	-
Hawaiian Telcom	11-21-06	12-19-06
MECO	11-21-06	12-1-06
County Councilmember Jo Anne Johnson	11-21-06	-
County Councilmember Michelle Anderson	11-28-06	-
Sierra Club	12-1-06	-
Chris Cramer	-	12-10-06

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LINDA LINGLE
GOVERNOR OF HAWAII

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186
E-mail: oeqc@health.state.hi.us

December 14, 2006

Mr. Michael Foley
County of Maui
Department of Planning
250 South High Street
Wailuku, Hawaii 96793

Dear Mr. Foley:

Subject: Draft EA for the Kapalua Coastal Trail

Thank you for the opportunity to review the subject document. We have the following comment.

1. OEQC recommends that the trail signs, barriers and fences be built using recycled materials whenever possible.
2. OEQC recommends using appropriate native plants whenever possible to reduce coastal erosion and provide shade.
3. Please consult the Commission on Water Resources Management concerning the stream crossings.

Should you have any questions, please call Jeyan Thirugnanam at 586-4185.

Sincerely,

Genevieve Salmonson

Genevieve Salmonson
Director

c: Maui Land and Pineapple
PBR

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& ASSOCIATES, INC.

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Tel: (808) 242-2878

March 12, 2007

Ms. Genevieve Salmonson
Director
State of Hawaii
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

SUBJECT: KAPALUA COASTAL TRAIL DRAFT ENVIRONMENTAL ASSESSMENT

Dear Ms. Salmonson:

Thank you for your letter dated December 14, 2006 regarding the Draft Environmental Assessment (EA) for the Kapalua Coastal Trail. As the planning consultant for the applicant, Maui Land & Pineapple Company, Inc., we are responding to your comments.

1. We acknowledge your recommendation that the trail signs, barriers, and fences be built using recycled materials whenever possible, including reclaimed lumber or recycled plastic lumber. This will be stated in the Final EA.

2. As discussed in Section 2.2.4 (Conceptual Landscape Plan) of the Draft EA, the landscape plan for the Kapalua Coastal Trail includes native plants and drought-tolerant species. Trees will be planted along the trail to provide shade and reduce erosion, and naupaka, or a similar shrub, will be used as vegetation in several locations along the trail.

3. Copies of the Draft EA were provided to the Department of Land & Natural Resources (DLNR) Land Division. The DLNR Land Division provided a copy to the Division of Water Resource Management. In a memorandum dated December 1, 2006, the Division of Water Resource Management stated that they have no comments on the draft EA. A copy of the memorandum is attached. In addition, on December 20, 2006, we wrote directly to the Commission on Water Resource Management to request their specific comments concerning stream crossings. A copy of the letter is attached.

Thank you for reviewing the Draft EA. Your comments will be included in the Final EA.

Sincerely,

Tom Schnell, AICP
Senior Associate

Attachment

cc: Thorne Abbott, County of Maui Planning Department
Yarrow Flower, Maui Land & Pineapple Company, Inc.

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Ed 12/2

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

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COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 1, 2006

MEMORANDUM

TO: **DLNR Agencies:**
x Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
x Engineering Division
x Div. of Forestry & Wildlife
x Div. of State Parks
x Div. of Water Resource Management
~~x Office of Conservation & Coastal Lands~~
x Land Division – Maui District

RECEIVED
06 DEC -4 P 4:21

FROM: Russell Y. Tsuji
SUBJECT: Draft Environmental Assessment for Kapalua Coastal Trail
LOCATION: Lahaina, Maui, TMK: (2) 4-2-4:4,10,12,14,15,16,17,24,25,32,34,37,43 and 4-2-5:41,42,49
APPLICANT: PBR Hawaii on behalf of Maui Land & Pineapple Co.

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by December 25, 2006.

A copy of the document is available for your review in Land Division office, Room 220.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

( ) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Signed: Edwin T. Schoch
Date: 12/5/06

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& ASSOCIATES, INC.

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December 20, 2006

Mr. Dean Nakano
Deputy Director
Commission on Water Resource Management
P.O. Box 221
Honolulu, Hawaii 96809

SUBJECT: Kapalua Coastal Trail Draft Environmental Assessment

Dear Mr. Nakano:

The Office of Environmental Quality Control (OEQC) has requested that we consult with you regarding stream crossings along the proposed Kapalua Coastal Trail in Honolua and Honokahua, West Maui. The Kapalua Coastal Trail will stretch 2.5 miles from Lower Honoapi'ilani Road in the Kapalua Resort to Honolua Bay (See Attachment 1). It will greatly increase lateral public shoreline access and connect five beaches: Kapalua, Oneloa, Honokahua, Mokulē'ia, and Honolua.

The goal of the Trail is to create a unified trail system that is aesthetically and culturally appropriate to the Kapalua setting, and provide a unique and memorable nature experience for trail users. The Trail will link existing public shoreline access points and facilities to a continuous, linear trail, thereby greatly increasing lateral public shoreline access from Kapalua to Honolua Bay.

The Trail crosses over Honokahua Stream and Mokupe'a Gulch in the vicinity of D.T. Fleming Beach. As the Trail exits the central Kapalua Resort area, it runs along the makai side of D.T. Fleming Beach Road, where there is a wider off-road corridor for the trail, and continues toward Honoapi'ilani Highway. Separate footbridges makai of the road will provide safe stream crossings while separating users from traffic.

The Trail's main crossing of Honoapi'ilani Highway is proposed at an existing DOT 12-foot culvert running under the highway. The selected culvert does not have water flow through it a majority of the time. If water levels in the culverts become too high making it too dangerous to cross, such as during a rainstorm, an alternate route can be used which continues on the makai side of D.T. Fleming Beach Road, crosses a stream on a separate pedestrian bridge, and meanders mauka of Lower Honoapi'ilani Road to an at-grade pedestrian crossing.

The Trail is not anticipated to result in significant negative impacts. No degradation of environmental quality is anticipated. Should you have any specific comments regarding the proposed stream crossings, we would appreciate receiving those comments by January 23, 2007. Please find attached a copy of the Kapalua Coastal Trail Draft Environmental Assessment for your use. Should you have any questions, please do not hesitate to contact me at (808) 521-5631.

LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
EPO-06-199

December 26, 2006

Mr. Tom Schnell, AICP
PBR HAWAII
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Schnell:

SUBJECT: Draft Environmental Assessment for Kapalua Coastal Trail Project at Honolua & Honokahua, Lahaina, Maui, Hawaii
TMK: (2) 4-2-004: 004, 010, 012, 014, 015, 016, 017, 024, 025, 032, 034, 037, 043
(2) 4-2-005: 041, 042 and 049

Thank you for allowing us to review and comment on the subject document. The document was routed to the various branches of the Environmental Health Administration. We have the following Clean Water Branch comments.

Clean Water Branch

The Department of Health (DOH), Clean Water Branch (CWB) has reviewed the limited information contained in the subject document and offers the following comments:

1. The Army Corps of Engineers should be contacted at (808) 438-9258 for this project. Pursuant to Federal Water Pollution Control Act (commonly known as the "Clean Water Act" (CWA) Paragraph 401(a)(1), a Section 401 Water Quality Certification (WQC) is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may **result** in any discharge into the navigable waters..." (emphasis added). The term "discharge" is defined in CWA, Subsections 502(16), 502(12), and 502(6); Title 40, Code of Federal Regulations (CFR), Section 122.2; and Hawaii Administrative Rules (HAR), Chapter 11-54.

2. In accordance with HAR, Sections 11-55-04 and 11-55-34.05, the Director of Health may require the submittal of an individual permit application or a Notice of Intent (NOI) for general permit coverage authorized under the National Pollutant Discharge Elimination System (NPDES).

a. An application for an NPDES individual permit is to be submitted at least 180 days before the commencement of the respective activities. The NPDES application forms may also be picked up at our office or downloaded from our website at: http://www.hawaii.gov/health/environmental/water/cleanwater/forms/indiv-index.html.

b. An NOI to be covered by an NPDES general permit is to be submitted at least 30 days before the commencement of the respective activity. A separate NOI is needed for coverage under each NPDES general permit. The NOI forms may be picked up at our office or downloaded from our website at: http://www.hawaii.gov/health/environmental/water/cleanwater/forms/genl-index.html.

   i. Storm water associated with industrial activities, as defined in Title 40, CFR, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi). [HAR, Chapter 11-55, Appendix B]

   ii. Construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. **An NPDES permit is required before the commencement of the construction activities.** [HAR, Chapter 11-55, Appendix C]

   iii. Discharges of treated effluent from leaking underground storage tank remedial activities. [HAR, Chapter 11-55, Appendix D]

   iv. Discharges of once through cooling water less than one (1) million gallons per day. [HAR, Chapter 11-55, Appendix E]

   v. Discharges of hydrotesting water. [HAR, Chapter 11-55, Appendix F]

   vi. Discharges of construction dewatering effluent. [HAR, Chapter 11-55, Appendix G]

   vii. Discharges of treated effluent from petroleum bulk stations and terminals. [HAR, Chapter 11-55, Appendix H]

   viii. Discharges of treated effluent from well drilling activities. [HAR, Chapter 11-55, Appendix I]

   ix. Discharges of treated effluent from recycled water distribution systems. [HAR, Chapter 11-55, Appendix J]

x. Discharges of storm water from a small municipal separate storm sewer system. [HAR, Chapter 11-55, Appendix K]

xi. Discharges of circulation water from decorative ponds or tanks. [HAR, Chapter 11-55, Appendix L]

3. In accordance with HAR, Section 11-55-38, the applicant for an NPDES permit is required to either submit a copy of the new NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the DOH that the project, activity, or site covered by the NOI or application has been or is being reviewed by SHPD. If applicable, please submit a copy of the request for review by SHPD or SHPD's determination letter for the project.

4. Any discharges related to project construction or operation activities, with or without a Section 401 WQC or NPDES permit coverage, shall comply with the applicable State Water Quality Standards as specified in HAR, Chapter 11-54.

The Hawaii Revised Statutes, Subsection 342D-50(a), requires that "[n]o person, including any public body, shall discharge any water pollutants into state waters, or cause or allow any water pollutant to enter state waters except in compliance with this chapter, rules adopted pursuant to this Chapter, or a permit or variance issued by the director."

If you have any questions, please contact Mr. Alec Wong, Supervisor of the Engineering Section, CWB, at (808) 586-4309.

We strongly recommend that you review all of the Standard Comments on our website: www.state.hi.us/health/environmental/env-planning/landuse/landuse.html. Any comments specifically applicable to this project should be adhered to.

If there are any questions about these comments please contact Jiacai Liu with the Environmental Planning Office at (808) 586-4346.

Sincerely,

KELVIN H. SUNADA, MANAGER
Environmental Planning Office

c: EPO
CWB

PBR HAWAII
& ASSOCIATES, INC.

W. FRANK BRANDT, FASLA
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Tel: (808) 242-2878

March 12, 2007

Mr. Kelvin Sunada, Manager
State of Hawaii
Department of Health
Environmental Planning Office
P.O. Box 3378
Honolulu, HI 96801-3378

SUBJECT: KAPALUA COASTAL TRAIL; HONOLUA & HONOKAHUA, MAUI EA 2006/0019; SM1 2006/0026; SSD 2006/0009

Dear Mr. Sunada:

Thank you for your letter dated December 26, 2006 (your reference: EPO-06-199) regarding the Draft Environmental Assessment (EA) and applications for a Special Management Area Permit and a Shoreline Setback Structure/Activity Determination for the Kapalua Coastal Trail. As the planning consultant for the applicant, Maui Land & Pineapple Company, Inc., we are responding to your comments.

1. The Army Corps of Engineers was sent a copy of the Draft EA on November 23, 2006, but did not provide comments. To follow up, we sent a letter (see attached) to the Army Corps of Engineers to inquire whether a Federal license or permit (including a Department of Army Permit) would be required for the Kapalua Coastal Trail.

2. We understand that a National Pollutant Discharge Elimination System (NPDES) permit may be required. At the appropriate time, the Clean Water Branch will be contacted, and a Notice of Intent (NOI) will be submitted at least 30 days before the commencement of activities requiring the NPDES permit.

3. The State Historic Preservation (SHPD) has provided comments on the Kapalua Coastal Trail Draft EA. A copy of SHPD the comment letter is attached. As a result of the SHPD comments, additional archaeological work is being done along the trail corridor.

4. While we do not anticipate significant discharge from construction or operation activities, all work will comply with the applicable State Water Quality Standards specified in HAR, Chapter 11-54.

Thank you for reviewing the Draft EA and applications for a Special Management Area Permit and a Shoreline Setback Structure/Activity Determination for the Kapalua Coastal Trail. Your comments will be included in the Final EA.

Sincerely,

PBR HAWAII

Tom Schnell, AICP
Senior Associate

Attachments

cc: Genevieve Salmonson, Office of Environmental Quality Control
Thorne Abbott, County of Maui Planning Department
Yarrow Flower, Maui Land & Pineapple Company, Inc.

O:\JOB16\1634.24 Kapalua Coastal Trail\DEA\Comment letters\DOH EPO response.doc

PBR HAWAII
& ASSOCIATES, INC.

March 9, 2007

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R. STAN DUNCAN, ASLA
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Associate

SCOTT ALIKA ABRIGO
Associate

SCOTT MURAKAMI, ASLA
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Mr. George P. Young, P.E., Chief
Regulatory Branch
U.S. Department of Army
Corps of Engineers
Building 230
Fort Shafter, Hawaii 96858-5440

SUBJECT: KAPALUA COASTAL TRAIL; HONOLUA & HONOKAHUA, MAUI EA 2006/0019; SM1 2006/0026; SSD 2006/0009

Dear Mr. Young:

The State Department of Health, Clean Water Branch has requested that we consult with you regarding a determination on whether a Federal license or permit would be required to construct the proposed Kapalua Coastal Trail. Your office was sent a copy of the Kapalua Coastal Trail Draft EA on November 23, 2006. The comment period for the Draft EA ended on December 26, 2006; we did not receive comments from your agency.

The Kapalua Coastal Trail will stretch 2.5 miles from Lower Honoapi'ilani Road in the Kapalua Resort to Honolua Bay. It will greatly increase lateral public shoreline access to several coastal recreational areas including, Kapalua Bay, Oneloa Bay, D.T. Fleming Beach Park, Mokulē'ia Bay, and Honolua Bay.

The goal of the Trail is to create a unified trail system that is aesthetically and culturally appropriate to the Kapalua setting, and provide a unique and memorable nature experience for trail users. The Trail will link existing public shoreline access points and facilities to a continuous, linear trail, thereby greatly increasing lateral public shoreline access from Kapalua to Honolua Bay.

The Trail crosses over Honokahua Stream and Mokupe'a Gulch in the vicinity of D.T. Fleming Beach. As the Trail exits the central Kapalua Resort area, it runs along the makai side of D.T. Fleming Beach Road, where there is a wider off-road corridor for the trail, and continues toward Honoapi'ilani Highway. Separate footbridges makai of the road will provide safe stream crossings while separating users from traffic.

The Trail's main crossing of Honoapi'ilani Highway is proposed at an existing DOT 12-foot culvert running under the highway. The selected culvert does not have water flow through it a majority of the time. If water levels in the culverts become too high making it too dangerous to cross, such as during a rainstorm, an alternate route can be used which continues on the makai side of D.T. Fleming Beach Road, crosses a stream on a separate pedestrian bridge, and meanders mauka of Lower Honoapi'ilani Road to an at-grade pedestrian crossing.

The Trail is not anticipated to result in significant negative impacts. No degradation of environmental quality is anticipated.

With this letter we request your determination on whether a Federal license or permit would be required for any elements of the Kapalua Coastal Trail.

Should you have any questions or require another copy of the Draft EA, please do not hesitate to contact me at (808) 521-5631.

Sincerely,

Tom Schnell, AICP
Senior Associate

Cc: Yarrow Flower, Maui Land & Pineapple Company, Inc.

O:\JOB16\1634.24 Kapalua Coastal Trail\DEA\Comment letters\CL-02 DA permit determination.doc

LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME L. FUKINO, M. D.
DIRECTOR OF HEALTH

LORRIN W. PANG, M. D., M. P. H.
DISTRICT HEALTH OFFICER

STATE OF HAWAII
DEPARTMENT OF HEALTH
MAUI DISTRICT HEALTH OFFICE
54 HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2103

06 DEC -1 A10:01
DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

November 30, 2006

Mr. Michael W. Foley
Director
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawai`i 96793

Attention: Jeff Hunt

Dear Mr. Foley:

Subject: **Kapalua Coastal Trail**
TMK: (2) 4-2-004: 004, 010, 012, 014, 015, 016, 017, 024, 025, 032, 034, 037, and 043; and (2) 4-2-005: 041, 042 and 049
EA 2006/0019; SM1 2006/0026; SSD 2006/0009

Thank you for the opportunity to comment on the proposed Kapalua Coastal Trail. The following comments are offered:

1. National Pollutant Discharge Elimination System (NPDES) permit coverage may be required for this project. The Clean Water Branch should be contacted at 808 586-4309.

2. Depending upon the location and type of the work and equipment used, the noise created during the construction phase of the project may exceed the maximum allowable levels as set forth in Hawaii Administrative Rules (HAR), Chapter 11-46, "Community Noise Control". A noise permit may be required and should be obtained before the commencement of work.

It is strongly recommended that the Standard Comments found at the Department's website: www.state.hi.us/health/environmental/env-planning/landuse/landuse.html be reviewed, and any comments specifically applicable to this project should be adhered to.

Should you have any questions, please call me at 808 984-8230.

Sincerely,

Herbert S. Matsubayashi
District Environmental Health Program Chief

PBR HAWAII
& ASSOCIATES, INC.

March 12, 2007

W. FRANK BRANDT, FASLA
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RUSSELL Y. J. CHUNG, FASLA
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Senior Associate

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KEVIN K. NISHIKAWA, ASLA
Associate

KIMI MIKAMI YUEN, LEED®AP
Associate

SCOTT ALIKA ABRIGO
Associate

SCOTT MURAKAMI, ASLA
Associate

Mr. Herbert S. Matsubayashi
District Environmental Health Program Chief
State of Hawaii
Department of Health
Maui District Health Office
54 High Street
Wailuku, Hawaii 96793

SUBJECT: KAPALUA COASTAL TRAIL; HONOLUA & HONOKAHUA, MAUI EA 2006/0019; SM1 2006/0026; SSD 2006/0009

Dear Mr. Matsubayashi:

Thank you for your letter dated November 30, 2006 regarding the Draft Environmental Assessment (EA) and applications for a Special Management Area Permit and a Shoreline Setback Structure/Activity Determination for the Kapalua Coastal Trail. As the planning consultant for the applicant, Maui Land & Pineapple Company, Inc., we are responding to your comments.

1. We note your comment that a National Pollutant Discharge Elimination System (NPDES) permit may be required. The State Department of Health (DOH) Clean Water Branch recommended that the Army Corps of Engineers should be contacted. The Army Corps of Engineers was sent a copy of the Draft EA on November 23, 2006, but did not provide comments. To follow up, we sent a letter to the Army Corps of Engineers to inquire whether a Federal license or permit (including a Department of Army Permit) would be required for the Kapalua Coastal Trail.

2. While we do not anticipate significant noise impacts from construction, all work will comply with regulations set forth in Hawaii Administrative Rules (HAR), Chapter 11-46, "Community Noise Control." If necessary, a noise permit will be obtained prior to the commencement of work.

3. We have reviewed the Standard Comments on the DOH website, and in addition to the above-mentioned comments, all construction activities for the Kapalua Coastal Trail will also adhere to the provisions of Hawaii Administrative Rules, Section 11-60.1-33, Fugitive Dust. This is stated in Sections 3.3.3 and 4.5 of the Draft EA.

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Fax: (808) 961-4989

WAILUKU OFFICE
1787 Wili Pā Loop, Suite 4
Wailuku, Hawai'i 96793-1271
Tel: (808) 242-2878

Thank you for reviewing the Draft EA and applications for a Special Management Area Permit and a Shoreline Setback Structure/Activity Determination for the Kapalua Coastal Trail. Your comments will be included in the Final EA.

Sincerely,

Tom Schnell, AICP
Senior Associate

cc: Genevieve Salmonson, Office of Environmental Quality Control
Thorne Abbott, County of Maui Planning Department
Yarrow Flower, Maui Land & Pineapple Company, Inc.

O:\JOB16\1634.24 Kapalua Coastal Trail\DEA\Comment letters\DOH Maui response.doc

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
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COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
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DEAN NAKANO
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KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

January 3, 2007

PBR Hawaii
ASB Tower, Suite 650
1001 Bishop Street
Honolulu, Hawaii 96813

Attention: Tom Schnell

Gentlemen:

Subject: Draft Environmental Assessment for Kapalua Coastal Trail, Lahaina, Maui, Tax Map Keys: (2) 4-2-4:4,10,12,14,15,16,17,24,25,32,34,37,43 and 4-2-5:41,42,49

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to the following DLNR Divisions for their review and comment:

Division of Forestry & Wildlife
Division of State Parks
Division of Water Resource Management

Other than the comments from the Division of Forestry and Wildlife, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

Russell Y. Tsuji
Administrator

Cc: Central Files

Division of Forestry & Wildlife

1151 Punchbowl Street, Rm. 325 • Honolulu, HI 96813 • (808) 587-0166 • Fax: (808) 587-0160

December 13, 2006

RECEIVED
LAND DIVISION
2006 DEC 14 P 2:45

MEMORANDUM

TO: Russell Y. Tsuji, Administrator
Land Division

FROM: Paul J. Conry, Administrator
Division of Forestry and Wildlife

SUBJECT: Request for Comments: Draft Environmental Assessment for Kapalua Coastal Trail, Lahaina, Maui by PBR Hawaii for Maui Land and Pineapple.

DOFAW appreciates the opportunity to comment on this subject draft EA. The trail system planned by Maui Land and Pineapple Company is very ambitious and the company should be commended for providing $1.5 million coastal trail opportunities on this side of the island. The trailhead use will increase, and proportionately the availability of public parking will be at its peak. The company will need to expand the current public parking areas, and provide additional amenities such as restrooms or comfort stations with drinking water to support anticipated higher public usage of this trail.

Signage is important along the trail for public safety and trail use restrictions. The trail alignment will cross the DOT right-of-way along Honoapi'ilani highway at several points along the trail, and erecting pedestrian crossing signs are important public safety issues as this highway is heavily used by motorists traveling at high speeds. Signs will need to be posted at the culvert crossing to determine when the trail will be opened or closed to the public. Furthermore, educational or hazardous signs will need to be erected where beach crossings, rock outcroppings, or ocean wave hazards would be public safety concerns along this trail. Finally, restrictions on trail use should be reviewed for bicycles, all-terrain-vehicles, horses, dogs, cats, roller blades, skateboards, or other recreational means to clarify allowable permitted uses for this trail. Please call Torrie Nohara of our Maui DOFAW staff at (808) 873-3508 should any questions result from DOFAW's review of this draft EA. Thank you for the opportunity to comment on the subject request.

C: DOFAW Maui Branch
Torrie Nohara, Maui Na Ala Hele Program Manager

#49260

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

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STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 1, 2006

MEMORANDUM

RECEIVED
STATE PARKS
06 DEC -5 P2:20
DEPT OF LAND
NATURAL RESOURCES

TO: **DLNR Agencies:**
x Div. of Aquatic Resources
__ Div. of Boating & Ocean Recreation
x Engineering Division
x Div. of Forestry & Wildlife
x Div. of State Parks
x Div. of Water Resource Management
x Office of Conservation & Coastal Lands
x Land Division – Maui District

FROM: Russell Y. Tsuji
SUBJECT: Draft Environmental Assessment for Kapalua Coastal Trail
LOCATION: Lahaina, Maui, TMK: (2) 4-2-4:4,10,12,14,15,16,17,24,25,32,34,37,43 and 4-2-5:41,42,49
APPLICANT: PBR Hawaii on behalf of Maui Land & Pineapple Co.

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by December 25, 2006.

A copy of the document is available for your review in Land Division office, Room 220.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

( ) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Signed: [signature]
Date: 12/14/06

RECEIVED
LAND DIVISION
2006 DEC 19 A 10: 11

Ed 12/21 due

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR

DEAN NAKANO
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06 DEC 4 A11 : 50
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 1, 2006

MEMORANDUM

TO: **DLNR Agencies:**
x Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
x Engineering Division
x Div. of Forestry & Wildlife
x Div. of State Parks
FR x Div. of Water Resource Management
x Office of Conservation & Coastal Lands
x Land Division – Maui District

RECEIVED
LAND DIVISION
2006 DEC -6 P 4: 21

FROM: Russell Y. Tsuji
SUBJECT: Draft Environmental Assessment for Kapalua Coastal Trail
LOCATION: Lahaina, Maui, TMK: (2) 4-2-4:4,10,12,14,15,16,17,24,25,32,34,37,43 and 4-2-5:41,42,49
APPLICANT: PBR Hawaii on behalf of Maui Land & Pineapple Co.

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by December 25, 2006.

A copy of the document is available for your review in Land Division office, Room 220.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

( ) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Signed: Edwin T. Sakoda
Date: 12/5/06

PBR HAWAII
& ASSOCIATES, INC.

W. FRANK BRANDT, FASLA
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Senior Associate

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Senior Associate

KEVIN K. NISHIKAWA, ASLA
Associate

KIMI MIKAMI YUEN, LEED® AP
Associate

SCOTT ALIKA ABRIGO
Associate

SCOTT MURAKAMI, ASLA
Associate

March 12, 2007

Mr. Russell Tsuji, Administrator
State of Hawaii
Department of Land & Natural Resources
Land Division
P.O. Box 621
Honolulu, Hawaii 96809

SUBJECT: KAPALUA COASTAL TRAIL; HONOLUA & HONOKAHUA, MAUI EA 2006/0019; SM1 2006/0026; SSD 2006/0009

Dear Mr. Tsuji:

Thank you for your letter dated January 3, 2007 regarding the Draft Environmental Assessment (EA) and applications for a Special Management Area Permit and a Shoreline Setback Structure/Activity Determination for the Kapalua Coastal Trail. As the planning consultant for the applicant, Maui Land & Pineapple Company, Inc., we are responding to your Departments' comments.

Division of Forestry & Wildlife

1. The Kapalua Resort already supplies various public shoreline access points, parking spaces, and related comfort station facilities in the vicinity of the Kapalua Coastal Trail (as shown in Figure 9 of the draft EA). Below is a summary of these existing public shoreline access facilities:

   - **Kapalua Bay:** There is a public access path to Kapalua Bay with 39 public parking stalls, restrooms, and showers.

   - **Nāmalu Bay and Hāwea Point:** A public access pathway is located on the north side of the Residences at Kapalua Bay property near the Bay Villas boundary. Ten public parking stalls are provided in a parking lot, at the start of the path (the site is currently under construction however these spaces will be retained when construction is completed). An additional 20 public parking stalls will be provided as part of the Residences at Kapalua Bay project in a parking lot mauka of Lower Honoapi'ilani Road.

   - **Oneloa Bay:** Public access to Oneloa Bay is provided adjacent to the Kapalua Place residential property. There are 20 public parking stalls and showers.

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1001 Bishop Street
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Fax: (808) 523-1402
E-mail: sysadmin@pbrhawaii.com

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Hilo Lagoon Center, Suite 310
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Tel: (808) 961-3333
Fax: (808) 961-4989

WAILUKU OFFICE
1787 Wili Pā Loop, Suite 4
Wailuku, Hawai'i 96793-1271
Tel: (808) 242-2878

- **Makāluapuna Point:** Public access to Makāluapuna Point is provided near the intersection of Lower Honoapi'ilani Road and Office Road. There are 10 public parking stalls for shoreline access.

- **D.T. Fleming Beach Park:** D.T. Fleming Beach Park fronts Honokahua Beach and includes 107 public parking stalls, restrooms, and showers.

- **Mokulē'ia Bay:** Public access to Mokulē'ia Bay is via a public stairway and path from Honoapi'ilani Highway.

- **Honolua Bay:** Public access to Honolua Bay is provided from Līpoa Point.

The Kapalua Coastal Trail will link all these existing public shoreline access points and facilities within the Kapalua Resort to a continuous, linear trail, thereby improving lateral shoreline access from Kapalua Bay to Honolua Bay

As noted above, an additional 20 public parking stalls will be provided as part of the Residences at Kapalua Bay project in a parking lot mauka of Lower Honopi'ilani Road. These additional parking spaces, as well as existing parking spaces and other facilities, as noted above, will be available to trail users.

2. Regarding your concerns regarding the trail alignment and crossings with Honoapiilani Highway, a crosswalk warrant study conducted by Wilson Okamoto Corporation (December 2006) concludes that all of the at-grade crossings of Honoapi'ilani Highway warrant marked crosswalks. Field measurements indicate that the available sight distances at the crossing locations at D.T. Fleming Beach Road/Honoapi'ilani Highway and Plantation Estates Drive/Honoapi'ilani Highway are sufficient for typical crossing maneuvers. However, field measurements indicate that there is insufficient sight distance at the crossing along Honoapi'ilani Highway near the stairway to Mokulē'ia Bay. To provide safe pedestrian crossing at this crosswalk it is recommended that weight-activated sensors connected to lighted warning signs be provided for both directions of vehicular traffic to heighten pedestrian visibility. Maui Land & Pineapple Company, Inc., is working with the State Department of Transportation, regarding the highway crossings and other issues related to the trail. The Final EA will include the complete crosswalk warrant study.

3. Regarding your concerns related to educational signs, three types of signs will be used on the trail network: 1) large trail signs at major entrances; 2) medium trail signs for identification, directional, or combination; and 3) small trail signs for wayfinding and mileage markers. Signs will include information regarding safety, restrictions, and educational features. This information about signs was included in Section 2.2.3 of the draft EA, throughout the EA in various other sections, and within the Design Development report included as Appendix A of the draft EA.

4. The trail will be open for pedestrian use only. To preserve sensitive areas near the trail corridor, as well as maintain the integrity of the trail's natural surface, the use of bicycles, rollerblades, skateboards, ATVs, and other forms of recreational vehicles and devises will be prohibited. This will be stated in the final EA. Signs at major trail entrances will include trail use rules.

Division of State Parks

We acknowledge that the Division of State Parks has no comments.

Division of Water Resource Management

We acknowledge that the Division of Water Resource Management has no comments.

Thank you for reviewing the Draft EA and applications for a Special Management Area Permit and a Shoreline Setback Structure/Activity Determination for the Kapalua Coastal Trail. Your comments will be included in the Final EA.

Sincerely,

Tom Schnell, AICP
Senior Associate

cc: Genevieve Salmonson, Office of Environmental Quality Control
Thorne Abbott, County of Maui Planning Department
Yarrow Flower, Maui Land & Pineapple Company, Inc.

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

Ref: OCCL:MC

Correspondence MA-07-124

Mr. Michael Foley
County of Maui Planning Department
250 South High Street
Wailuku, HI 96793

Dear Mr. Foley:

SUBJECT: REQUEST FOR COMMENTS
Draft Environmental Assessment
Kapalua Coastal Trail
Honolua and Honokahua, Lahaina District, Maui
TMKs (2) 4-2-04:4, 10, 12, 14, 15, 16, 17, 24, 25, 32, 34, 37, & 43; 05:41, 42, & 49

The Office of Conservation and Coastal Lands [OCCL] has reviewed the Draft Environmental Assessment [DEA] for the Kapalua Coastal Trail on the above mentioned subject parcels. Portions of the trail will pass through the General, Resource, and Limited Subzones of the State Land Use Conservation District. The Maui County Planning Department will be the approving agency for the EA.

The northern terminus of the trail will be a cantilevered boardwalk leading to an overlook of Honolua Bay, and will lead to stone steps leading down into the Bay. OCCL notes that while the Bay is popular with visitors and locals, it has no public facilities. There have been both historic and on-going problems at Honolua involving human waste management, user conflicts, and possible disruption of archaeological sites.

OCCL staff are concerned about improving and promoting access to the Bay without a broader Master Plan and mitigative measures. We understand that Maui Land and Pine, the applicant for this project and also a major land owner in the Bay, is developing a separate Master Plan for Honolua Bay. We recommend that the Master Plan be completed prior to any action that might increase the number of visitors to the Bay.

We concur that the project will need a Conservation District Use Permit from the Department of Land and Natural Resources. The identified land use for the project is discussed in Hawai`i Administrative Rules §13-5-22 *Identified land uses in the protective subzone,* P-6 PUBLIC PURPOSE USES, (D-2).

Should you have any questions, please contact OCCL staff planner Michael Cain at 587-0048.

Sincerely,

Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

cc: Tom Schnell, PBR Hawai'i, 1001 Bishop Street, ASB Tower Suite 650, Honolulu HI 96813 fax 523-1402
Yarrow Flower, Maui Land and Pineapple, 1000 Kapalua Drive, Lahaina, HI 96761 fax 669-5454
OEQC
DLNR – Land Division

PBR HAWAII
& ASSOCIATES, INC.

March 12, 2007

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President

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Executive Vice-President

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RAYMOND T. HIGA, ASLA
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Associate

KIMI MIKAMI YUEN, LEED®AP
Associate

SCOTT ALIKA ABRIGO
Associate

SCOTT MURAKAMI, ASLA
Associate

Mr. Sam Lemmo, Administrator
State of Hawaii
Department of Land & Natural Resources
Office of Conservation & Coastal Lands
P.O. Box 621
Honolulu, Hawaii 96809

SUBJECT: KAPALUA COASTAL TRAIL; HONOLUA & HONOKAHUA, MAUI EA 2006/0019; SM1 2006/0026; SSD 2006/0009

Dear Mr. Lemmo:

Thank you for your letter (your reference: MA-07-124) regarding the Draft Environmental Assessment (EA) and applications for a Special Management Area Permit and a Shoreline Setback Structure/Activity Determination for the Kapalua Coastal Trail. As the planning consultant for the applicant, Maui Land & Pineapple Company, Inc., we are responding to your comments.

1. Maui Land & Pineapple Company, Inc., is aware of the historic and on-going issues at Honolua Bay and is working to resolve these concerns. It is expected that the Honolua Bay Master Plan will be completed before construction of the steps leading down into the Bay.

2. Maui Land & Pineapple Company, Inc., will apply for a Conservation District Use Permit for the Kapalua Coastal Trail. The Conservation District Use Application will be submitted soon. Compliance with the State Conservation District Administrative Rules (HAR, Title 13, DLNR, Subtitle 1 Administration, Chapter 5, Conservation) is discussed in section 5.1.3 of the Draft EA.

Thank you for reviewing the Draft EA and applications for a Special Management Area Permit and a Shoreline Setback Structure/Activity Determination for the Kapalua Coastal Trail. Your comments will be included in the Final EA.

Sincerely,

Tom Schnell, AICP
Senior Associate

cc: Genevieve Salmonson, Office of Environmental Quality Control
Thorne Abbott, County of Maui Planning Department
Yarrow Flower, Maui Land & Pineapple Company, Inc.

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Fax: (808) 961-4989

WAILUKU OFFICE
1787 Wili Pā Loop, Suite 4
Wailuku, Hawai'i 96793-1271
Tel: (808) 242-2878

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LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON

MEREDITH J. CHING
JAMES A. FRAZIER
NEAL S. FUJIWARA
CHIYOME L. FUKINO, M.D.
LAWRENCE H. MIIKE, M.D., J.D.
STEPHANIE A. WHALEN

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

April 16, 2007

Ref.: RFD.1645.6

Mr. Tom Schnell, AICP
Senior Associate
PBR Hawaii & Associates, Inc.
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, HI 96813-3484

Dear Mr. Schnell:

Request for Determination
Kapalua Coastal Trail, Draft Environmental Assessment
Honokahua Stream and Mokupea Gulch
Maui Land & Pineapple Company, Island of Maui

Reference is made to your letter, dated December 20, 2006, regarding a request for determination concerning stream crossings along the proposed Kapalua Coastal Trail at Honokahua, West Maui.

The Commission on Water Resource Management (Commission), Stream Protection and Management Branch, has the responsibility to protect stream channels from alteration whenever practicable to provide for fishery, wildlife, recreational, aesthetic, scenic, and other beneficial instream uses in the State of Hawaii under the authorization of the State Water Code (Code), Chapter 174C, Hawaii Revised Statutes and Chapter 13-169, Hawaii Administrative Rules (Protection of Instream Uses of Water).

Pursuant to the State Water Code, §174C-71(3) (A), the Commission "shall require persons to obtain a permit from the Commission prior to undertaking a stream channel alteration." The term "stream channel" is defined in the Code, §174C-3, as a "watercourse with a definite bed and banks which periodically or continuously contains flowing water."

Based on the information you submitted, it appears that the footbridges in the vicinity of D.T. Fleming Beach Road at Segments 18 and Alternate 18, may alter the banks of the streams. Therefore, a Stream Channel Alteration Permit (SCAP) application must be submitted for the proposed project, unless it can be demonstrated that the proposed construction of the footbridges will not alter the banks of the stream channels.

Please be advised that the project may require other agency approvals regarding wetlands, water quality, grading, stockpiling, and floodways. This letter should not be used for other regulatory jurisdictions or used to imply compliance with other federal, state, or county rules.

Should you have any questions, please contact Ed Sakoda of the Stream Protection and Management Branch at 587-0234.

Sincerely,

W. Roy Hardy

W. ROY HARDY
Hydrologic Program Manager

PBR HAWAII
& ASSOCIATES, INC.

W. FRANK BRANDT, FASLA
Chairman

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Associate

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Associate

SCOTT ALIKA ABRIGO
Associate

SCOTT MURAKAMI, ASLA
Associate

April 19, 2007

W. Roy Hardy
State of Hawai'i
Department of Land and Natural Resources
Commission on Water Resource Management
P.O. Box 621
Honolulu, Hawaii 96809

SUBJECT: KAPALUA COASTAL TRAIL DRAFT ENVIRONMENTAL ASSESSMENT

Dear Mr. Hardy:

Thank you for your letter dated April 16, 2007, regarding the Kapalua Coastal Trail Draft Environmental Assessment (EA). As the planning consultant for the applicant, Maui Land & Pineapple Company, Inc., we are responding to your comments.

Maui Land & Pineapple Company, Inc does not intend for the footbridges in the vicinity of D.T. Fleming Beach Road at Segments 18 and Alternate 18 to alter the banks of the streams. The revetments at the stream crossings are currently in place and as part of the existing roadway bridges. As proposed, the pedestrian bridges would be directly adjacent to the existing roadway bridges and use the existing revetments.

As detailed design of the trail proceeds, Maui Land & Pineapple Company, Inc., will make every effort to design a bridge that does not alter the stream channel or banks by using the existing revetments. If, for any reason, this is not possible, Maui Land & Pineapple Company, Inc., will submit a Stream Channel Alteration Permit application at the appropriate time.

Thank you for reviewing the Kapalua Coastal Trail Draft EA. Your letter will be included in the Final EA.

Sincerely,

PBR HAWAII

Tom Schnell, AICP
Senior Associate

cc: Genevieve Salmonson, Office of Environmental Quality Control
Thorne Abbott, County of Maui Planning Department
Yarrow Flower, Maui Land & Pineapple Company, Inc.

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To Tom Schnell	From Hist Sites
Co./Dept.	Co.
Phone #	Phone #
Fax # 523-1402	Fax #

BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

February 2, 2007

Mr. Jeff Hunt, West Maui Planner
County of Maui, Department of Planning
250 South High Street
Wailuku, Hawai'i 96793

LOG NO: 2006.3919
DOC NO: 0701JP61
Archaeology

Dear Mr. Hunt:

SUBJECT: **Chapter 6E-42 Historic Preservation Review [County/Planning] – Draft Environmental Assessment (EA 2006/0019), Shoreline Setback Determination (SSD 2006/0009), and Special Management Area Use Permit Application (SM1/0026) for the Proposed Kapalua Coastal Trail Honokahua and Napili 2 & 3 Ahupua'a, Lahaina District, Island of Maui TMK (2) Portions of 4-2-004:004, 010, 012, 014-017, 024, 025, 032, 034, 037, 043 and (2) 4-2-005:041, 042, and 049**

Thank you for the opportunity to review the draft environmental assessment, shoreline setback determination, and special management area use permit application for the proposed Kapalua Coastal Trail, which was received by our staff on December 8, 2006. Our review is based on reports, maps, and aerial photographs maintained at the State Historic Preservation Division (SHPD).

The proposed subject action consists of a shoreline foot path/trail along the coastline from Kapalua Bay to Honolua Bay. To date, the plan includes a *main trail* (segments 1-29) with three *spur trails* (segments 9a, 15a, and 16a), which detour off of the main trail and lead to distinctive features. The proposed trail is 3.5 miles long that includes the three spur trails as well as the partially completed (paved) portions. Current land use involves coastal resorts and existing foot paths.

According to the draft environmental assessment, portions of the Kapalua Coastal Trail fronting the Coconut Grove condominiums and the Ritz-Carlton Kapalua are already in place as part of the resort projects. Sections of the proposed coastal trail will connect to existing public walkways (paved and/or unpaved) and/or areas involving shoreline access. The west portion of the trail corridor contains the Kapalua Resort area (golf courses, hotels, condominiums) and the eastern section involves somewhat rugged and relatively unaltered open space.

Prior to the current proposal, we have not had the opportunity to comment on the proposed Coastal Trail. We have previously provided recommendations for various undertakings throughout the region. The area of potential effect is extremely culturally sensitive and there are a substantial amount of documented significant historic properties in the vicinity. Archaeological sites (historic properties) listed on the State Inventory of Historic Places (SIHP) within the proposed corridor include Honokahua Burial Site (SIHP

50-50-01-1342). The Site is the location of countless human burials (1,029 individuals were removed and reinterred at this location). Honokahua Burial Site preserve is located near the central area of the proposed main trail. There are a plethora of significant features within the borders of SIHP 50-50-01-1342 that have been slated for permanent preservation.

Additional significant archaeological sites within the subject area and immediate vicinity include the Honokahua Archaeological District (SIHP 50-50-01-1340), Honokahua Midden Sites (SIHP 50-50-01-1341, -1345, and -2869), Makaluapuna House Site (SIHP 50-50-01-1343), Makaluapuna Rock Walls (SIHP 50-50-01-1344), Hawea Point Complex (SIHP 50-50-01-1346), Hawea Rock Shelter (SIHP 50-50-01-1347), Honokahua Terraced Platform (SIHP 50-50-01-1348), Honokaua Habitation Sites (SIHP 50-50-01-2870 through -2875), Honokahua Trail (SIHP 50-50-01-2876), Habitation Cultural Deposit (SIHP 50-50-01-4815), *In-situ* Human Burial Sites (SIHP 50-50-01-4814, -4142, and -5098), Disturbed Human Skeletal Scatter (SIHP 50-50-01-5059), Ceremonial Site with Enclosure (SIHP 50-50-01-5093), Rock Alignment (SIHP 50-50-01-5094), Historic Government Road with Rock Retaining Wall (SIHP 50-50-01-5095), Slaughter House Remains (SIHP 50-50-01-5096), two Modified Rock Shelters (SIHP 50-50-01-5097), Historic Dump (SIHP 50-50-01-5006), and a U-Shaped Coastal Shelter (SIHP 50-50-01-5007).

The proposed trail route encounters the Honokahua Burial Site (SIHP 50-50-01-1342) between segments 16 and 16a. Segment 16 is currently slated to traverse between the shoreline and the permanent preservation area demarcating SIHP 50-50-01-1342. Segment 16a is slated to continue north toward the end of Makaluapuna Point. This unique point is considered a very sacred place for Hawaiians. Makaluapuna Point is considered to be a *leina a ke akua*, which translates as *leap of the gods* or a *place where the spirits leaped into the nether world*. Segments 16 and 16a are currently proposed to pass through the permanent preservation area and to embark upon the directly associated revered and culturally significant Makaluapuna Point.

The projected plan was formally proposed to the Maui/Lanai Island Burial Council (MLIBC) on January 25, 2007. The MLIBC unanimously agreed that it is essential that segment 16 be re-routed through the existing concrete pathway that is currently in place seaward of the Ritz Carlton Hotel. Additionally, the MLIBC expressed great concern regarding segment 16a and recommended that this section be abandoned. Based on the MLIBC recommendations and the extreme cultural sensitivity of the area, we concur that it is necessary that segments 16 and 16a be completely re-designed. We understand that the MLIBC will address the proposed Coastal Trail that is currently on the agenda for the February MLIBC meeting. The MLIBC will take the opportunity to make further recommendations during the upcoming meeting.

A recently discovered human Burial Site (SIHP 50-50-01-6228) is concurrently being formally documented at the proposed Residences of Kapalua Bay (formerly Kapalua Bay Hotel). On-going archaeological mitigation is in progress (LOG NO: 2007.0364/ DOC NO: 0701MK29). The current proposed Coastal Trail is positioned adjacent to the recently identified human burials and associated cultural deposits (Segments 3 and 4).

We have considered the archaeological field inspection report (Dega 2006) that was included with the submitted documentation. In the report, archeological monitoring was recommended for all areas containing sand (at a depth greater than 12 inches) and not for any of the other areas. The necessity to review a full archaeological investigation is pertinent in order to adequately establish future mitigation measures in relation to the proposed coastal trail. Based on the amount of significant historic properties documented in the area, we preliminarily suggest full-time archaeological monitoring for the construction of the Kapalua Coastal Trail.

We recommend that an Archaeological Inventory Survey (AIS) be conducted of the surrounding corridor for the proposed coastal trail including an area of at least 20 meters (65.62 feet) around the area of potential effect. The AIS will include recent photographs, measurements, and descriptions for each of the historic properties encountered in order to document the current integrity of each feature within the 20 meter corridor.. As stated above, we preliminarily recommend full-time archaeological monitoring however we will provide more detailed comments upon the complete evaluation and review of the AIS. We look forward to future communication with respect to the currently proposed undertaking.

Please direct any questions or concerns to the Maui Office Annex of the State Historic Preservation Division at (808) 243-5169 or (808) 243-4641.

Aloha,

Melanie Chinen, Administrator
State Historic Preservation Division

JP:mk:kf

c: Maui Cultural Resources Commission, Dept. of Planning, 250 S. High Street, Wailuku, HI 96793
Mr. Tom Schnell, PBR, FAX (808) 523-1402
Ms. Yarrow Flower, ML&P Company, FAX (808) 669-5454
Office of Environmental Quality Control, FAX (808) 586-4186
Mr. Hinano Rodrigues, SHPD, History and Culture, Cultural Historian
MLIBC

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April 4, 2007

Ms. Melanie Chinen
State of Hawaii
Department of Land & Natural Resources
State Historic Preservation Division
601 Kamokila Boulevard, Room 555
Kapolei, Hawai'i 96707

SUBJECT: KAPALUA COASTAL TRAIL; HONOLUA & HONOKAHUA, MAUI EA 2006/0019; SM1 2006/0026; SSD 2006/0009

Dear Ms. Chinen:

Thank you for your letter dated February 2, 2007 (your reference: LOG NO. 2006.3913/DOC NO. 0701JP61) regarding the Draft Environmental Assessment (EA) and applications for a Special Management Area Permit and a Shoreline Setback Structure/Activity Determination for the Kapalua Coastal Trail. As the planning consultant for the applicant, Maui Land & Pineapple Company, Inc., we are responding to your comments.

We acknowledge that the trail route area is culturally sensitive and there are many documented historic properties in the vicinity.

Based on concerns expressed by the Maui/Lanai Island Burial Council (MLIBC) at its January 25, 2007 meeting, the trail (Segment 16) has been re-routed mauka of the Honokahua Burial Grounds to connect with an existing pathway within the Ritz-Carlton-Kapalua property and the trail spur (Segment 16a) to Makāluapuna Point has been eliminated. The final EA will be revised accordingly.

Based on your recommendation that an Archaeological Inventory Survey (AIS) be conducted, Scientific Consultant Services Inc. (SCS) conducted an AIS after consultation regarding methodology with Dr. Melissa Kirkendall, State Archaeologist—Maui, Lanai, Kaho'olawe. The AIS has been provided to your office for review.

As stated in the Draft EA, Maui Land & Pineapple Company, Inc., and its contractors will comply with all State and County laws and rules regarding the preservation of archaeological and historic sites.

Thank you for reviewing the Draft EA and applications for a Special Management Area Permit and a Shoreline Setback Structure/Activity Determination for the Kapalua Coastal Trail. Your comments will be included in the Final EA.

Sincerely,

Tom Schnell, AICP
Senior Associate

cc: Genevieve Salmonson, Office of Environmental Quality Control
Thorne Abbott, County of Maui Planning Department
Dr. Melissa Kirkendall, State Historic Preservation Division, Maui
Yarrow Flower, Maui Land & Pineapple Company, Inc.

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GOVERNOR

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
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BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

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

IN REPLY REFER TO:

STP 8.2365

December 26, 2006

Mr. Tom Schnell, AICP
PBR Hawaii
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813

Mr. Michael W. Foley
Director
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawaii 96793

Ms. Yarrow Flower
Maui Land & Pineapple Company, Inc.
1000 Kapalua Drive
Lahaina, Hawaii 96761

Dear Messrs Schnell and Foley and Ms. Flower:

Subject: Kapalua Coastal Trail
Draft Environmental Assessment (Draft EA)
County Applications EA 2006/0019, SM1 2006/0026 and SSD 2006/009

We have the following comments on the subject project in response to your request for our review of the Draft EA and county permit applications:

1. The proposed Trail does impact our State highway (Honoapiilani Highway) at certain locations along the planned route of the trail.

2. Each location where the trail route enters, abuts or closely borders the highway will need further review and necessary approvals from our Highways Division. Such review and approvals may include engineering/architectural plan evaluation, including drainage and safety, and use permits or right-of-way agreements.

3. Identification of and preliminary plans for each such location should be submitted to our Highways Division through the Highways Maui District Office. We recommend that this type of information be first submitted to assist and facilitate future or formal plan reviews. A preliminary/advance review will allow our Maui Highways staff to coordinate matters that could involve other Highways offices, as well as work with your respective offices on issues or concerns that will require further effort and time. Also, any engineering or right-of-way requirements from our Highways Division can be provided to the applicant and its project consultant to assist their work in preparing full and formal plans or agreements for our approval.

We appreciate the opportunity to provide our comments.

Very truly yours,

Francis Paul Keeno

for RODNEY K. HARAGA
Director of Transportation

c: OEQC (G. Salmonson)

PBR HAWAII
& ASSOCIATES, INC.

March 12, 2007

W. FRANK BRANDT, FASLA
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Mr. Barry Fukunaga, Director
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

SUBJECT: KAPALUA COASTAL TRAIL; HONOLUA & HONOKAHUA, MAUI EA 2006/0019; SM1 2006/0026; SSD 2006/0009

Dear Mr. Fukunaga:

Thank you for the letter from your Department dated December 26, 2006 (your reference: STP 8.2365) regarding the Draft Environmental Assessment (EA) and applications for a Special Management Area Permit and a Shoreline Setback Structure/Activity Determination for the Kapalua Coastal Trail. As the planning consultant for the applicant, Maui Land & Pineapple Company, Inc., we are responding to your comments.

1. We concur that the proposed Trail does impact Honoapi'ilani Highway at certain locations along the planned route of the trail.

2. We understand that each location where the trail route enters, abuts, or closely borders the highway will need further review and necessary approvals from your Highways Division. Maui Land & Pineapple Company, Inc., has been in contact with Paul Chung of the Highways Maui District Office and Jaime Yamashiro of the Highways Division (Right-of-Way Branch in Kapolei) and received letters from them on October 11, 2006 and November 17, 2006, respectively.

   Per Paul Chung's request, a Crosswalk Warrant Study was conducted. The study, prepared by Wilson Okamoto Corporation (December 2006), concludes that all of the at-grade crossings of Honoapi'ilani Highway warrant marked crosswalks. Field measurements indicate that the available sight distances at the crossing locations at D.T. Fleming Beach Road/Honoapi'ilani Highway and Plantation Estates Drive/Honoapi'ilani Highway are sufficient for typical crossing maneuvers. However, field measurements indicate that there is insufficient sight distance at the crossing along Honoapi'ilani Highway near the stairway to Mokulē'ia Bay. To provide safe pedestrian crossing at this crosswalk it is recommended that weight-activated sensors connected to lighted warning signs be provided for both directions of vehicular traffic to heighten pedestrian visibility.

   The Crosswalk Warrant Study will be provided to your Department and included in the final EA.

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3. As previously stated, Maui Land & Pineapple Company, Inc., has been in contact with Paul Chung of the Highways Maui District Office and Jaime Yamashiro of the Highways Division (Right-of-Way Branch in Kapolei). Maui Land & Pineapple Company, Inc., will continue to discuss plans for the proposed trail with these offices.

Thank you for reviewing the Draft EA and applications for a Special Management Area Permit and a Shoreline Setback Structure/Activity Determination for the Kapalua Coastal Trail. Your comments will be included in the Final EA.

Sincerely,

Tom Schnell, AICP
Senior Associate

cc: Genevieve Salmonson, Office of Environmental Quality Control
Thorne Abbott, County of Maui Planning Department
Yarrow Flower, Maui Land & Pineapple Company, Inc.

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DISABILITY AND COMMUNICATION ACCESS BOARD

919 Ala Moana Boulevard, Room 101 • Honolulu, Hawaii 96814
Ph. (808) 586-8121 (V/TDD) • Fax (808) 586-8129

April 16, 2007

Mr. Tom Schnell, AICP
Senior Associate
PBR Hawaii & Associates, Inc.
1001 Bishop Street
American Savings Bank Tower
Suite 650
Honolulu, HI 96813-3484

Regarding: Kapalua Coastal Trail Draft Environmental Assessment

Dear Mr. Schnell,

The Disability and Communication Access Board would like to thank you for the opportunity to review the Kapalua Coastal Trail Draft Environmental Assessment. The purpose of this review is to ensure that the project will take into account accessibility design requirements for persons with disabilities.

The following general statement should be included in the environmental assessment:

> *"All buildings, facilities, and sites shall conform to applicable federal, state, and county accessibility guidelines and standards. Hawaii Revised Statutes §103-50 requires all State of Hawaii or County government buildings, facilities, and sites to be designed and constructed to conform to the Americans with Disabilities Act Accessibility Guidelines and other applicable design standards as adopted and amended by the Disability and Communication Access Board. The law further requires all plans and specifications prepared for the construction of State of Hawaii or County government buildings, facilities, and sites to be reviewed by the Disability and Communication Access Board for conformance to those guidelines and standards."*

We strongly encourage the use of the following accessibility guidelines, published by the U.S. Access Board. These accessibility guidelines are not yet enforceable by the U.S. Department of Justice under the Americans with Disabilities Act (ADA), nor have they been adopted by state rules under Hawaii Revised Statutes §103-50. However, these accessibility guidelines provide guidance for a minimal level of accessibility for those elements not addressed by the enforceable ADA Accessibility Guidelines:

- Regulatory Negotiation Committee on Accessibility Guidelines for Outdoor Developed Areas, Final Report, published September 30, 1999
- ADA Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines; Public Rights-of-Way, published November 23, 2005

The above reflects the Disability and Communication Access Board's advice and recommendations for the Kapalua Coastal Trail Draft Environmental Assessment.

Should you have any further questions, feel free to contact Mr. Gary Batcheller, Facility Access Specialist at (808) 586-8121.

Sincerely,

Francine Wai

FRANCINE WAI
Executive Director

c: Jeff Hunt
Director
County of Maui
Department of Planning

PBR HAWAII
& ASSOCIATES, INC.

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Associate

April 19, 2007

Francine Wai, Executive Director
State of Hawai'i
Disability and Communications Access Board
919 Ala Moana Boulevard, Room 101
Honolulu, Hawaii 96814

SUBJECT: KAPALUA COASTAL TRAIL DRAFT ENVIRONMENTAL ASSESSMENT

Dear Ms. Wai:

Thank you for your letter dated April 16, 2007, regarding the Kapalua Coastal Trail Draft Environmental Assessment (EA). As the planning consultant for the applicant, Maui Land & Pineapple Company, Inc., we are responding to your comments.

The majority of the Kapalua Coastal Trail will be on private property and will not be dedicated to the State of Hawaii or County of Maui. Very limited portions of the trail will traverse State of Hawaii property. Maui Land & Pineapple Company, Inc., is paying for trail construction and is not seeking public funds for construction. The statement you recommend to be included in the EA pertains to State of Hawaii or County government buildings, facilities, and sites, and thus is too broad to be included in the Final EA, which pertains to a primarily private facility, the vast majority of which is on private land, and which will be built with private funds. However, the Kapalua Coastal Trail will conform to applicable federal, state, and county accessibility standards.

Thank you for reviewing the Kapalua Coastal Trail Draft EA. Your letter will be included in the Final EA.

Sincerely,

PBR HAWAII

Tom Schnell, AICP
Senior Associate

cc: Genevieve Salmonson, Office of Environmental Quality Control
Thorne Abbott, County of Maui Planning Department
Yarrow Flower, Maui Land & Pineapple Company, Inc.

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

HRD06/2836

December 26, 2006

Tom Schnell, AICP
PBR Hawaii
ASB Tower, Suite 650
1001 Bishop Street
Honolulu, HI 96813

RE: Draft Environmental Assessment for the Proposed Kapalua Coastal Trail, Lahaina, Maui, TMK (2) 4-2-04: 04, 10, 12, 14, 15, 16, 17, 24, 25, 32, 34, 37 and 43; 4-2-05: 41, 42 and 49.

Dear Mr. Schnell,

The Office of Hawaiian Affairs (OHA) is in receipt of your November 22, 2006 submission and offers the following comments:

Our staff has no comment specific to the above-listed proposed project at this time. Thank you for your continued correspondence.

OHA asks that, in accordance with Section 6E-46.6, Hawaii Revised Statutes and Chapter 13-300, Hawaii Administrative Rules, if the project moves forward, and if any significant cultural deposits or human skeletal remains are encountered, work shall stop in the immediate vicinity and the State Historic Preservation Division (SHPD/DLNR) shall be contacted.

Thank you for the opportunity to comment. If you have further questions or concerns, please contact Jesse Yorck, Native Rights Policy Advocate, at (808) 594-0239 or jessey@oha.org.

Aloha,

Clyde W. Nāmu'o
Administrator

C: Michael Foley
Maui County, Department of Planning
250 South High Street
Wailuku, HI 96793

Genevieve Salmonson
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, HI 96813

Yarrow Flower
Maui Land and Pineapple Company
1000 Kapalua Drive
Lahaina, Maui 96761

Thelma Shimaoka
OHA Community Affairs Coordinator (Maui)
140 Hoohana St., Ste. 206
Kahului, HI 96732

PBR HAWAII
& ASSOCIATES, INC.

March 12, 2007

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Senior Associate

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KIMI MIKAMI YUEN, LEED® AP
Associate

SCOTT ALIKA ABRIGO
Associate

SCOTT MURAKAMI, ASLA
Associate

Mr. Clyde Nāmu'o
State of Hawaii
Office of Hawaiian Affairs
711 Kapi'olani Boulevard, Suite 500
Honolulu, Hawai'i 96813

SUBJECT: KAPALUA COASTAL TRAIL; HONOLUA & HONOKAHUA, MAUI EA 2006/0019; SM1 2006/0026; SSD 2006/0009

Dear Mr. Nāmu'o:

Thank you for your letter dated December 26, 2006 (your reference: HRD06/2836) regarding the Draft Environmental Assessment (EA) and applications for a Special Management Area Permit and a Shoreline Setback Structure/Activity Determination for the Kapalua Coastal Trail. As the planning consultant for the applicant, Maui Land & Pineapple Company, Inc., we acknowledge that you have no comment specific to the project at this time.

As stated in the Draft EA, Maui Land & Pineapple Company, Inc., and its contractors will comply with all State and County laws and rules regarding the preservation of archaeological and historic sites, which includes Section 6E-46.6 HRS and Chapter 13-300 HAR. Should any significant cultural deposits or human skeletal remains be encountered during the construction activities, work will cease immediately in the immediate vicinity of the find and the find will be protected from further damage. The contractor shall immediately contact the State Historic Preservation Division.

Thank you for reviewing the Draft EA and applications for a Special Management Area Permit and a Shoreline Setback Structure/Activity Determination for the Kapalua Coastal Trail. Your comments will be included in the Final EA.

Sincerely,

Tom Schnell, AICP
Senior Associate

cc: Genevieve Salmonson, Office of Environmental Quality Control
Thelma Shimaoka, OHA Community Affairs Coordinator (Maui)
Thorne Abbott, County of Maui Planning Department
Yarrow Flower, Maui Land & Pineapple Company, Inc.

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CHARMAINE TAVARES
Mayor

JEFFREY S. HUNT
Director

COLLEEN M. SUYAMA
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PLANNING

February 26, 2007

Mr. Tom Schnell, AICP
PBR Hawaii
ASB Tower, Suite 650
1001 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Schnell:

RE: Comments on the Draft Environmental Assessment for the Proposed for the KAPALUA COASTAL TRAIL located at TMK's: (2) 4-2-04:04, 10, 12, 14, 15, 16, 17, 24, 25, 32, 34, 37 and 43, plus TMK's: (2) 4-2-05:041, 42 and 49 with the trails proximity being along the shoreline and off Lower Honoapi'ilani Road, DT Fleming Beach Road, and Honoapi'ilani Hwy in Kapalua, West Maui, Island of Maui, Hawaii (EA 2006/0019)

At the regular meeting of January 23, 2007, the Maui Planning Commission (Commission) reviewed the above-referenced document and provided the following comments:

1. Provide discussion on correct names and the process to change names for Flemings Beach versus Kapalua Beach;

2. Discuss if the trail will be used for guided tours, either directly by the property owner, or indirectly by private entities;

3. Discuss the suitability of existing public access points, in relation to the County's requirement for access at 1500 feet intervals. Also, discuss existing and any planned parking (or losses of parking) for access to the trail;

4. Discuss ADA compliance and relation to rugged portions of the trail;

5. Discuss and consider alternative materials for fencing, particularly at Mokelele Bay;

6. Discuss constraints and opportunities for bicycle use of the trail, including mountain biking; and

7. Consult with the Burial Counsel and those whom intervened regarding burials and sacred sites makai of the Ritz Carlton Hotel. Also, provide alternative mechanisms for managing visitor use and access for the spur trailing leading to so-called 'dragons teeth' area.

Further, the Department notes that the Commission was receptive to the concept of enhanced public access along the shoreline of Kapalua and would like to conduct a site visit at specific portions of the trail at some future date.

Should you require further clarification, please contact Thorne Abbott, Staff Planner, of this office by email at thorne.abbott@mauicounty.gov or by phone at 270-7520.

Sincerely,

JEFFREY S. HUNT, AICP
Planning Director

JSH:TEA:sls
c: Colleen M. Suyama, Deputy Planning Director
Clayton I. Yoshida, AICP, Program Administrator
Ann T. Cua, Staff Planner
Thorne E. Abbott, Staff Planner
EA Project File
General File
K:\WP_DOCS\PLANNING\EA\2006\0019_Kapalua_Trail\MPC_DEAComments.wpd

PBR HAWAII
& ASSOCIATES, INC.

April 19, 2007

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RAYMOND T. HIGA, ASLA
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KEVIN K. NISHIKAWA, ASLA
Associate

KIMI MIKAMI YUEN, LEED® AP
Associate

SCOTT ALIKA ABRIGO
Associate

SCOTT MURAKAMI, ASLA
Associate

Jeffrey S. Hunt, Director
County of Maui
Department of Planning
250 South High Street
Wailuku, Maui, Hawaii 96793

SUBJECT: KAPALUA COASTAL TRAIL DRAFT ENVIRONMENTAL ASSESSMENT COMMENTS (EA 2006/0019)

Dear Mr. Hunt:

Thank you for your letter dated February 26, 2007 regarding the Maui Planning Commission's comments on the Kapalua Coastal Trail Draft Environmental Assessment (EA) as the planning consultant for the applicant, Maui Land & Pineapple Company, Inc., we are responding to the Commission's comments.

1. While the USGS map shows the name "Fleming's Beach" for the beach at Kapalua Bay, the beach is commonly referred to as "Kapalua Beach" because it is located at Kapalua Bay. Over the years, the name "Kapalua Beach" has become common as the Kapalua Resort became well known. The name "Kapalua Beach" also distinguishes the beach from D.T. Fleming Beach Park, which is further north (and which is also along the route of Kapalua Coastal Trail).

   In the Cultural Resources section of the draft EA (Section 4.2), Wesley Nohara, who was interviewed regarding the history of the area, states that the area near the beach used to contain a Boy Scout camp and a plantation beach club. Mr. Nohara also notes that the beach in front of Kapalua Bay was called Fleming's Beach in those days.

   There is no movement to formally change the name from "Fleming's Beach" to "Kapalua Beach." In the draft EA the beach was referred to as "Kapalua Beach" to distinguish it from D.T. Fleming Beach Park. In the final EA references to "Kapalua Beach" will be deleted and replaced to refer to "Kapalua Bay."

2. There are currently no plans for guided tours by Maui Land & Pineapple Company, or indirectly by private entities. This will be noted in the final EA. As stated in the draft EA, the trail will be open to the public.

3. The Kapalua Resort already supplies various public shoreline access points, parking spaces, and related comfort station facilities in the vicinity of the Kapalua Coastal Trail (as shown in Figure 9 of the draft EA). Below is a summary of these existing public shoreline access facilities:

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WAILUKU OFFICE
1787 Wili Pā Loop, Suite 4
Wailuku, Hawai'i 96793-1271
Tel: (808) 242-2878

- **Kapalua Bay:** There is a public access path to Kapalua Bay with 39 public parking stalls, restrooms, and showers.

- **Nāmalu Bay and Hāwea Point:** A public access pathway is located on the north side of the Residences at Kapalua Bay property near the Bay Villas boundary. Ten public parking stalls are provided in a parking lot, at the start of the path (the site is currently under construction however these spaces will be retained when construction is completed). An additional 20 public parking stalls will be provided as part of the Residences at Kapalua Bay project in a parking lot mauka of Lower Honoapi'ilani Road.

- **Oneloa Bay:** Public access to Oneloa Bay is provided adjacent to the Kapalua Place residential property. There are 20 public parking stalls and showers.

- **Makāluapuna Point:** Public access to Makāluapuna Point is provided near the intersection of Lower Honoapi'ilani Road and Office Road. There are 10 public parking stalls for shoreline access.

- **D.T. Fleming Beach Park:** D.T. Fleming Beach Park fronts Honokahua Beach and includes 107 public parking stalls, restrooms, and showers.

- **Mokulē'ia Bay:** Public access to Mokulē'ia Bay is via a public stairway and path from Honoapi'ilani Highway.

- **Honolua Bay:** Public access to Honolua Bay is provided from Līpoa Point.

The Kapalua Coastal Trail will link all these existing public shoreline access points and facilities within the Kapalua Resort to a continuous, linear trail, thereby improving lateral shoreline access from Kapalua Bay to Honolua Bay

There will be no loss of any public parking facilities noted above in relation to the Kapalua Coastal Trail. As noted above, an additional 20 public parking stalls will be provided as part of the Residences at Kapalua Bay project in a parking lot mauka of Lower Honopi'ilani Road.

4. Some sections of the trail will be paved, including trail sections fronting The Residences at Kapalua Bay, The Ritz-Carlton Kapalua, and the spur trail to the arboretum (above Oneloa Bay). These paved sections will be accessible to persons with compromised mobility. Rugged, unpaved portions of the trail will not be as accessible. The trail will conform to applicable federal, state, and county accessibility standards. This will be stated in the final EA.

5. As part of the Kapalua Coastal Trail construction, Maui Land & Pineapple Company will consider alternative materials for fencing, particularly as a replacement to the current fence near Mokulē'ia Bay. This will be noted in the final EA.

6. The trail will be open for pedestrian use only. To preserve sensitive areas near the trail corridor, as well as maintain the integrity of the trail's natural surface, the use of bicycles, rollerblades, skateboards, ATVs, and other forms of recreational vehicles and devises will be prohibited. This will be noted in the final EA.

   As discussed in Sections 3.5 (Flora), 3.6 (Fauna), and 4.1 (Archaeological and Historic Resources) of the EA, the some segments of the trail run near environmentally and culturally-sensitive areas. The trail has been routed to avoid damaging these sensitive habitats and resources. Educational interpretive signs will be placed along the trail to notify users of sensitive areas and to remind them of the importance to remain on the designated trail.

7. Representatives from Maui Land & Pineapple Company met with the Maui/Lanai Burial Council on January 25, 2007. Based on the Maui/Lanai Burial Council's concerns, the trail has been re-routed mauka of the Honokahua Burial Grounds to connect with an existing pathway within the Ritz-Carlton-Kapalua property and the trail spur to Makāluapuna Point ("Dragon's Teeth") has been eliminated. The final EA will be revised accordingly.

We thank the Commission for reviewing the draft EA. The Commission's comments will be included in the final EA.

Sincerely,

Tom Schnell, AICP
Senior Associate

cc: Genevieve Salmonson, Office of Environmental Quality Control
Thorne Abbott, County of Maui Planning Department
Yarrow Flower, Maui Land & Pineapple Company, Inc.

ALAN M. ARAKAWA
Mayor

GEORGE Y. TENGAN
Director

ERIC H. YAMASHIGE, P.E., L.S.
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

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DEPT OF PLANNING
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December 4, 2006

Mr. Michael W. Foley, Director
Planning Department
250 South Street
Wailuku, HI 96793
Attn: Mr.Jeff Hunt, AICP, West Maui Planner

SUBJECT: Project Name: Kapalua Coastal Trail
ID: EA 2006/0019; SM1 2006/0026; SSD 2006/0009
TMK: (2) 4-2-004:004, 010,012,014,015,016,017,024,025.032,037&043
and (2) 4-2-005:041,042 & 049

Dear Mr. Foley:

Thank you for the opportunity to provide comments on the above-captioned project proposal.

The landscape plan includes a list of native plants that will provide shade along the proposed trail. The project site is located in Maui County Planting Plan - Plant Zone 5. Native plants adapted to the area, conserve water and protect the watershed from degradation due to invasive alien species. Attached is a list of appropriate plants for the zone as well as potentially invasive plants to avoid for reference.

We encourage the applicant to use brackish and/or reclaimed water sources for dust control and for all non-potable water uses.

The project overlies the Honolua aquifer. In order to protect ground and surface water resources, we recommend that the applicant utilize Best Management Practices (BMPs) designed to minimize infiltration and runoff from construction and vehicle operations. We ask the applicant to take precautionary measures when paving segments of the trail to prevent construction materials and debris as well as eroded soils from entering coastal waters.

Should you have any questions, please contact our Water Resources and Planning Division at 244-8550.

Sincerely,

George Y. Tengan, Director

eam
c: engineering division/ML+P/OEQC
applicant, with attachments:
Maui County Planting Plan - Saving Water in the Yard - What and How to Plant in your Area

"By Water All Things Find Life"

The Department of Water Supply is an Equal Opportunity provider and employer. To file a complaint of discrimination, write: USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington DC 20250-9410. Or call (202) 720-5964 (voice and TDD)

Printed on recycled paper

cc: Genevieve Salmonson, Office of Environmental Quality Control
Thorne Abbott, County of Maui Planning Department
Yarrow Flower, Maui Land & Pineapple Company, Inc.

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PBR HAWAII
& ASSOCIATES, INC.

March 12, 2007

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Senior Associate

RAYMOND T. HIGA, ASLA
Senior Associate

KEVIN K. NISHIKAWA, ASLA
Associate

KIMI MIKAMI YUEN, LEED®AP
Associate

SCOTT ALIKA ABRIGO
Associate

SCOTT MURAKAMI, ASLA
Associate

Mr. Jeffrey K. Eng Director
County of Maui
Department of Water Supply
200 South High Street
Wailuku, Maui, Hawaii 96793

SUBJECT: KAPALUA COASTAL TRAIL; HONOLUA & HONOKAHUA, MAUI EA 2006/0019; SM1 2006/0026; SSD 2006/0009

Dear Mr. Eng:

Thank you for the letter from your Department dated December 4, 2006 regarding the Draft Environmental Assessment (EA) and applications for a Special Management Area Permit and a Shoreline Setback Structure/Activity Determination for the Kapalua Coastal Trail. As the planning consultant for the applicant, Maui Land & Pineapple Company, Inc., we are responding to your comments.

1. We thank the Department for the list of appropriate plants for Plant Zone 5, in which the project is located. The landscape plan for the Kapalua Coastal Trail includes native plants and will be in compliance with the Maui County Planting Plan. Section 2.2.4 (Conceptual Landscape Plan) of the Draft EA discusses potential plants that will be considered for trail landscaping.

2. As stated in Section 4.8.2 of the Draft EA, non-potable water will be used for dust control during construction, if necessary. Non-potable water will also be used for any irrigation necessary in relation to the trail. This will be stated in the Final EA.

3. We understand the project overlies the Honolua aquifer. To protect ground, surface, and coastal water resources, Best Management Practices (BMPs) will be used in relation to the trial, including during the construction phase. This will be stated in the Final EA.

Thank you for reviewing the Draft EA and applications for a Special Management Area Permit and a Shoreline Setback Structure/Activity Determination for the Kapalua Coastal Trail. Your comments will be included in the Final EA.

Sincerely,

Tom Schnell, AICP
Senior Associate

cc: Genevieve Salmonson, Office of Environmental Quality Control
Thorne Abbott, County of Maui Planning Department
Yarrow Flower, Maui Land & Pineapple Company, Inc.

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United States Department of Agriculture

NRCS

Natural Resources Conservation Service
210 Imi Kala St. Ste 209
Wailuku, HI 96793
808-244-3100

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DEPT OF PLANNING
COUNTY OF MAUI
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November 24, 2006

Mr. Jeff Hunt
Planning Department
County of Maui
250 S. High St.
Wailuku, HI 96793

Dear Mr Hunt:

Subject: Kapalua Coastal Trail
TMK: 4-2-004: 004, 010, 012, 014, 015, 016, 017, 024, 025, 032, 034, 037 and 043; and 4-2-005L 041, 042 and 049

Coordinate construction activities in phases and implement erosion control measures to prevent erosion and runoff to ocean.

The use of appropriate native plants and drought tolerant species should be given primary consideration to bare areas surrounding the Kapalua trail. The area surrounding the Kapalua Coastal Trail should be vegetated to ensure the integrity and function of the trail and that runoff does not enter the ocean due to an altered drainage pattern.

We highly recommend an operation and maintenance plan identifying the responsible party to maintain the Kapalua Coastal Trail.

Sincerely,

Ranae Ganske–Cerizo
District Conservationist

PBR HAWAII
& ASSOCIATES, INC.

March 12, 2007

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WAILUKU OFFICE
1787 Wili Pā Loop, Suite 4
Wailuku, Hawai'i 96793-1271
Tel: (808) 242-2878

Ms. Ranae Ganske-Cerizo
District Conservationist
US Department of Agriculture
Natural Resources Conservation Service
210 Imi Kala Street, Suite 209
Wailuku, Hawaii 96793

SUBJECT: KAPALUA COASTAL TRAIL; HONOLUA & HONOKAHUA, MAUI EA 2006/0019; SM1 2006/0026; SSD 2006/0009

Dear Ms. Ganske-Cerizo:

Thank you for your letter dated November 24, 2006 regarding the Draft Environmental Assessment (EA) and applications for a Special Management Area Permit and a Shoreline Setback Structure/Activity Determination for the Kapalua Coastal Trail. As the planning consultant for the applicant, Maui Land & Pineapple Company, Inc., we are responding to your comments.

1. Construction activities will be done in phases and erosion control measures will be implemented to prevent erosion and runoff into the ocean. Except for certain sections of the trail located within the central Kapalua Resort, most of the trail will be unpaved and left as natural surface. As discussed in Section 4.8.1 (Drainage) of the Draft EA, the trail will be developed using accepted trail construction practices regarding slope and grade and the use of water-bars so that excessive runoff and erosion are avoided.

2. As discussed in Section 2.2.4 (Conceptual Landscape Plan) of the Draft EA, the landscape plan for the Kapalua Coastal Trail includes native plants and drought-tolerant species. Trees will be planted along the trail to provide shade, and naupaka, or a similar shrub, will be used as vegetation in several locations along the trail.

3. The Kapalua Coastal Trail will be maintained by the Kapalua Resort Association (KRA), the master homeowner's association for Kapalua Resort. An operation and maintenance plan for the Kapalua Coastal Trail is provided as Attachment A. This information will also be provided in the Final EA.

Thank you for reviewing the Draft EA and applications for a Special Management Area Permit and a Shoreline Setback Structure/Activity Determination for the Kapalua Coastal Trail. Your comments will be included in the Final EA.

Sincerely,

Tom Schnell, AICP
Senior Associate

Attachment

cc: Genevieve Salmonson, Office of Environmental Quality Control
Thorne Abbott, County of Maui Planning Department
Yarrow Flower, Maui Land & Pineapple Company, Inc.

Attachment A

The Kapalua Coastal Trail will be maintained by the Kapalua Resort Association (KRA), the master homeowners' association for Kapalua Resort. The costs associated with the maintenance of the trail will be included in the KRA annual budget. The following is a maintenance schedule for the Kapalua Coastal Trail:

Weekly – Trash and Recycling

- Empty rubbish and recycling receptacles.
- Pick up litter from the trail area as needed.

Monthly - Landscaping

- For the areas of the trail within the improved areas of the Kapalua Resort, such as the trail sections adjacent to Coconut Grove, The Residences at Kapalua Bay and The Ritz-Carlton Kapalua, the current landscaping schedule will remain the same. These areas have been and will remain very well manicured.
- The more remote and rugged sections of the trail will be landscaped with naturalized plants that will require little or no landscape maintenance. However, a monthly inspection will result in landscape maintenance as needed in these areas.

Yearly – Trail Surface and Structures

- Once yearly the trail surface will be inspected by the trail contractor or KRA staff trained by the trail contractor to ensure that the trail surfaces and structures are safe and in good repair. The trail is designed to prevent erosion, and inspections will ensure that the erosion prevention methods are working properly. Repairs will be made as needed.

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DEC 21 2006
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December 19, 2006

PBR Hawaii
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, HI 96813

Maui Land & Pineapple Company, Inc.
1000 Kapalua Drive
Kapalua, Maui, Hawaii 96761

ATTN: Tom Schnell, AICP
Phone: (808) 521-5631
Fax: (808) 523-1402

Yarrow Flower, Maui Land & Pineapple Company, Inc.
Phone: (808) 669-5622
Fax: (808) 669-5454

SUBJECT: KAPALUA COASTAL TRAIL, LAHAINA, ISLAND OF MAUI
DRAFT ENVIRONMENTAL ASSESSMENT (DEA); SPECIAL MANAGEMENT AREA USE PERMIT; SHORELINE SETBACK DETERMINATION;
(EA 2006/0019; SM1 2006/0026; SSD 2006/0009); TMK: (2) 4-2-004:004, 010, 012, 014, 015, 016, 017, 024, 025, 032, 034, 037 & 043; (2) 4-2-005:041, 042, and 049

Dear Mr. Schnell and Ms. Flower:

Thank you for providing Hawaiian Telcom Incorporated, the opportunity to comment on the Draft Environmental Assessment (DEA) for the County of Maui Planning Department and the Office of Environmental Quality Control for the proposed Kapalua Coastal Trail, Honolua and Honokahua, Lahaina, on the Island of Maui.

Hawaiian Telcom has no comments on this project at this time.

If there are any questions, please call Sheri Tihada at (808) 242-5258.

Sincerely,

Gordon Yadao
Section Manager –
Network Engineering & Planning

C: Maui County Planning Department
Office of Environmental Quality Control
File (3065 0612-110)
S. Tihada

PBR HAWAII
& ASSOCIATES, INC.

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KEVIN K. NISHIKAWA, ASLA
Associate

KIMI MIKAMI YUEN, LEED®AP
Associate

SCOTT ALIKA ABRIGO
Associate

SCOTT MURAKAMI, ASLA
Associate

March 12, 2007

Mr. Gordon Yadao
Section Manager
Engineering Department
Hawaiian Telcom
60 S. Church Street
Wailuku, Hawaii 96793

SUBJECT: KAPALUA COASTAL TRAIL; HONOLUA & HONOKAHUA, MAUI EA 2006/0019; SM1 2006/0026; SSD 2006/0009

Dear Mr. Yadao:

Thank you for your letter dated December 19, 2006 regarding the Draft Environmental Assessment (EA) and applications for a Special Management Area Permit and a Shoreline Setback Structure/Activity Determination for the Kapalua Coastal Trail.

As the planning consultant for the applicant, Maui Land & Pineapple Company, Inc., we acknowledge that you have no comments on the proposed project at this time.

Thank you for reviewing the Draft EA and applications for a Special Management Area Permit and Shoreline Setback Structure/Activity Determination for the Kapalua Coastal Trail. Your letter will be included in the Final EA.

Sincerely,

PBR HAWAII

Tom Schnell, AICP
Associate

cc: Genevieve Salmonson, Office of Environmental Quality Control
Thorne Abbott, County of Maui Planning Department
Yarrow Flower, Maui Land & Pineapple Company, Inc.

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'06 DEC -6 P1:02

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

December 1, 2006

Mr. Jeff Hunt, AICP, West Maui Planner
County of Maui – Department of Planning
250 South High Street
Wailuku, Hawaii 96793

Dear Mr. Hunt,

Subject: Kapalua Coastal Trail
EA 2006/0019; SM1 2006/0026; SSD 2006/0009
Honolua & Honokahua
Lahaina, Maui, Hawaii
TMK: (2) 4-2-004:004, 010, 012, 014-017, 024, 025, 032, 034, 037, 043
(2) 4-2-005:041, 042, and 049

Thank you for allowing us to comment on the applications for Special Management Area use permit, Draft Environmental Assessment, and Shore Setback Determination for the subject project, which was received on November 28, 2006.

In reviewing our records and the information received, Maui Electric Company (MECO) has no objection to the project at this time. However, we highly encourage the developer's electrical consultant to submit the electrical demand requirements (if any) and project time schedule as soon as practical so that service can be provided on a timely basis.

Should you have any other questions or concerns, please call Kim Kawahara at 871-2345.

Sincerely,

Neal Shinyama
Manager, Engineering

NS/kk:lk

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& ASSOCIATES, INC.

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Associate

SCOTT ALIKA ABRIGO
Associate

SCOTT MURAKAMI, ASLA
Associate

March 12, 2007

Mr. Neal Shinyama, Manager
Maui Electric Company, Ltd.
P.O. Box 398
Kahului, Hawaii 96733-6898

SUBJECT: KAPALUA COASTAL TRAIL; HONOLUA & HONOKAHUA, MAUI EA 2006/0019; SM1 2006/0026; SSD 2006/0009

Dear Mr. Shinyama:

Thank you for your letter dated December 1, 2006 regarding the Draft Environmental Assessment (EA) and applications for a Special Management Area Permit and a Shoreline Setback Structure/Activity Determination for the Kapalua Coastal Trail.

As the planning consultant for the applicant, Maui Land & Pineapple Company, Inc., we acknowledge that you have no objections to the proposed project at this time.

The Kapalua Coastal Trail will not require significant electrical consumption or communication systems. As stated in Section 4.8.5 of the Draft EA:

> *Most trail segments, especially the outlying segments toward Honolua Bay, will not have lighting. However, certain trails segments within the Resort area (such as in front of the Coconut Grove condominiums and the Residences at Kapalua Bay) either already have lighting or will have lighting.*

Thank you for reviewing the Draft EA and applications for a Special Management Area Permit and a Shoreline Setback Structure/Activity Determination for the Kapalua Coastal Trail. Your letter will be included in the Final EA.

Sincerely,

PBR HAWAII

Tom Schnell, AICP
Senior Associate

cc: Genevieve Salmonson, Office of Environmental Quality Control
Thorne Abbott, County of Maui Planning Department
Yarrow Flower, Maui Land & Pineapple Company, Inc.

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From: Chris Cramer [mailto:chris.cramer@maryknollschool.org]
Sent: Sunday, December 10, 2006 12:26 PM
To: sysadmin@pbrhawaii.com; Kellerman, Kristine
Cc: OEQC@doh.hawaii.gov
Subject: Kapalua Coastal Trail

Office of Environmental Quality Control
235 S. Beretania St., Suite 702
Honolulu, Hawaii 96813

Dear Office of Environmental Quality
Control,

As a frequent critic of projects that degrade the environment and decrease shoreline access, I want to congratulate Maui Land and Pineapple on the new Kapalua Trail Plan. This is a wise move for the future and I hope that other companies follow suit. I highly appreciate that the path will be a natural path through sensitive areas. It is precisely this type of thinking that will allow Hawaii to move forward from the poorly planned development projects that have plagued us in recent years.

Aloha,

Chris Cramer

chris.cramer@maryknollschool.org

Hawaii Shoreline Access

P.O. Box 240204

Honolulu, Hawaii

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& ASSOCIATES, INC.

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SCOTT ALIKA ABRIGO
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SCOTT MURAKAMI, ASLA
Associate

March 12, 2007

Mr. Chris Cramer
Hawaii Shoreline Access
P.O. Box 240204
Honolulu, Hawaii
Chris.cramer@maryknollschool.org

SUBJECT: KAPALUA COASTAL TRAIL DRAFT ENVIRONMENTAL ASSESSMENT

Dear Mr. Cramer:

Thank you for your e-mail dated December 10, 2006 regarding the Kapalua Coastal Trail. As the planning consultant for the applicant, Maui Land & Pineapple Company, Inc., we want to thank you for reviewing Draft Environmental Assessment (EA). Your positive comments will be included in the Final EA.

Sincerely,

PBR HAWAII

Tom Schnell, AICP
Associate

cc: Genevieve Salmonson, Office of Environmental Quality Control
Thorne Abbott, County of Maui Planning Department
Yarrow Flower, Maui Land & Pineapple Company, Inc.

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A

Kapalua Coastal Trail Design Development Submittal

KAPALUA COASTAL TRAIL

SEGMENTS 1-29

DESIGN DEVELOPMENT SUBMITTAL

February 2007

Prepared for
Maui Land & Pineapple Company

Prepared by
Helber Hastert & Fee, Planners

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Introduction

The Kapalua Coastal Trail is Maui Land & Pineapple's vision of a major but low-impact pedestrian route through some of West Maui's most beautiful natural scenery. Eventually stretching from The Bay Club to Honolua Bay, the 3.5-mile Coastal Trail will provide residents and visitors with a key amenity for outdoor activity as well as alternate routes to Kapalua destinations. Trail users will be rewarded with dramatic vistas of the shoreline, neighboring islands, and resort features as well as exposure to important aspects of Hawaiian culture, geology, and plant and animal life.

This report documents the design development phase for the Kapalua Coastal Trail, which comprises twenty-nine segments—1 through 29—and two spurs—9a and 15a. Paved surfaces are located predominantly in the resort proper, and natural surfaces—some rugged—are mostly outside the resort. Figure 1, the Design Development Overall Plan (located in the back pocket of the report), illustrates the trail alignment on an aerial photograph of the Kapalua region.

The design development report describes and illustrates the latest form of the Kapalua Coastal Trail. This report will be the basis for an environmental assessment (EA), preliminary agency consultation, further study by engineering consultants, and future construction design.

Basis for Design Development

The design development process is based on information gathered from the following resources:

- Review and evaluation of recommendations documented in the Charlier Associates (Charlier) Implementation Plan submitted to Maui Land & Pineapple (MLP) in November 2004.
- Meetings and discussions with MLP personnel, including Kim Carpenter, Yarrow Flower, Randy Bartlett, Greg Hansen, Craig Trenholme, Clifford Nae`ole, and Nels Stemm.
- MLP comments on HHF's September 2005 design development submittal for Segments 1-17.
- Site visits and trail area walkthroughs by HHF personnel.
- Review of the Draft Environmental Impact Statement for The Residences.
- Review of GPS mapping prepared by Greg Hansen based in part on trail alignment markings made by HHF personnel on August 25-26, 2005.
- Review of Honoapi`ilani Highway Improvement plans prepared by Warren S. Unemori Engineering, Inc., which illustrate the most recent realignment of the highway between the between the Plantation Estates entry and Honolua Bay and include topographic information within and adjacent to the State Department of Transportation (DOT) right-of-way.
- Analysis of proposed Americans with Disabilities Act Accessibility Guidelines (ADAAG) for trails.
- Review of TMK information for parcels crossed by and adjacent to the trail.

Based on these resources, design development trail segments were aligned within Maui Land & Pineapple property or allowed easements, with the exception of trail segments in the DOT right-of-way. Some minor adjustments may be necessary following a precise survey to locate property lines and existing conditions in the field.

Design Development Scope of Work

This report provides the following:

- Adjustments to the Charlier conceptual trail alignments.
- Recommendations for specific designs and materials for constructed elements, including paving, fencing, treated lumber erosion control steps, footbridges, railings, cantilever boardwalks, and stone steps.
- Recommendations for locations of and plant species for planting enhancements.
- Design and location recommendations for an entrance and identification signage program.
- Documentation for discussion, coordination, and preliminary agency consultation (see Table 1).
- Documentation for engineering design development (Table 2).

Design development documentation and recommendations are presented in the following forms:

- Narrative overview of recommendations.
- Design Development Overall Plan (Figure 1), which shows the alignment of trail segments and spurs and location of entrance and identification signs. The base plan is a high-resolution color aerial of Kapalua Resort from CAD Photogrammetric Consultants. Trail alignment was informed by site features on the aerial; site photographs taken during field location of some trail segments and spurs; and the GPS mapping provided by MLP GPS technician Greg Hansen. Because the accuracy of this plan is limited, line surveys will need to be conducted prior to the construction phase for the Kapalua Coastal Trail in order to verify the location of property lines and identify where the trail alignment may need to be adjusted.
- Tables: Lists of action items for discussion, coordination, and consultation and further engineering study; list of surface treatments by segment/spur, and a list of recommended plant material for enhancements.
- Figures: Plan showing surface treatments; plan enlargements for Segments 1, 3-4, 5-6, 8-11, 11-12, 14, 16, 17-18, Alternate 18, and 19-29 as well as portions of Spur 9a, which illustrate the trail alignment in more detail, especially as needed for agency consultations and engineering study; and perspective sketches and details, which illustrate proposed constructed elements of the trail.
- Appendix, a table of action items, which lists design development recommendations by segment/spur and references figures that illustrate these recommendations.

Highlights of the Design Development Trail Alignment

Figure 1 illustrates in plan the location of segments and spurs of the design development trail. Alignment has taken into consideration property lines, shoreline conditions, plant and animal habitats, reasonable safety for trail users, conventional construction techniques that would be used for building portions of the trail, and the need for creating buffers to separate public and private "zones." The following text describes what the trail would be like if you were walking from The Bay Club to Honolua Bay.

Segment 1

This segment commences at Lower Honoapi`ilani Road at the public beach right-of-way fronting The Bay Club. The connection of the trail to the main resort pedestrian circulation

Table 1. Documentation Provided (in addition to Figure 1) for Discussion, Coordination, and Preliminary Agency Consultation.

Segment(s)	Documentation
The Residences	
3-6	Figures 10-15 are provided for coordination with The Residences designers.
The Bay Villas/Kapalua Place	
7-8, 10-12	Figures 16-25 are provided for discussion about the trail alignment with The Bay Villas/Kapalua Place residents.
The Ironwoods	
14	Figure 25 is provided for discussion about Coastal Trail concrete paving near The Ironwoods entry gate.
Maui Land & Pineapple	
11-12	Although originally part of the design development scope of work, HHF has not provided documentation for repairing the existing "stairs" in the lava outcroppings above Oneloa Beach, as MLP has decided not to include repairs to the stairs in this phase.
15	Figures 10, 25, 27, and 28 are provided for coordination with future improvements along Lower Honoapi`ilani Road.
Agencies	
11-12	Figures 20-24 are provided for preliminary consultation regarding erosion control at Oneloa Beach (County of Maui, DLNR).
18, Alt. 18	Figures 32 and 35-37 are provided for preliminary agency consultation (County of Maui, Corps of Engineers, DLNR).
Alt. 18	Figures 37-39 and 45 are provided for preliminary agency consultation (DOT).
19, 20, 21	Figures 37 and 39-44 are provided for preliminary agency consultation (DOT, Corps of Engineers).
22	Figures 45 and 51 are provided for preliminary agency consultation (DOT).
25, 26, 27, 29	Figures 58-64 are provided for preliminary agency consultation (DOT, DLNR).
Ritz-Carlton, Kapalua	
17	Figures 29-33 are provided for discussions with Ritz-Carlton, Kapalua.
Plantation Estates	
22, 23, 24, 25	Figures 45-50 are provided for discussion with Plantation Estates residents.
Kalaepiha Parcel	
28	Figures 42, 58, and 62 are provided for discussion with owner of the Kalaepiha parcel.

Table 2. Documentation Provided (in addition to Figure 1) for Further Engineering Study.

Segment(s)	Documentation
1	Figures 7-9 are provided for design development (DD) of the trail through the public beach right-of-way parking.
10	Figures 18 and 42 are provided for DD of railing at steep dropoffs.
11-12	Figures 20-24 are provided for DD of erosion control steps at Oneloa Beach.
18, Alt. 18	Figures 32-35 and 37-38 are provided for DD of trail along D. T. Fleming Beach Road.
18, Alt. 18	Figures 32 and 35-37 are provided for DD of footbridge.
19, 20, 21	Figures 39-43 are provided for DD study of the trail in the drainageway and through the DOT culvert.
Alt. 18, 22	Figures 38, 45, and 49 are provided for traffic study and DD of pedestrian crossings at/near Honoapi`ilani Highway.
23, 24	Figures 42, 52, and 55 are provided for DD study of railing at steep dropoff.
26	Figures 58 and 59 are provided for traffic study and DD of pedestrian crossing at Honoapi`ilani Highway.
27, 29	Figures 58, 60-62 are provided for DD of the cantilever boardwalk.
28	Figures 42, 62, and 63 are provided for DD of railing at steep dropoffs.
29	Figure 62 is provided for traffic study and DD of trail at turnout.
29	Figures 62 and 64 are provided for DD of stone steps to Honolua Bay

system enhances both circulation systems. Segment 1 brings trail users to the zero mile marker and trail head sign near the public rest rooms and continues to Kapalua Beach.

Segment 2
This segment provides access to and panoramic views along Kapalua Beach via an existing concrete walkway.

Segment 3-6
Aligned to maximize views of Kapalua and Namalu Bays, these segments also connect the future site of The Residences to the Coastal Trail. Segment 6 provides access to the Cliff House entry path and is aligned approximately 30 feet from an existing chain link fence surrounding the Ramsey Residence (and possibly on the property line) to provide space for installing screening shrubs and trees. Further development of these segments will be closely coordinated with The Residences hardscape and landscape design.

Segments 7-8
These segments provide the transition between the resort proper and the rugged, natural areas on Hawea Point and along Oneloa Bay.

Segment 9
This segment loops around Hawea Point and provides trail users with dramatic vistas of both Namalu Bay and Oneloa Bay.

Segment 9a
Segment 9a branches off of Segment 9 and provides more intimate views of Namalu Bay.

Segments 10 and 11
Segment 10 begins on Hawea Point and follows the rugged, rocky shoreline of Oneloa Bay. Segment 11 begins at the most dramatic portion of the surf-pounded lava outcropping and continues to the sand at Oneloa Beach.

Segment 12
Segment 12 begins at Oneloa Beach, then climbs the slope below the existing Bay Villas stairway via treated lumber erosion control steps. On terraces of the vegetated sand dunes, the trail aligns near the dune edge but at a sufficient distance to protect the integrity of the edge. Segment 12 ends at the bottom of the treated lumber erosion control steps located below the public beach right-of-way.

Segment 13
Segment 13 includes the treated lumber erosion control steps located below the public beach right-of-way and the existing right-of-way up the slope between Kapalua Place and The Ironwoods. Segment 13 ends at the entry drive for Kapalua Place.

Segments 14
Segment 14 commences at the top of the public beach right-of-way sidewalk, continues past the entry to The Ironwoods, and links with Segment 15 at the corner of Lower Honoapi`ilani Road.

Segment 15
Segment 15 is also the resort walkway along Lower Honoapi`ilani Road. It ends at the parking lot just beyond the chapel.

Spur 15a
Spur 15a commences at a new pedestrian crossing of Lower Honoapi`ilani Road near the entrance to The Ridges. A terminus loop commences at the clearing near the end of the existing trail and returns to the spur via a benched trail section along the contours of the slope.

Segment 16
This segment comprises a marked pedestrian crossing of the existing asphalt driveway to the parking lot just beyond the chapel.

Segment 17
Segment 17 extends to D. T. Fleming Beach Park, utilizing existing concrete paving—both with and without textured banding—mauka of Honokahua Burial Ground.

Segment 18
This segment is located on the makai side of D. T. Fleming Beach Road. At the service drive, a concrete path connects to the beach park. On the opposite side of the beach park entry drive, a new marked asphalt path leads to a wood footbridge over an existing drainageway, after which a new marked asphalt path continues to a marked pedestrian crossing of D. T. Fleming Beach Road.

Segment 18 Alternate
This alternate route would be used when water levels in the culverts (see description of Segment 20) make it too dangerous for trail users. Alternate 18 is aligned on the makai side of D. T. Fleming Beach Road beyond where Segment 18 crosses this road. After crossing a drainageway via a wood footbridge, Alternate 18a crosses D. T. Fleming Beach Road. On the mauka side of the road, a natural surface trail climbs the slope to the intersection of Honoapi`ilani Highway and D. T. Fleming Road which it crosses in the DOT right-of-way via a marked crosswalk. Just beyond the intersection, a natural surface trail exits the DOT right-of-way into existing vegetation, later to enter the DOT right-of-way to cross Honoapi`ilani Highway in a marked pedestrian crosswalk near the entry to Plantation Estates.

Segment 19
Segment 19 crosses D. T. Fleming Road, and a natural surface trail and boulder causeway brings trail users to three culverts.

Segment 20
Of the three culverts located below Honoapi`ilani Highway, the one on the Lahaina side provides transit from one side of the highway to the other, as it shows the fewest signs of use by floodwaters and best facilitates access into and out of the drainageway.

Segment 21
This segment climbs up the wing wall on the Lahaina side of the culverts, over the head wall, and exits the DOT right-of-way as soon as possible. It traverses up slope to a clearing near Plantation Estates.

Segment 22
This segment aligns between two rows of existing Cook pines fronting the Plantation Estates and does not enter the DOT right-of-way until it exits Plantation Estates on the Honolua Bay side of the Plantation Club Drive.

Segment 23
This segment takes trail users beneath lush tree canopies below Plantation Estates to the outlet of an existing culvert below Plantation Club Drive.

Segment 24
Segment 24 climbs the Lahaina side wing wall, crosses the headwall, and descends the Honolua Bay side wing wall of the culvert outlet. This alignment should preserve the privacy of nearby homeowners in Plantation Estates. Continuing along the contours of the slope, a panoramic view of the ocean opens up above a turnout of Honoapi`ilani Highway.

Segment 25
Segment 25 is aligned as far down slope as possible to preserve the privacy of nearby homeowners in Plantation Estates. Aligned along the existing contours of the hillside, a good share of this segment is screened by trees and scrub vegetation.

Segment 26
Segment 26 begins where the trail exits Lot 41 and enters the DOT right-of-way. The segment approaches and crosses Honoapi'ilani Highway perpendicular to the roadway. The crossing is marked and equipped with weight-activated sensors that turn on lighted warning signs to alert drivers traveling in both directions that pedestrians are crossing the roadway. The segment ends on the roadway shoulder fronting the stairs to the Honolua-Mokuleia Bay Marine Life Conservation District.

Segment 27
Segment 27 is aligned within the DOT right-of-way and parallels the roadway toward Honolua Bay between an existing guardrail and chain link fence. Where the dropoff is to steep to accommodate an extension of paving, the trail transitions to a wood cantilever boardwalk, including an observation deck for viewing dramatic panoramas of the bay. Segment 27 ends when the trail exits the DOT right-of-way.

Segment 28
Segment 28 is located within a trail easement of the Kalaepiha parcel that ranges from 15 feet wide at the Mokuleia Bay end of the property to 28 feet wide at the Honolua Bay end.

Segment 29
This segment begins just outside of the Kalaepiha parcel property line and continues outside of the DOT right-of-way guardrail to a turnout with views of both Mokuleia Bay and Honolua Bay. On the Honolua Bay side of the turnout, a cantilever boardwalk leads to stone steps that provide access to Honolua Bay.

Constructed Elements of the Trail

Some segments of the trail are located in developed areas of the resort where paving is appropriate. Other portions of the Coastal Trail lie in natural, rugged areas comprised of sand, soil, lava outcroppings, drainageways, and vegetated ridges. To some degree and with variations depending on site-specific conditions, segments and spurs in both types of areas will require constructed elements, including the following: special surface treatment, signage, fencing, bollards, railings, erosion control steps, footbridges, cantilever boardwalks, and stone steps.

The recommended design, materials, and installation of constructed elements should have minimal impact on the natural systems/shoreline. They should complement and make reference to the natural materials and coastal context, creating a connectedness between trail segments and the surroundings.

The recommended materials for these elements are, for the most part, relatively inexpensive, easy to obtain, and durable under harsh coastal conditions.

Materials for accessible portions of the trail (for example, the front portion of Spur 15a and Segments 3-6 at The Residences) will conform to the proposed ADA Accessibility Guidelines for trails.

Surface Treatment
Several types of surface treatments are recommended for the Coastal Trail:

- Coastal Trail Concrete Paving
- Crushed Gravel with Headers
- Marked Pedestrian Zone/Crossing on Existing Asphalt
- Boulder Causeway
- Wood Footbridge
- Cantilever Boardwalk
- Steps, Treated Lumber and Stone
- Natural Surface (supplemented with a layer of cover mulch)

See Table 3 for a list of surfaces for each segment and spur and Figure 6 for a plan of where the surfaces are located on the trail.

Coastal Trail Concrete Paving (Figure 10): Recommended predominantly within the resort proper, this material easily distinguishes the Coastal Trail segments from other resort pedestrian paths. The concrete slab with applied dark stain, extra heavy to medium rock salt finish, and varied joint lines is meant to reference the lava outcroppings of the Coastal Trail. The variations in the rock salt finish and jointing create a naturalistic effect. This effect will relate well to the concrete header option and concrete components of signage and trail markings.

Crushed Gravel with Headers (Figure 17): These trail materials are recommended for Segments 7 and 8, where the trail transitions from a developed area to a natural, rugged area and where access for maintenance vehicles needs to be maintained. These materials are also recommended for the transitional portions of Segment 22 between the rows of Cook pines fronting Plantation Estates. To stabilize the gravel for strollers, wheelchairs, as well as maintenance vehicles, a reinforcing grid structure (such as Gravelpave2) may be installed. Basaltic sand may be used in combination with or in place of crushed gravel for additional stability.

Headers could be rough-formed concrete with distressed edges and flush joints. Although the standard length is 18 inches, the headers may be molded in longer segments and sawcut at installation. Exposed aggregate for Segments 7 and 8 headers should be representative of coastal materials visible along the natural, rugged trails: sand, coral chips, lava cinders, and lava pebbles. Exposed aggregate for Segment 22 headers should be representative of mauka natural materials. An applied dark stain will relate the concrete headers to lava outcroppings found throughout the Coastal Trail. The same process and materials are recommended for entrance and identification signs and fence posts (Figures 2, 3, 4, and 13).

Other Surface Treatments

Segments in natural, rugged areas should have a tread corridor between 2 and 4 feet wide (Figure 26). At level areas of lava outcroppings, boulder markers may be installed to delineate the edges of the trail, and rubble 3 inches in diameter and larger should be relocated from the trail corridor (Figure 5). In natural, rugged areas with a soil surface, a 3-inch thick layer of cover mulch may be applied. Conventional/ accepted techniques for natural tread construction should effectively address diversion of runoff to keep natural surfaces dry (Figures 43, 44, 53 and 54).

Signage

Design development signage concepts, shown in Figures 2, 3, and 4, illustrate the following family of entrance and identification signage:

Table 3. Surface Treatment by Segment/Spur.

Segment/ Spur	Surface Treatment
1	Marked pedestrian zone on existing asphalt and Coastal Trail concrete paving.
2	Existing concrete paving, which may eventually be replaced by Coastal Trail concrete paving.
3	Coastal Trail concrete paving.
4	Coastal Trail concrete paving.
5	Coastal Trail concrete paving.
6	Coastal Trail concrete paving.
7	Existing crushed basalt gravel with new headers.
8	Existing crushed basalt gravel with new headers and existing sand.
9	Existing sand and lava outcroppings.
9a	Existing sand and lava outcroppings.
10	Existing sand and lava outcroppings.
11	Existing sand and lava outcroppings.
12	Existing sand and treated lumber erosion control steps.
13	Existing concrete paving eventually to be replaced by Coastal Trail concrete paving.
14	Existing concrete paving to be replaced by Coastal Trail concrete paving.
15	Existing concrete paving to be replaced by Coastal Trail concrete paving.
15a	Existing asphalt and existing ground cover/soil supplemented with cover mulch.
16	Existing asphalt paving with marked pedestrian crossing.
17	Existing concrete paving; existing concrete paving with textured banding.
18	Existing concrete paving with textured banding; concrete paving; asphalt paving with marked pedestrian zone; wood footbridge.
Alt. 18	Asphalt paving with marked pedestrian zone; wood footbridge; existing ground cover/soil.
19	Existing ground cover/soil; boulder causeway.
20	Flood-resistant paving in culvert.
21	Boulder causeway; existing ground cover.
22	Crushed basalt gravel with headers; concrete paving; existing turf; wood footbridge.
23	Existing ground cover/soil; trail steps.
27	Existing ground cover/soil.
25	Existing ground cover/soil.
26	Marked pedestrian crossing on existing asphalt paving.
27	Existing asphalt paving; cantilever boardwalk.
28	Existing ground cover/soil.
29	Existing ground cover/soil; cantilever boardwalk; stone steps.

- Large Trail Signs (Figure 2).
- Medium Trail Signs: Identification, Directional, Combination (Figure 3).
- Wayfinding/Mileage Markers (Figure 4).

Locations for large and medium signs as well as mileage markers are shown on Figure 1. The need for wayfinding markers is noted by segment/spur in the Appendix.

The signage concepts evolved as a result of evaluating the Charlier conceptual entrance and identification signage program, studying and observing the resort and coastal context, and documenting existing signage.

The materials for the entrance and identification signage—concrete posts/pilasters with wood signage panels—relate well to the coastal context. The signs are designed to be low enough to the ground so as not to compete with the scenery and views or other adjacent signage.

Concrete posts/pilaster should be rough-formed with a dark stain and distressed edges. Exposed aggregate could be comprised of sand, coral chips, and lava cinders and pebbles. A light sandblasting would reveal additional texture of the aggregate. Recommended woods for signage panels are cedar, ironwood, or redwood. An application of marine sealer should increase the life of the wood panels.

Information appearing on the large trail signs may include the resort logo, name of the trail, a map of the trail (including a "you are here" location), and rules and regulations of the trail. An optional wood panel allows space for additional information as needed (such as to consolidate the numerous signs now located at the beginning of Segment 8).

Three different medium trail signs—identification, directional, and combination—have been designed for the various conditions in which this level of signage is appropriate. Medium identification signs are located preceding large trail signs on Lower Honoapi`ilani Road and where large trail signs would compete with existing signage or be out of scale in a particular context. Medium directional signs are designed for trail intersections and transitions. Medium combination signs are located where pedestrians encounter the trail before passing large trail signs and need to be informed of the rules and regulations of the trail.

Mileage markers are recommended at each half-mile of the trail. On generally flat and straight stretches, wayfinding markers should be placed at one-quarter mile increments between mileage markers. No mileage markers are located on spurs. Along rugged, natural trail stretches, the wayfinding markers should be placed so that the next marker is visible at or just beyond the present marker. Both wayfinding and mileage markers should be installed so as not to be tripping hazards along the trail.

The following signage quantities are based on signage locations indicated in Figure 1 and on an estimate of wayfinding markers according to trail conditions:

- Large Trail Signs: 4
- Medium Trail Signs
  Identification: 5
  Directional: 7
  Combination: 9

- Half-Mile Mileage Markers: 8
- Wayfinding Markers: 50

At the entrance to Plantation Estates, special horizontal signage may need to be developed to prevent trail signage from competing in any way with existing neighborhood signs.

HHF's design development scope of work does not include other types of signage discussed and recommended by Charlier & Associates: traffic control, risk management, monument, and endangered species signage.

Railing(s)
Railings at steep dropoffs are recommended at Segments 10, 21, 23, 24, 28, and 29, where the trail aligns close to the edges of steep dropoffs. Where railings will be visible from the road (Segments 23, 28, and 29), a railing matching the cantilever boardwalk design is recommended (Figure 42) to create aesthetically pleasing visual cues of the trail's presence. Railings in wooded areas (Segments 10, 21, and 24) may be more practical in design (Figure 42). The final design and location of railings are at the discretion of Maui Land & Pineapple Company.

Fencing
An alternate to the existing fencing is recommended for fencing along Segments 3 through 5 (Figure 13). Posts and wood rails of this design match the recommended materials for entrance and identification signage. Fence segments should be located on the down slope side of the trail at the discretion of the Maui Land & Pineapple Company.

Bollards
At the beginning of Segments 8, existing bollard and chain installations prevent vehicular access except for maintenance carts but also deter pedestrian access. Removable bollards to match existing—and removal of existing chains—are recommended to allow easy passage for trail users (Figure 19).

Treated Lumber Steps
The treated lumber erosion control steps (Figures 21 and 24) at the intersection of Segments 11 and 12 and below Segment 13 require only natural materials and very minimal disturbance to the slope except for the anchoring system. The intention is that the steps at the intersection of Segments 11 and 12 will align with the existing stairs at The Bay Villas but provide access for both trail and beach users. The steps below Segment 13 would provide access to the beach directly from the public beach right-of-way.

Footbridges
Wood footbridges are recommended on Segments 18, Alternate 18, and 22. In the first two cases, the footbridges cross drainageways. At Segment 22, the footbridge is recommended for crossing the existing open culvert in the DOT right-of-way. The footbridge design (Figure 36) matches the cantilever boardwalk design (Figure 61).

Cantilever Boardwalk
At Segments 27 and 29, the DOT right-of-way is located so close to steep dropoffs that without a constructed element, the trail would be disconnected. A cantilever boardwalk (Figure 61) and overlook is recommended for the cantilever boardwalk at Segment 27, where there is an excellent view of Mokuleia Bay. This boardwalk would extend approximately 270 linear feet.

The cantilever boardwalk at Segment 29 would connect to the stone steps (Figure 62) to Honolua Bay and would be approximately 150 linear feet.

Stone Steps

At the endpoint of the Kapalua Coastal Trail, stone steps are planned as the means of access to Honolua Bay (Figures 62 and 64). The steps would transit the existing slope of approximately 50 vertical feet and 75 horizontal feet with switchbacks and two landings. Trail users would reach the steps via the cantilever boardwalk at the lookout. The final location of the steps should be where existing vegetation will screen them from view across Honolua Bay.

Planting Enhancements

Specific locations for planting enhancements are called out on the plan enlargements and perspective sketches. Naupaka, or a similar shrub, is recommended in several locations within the resort proper for screening and creating separation between public and private "zones" (along or near Segments 3-5, 7, 8, and 10). Naupaka is an appropriate plant for such uses, since it is an attractive, indigenous, coastal plant that is already used throughout the resort. Other species that may be considered are `a`ali`i, ma`o hau hele, and variegated hau.

At Segment 6, native or Hawaiian cultural trees are recommended for shade, and native shrub species are recommended for screening the existing chain link fence. These plant materials should thrive in full sun and be salt-, wind-, and drought-tolerant. The following is a list of representative species for use along this segment:

Table 4. Recommended Species for Native Plant Tapestry.

Hawaiian Name	Botanical Name
`a`ali`i	*Dodonaea viscosa*
`ewa hinahina	*Achyranthes splendens*
`akia	*Wikstroemia uva-ursa*
`akoko	*Chamaesyce degeneri*
ma`o	*Gossypium tomentosum*
naio papa	*Myoporum sandwicense*
naupaka	*Scaevola* sp. (not *coriacea*)
`ohelo kai	*Lycium sandwicense*
pa`u-o-Hi`iaka	*Jaquemontia ovalifolia subsp. sandwicensis*
pohinahina	*Vitex rotundifolia*
`ulei	*Osteomeles anthyllidifolia*

- Native Trees: Hala (*Pandanus tectorius*), kou (*Cordia subcordata*), loulu palm (*Pritchardia affinis*).
- Hawaiian Cultural Trees: Coconut palm (*Cocos nucifera*), milo (*Thespesia populnea*).
- Native Shrubs: `A`ali`i (*Dodonaea viscosa*), kului (Nototrichium sandwicense), naio (*Myoporum sandwicense*), naupaka (*Scaevola* sp., not *coriacea*).

At Segment 9 and Spur 9a, numerous social trails exist, some of which cross habitats of endangered plant `awiwi (*Centaurium sebaeoides*) and burrows of protected `a`o (Newell's shearwater, *Puffinus auricularis newelli*). To create chokes for these undesirable trails, barricades and a native plant tapestry is

Native plant tapestry species. Top row, left to right: `a`ali`i, naupaka, ma`o; middle row, left to right: `ohelo kai, pa`u-o-Hi`iaka, pohinahina; bottom row, left to right: naio papa, `akoko, `ulei.

recommended (Figure 18). The tapestry should comprise easy-to-grow coastal and lowland native Hawaiian plants. These plants should be obtained from a nursery that is near seal level to facilitate establishment in this coastal area. Selection of Maui species, subspecies, and varieties is also recommended. Although drought-tolerant, these native plants should receive regular watering during establishment. Recommended species are listed in Table 4. In accord with state law, propagated endangered species should not be planted in the wild, to avoid cross-pollination; therefore, the list of recommended native plants does not include endangered species. Planting enhancements should not be located directly in the `awiwi habitats or near `a`o burrows but should be used only to choke the entrances to undesirable social trails.

Planting enhancements are also recommended for the following trail locations:

- Segment 18 at the entrance to the D. T. Fleming Beach Park (Figures 32-35).
- Segment 24 to buffer views of trail users from above and below the trail (Figure 56).

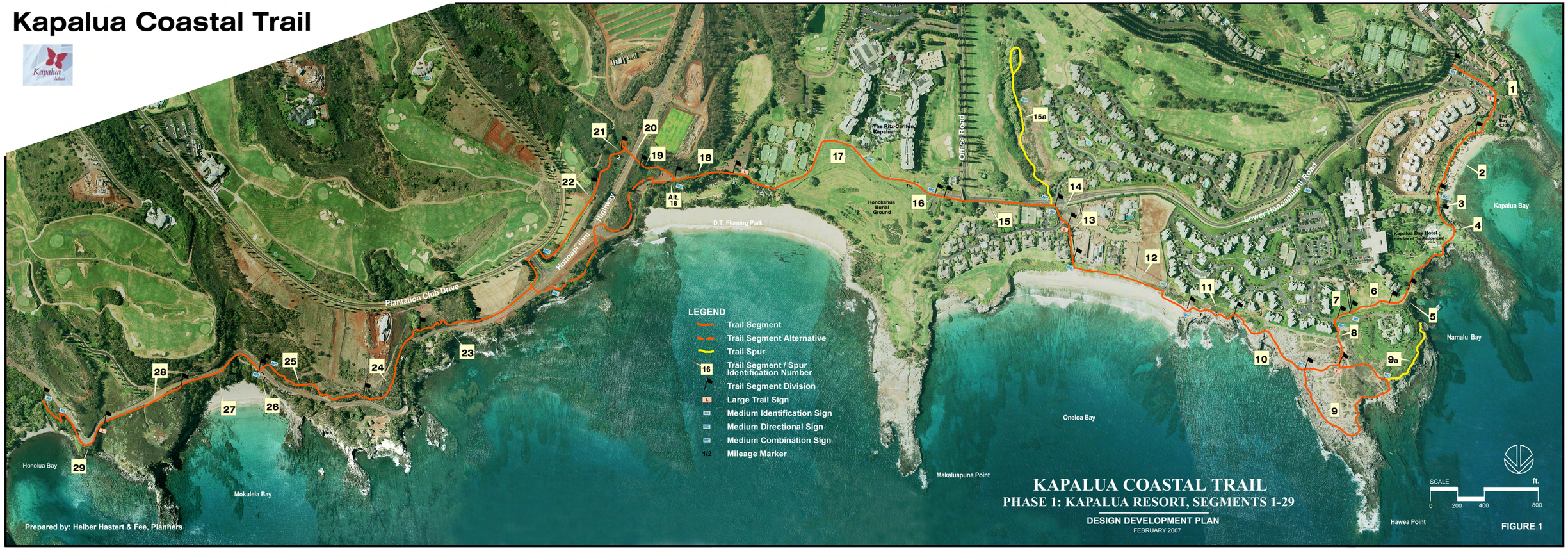
Conclusion

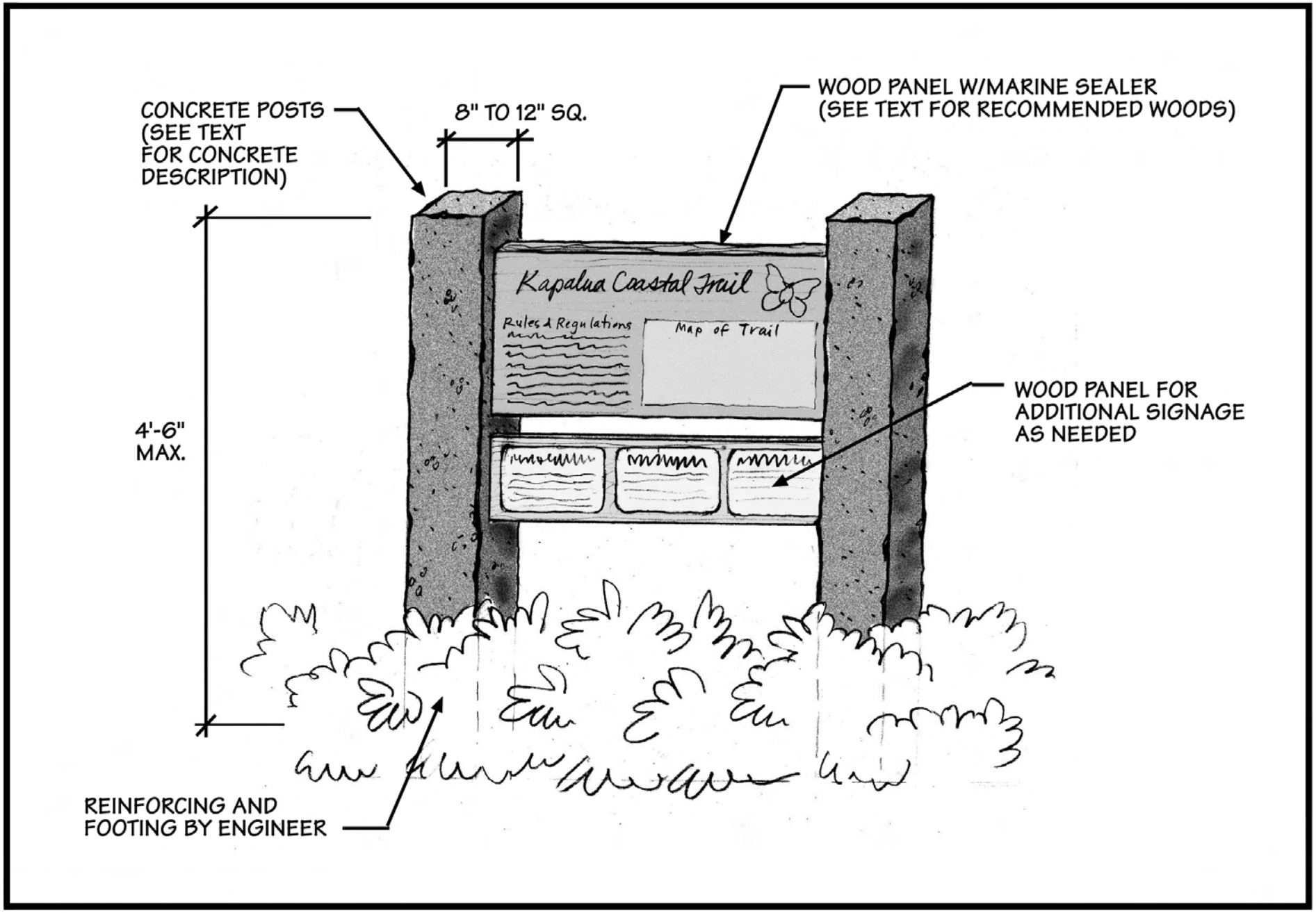
Utilizing the documentation in this report, the following actions should take place:

- Prepare a cost estimate to determine which alternatives are most appropriate or what design adjustments need to be made given the trail construction budget.
- Utilize documentation listed in Table 1 for discussion, coordination, and preliminary agency consultation.
- Distribute the report as soon as possible for commencement of the environmental assessment.
- Retain the services of an engineer to verify the location of property lines adjacent to the trail and other relevant conditions in the field and conduct engineering studies as outlined in Table 2.

The ultimate goal of the Coastal Trail design implementation is to create a unified trail system that is aesthetically and culturally appropriate to the Kapalua setting and that provides a unique and memorable experience for trail users.

Kapalua Coastal Trail





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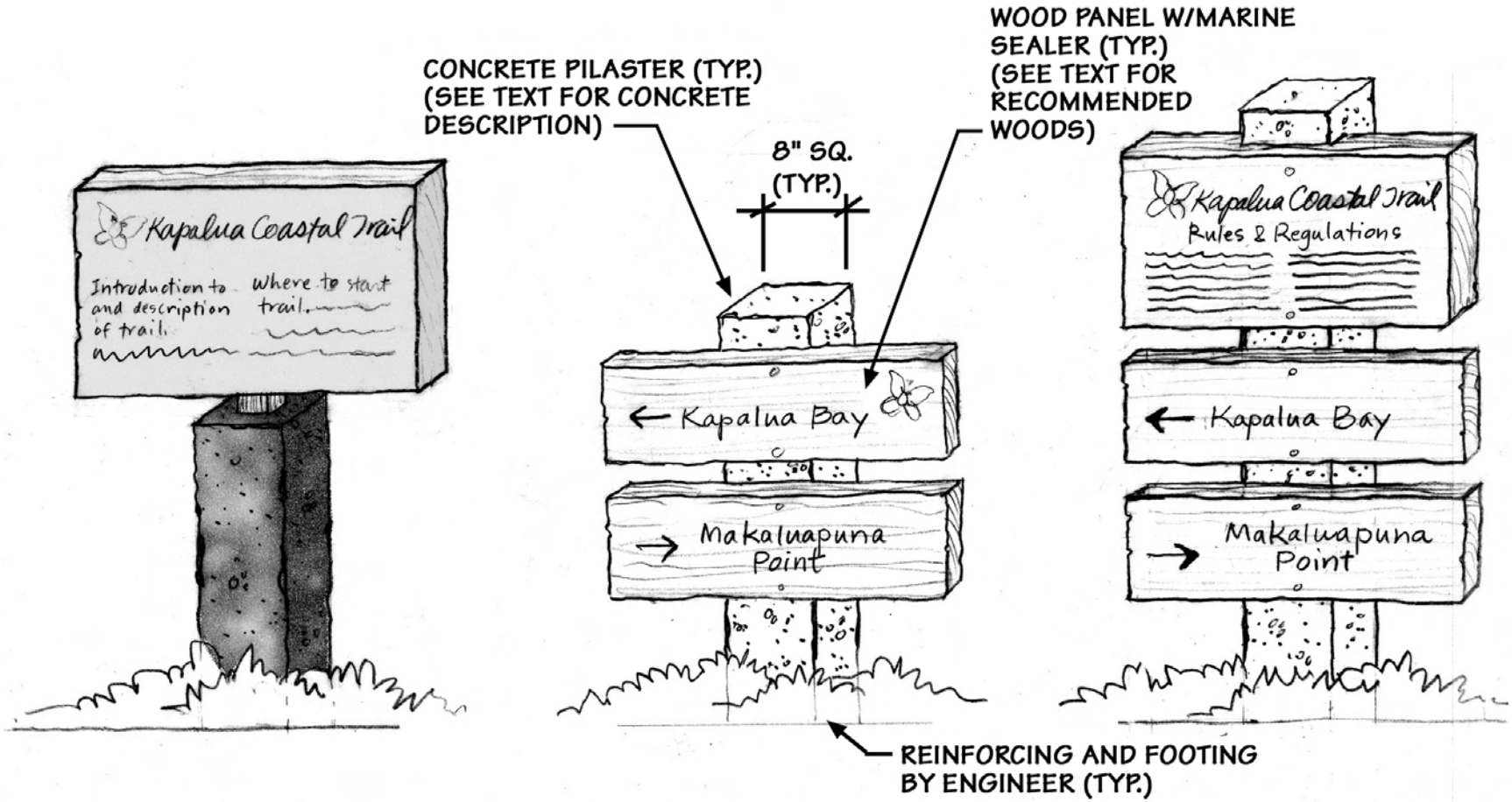
February 2007

FIGURE 2
Large Trail Sign Concept.



MEDIUM IDENTIFICATION SIGN
For trail identification on Lower Honoapi'ilani Road preceding large trail signs and where large trail signs would compete with other signage.

MEDIUM DIRECTIONAL SIGN
For trail intersections and transitions. Directions may be for final trail destinations and/or features along the trail.

MEDIUM COMBINATION SIGN
For locations where pedestrians encounter trail before passing large or medium identification signs.

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FIGURE 3
Medium Trail Sign Concepts.

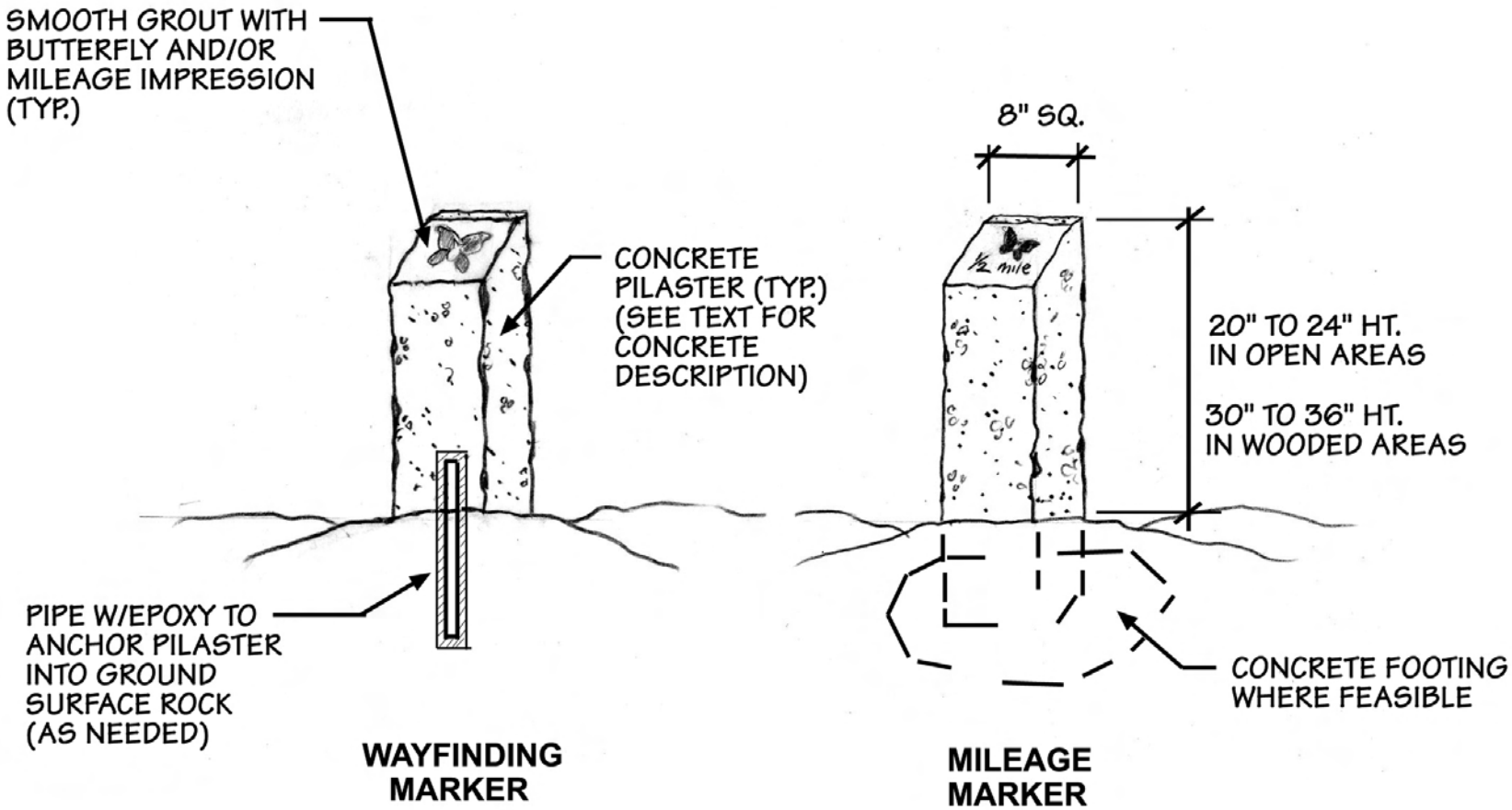

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FIGURE 4
Wayfinding/Mileage Marker Concepts.

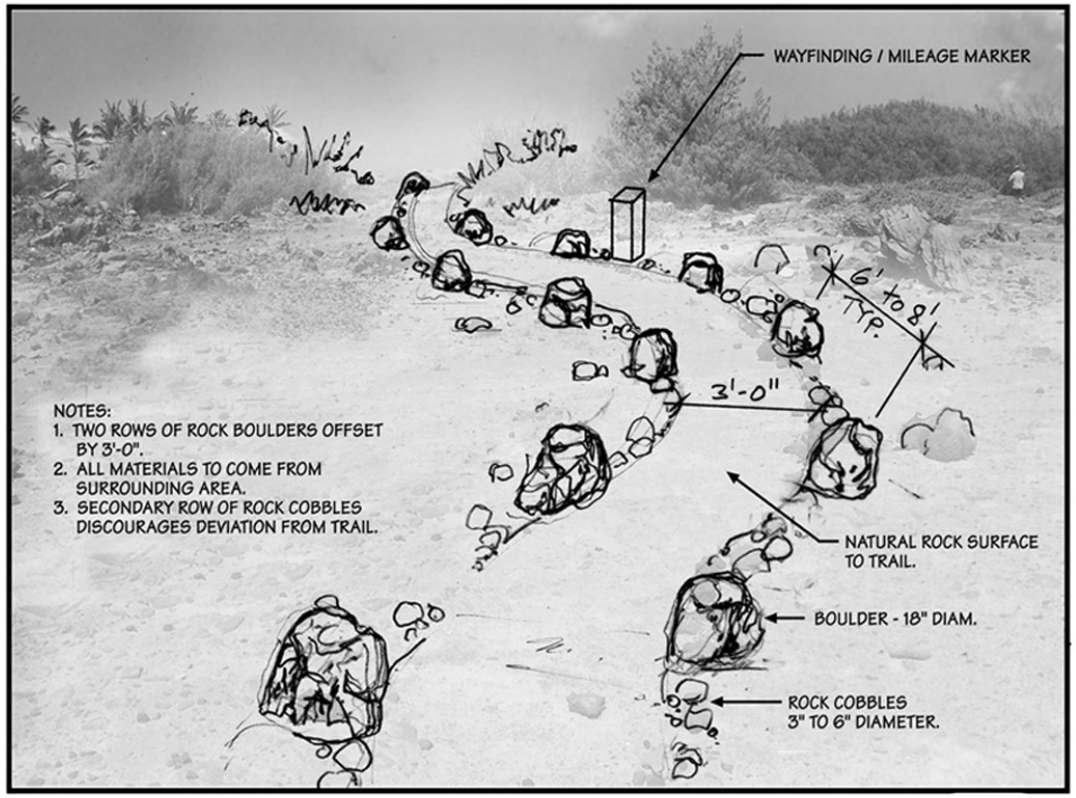

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FIGURE 5
Natural Trail Boulder Markers.

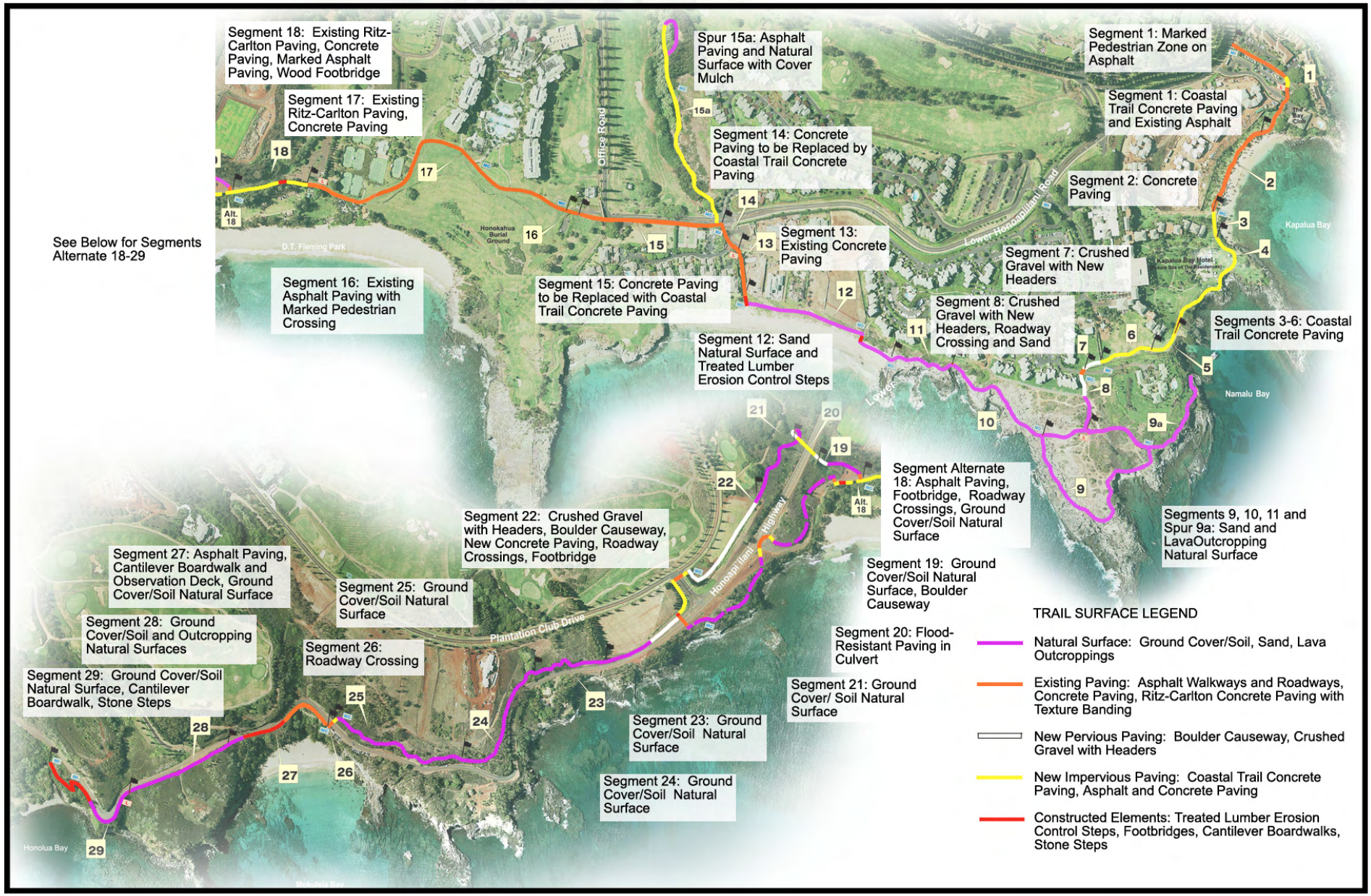

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FIGURE 6
Trail Surface Treatment Plan.

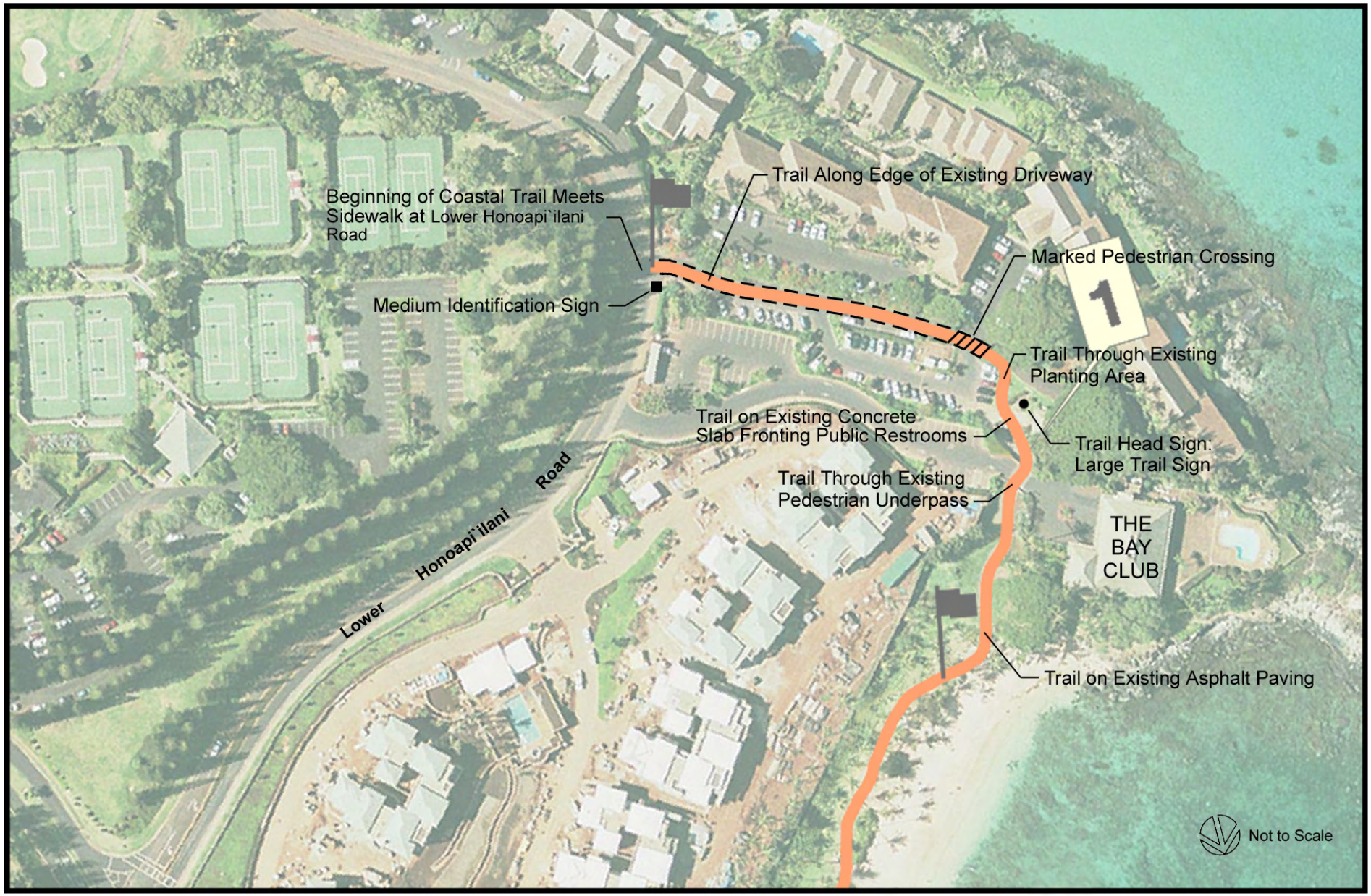

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FIGURE 7
Segment 1 Plan Enlargement.

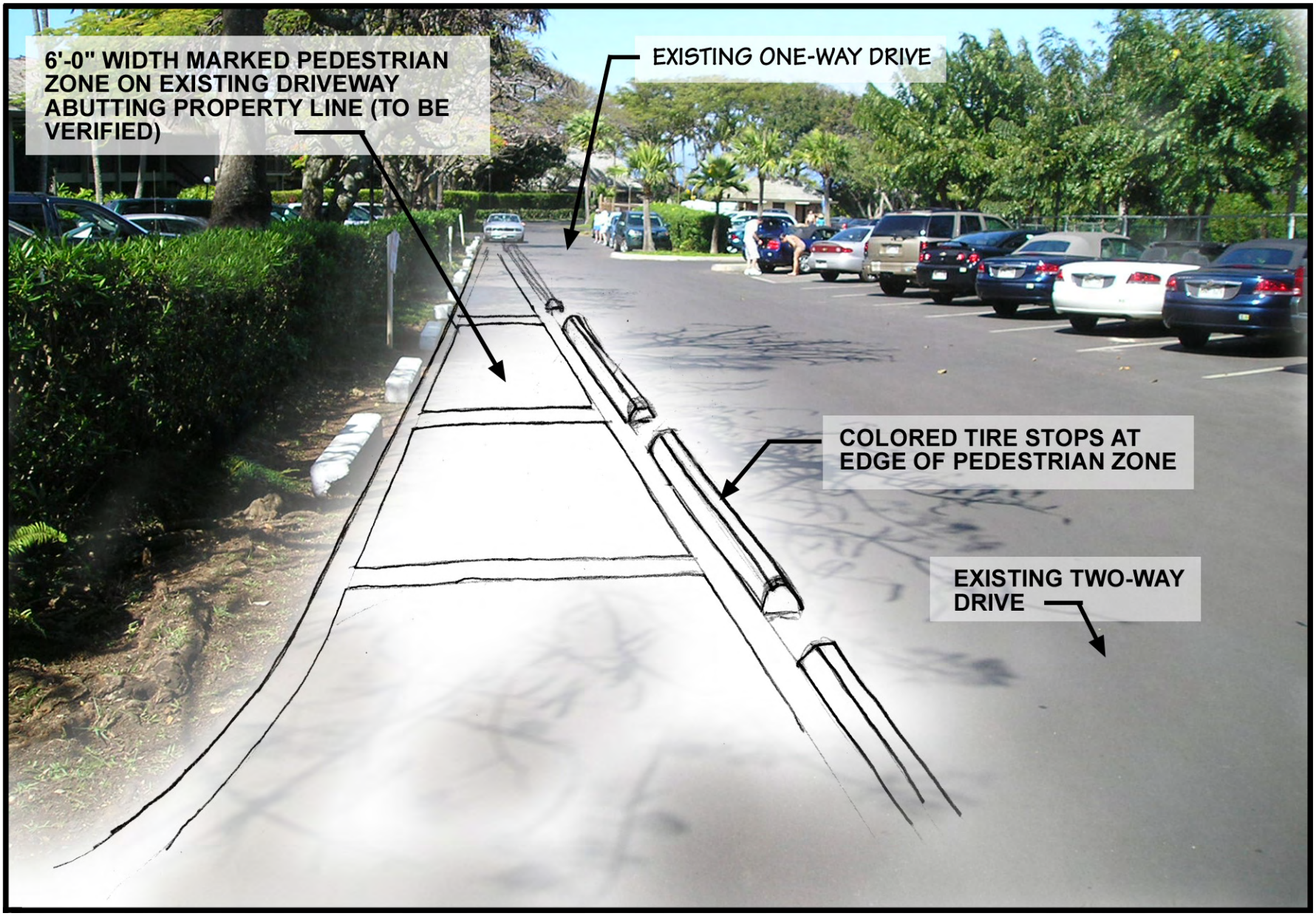

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FIGURE 8
Segment 1 Marked Pedestrian Zone.

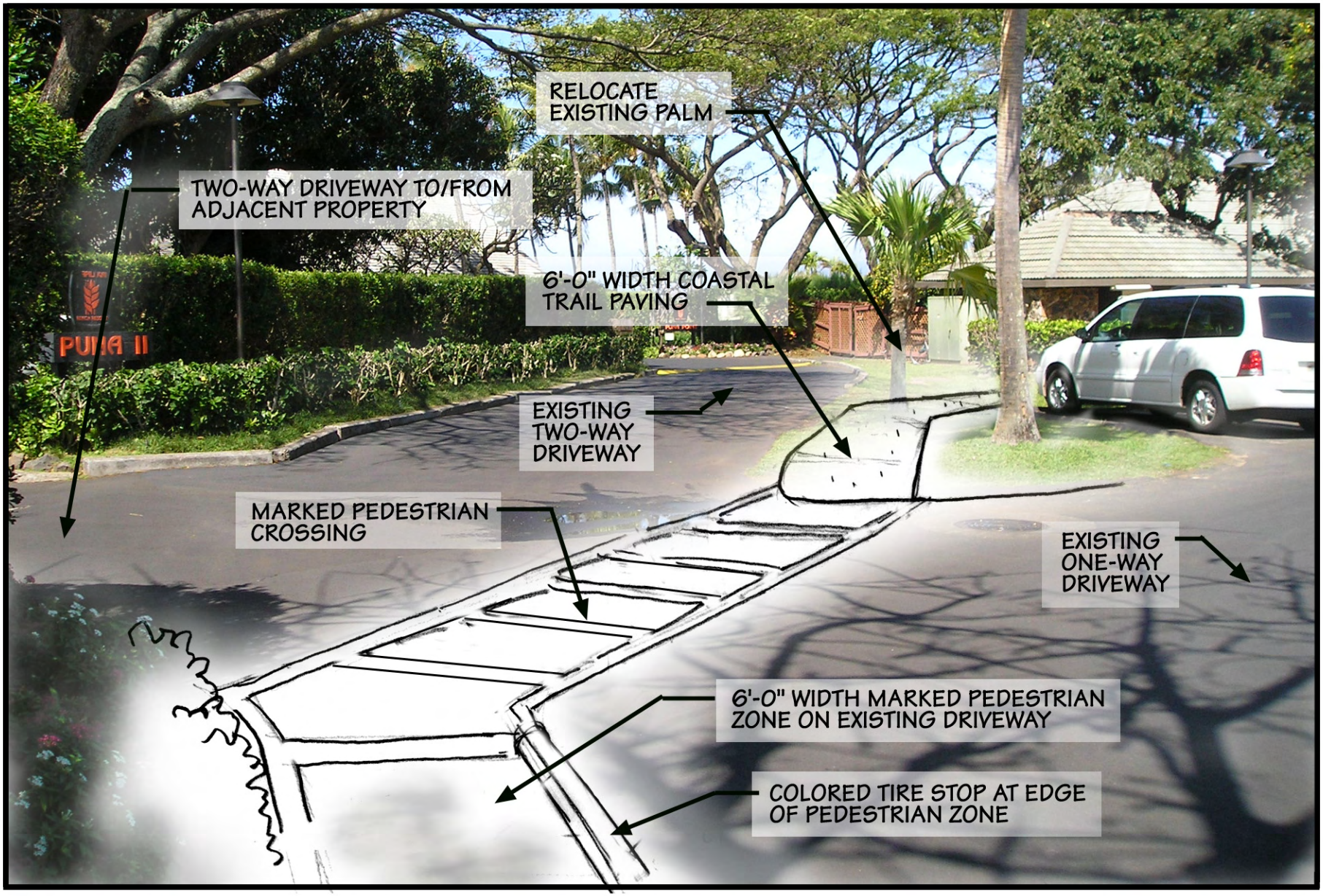

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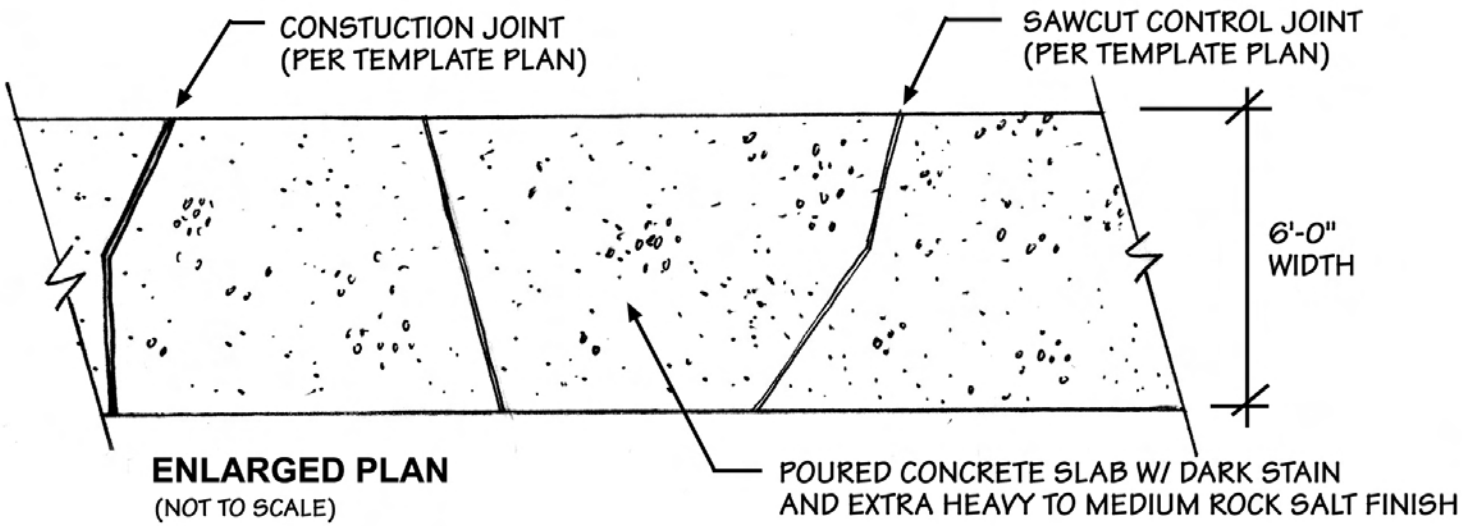
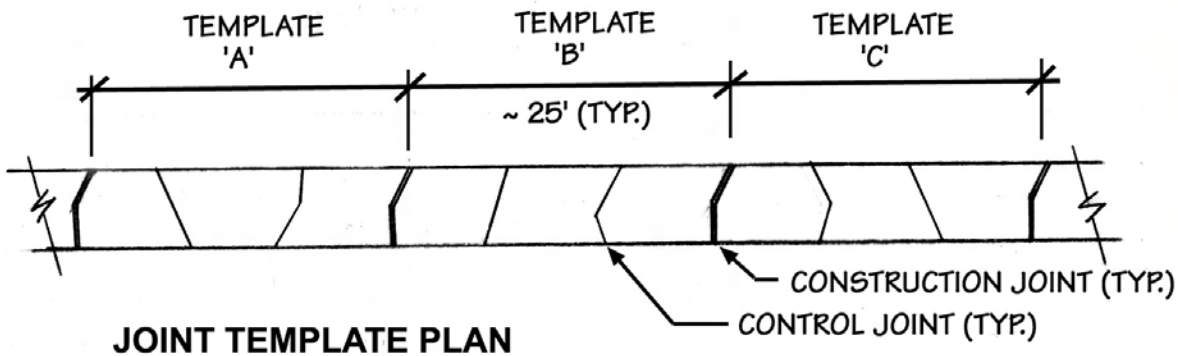
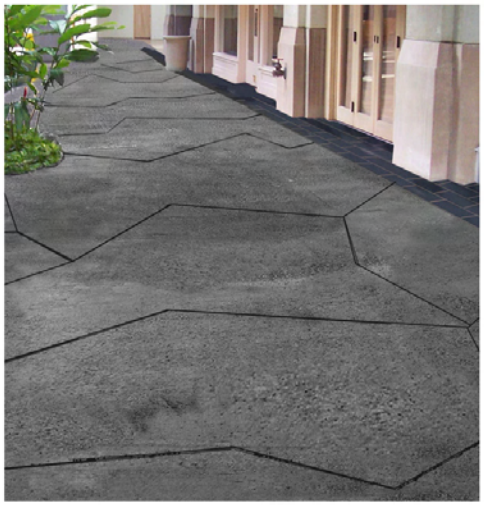
FIGURE 9
Segment 1 Marked Pedestrian Crossing and Coastal Trail Concrete Paving.



ENLARGED PLAN
(NOT TO SCALE)



JOINT TEMPLATE PLAN
(NOT TO SCALE)



MATERIAL EXAMPLE

NOTES:
1. ALL CONSTRUCTION JOINTS ARE THE SAME GEOMETRY.
2. TEMPLATES SHOULD BE USED IN RANDOM ORDER TO CREATE VARIETY.

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FIGURE 10
Coastal Trail Concrete Paving.

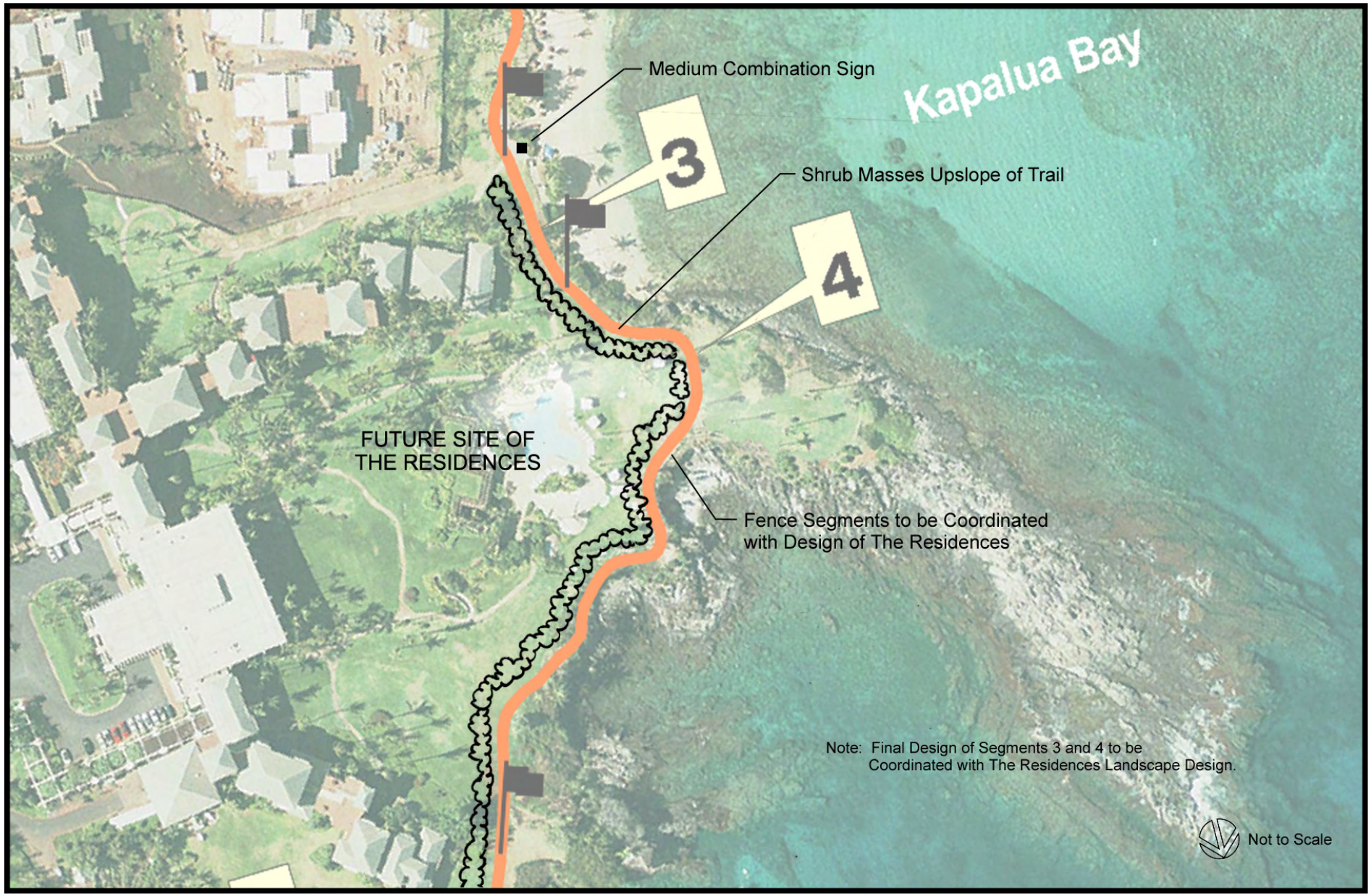

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FIGURE 11
Segments 3 and 4 Plan Enlargement.

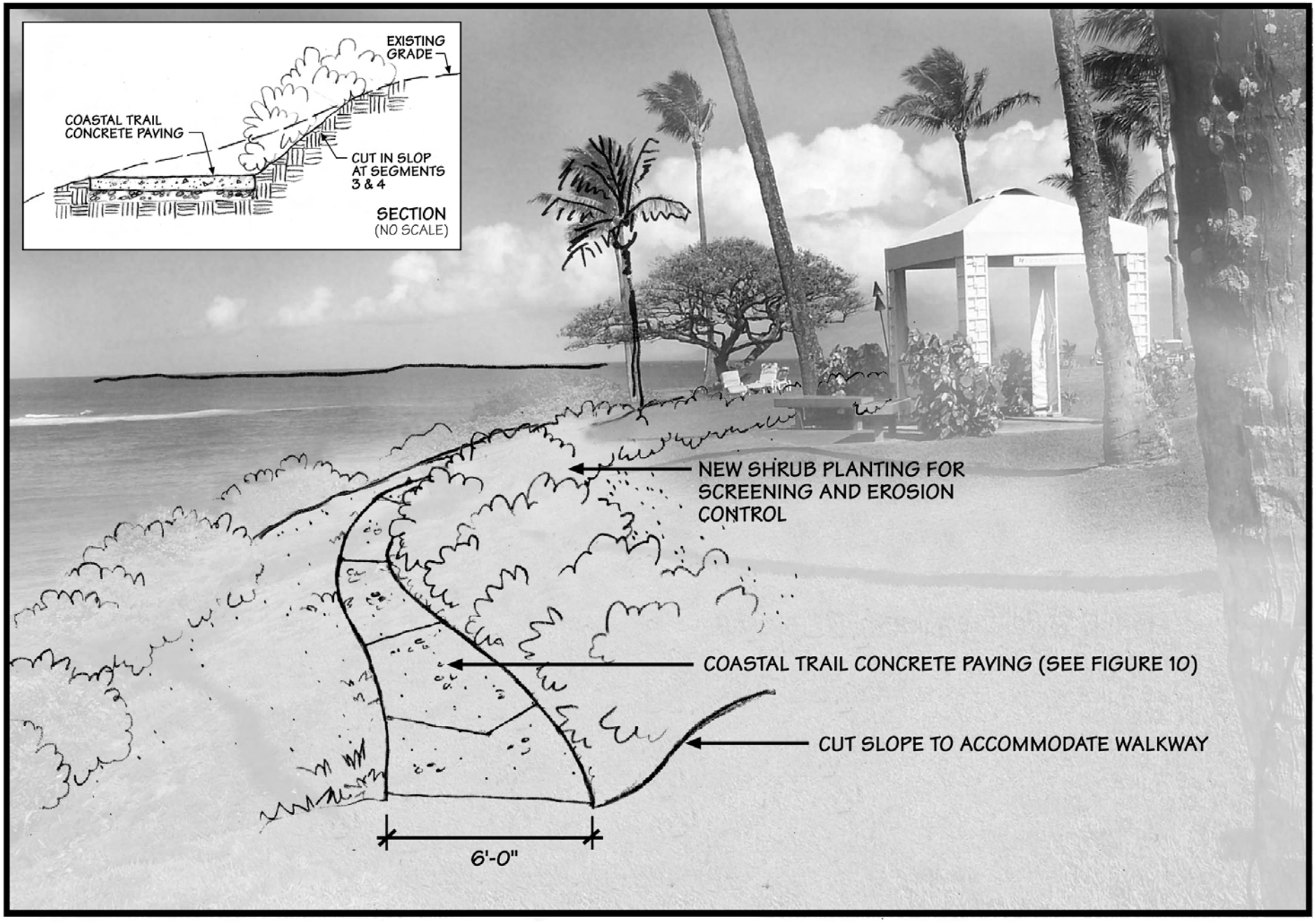

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FIGURE 12
Segments 3 and 4 Coastal Trail Concrete Paving and Planting Enhancements.

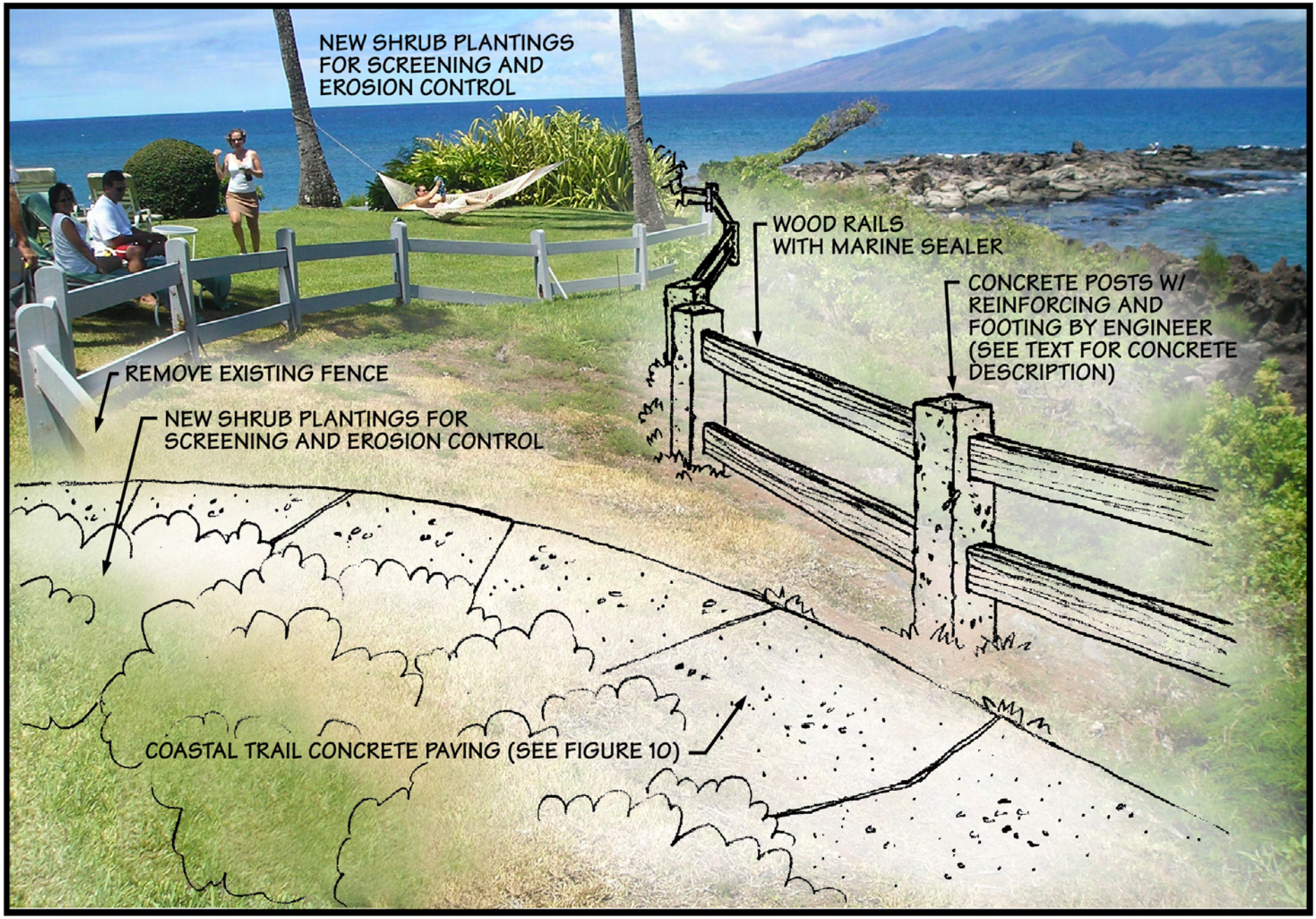

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FIGURE 13

Fence with Concrete Posts and Wood Rails, as Illustrated at Segment 4.

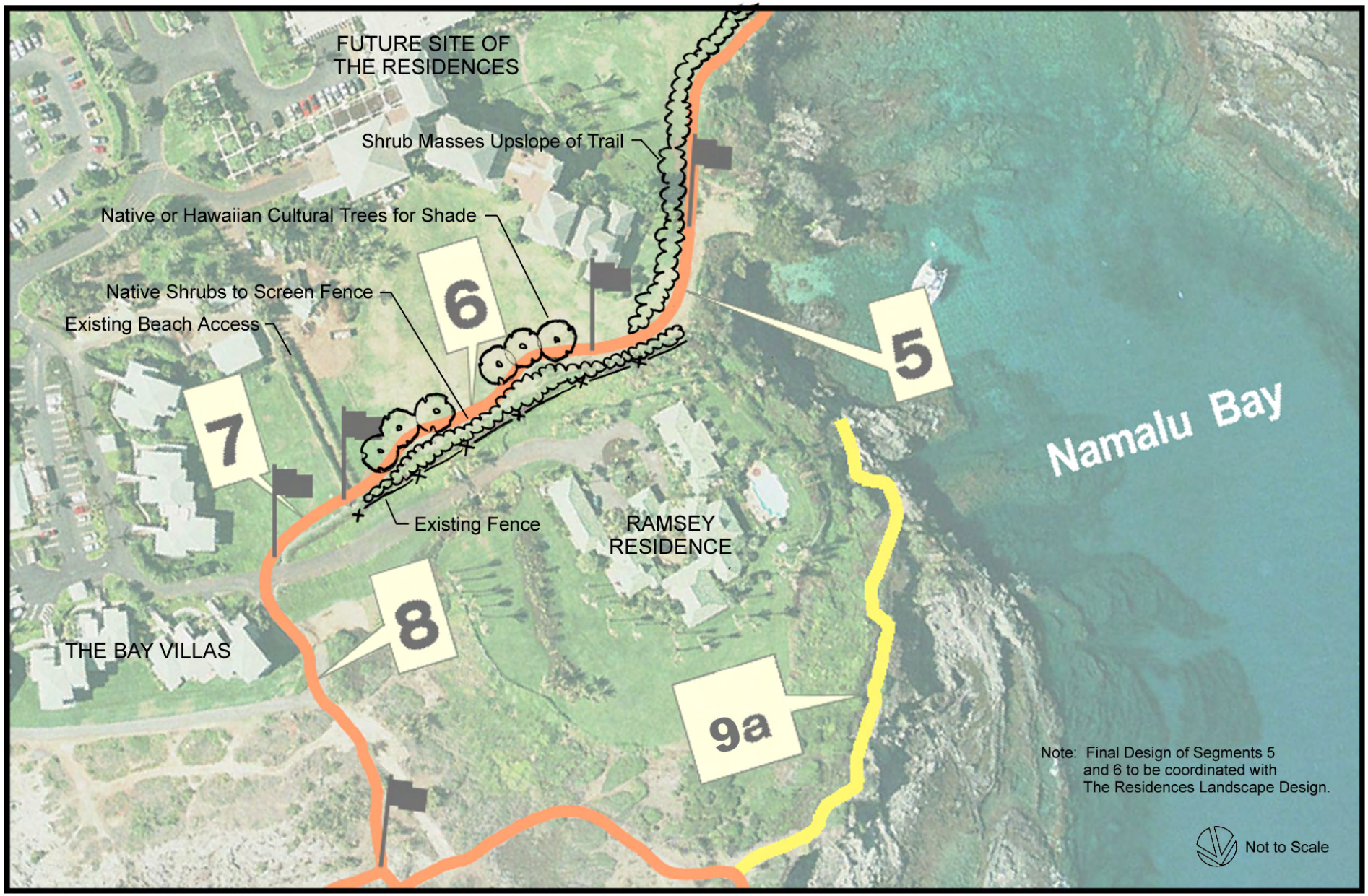

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FIGURE 14
Segments 5 and 6 Plan Enlargement.

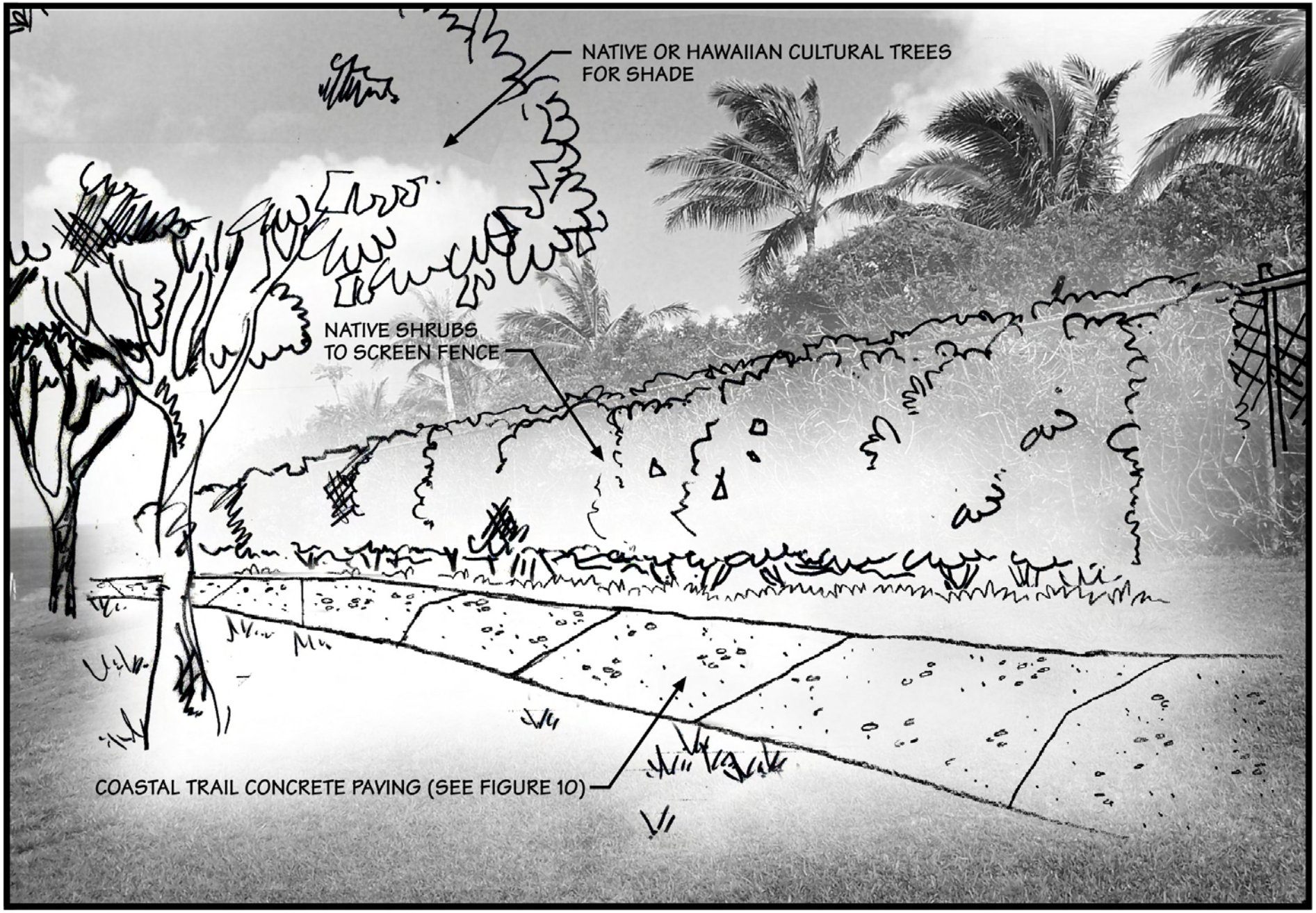

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FIGURE 15
Segment 6 Paving and Planting Enhancements.

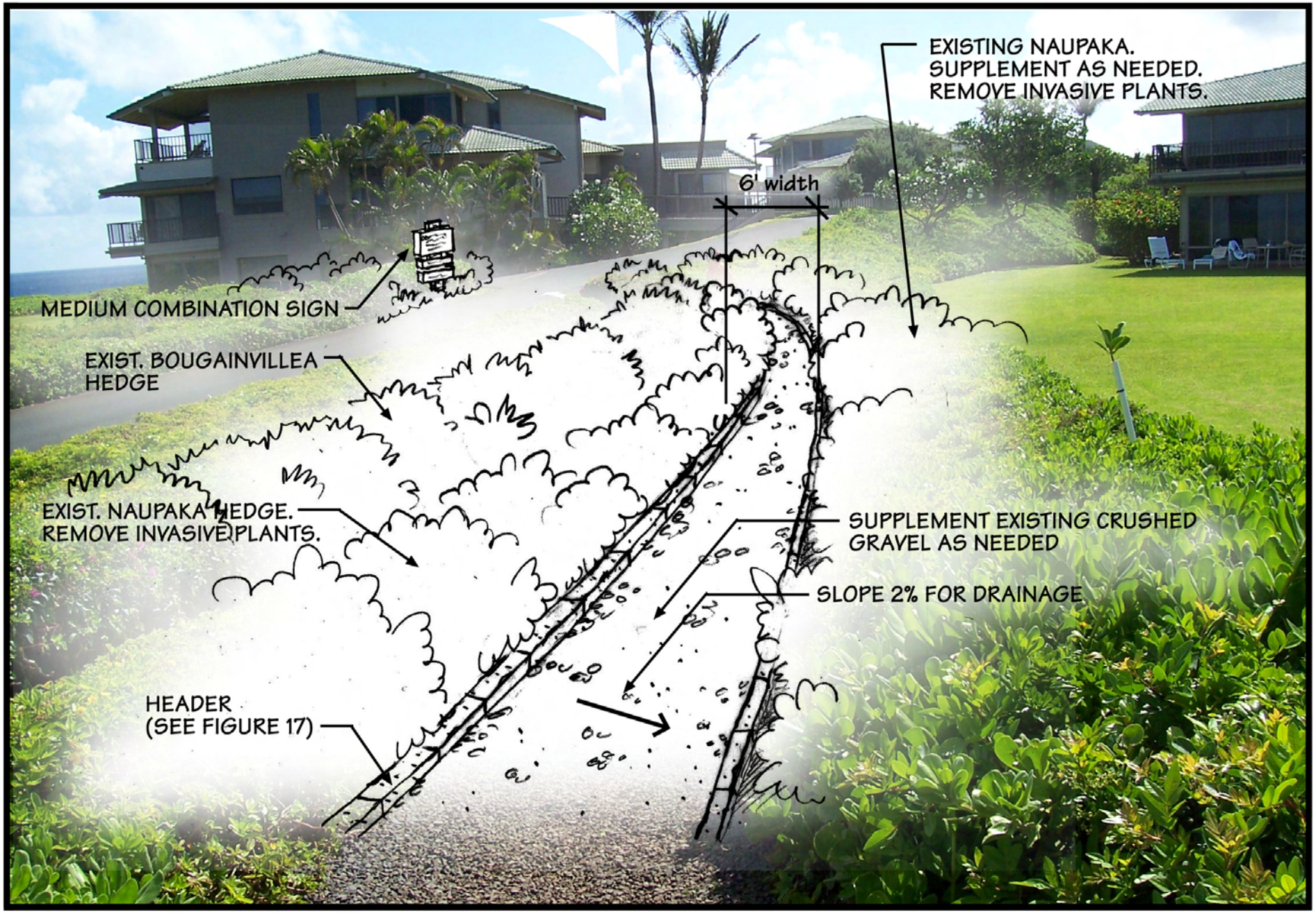

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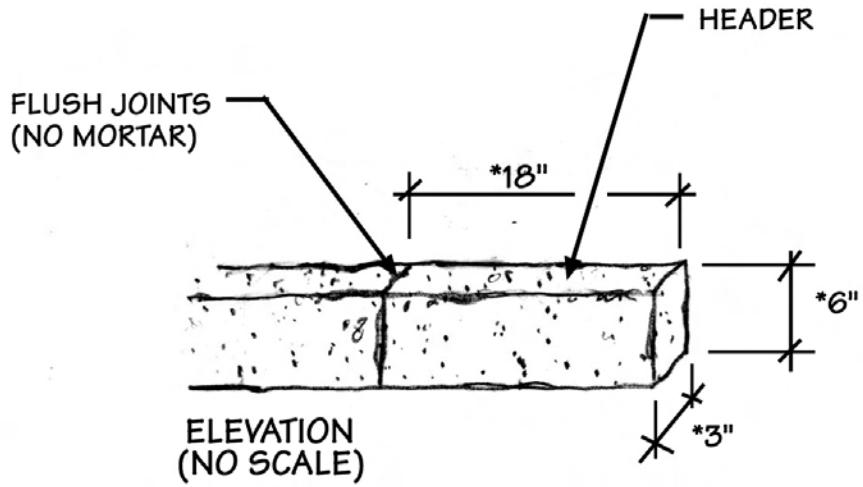
FIGURE 16
Segment 7 Crushed Gravel with Headers.

HEADER MATERIAL OPTIONS:

1. ROUGH-FORMED CONCRETE WITH DISTRESSED EDGES, DARK STAIN, AND EXPOSED AGGREGATE OF SAND, CORAL CHIPS, MOLOKA`I RED CINDERS, BASALTIC SAND, CRUSHED CONCRETE.

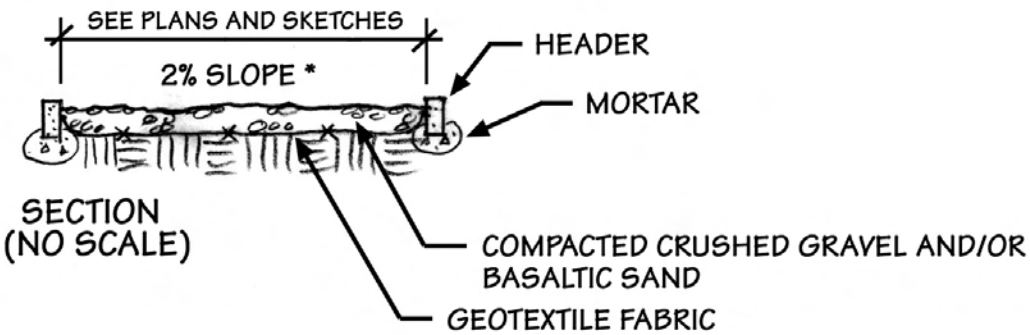
2. SAWCUT RECYCLED CONCRETE SLAB WITH DARK STAIN.

3. PRECAST CONCRETE BRICK WITH DARK STAIN.



ELEVATION
(NO SCALE)

*DIMENSIONS ARE FOR ROUGH-FORMED CONCRETE OR SAWCUT CONCRETE SLAB.



* SEE TRAIL PLAN AND OR SKETCH FOR DIRECTION OF SLOPE.

SECTION
(NO SCALE)

NOTE: PROVIDE CULVERTS AND/OR DRAINAGE SWALES AS NEEDED TO PREVENT EXCESSIVE WATER FLOW ACROSS TRAIL.

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FIGURE 17
Crushed Gravel with Headers Trail Detail.

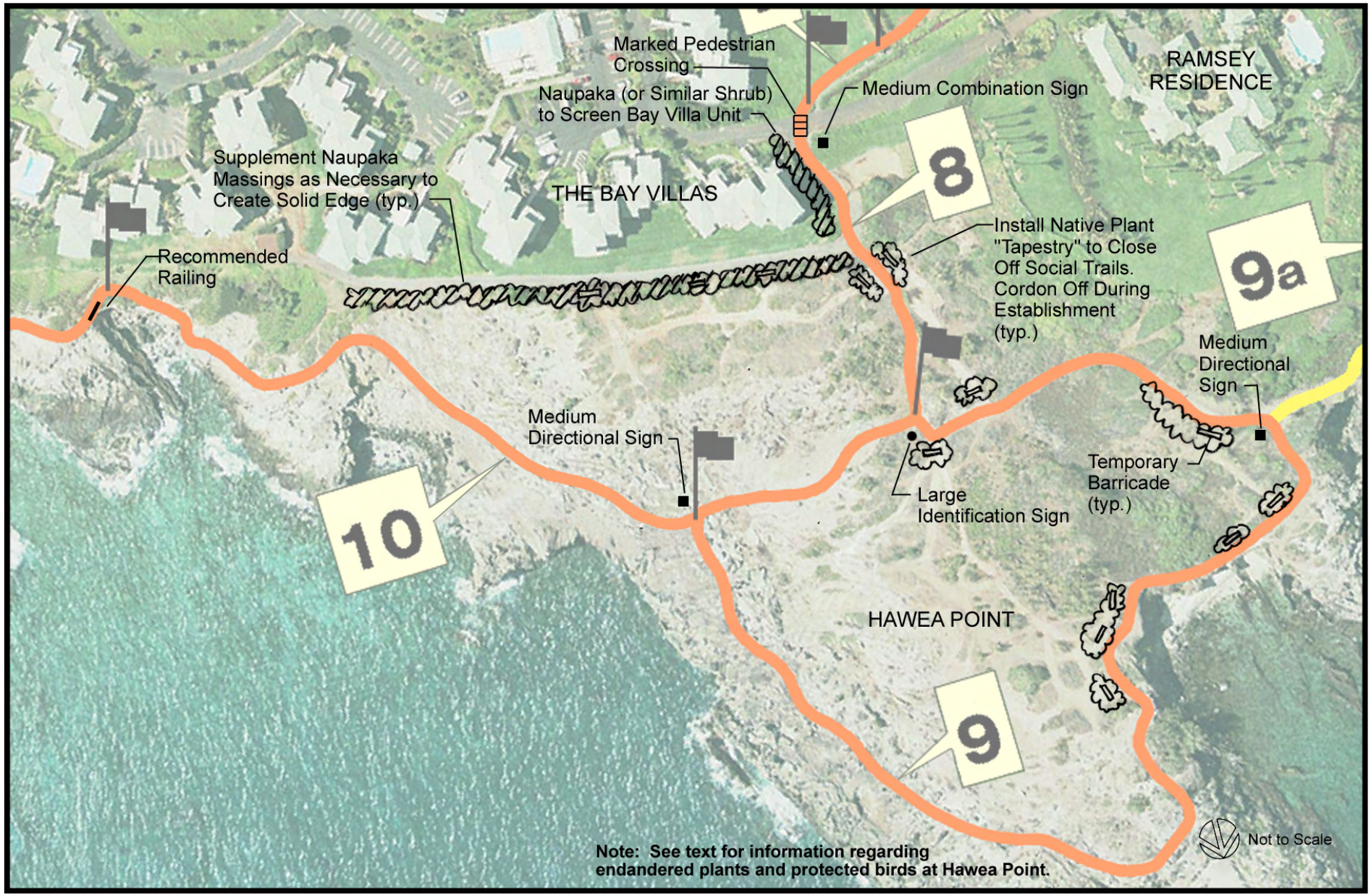

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FIGURE 18
Segments 8 through 11 Plan Enlargement.

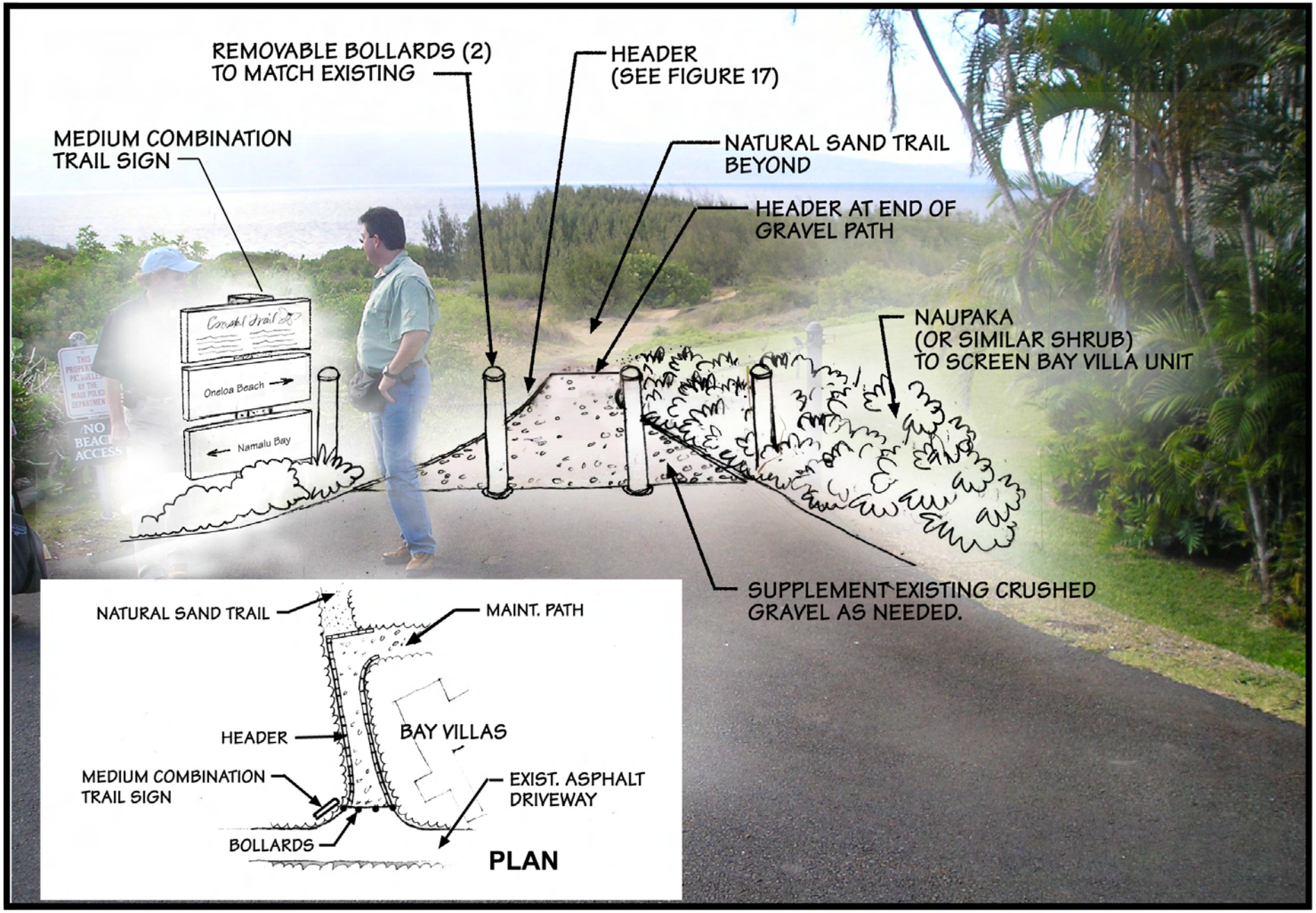

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FIGURE 19
Segment 8 Action Items.

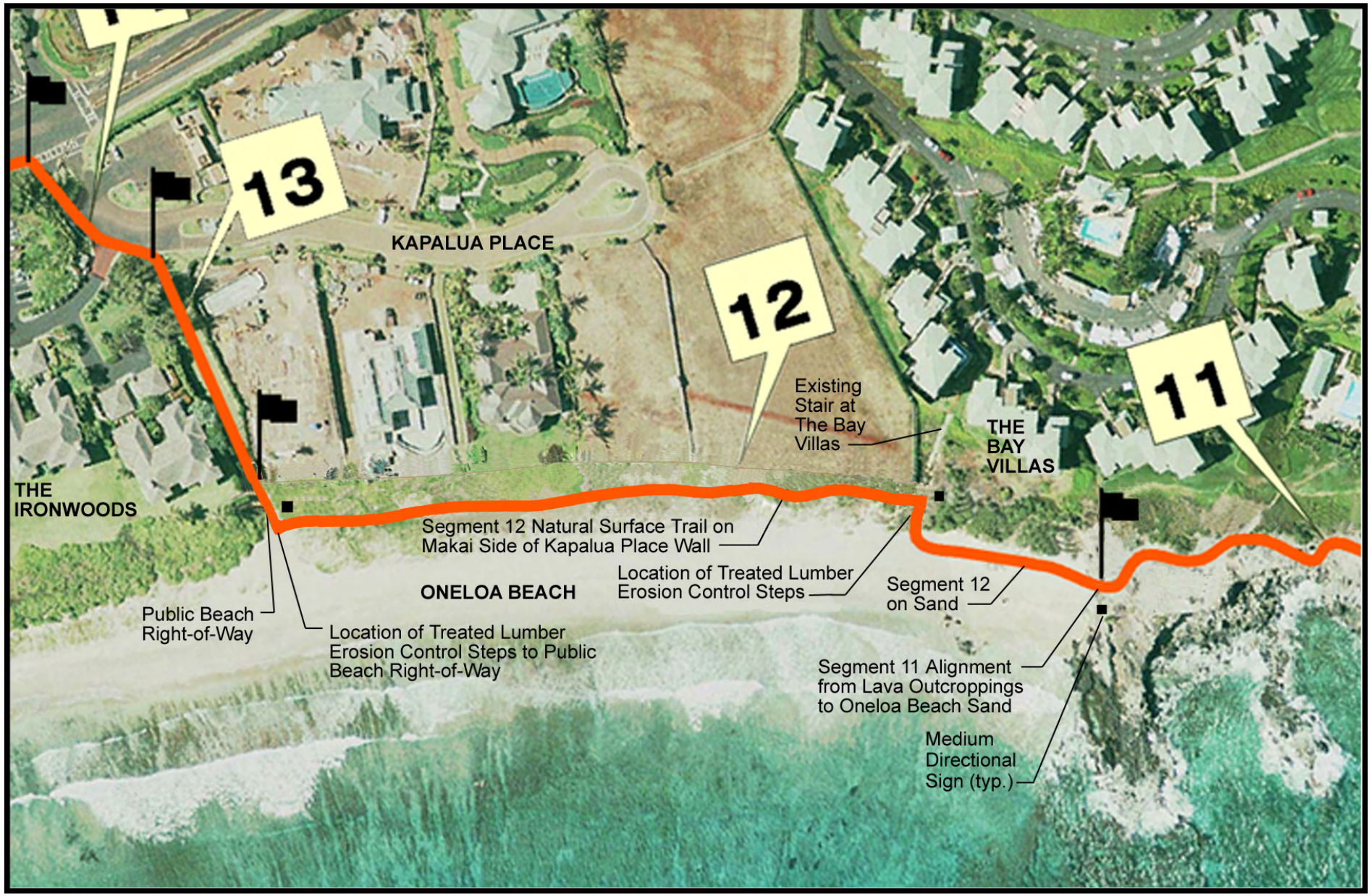

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FIGURE 20
Segments 11 and 12 Plan Enlargement.

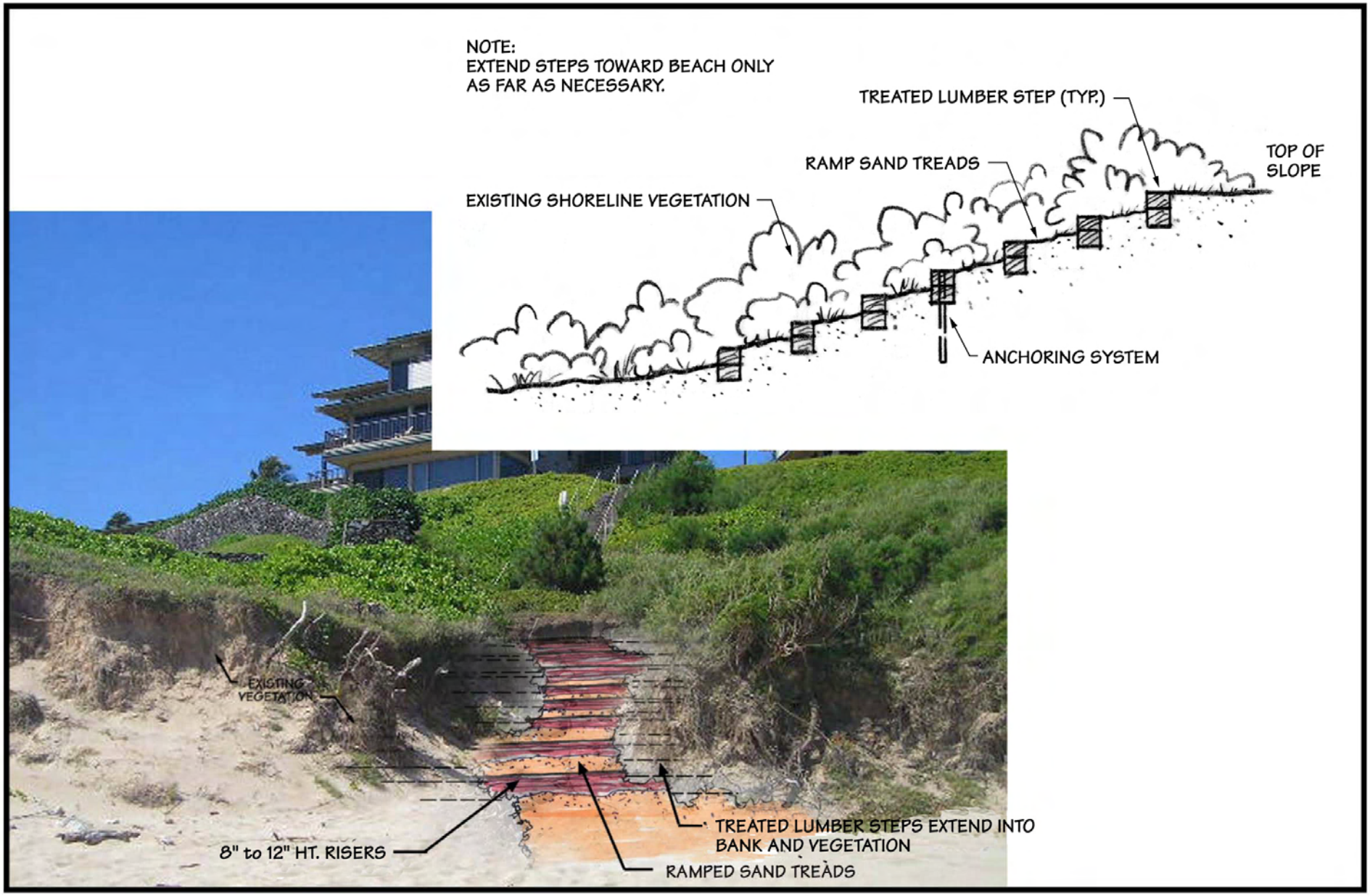

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FIGURE 21
Segment 12 Treated Lumber Erosion Control Steps.

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FIGURE 22
Segment 12, West Portion.

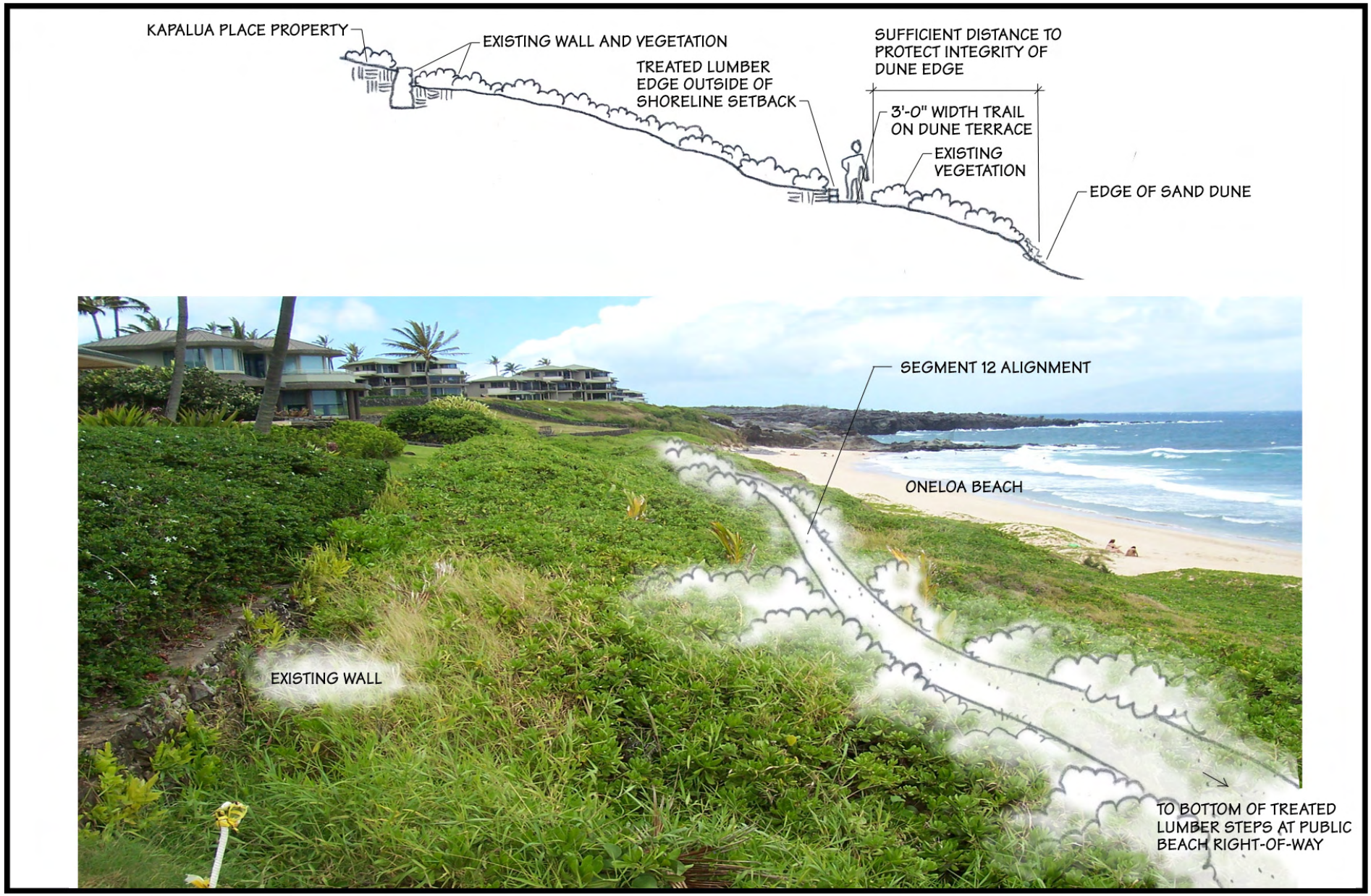

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FIGURE 23
Segment 12, East Portion.

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FIGURE 24
Treated Lumber Erosion Control Steps Below Step 13.

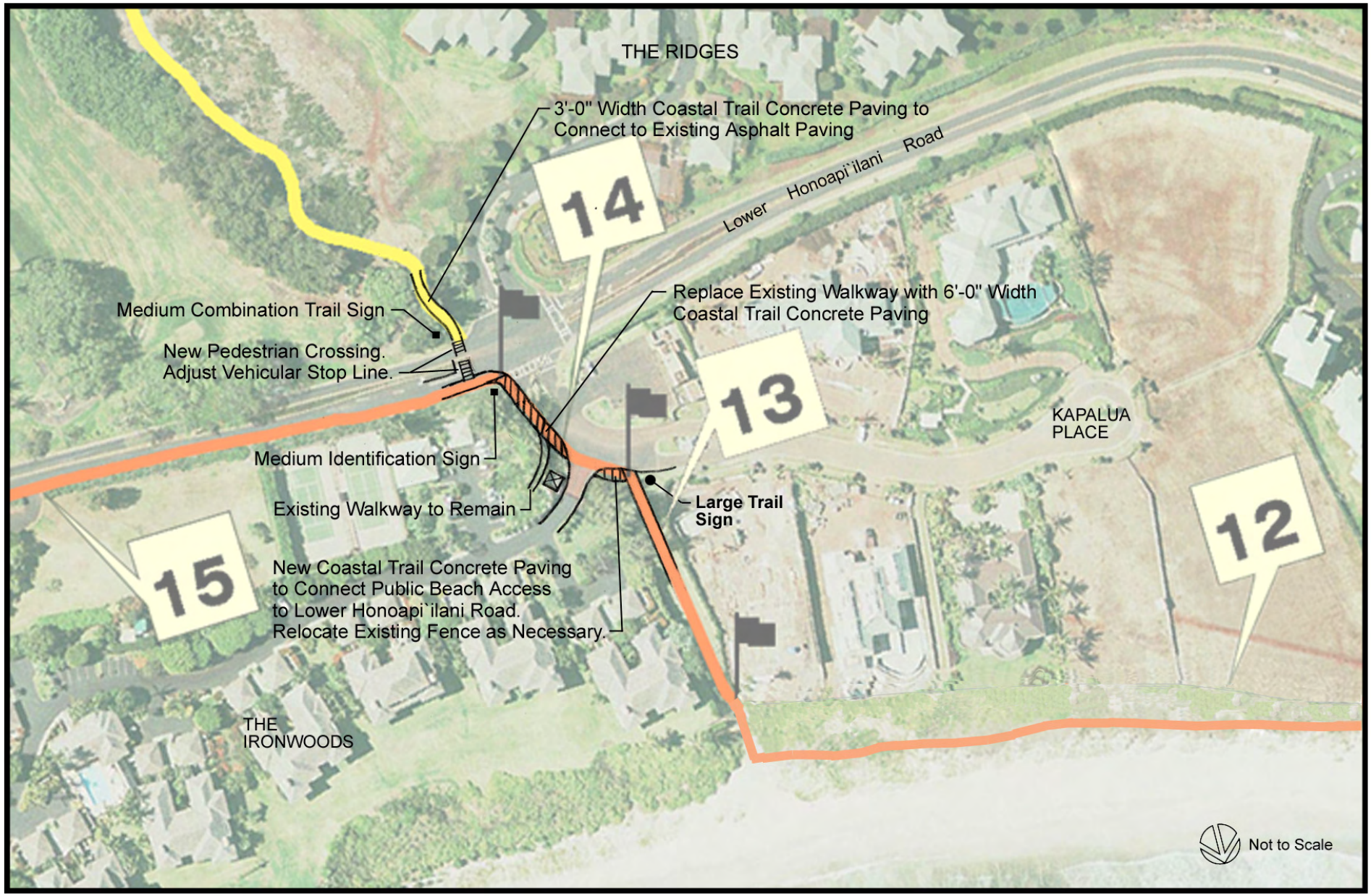

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FIGURE 25
Segment 14 and Spur 15a Plan Enlargement.

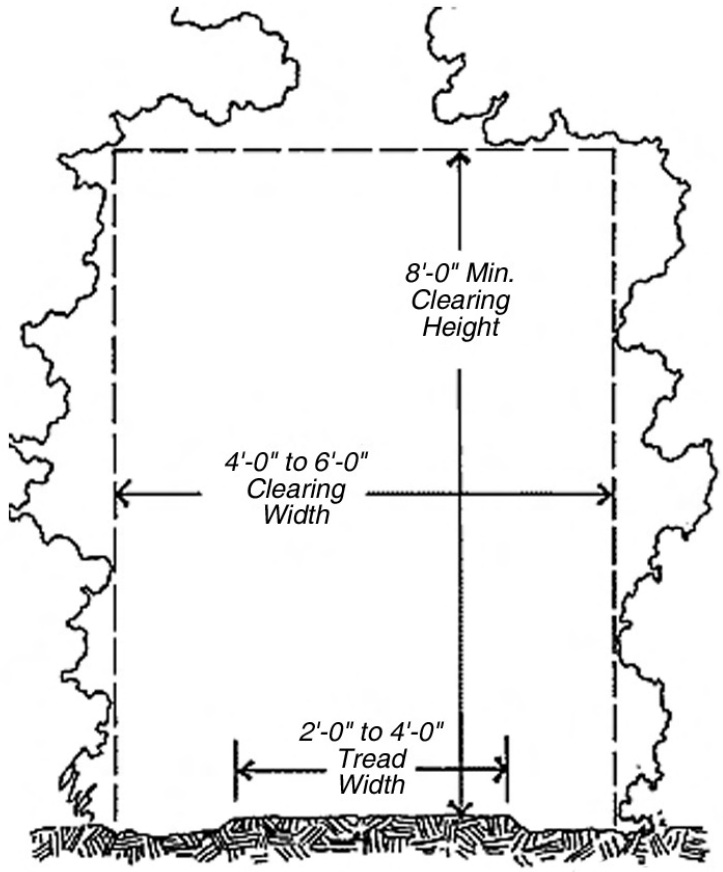

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FIGURE 26
Trail Corridor Detail for Spur 15a and Other Trail Segments in Wooded Areas.

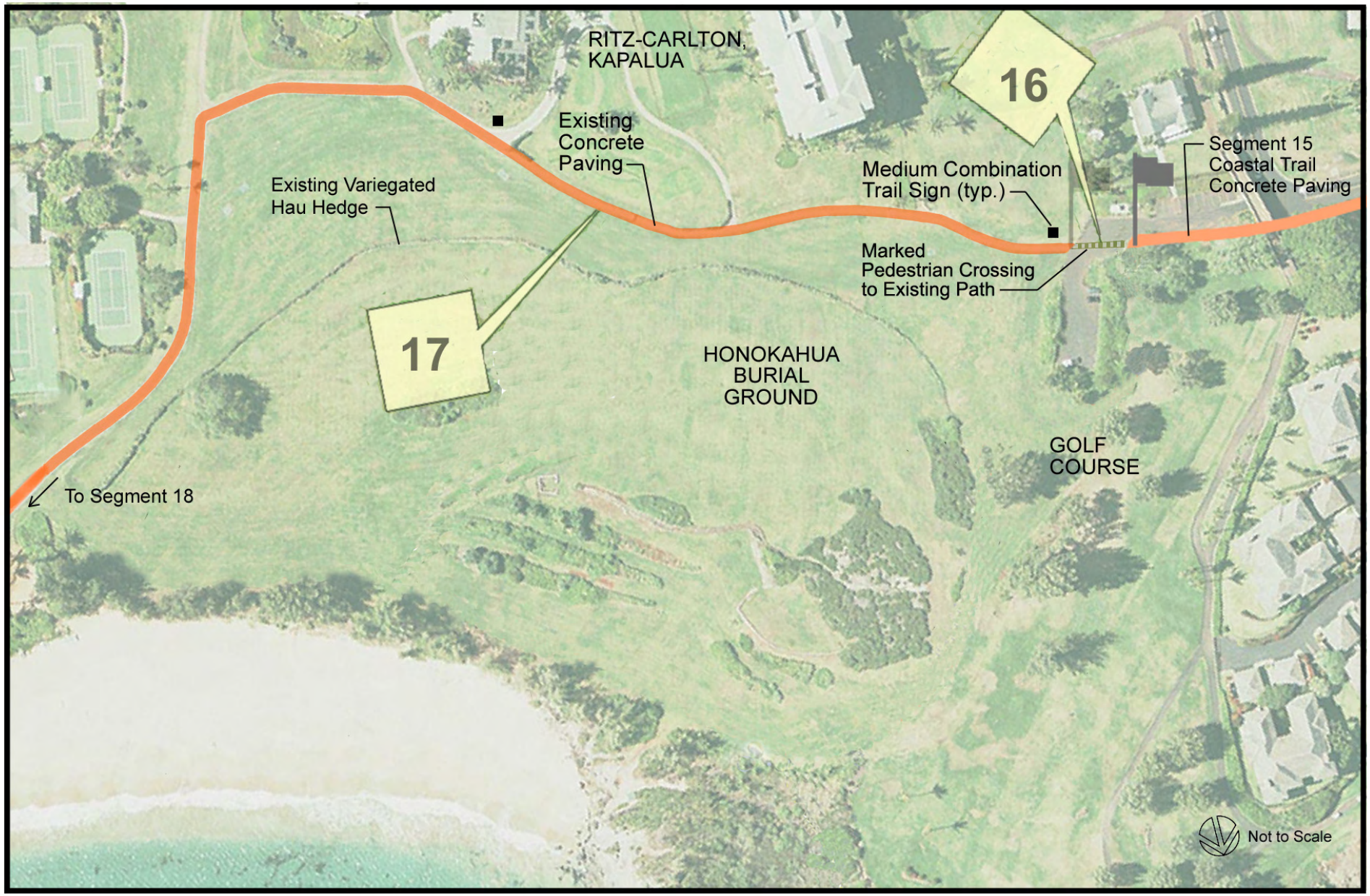

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FIGURE 27
Segments15, 16, and 17 Plan Enlargement.

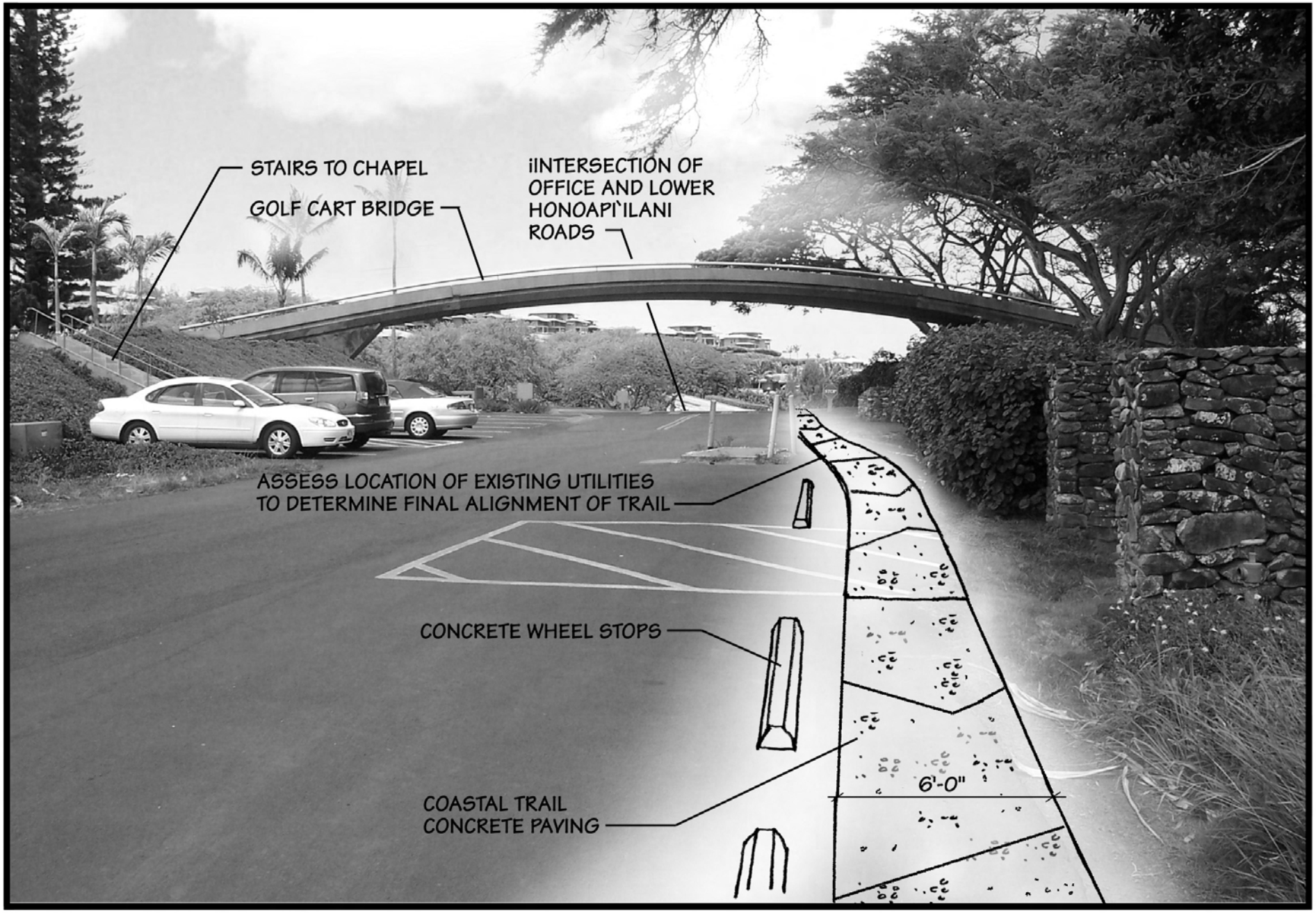

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FIGURE 28
Segment 15 Beyond Intersection of Office and Lower Honoapi`ilani Roads.

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FIGURE 29
Segment 16 Marked Pedestrian Crossing.

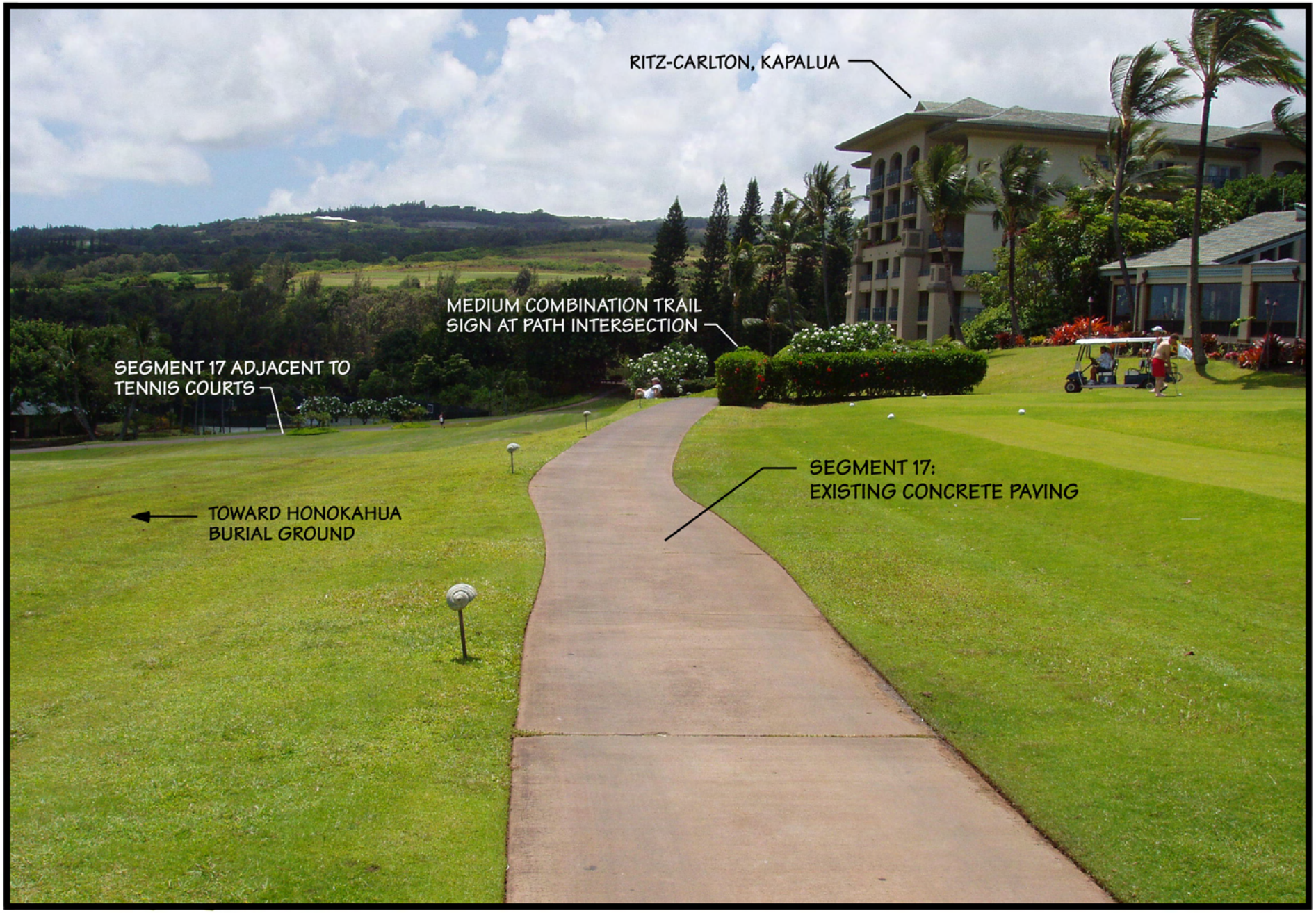

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FIGURE 30
Segment 17 Mauka of Honokahua Burial Ground.

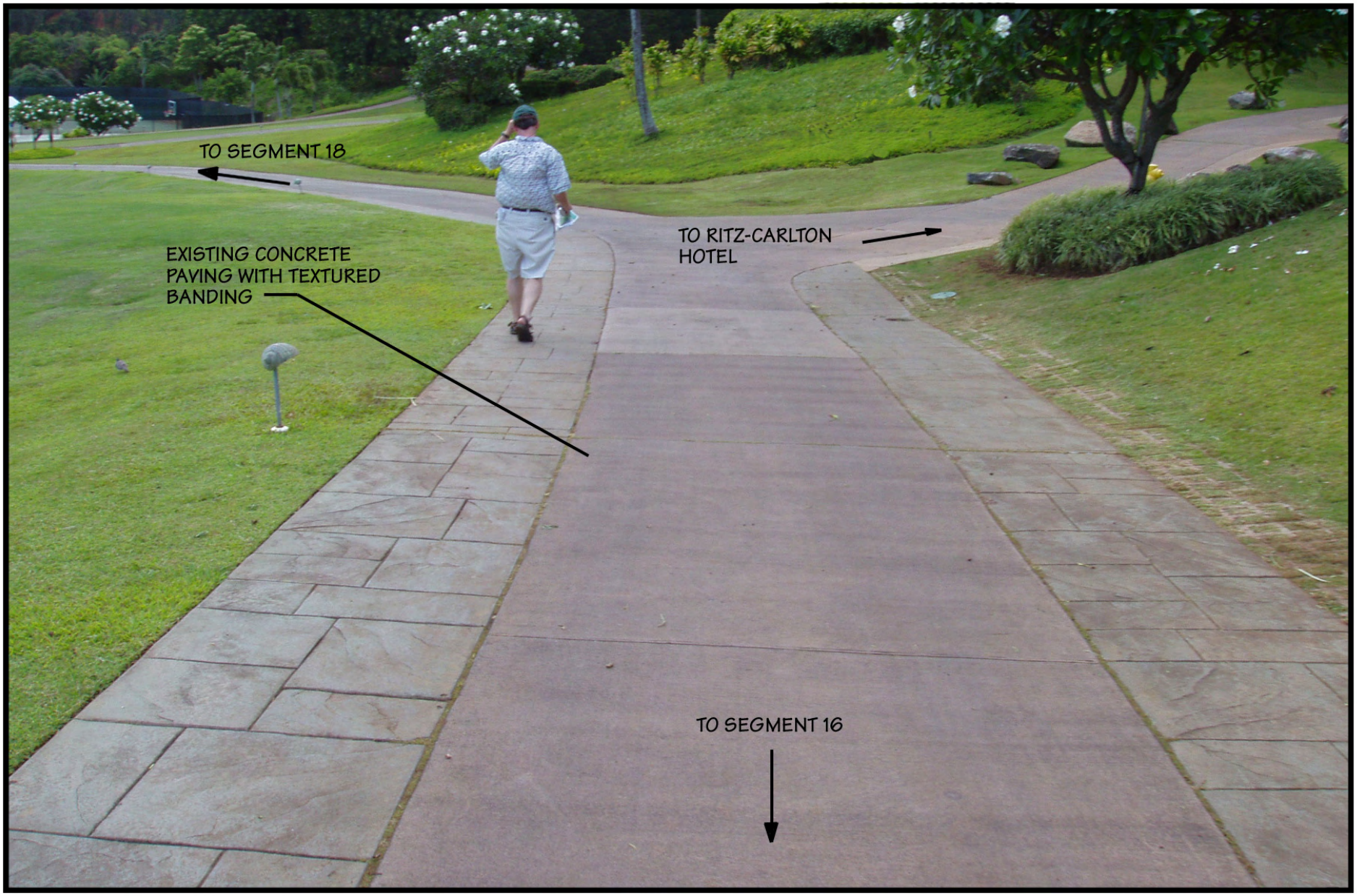

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FIGURE 31
Segment 17 Existing Concrete Paving with Textured Banding.

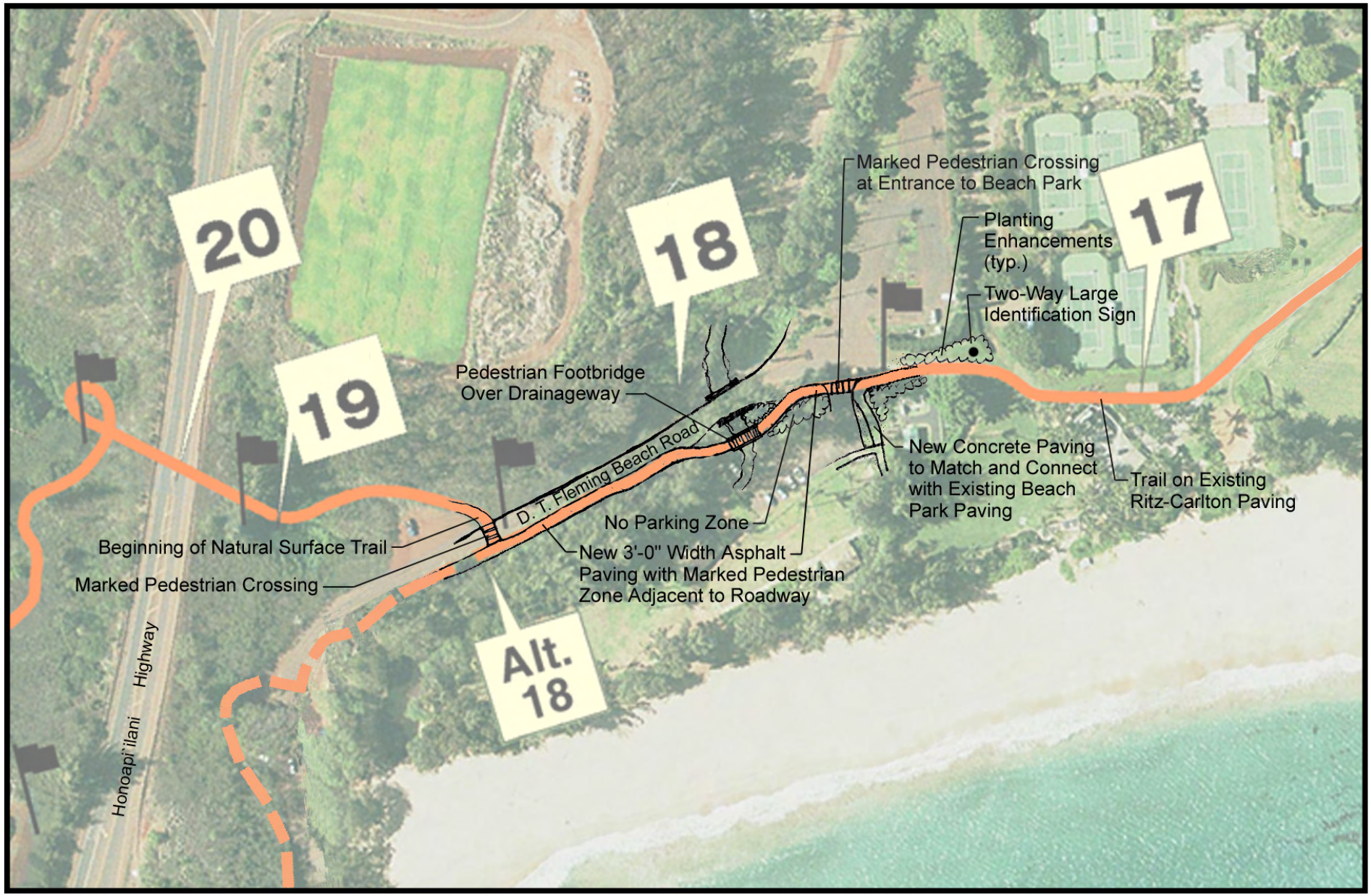

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FIGURE 32
Segments 17 and 18 Plan Enlargement.

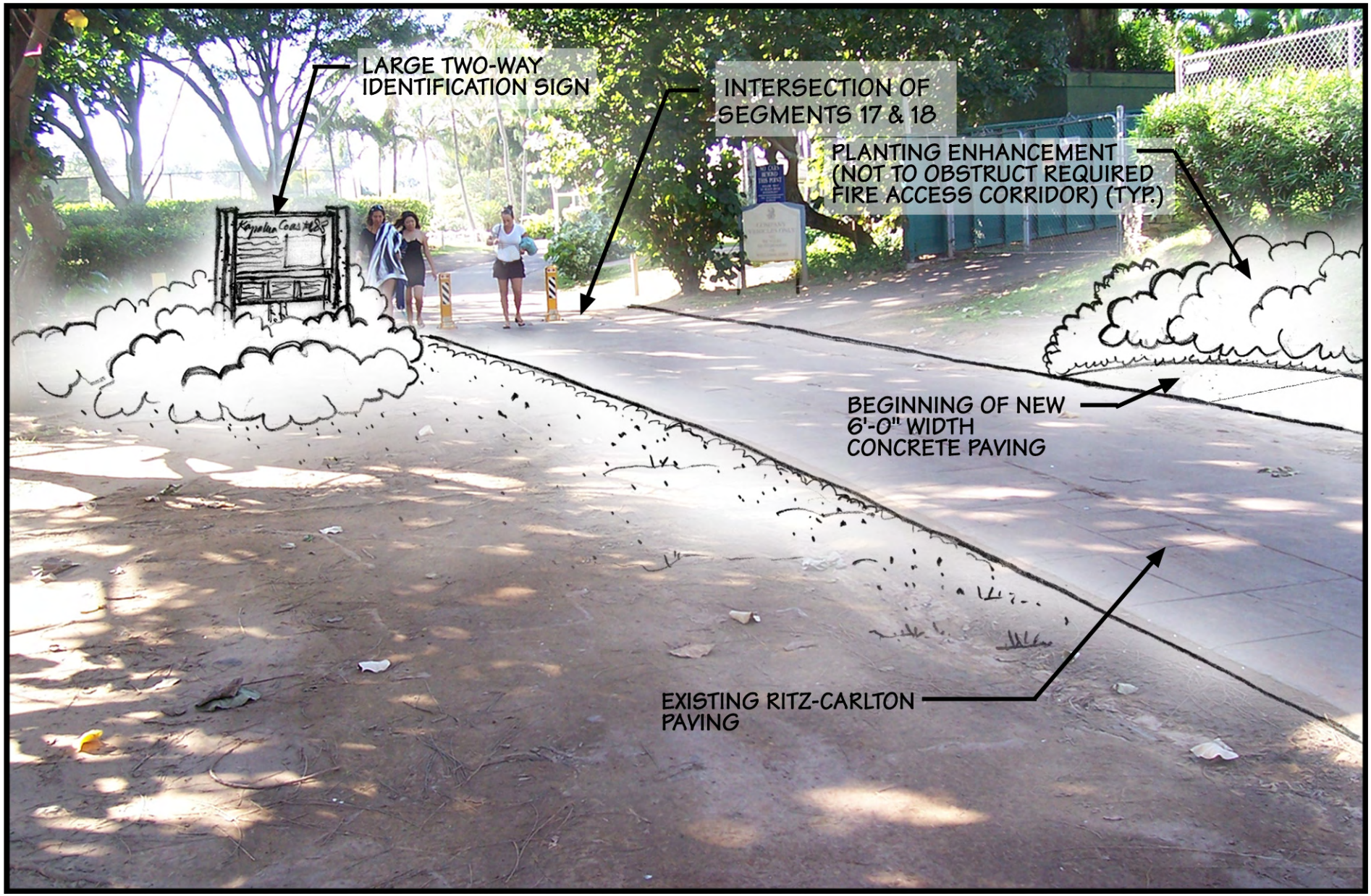

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FIGURE 33
Segments 17 and 18 Intersection.

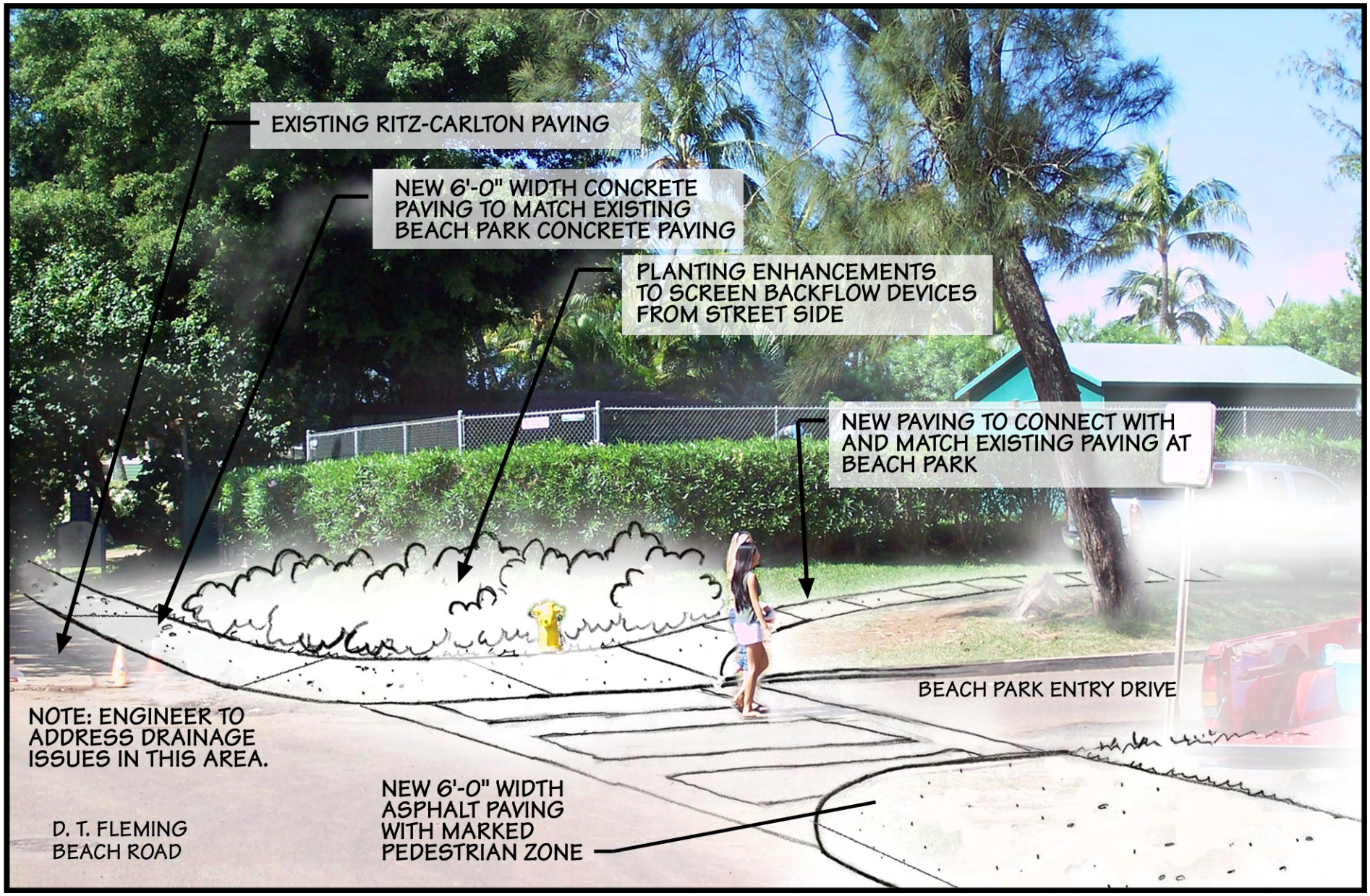

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FIGURE 34
Segment 18 at Beach Park Entry.

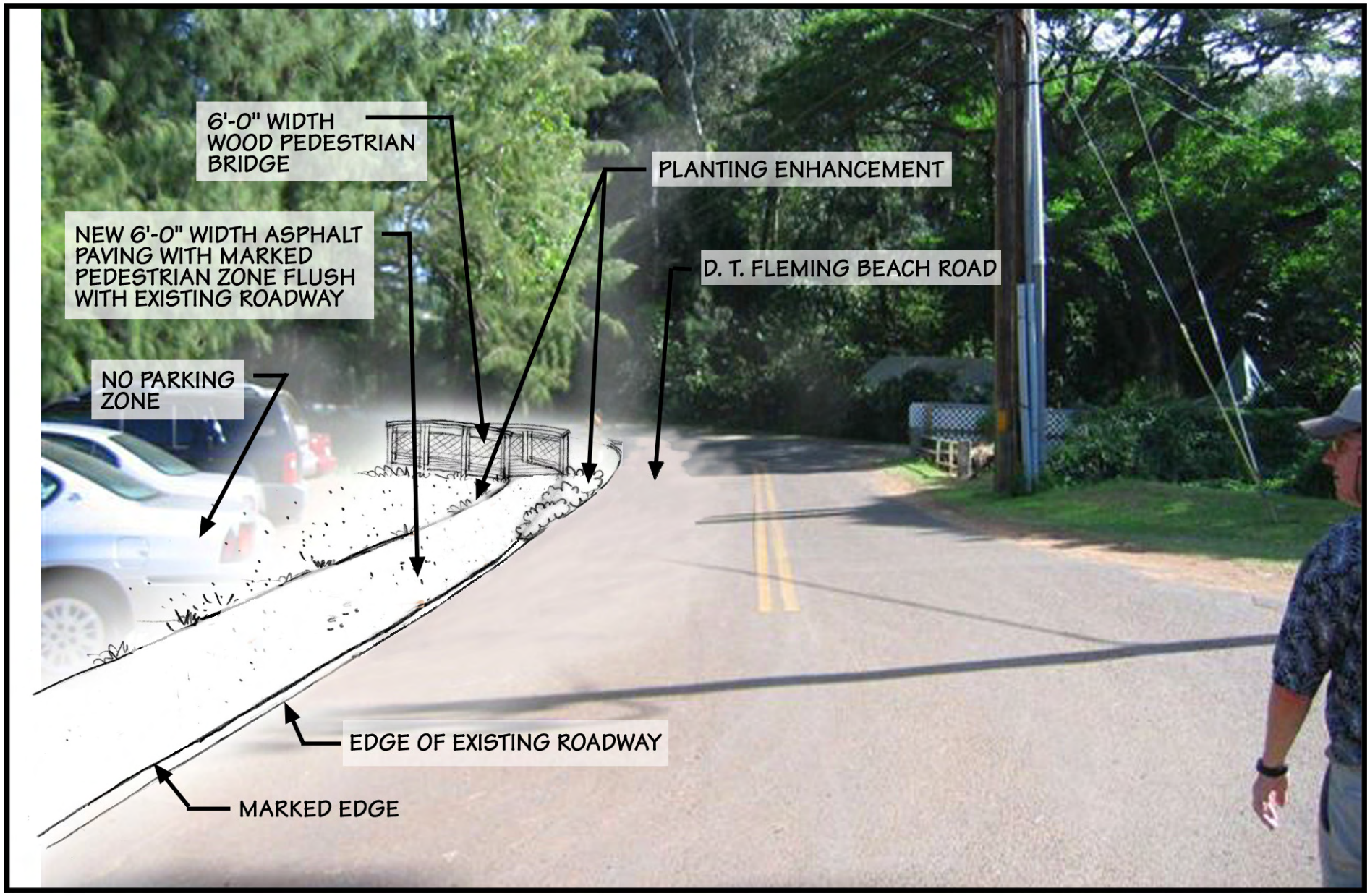

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FIGURE 35
Segment 18 Along D. T. Fleming Beach Road.

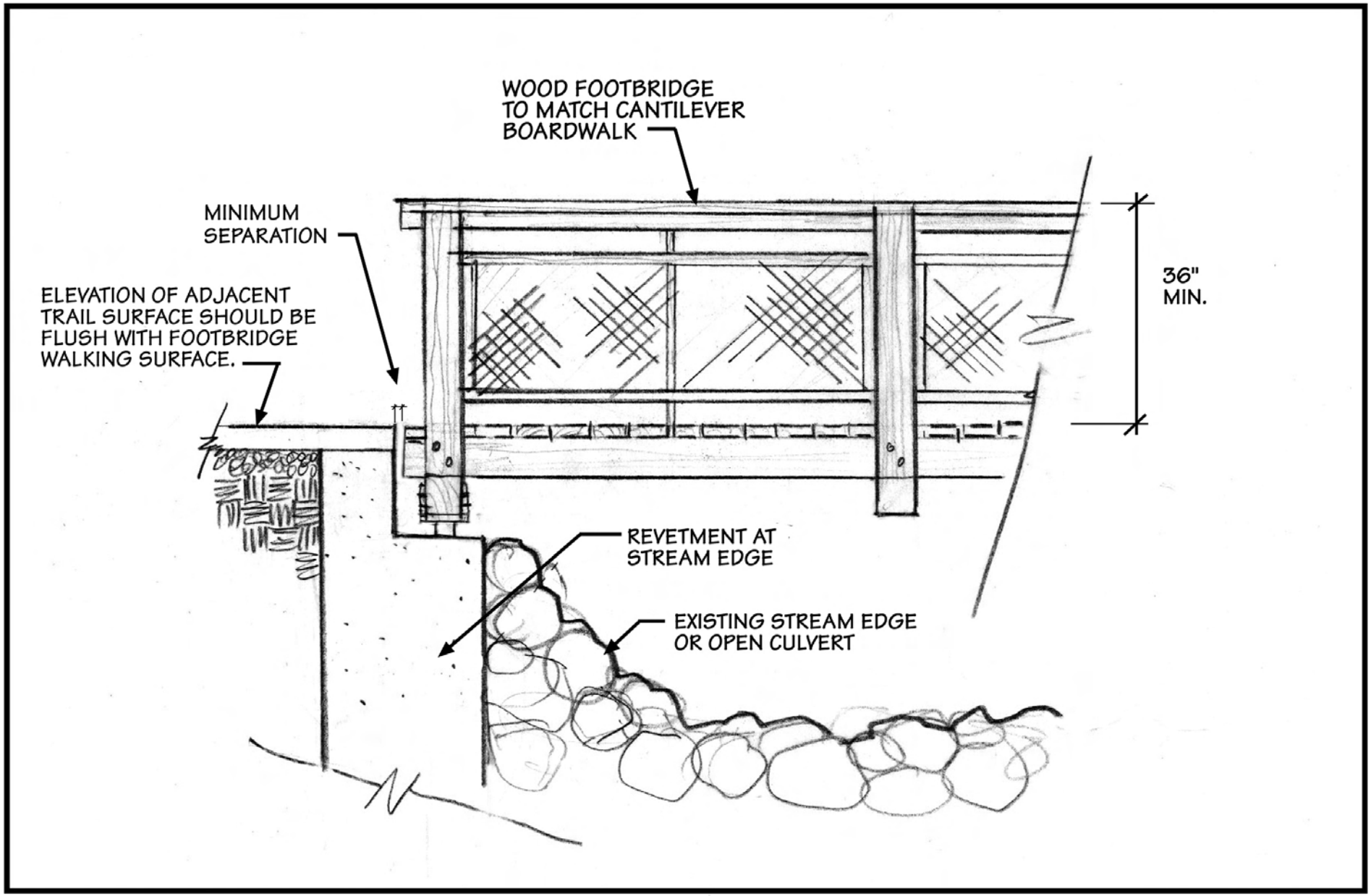

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FIGURE 36
Footbridge Detail.

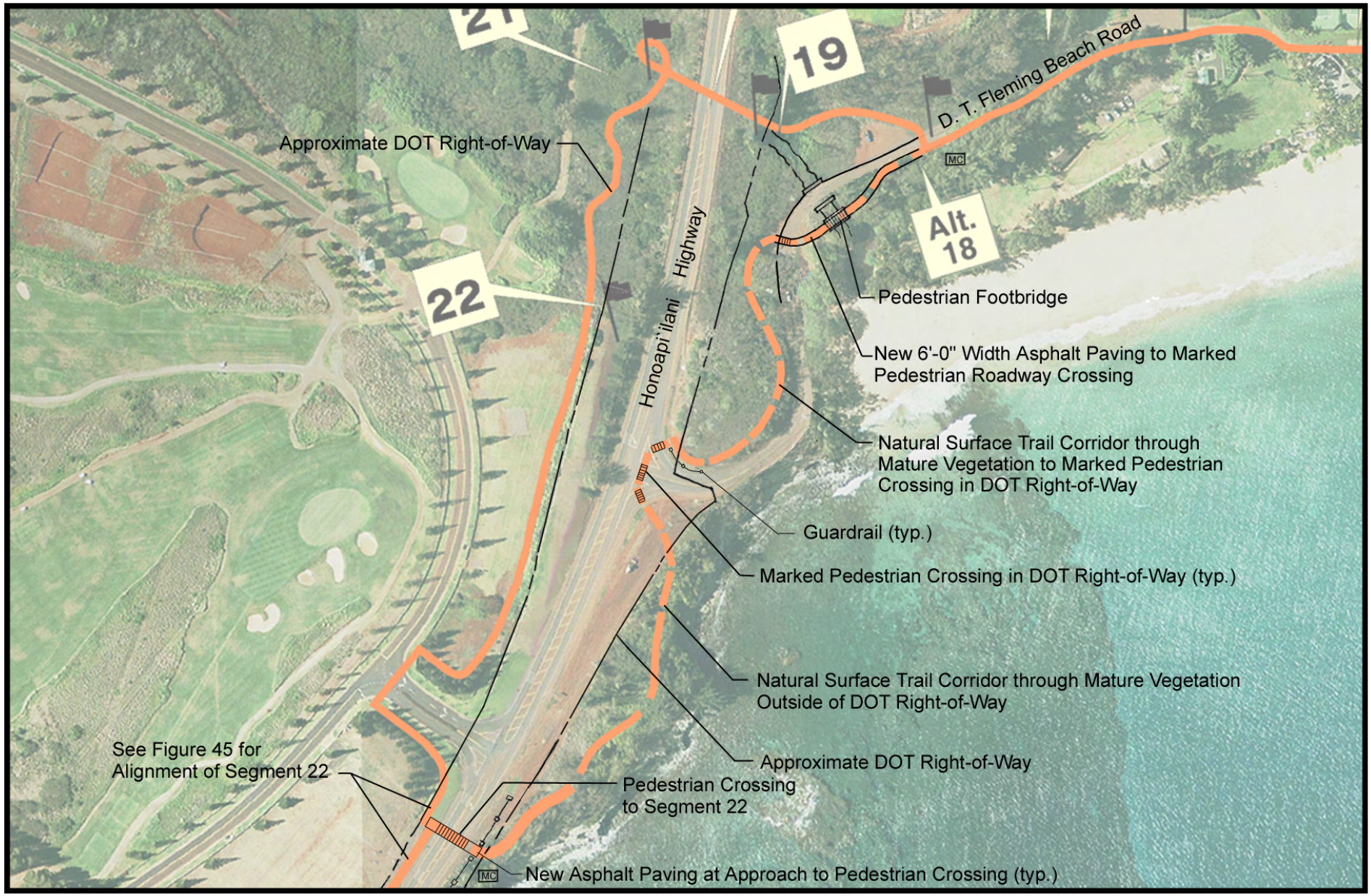

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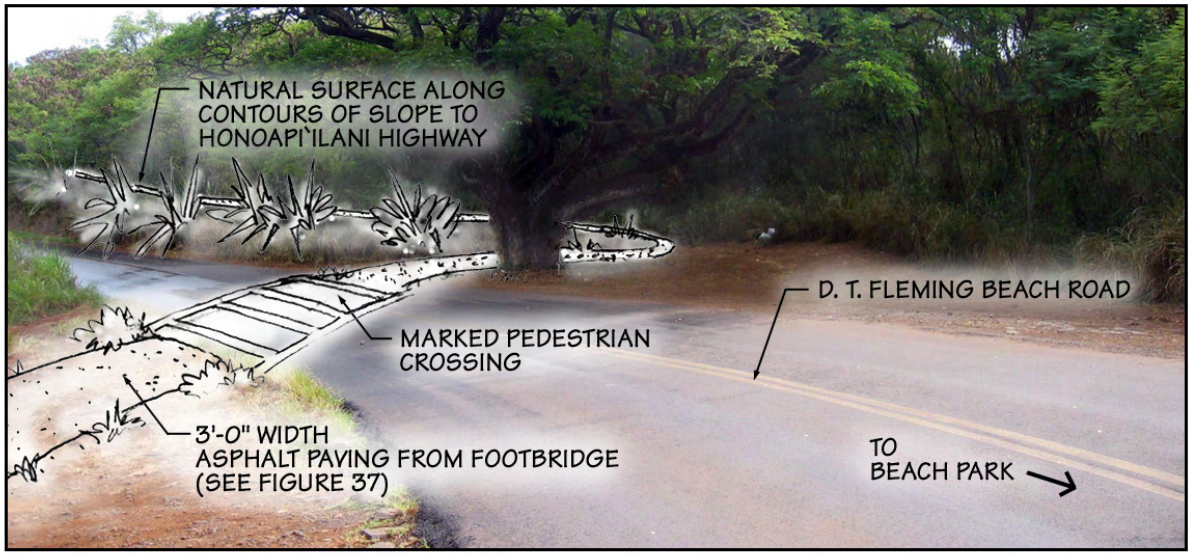
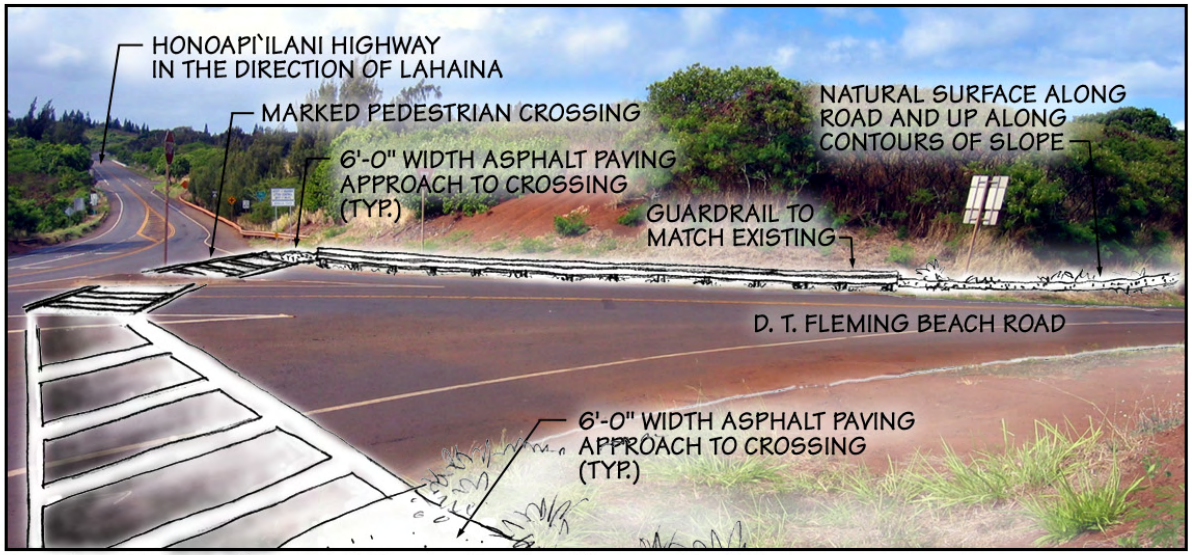
FIGURE 37
Segment Alternate 18 Plan Enlargement.



Crossing of D. T. Fleming Beach Road.



Crossing at Intersection of D. T. Fleming Road and Honoapi`ilani Highway.

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FIGURE 38
Illustrative Sketches of Segment Alternate 18.

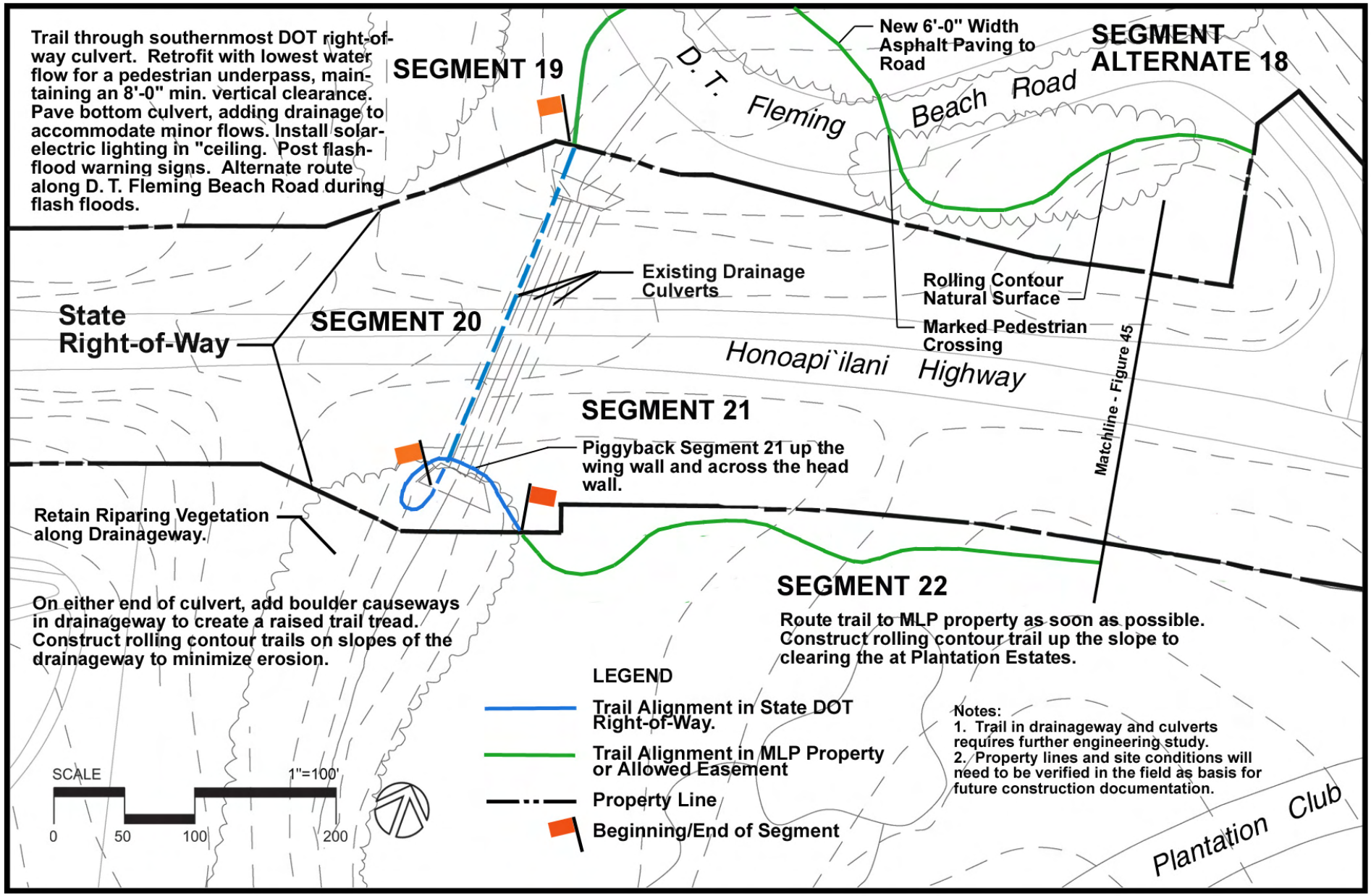

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FIGURE 39
Segments 19 through 22 Plan Enlargement.

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FIGURE 40
Segment 19 Leading to Makai Side of DOT Right-of-Way Culverts.

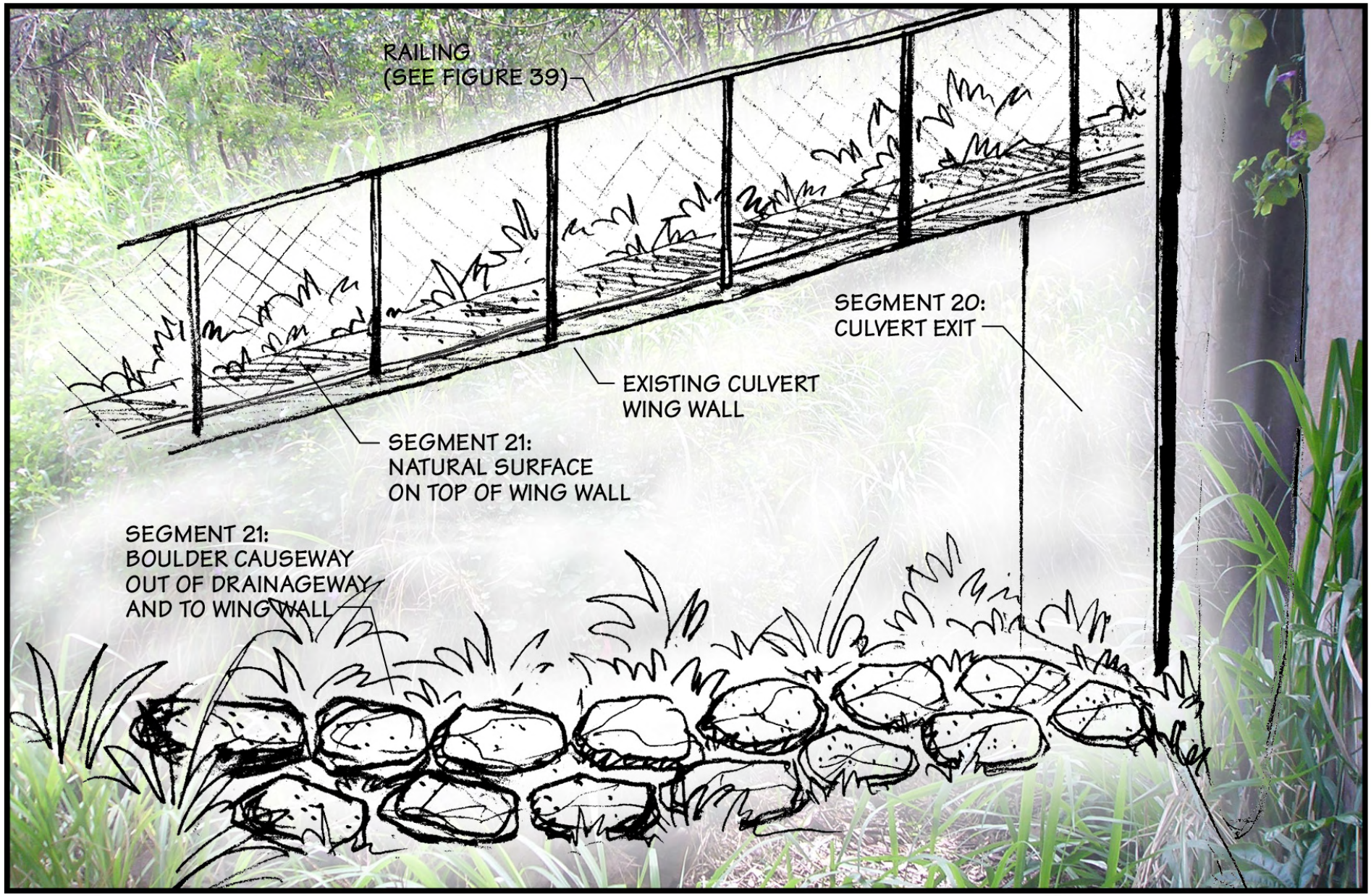

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FIGURE 41

Segment 21 at Mauka Side of DOT Right-of-Way Culverts.

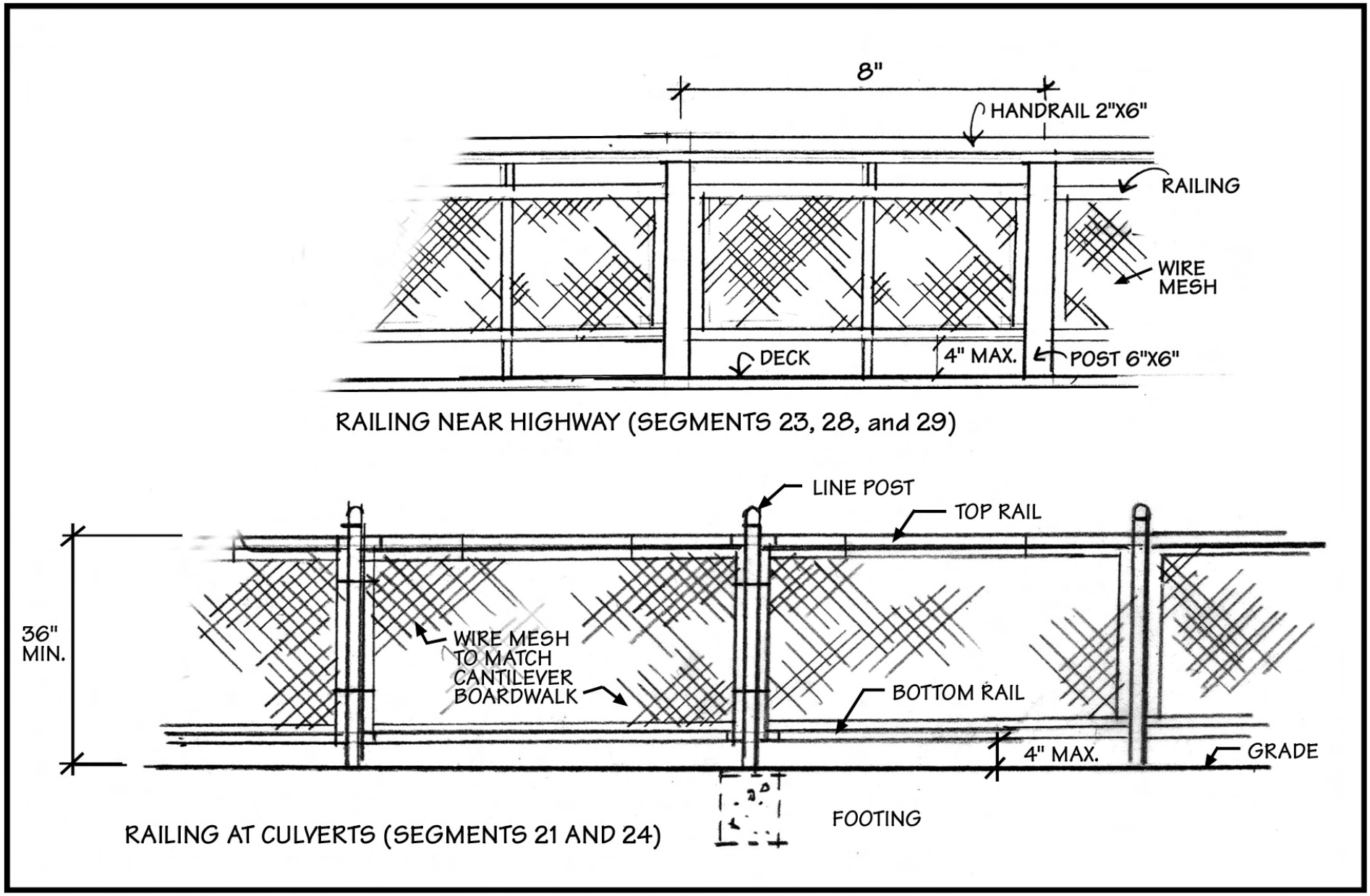

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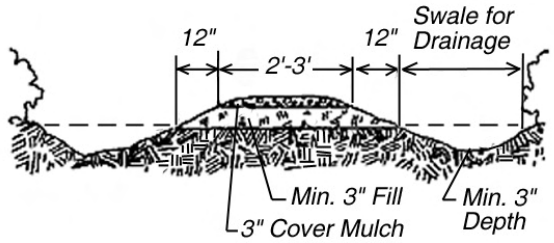
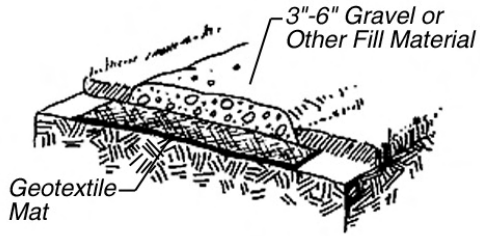
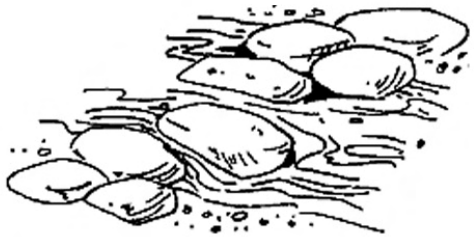
FIGURE 42
Railing at Steep Dropoff Detail.



Center Crowning



Elevated Tread with Geotextile Mat



Boulder Causeway

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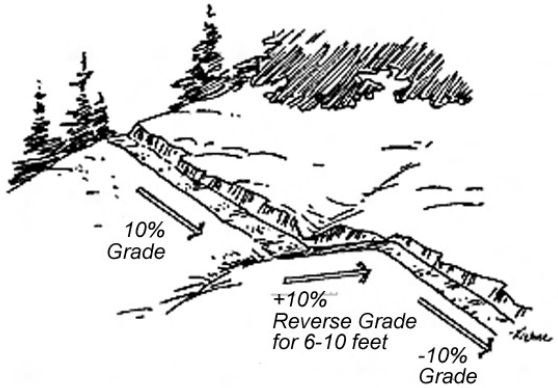
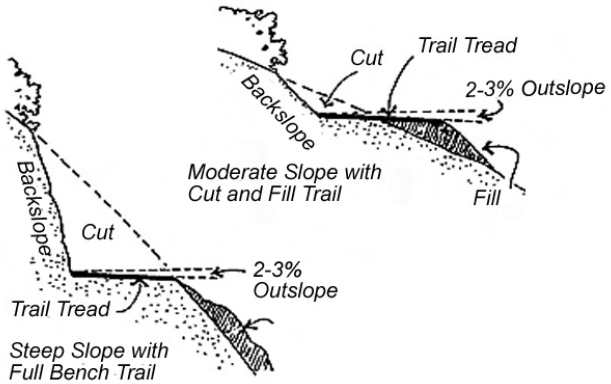
FIGURE 43
Natural Trail Raised Tread Details.



Grade Dip Channels to Keep Water from Accumulating on Trail



Trail Construction on Slopes

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FIGURE 44
Natural Trail Grading and Drainage Details.

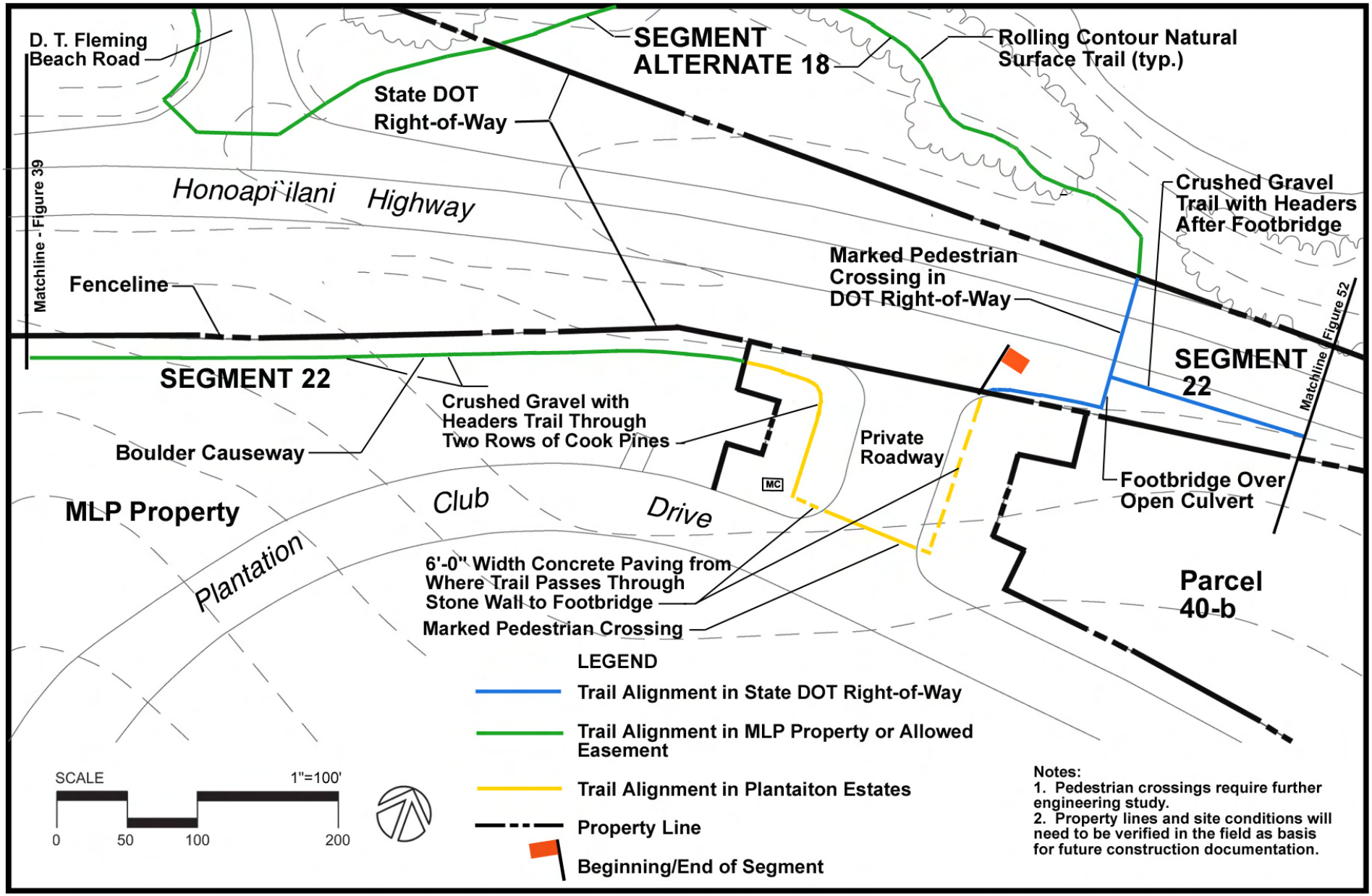

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FIGURE 45
Segment 22 with Honoapi`ilani Highway Crossing Plan Enlargement.

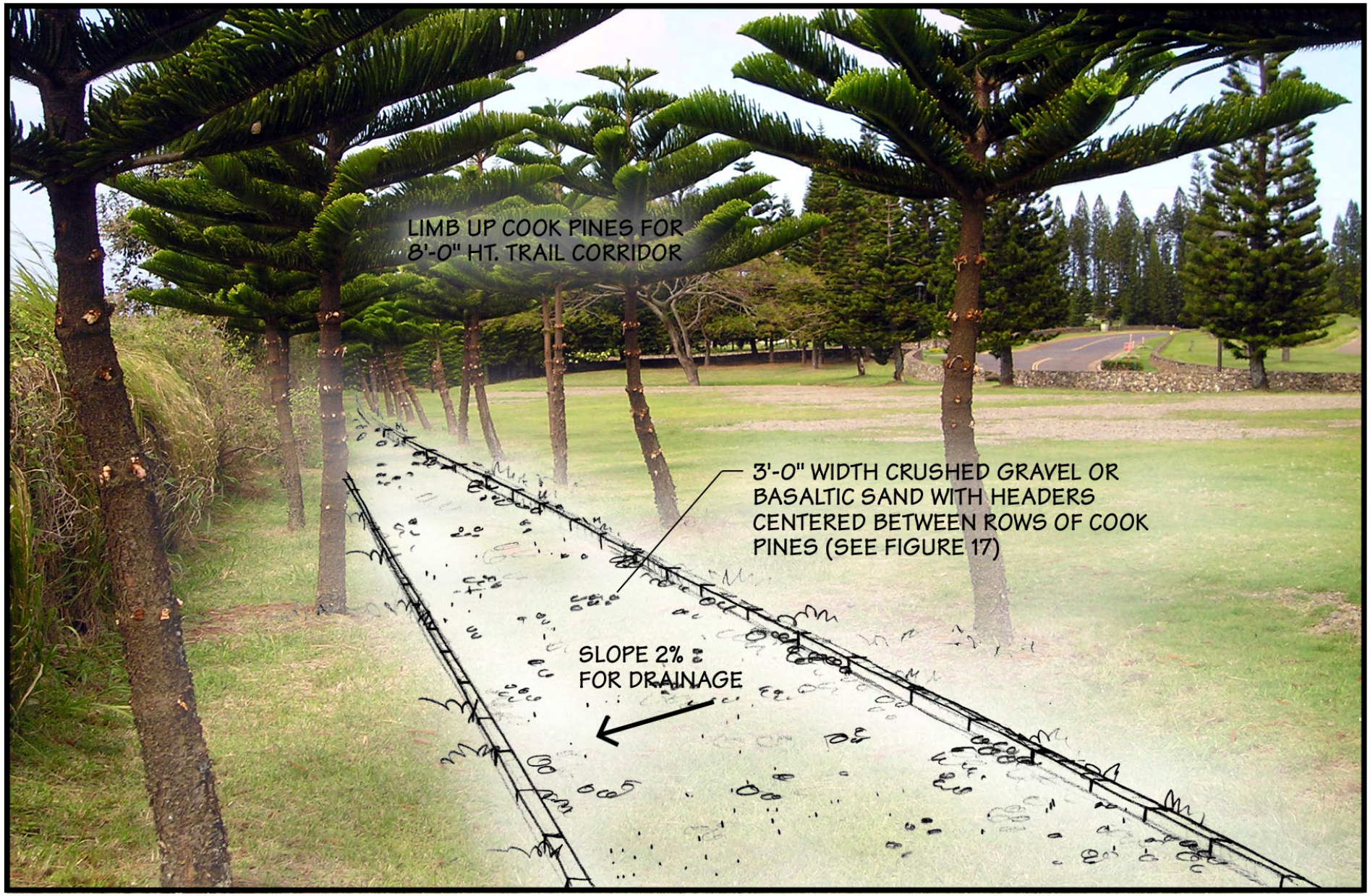

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FIGURE 46

Segment 22 Between Rows of Cook Pines Fronting Plantation Estates.

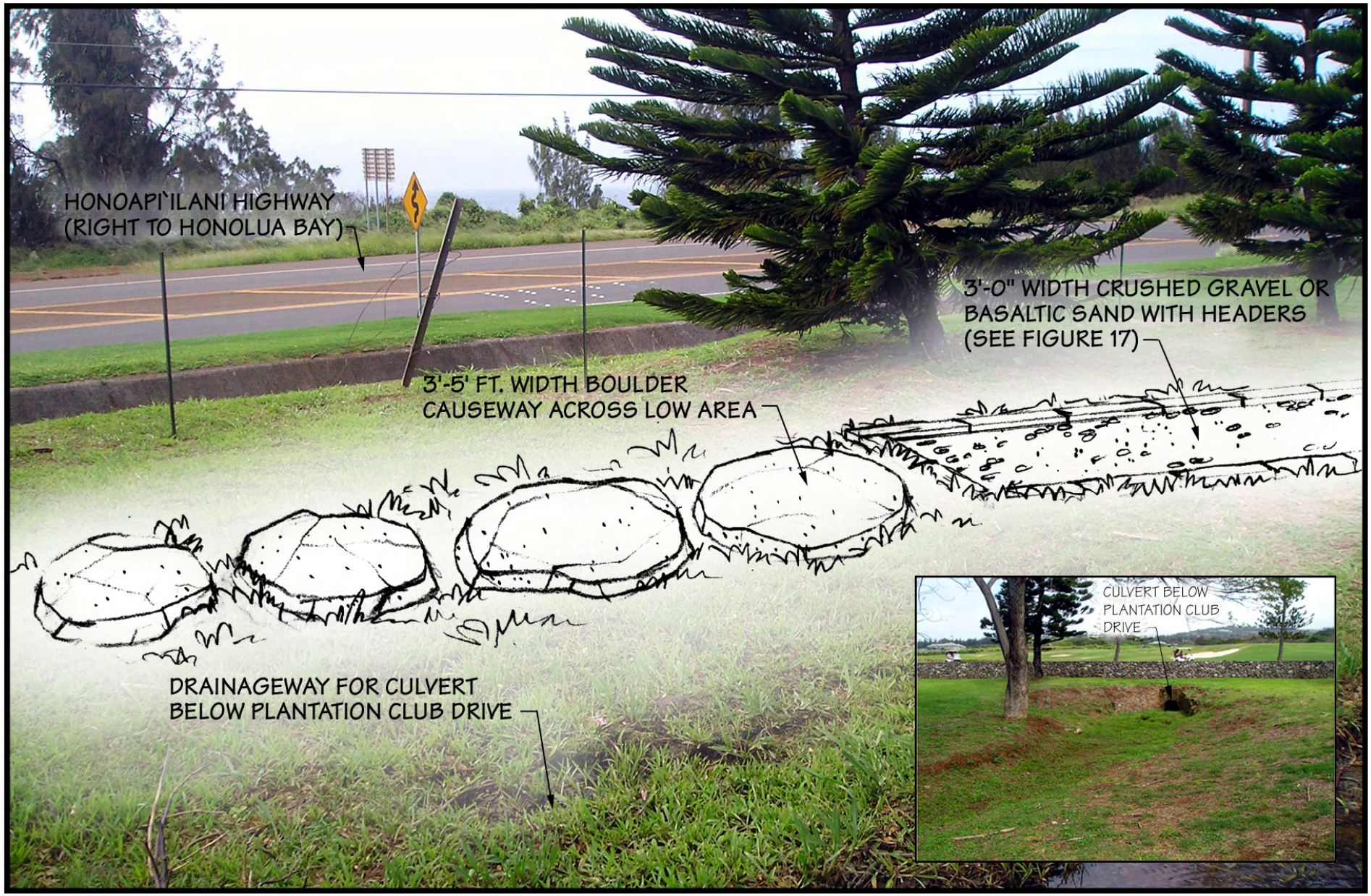

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FIGURE 47
Segment 22 Boulder Causeway at Drainageway.

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FIGURE 48

Segment 22 Between Rows of Cook Pines Near Plantation Estates Entry.

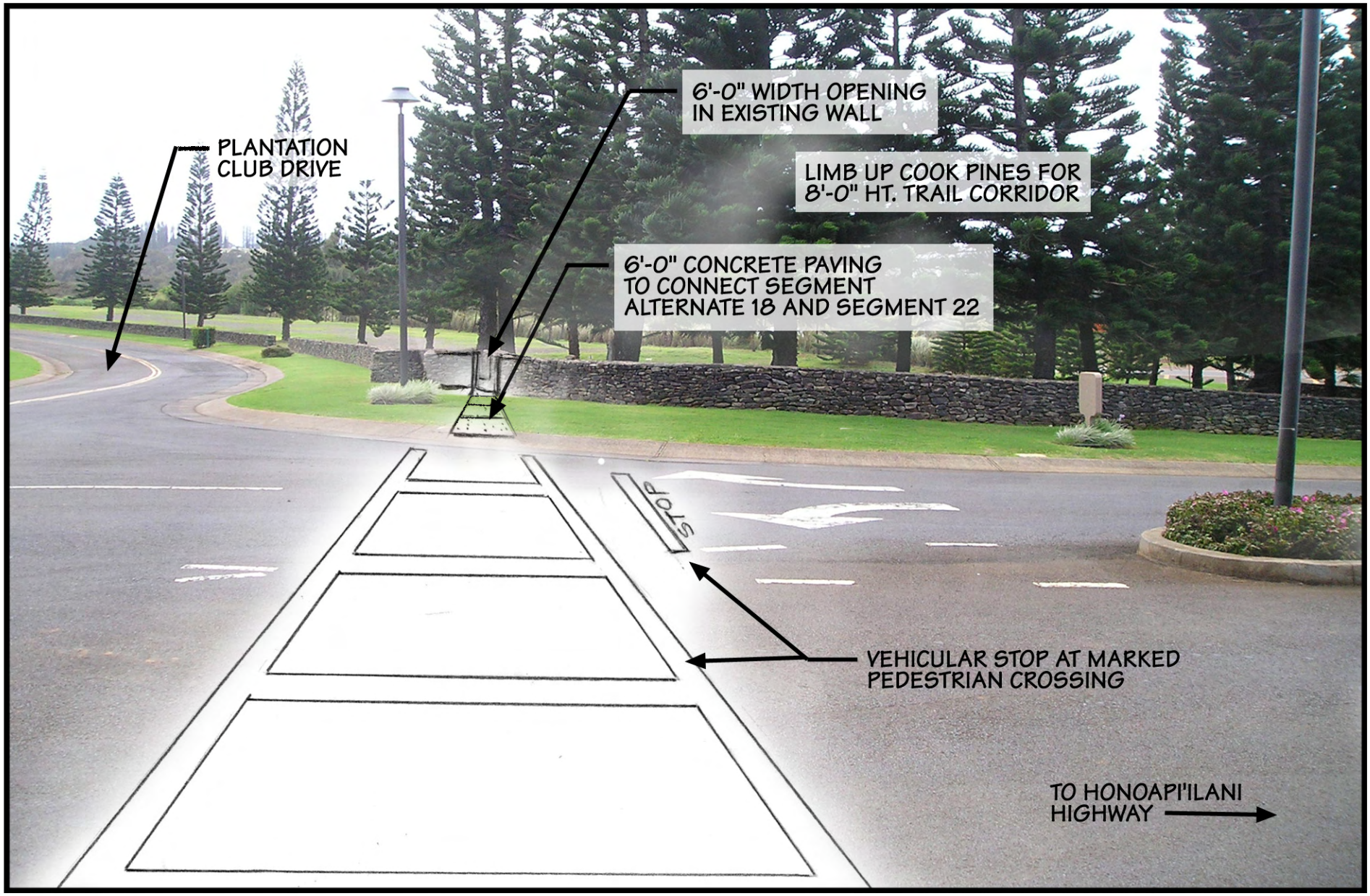

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FIGURE 49
Segment 22 Marked Pedestrian Crossing at Plantation Club Drive.

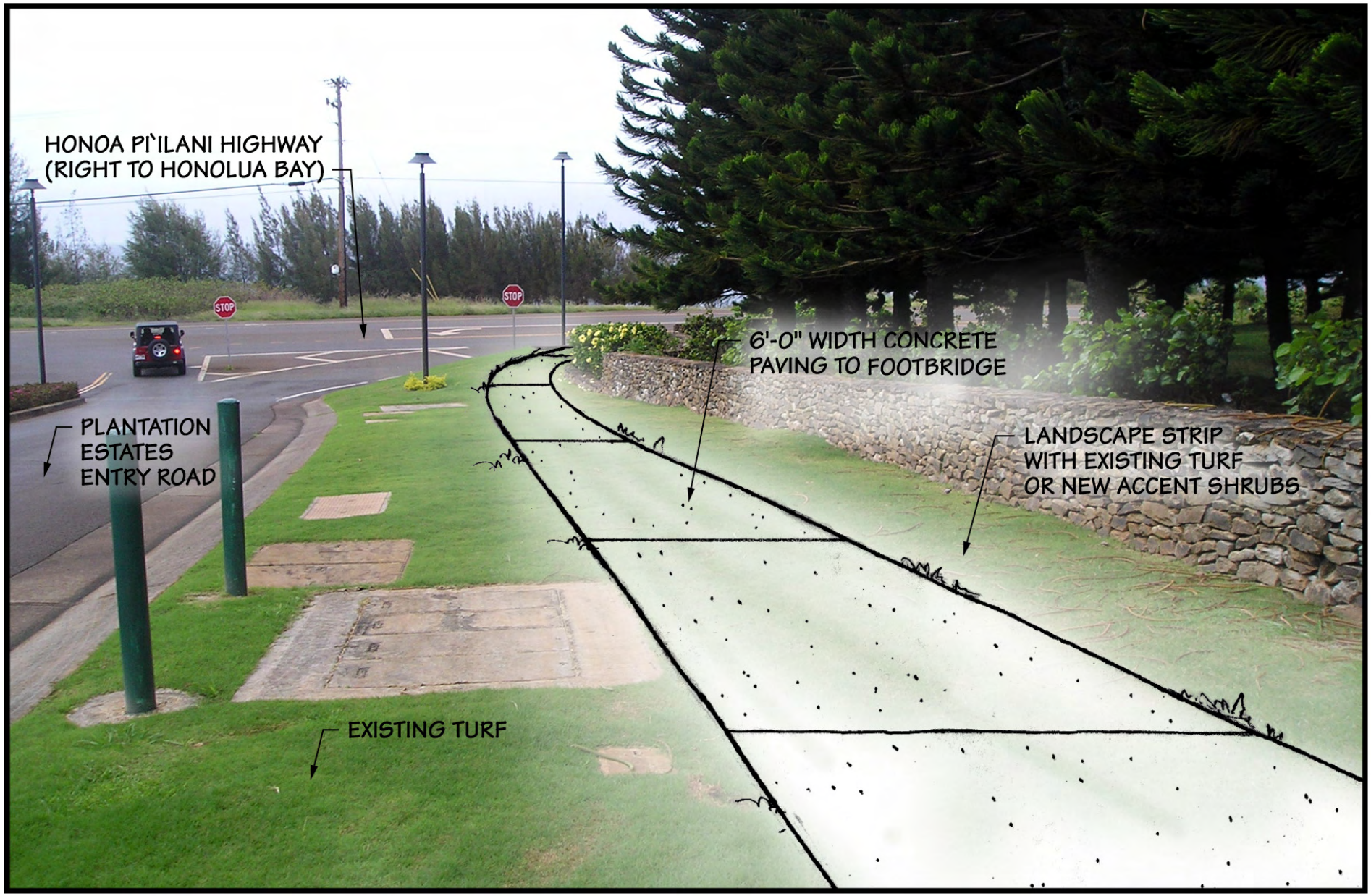

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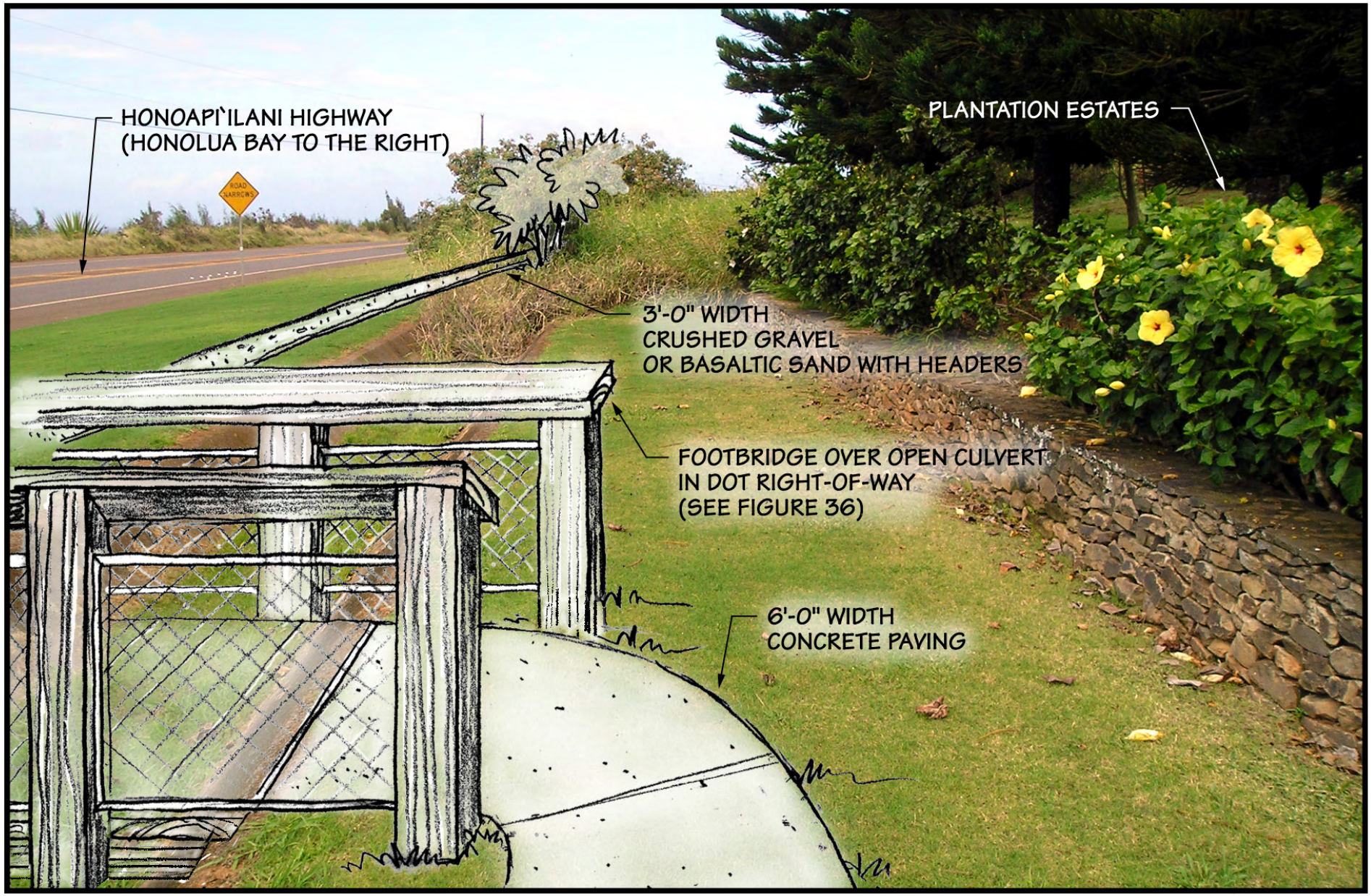
FIGURE 50
Segment 22 Concrete Paving at Plantation Estates Entry.



KAPALUA COASTAL TRAIL

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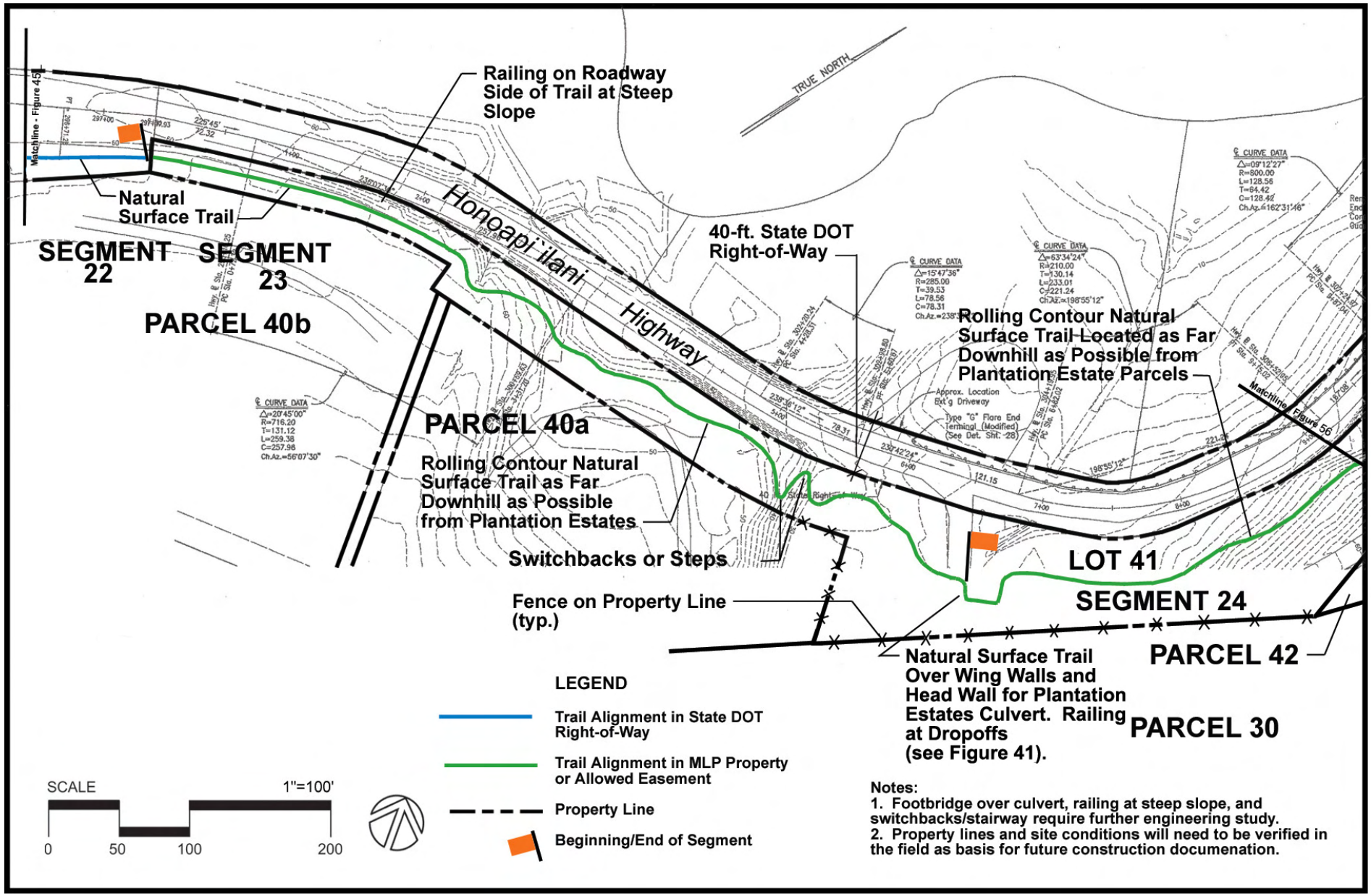
FIGURE 51
Segment 22 Crossing of Open Culvert in DOT Right-of-Way.



Notes:
1. Footbridge over culvert, railing at steep slope, and switchbacks/stairway require further engineering study.
2. Property lines and site conditions will need to be verified in the field as basis for future construction documenation.

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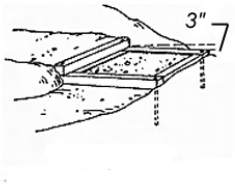
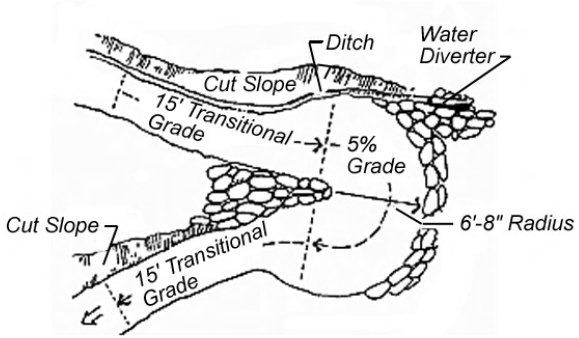
FIGURE 52
Segments 22 through 24 Plan Enlargement.

Rock Walls, Logs, or Vegetation at Switchbacks to Deter Cutoff Trails



Switchback Landing Protected by Treated Lumber



Switchback Design Plan

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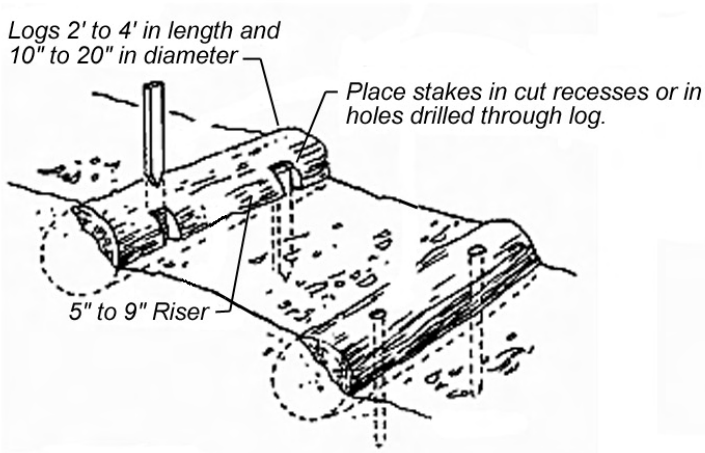
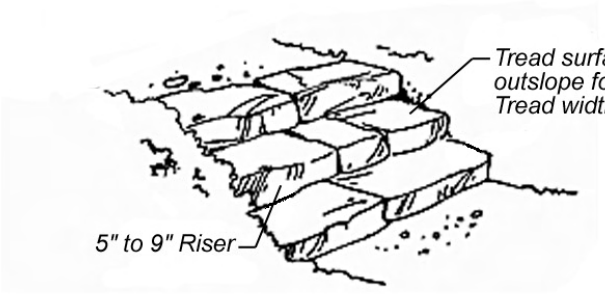
FIGURE 53
Natural Trail Switchback Details.



Log Steps



Stone Steps

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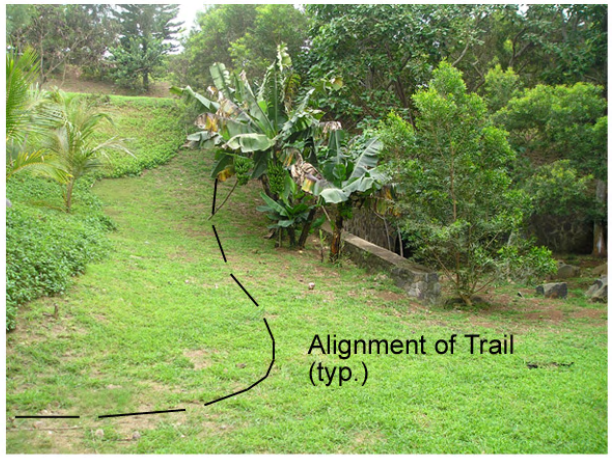
FIGURE 54
Natural Trail Step Details.



Segment 24 natural surface trail will traverse over the wing walls (right) and head wall (left) of the existing Plantation Estates culverts (center).

Segments 24 and 25 will pass a sufficient distance from residences on mauka Parcels 29 and 30 and makai Parcel 31 (left to right) to protect the privacy of homeowners. Planting enhancements may be added to further buffer these properties from trail activity without compromising ocean views from residences.

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FIGURE 55
Illustrative Photographs of Segments 24 and 25.

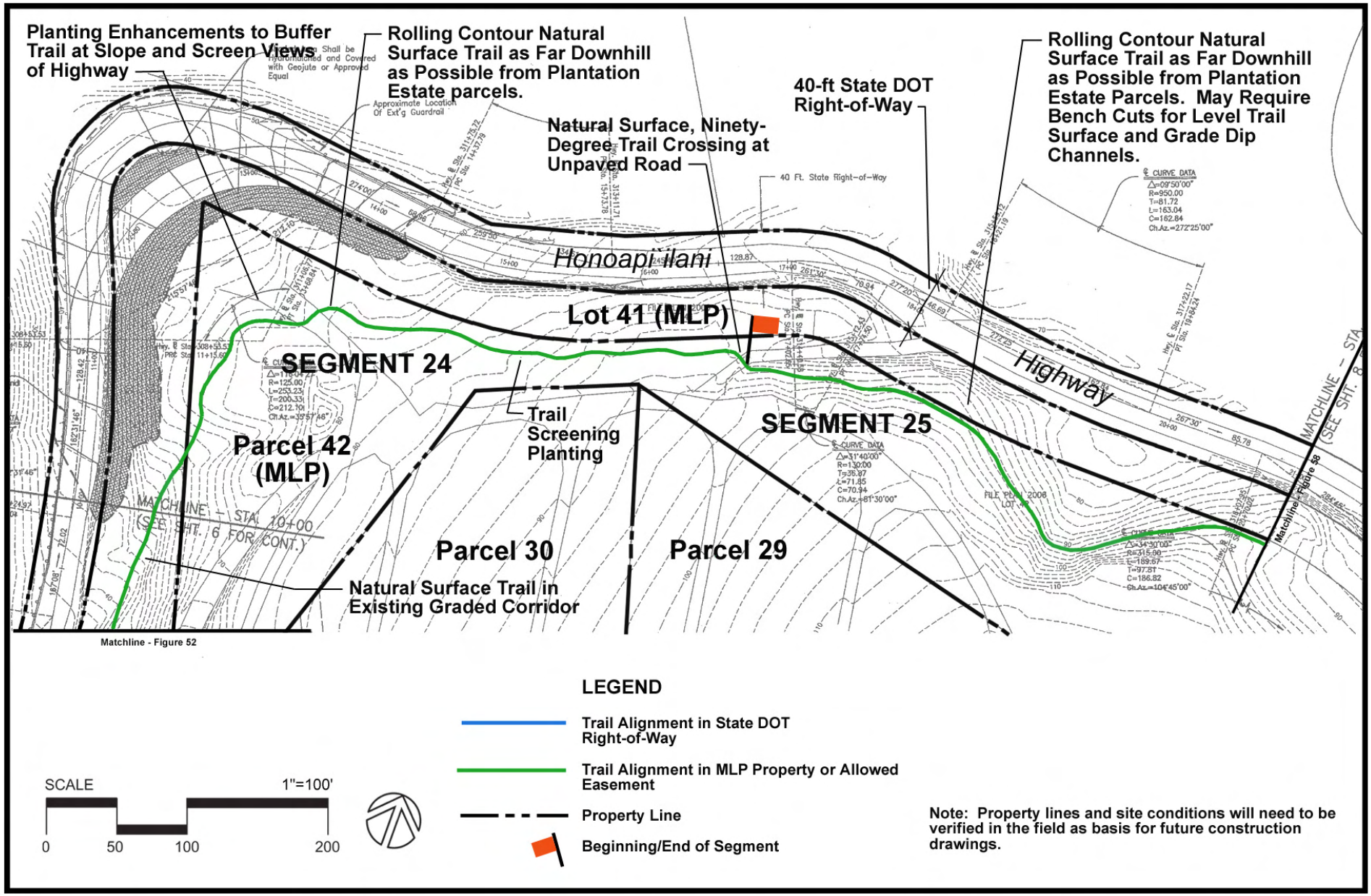

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FIGURE 56
Segments 24 and 25 Plan Enlargement.

Segment 25 begins at a former plantation road (left). There are occasional views of Honoapi`ilani Highway from the trail (center). Typically, Segment 25 is surrounded by scrub vegetation, including haole koa and grasses (right).

View up slope toward Plantation Estates (left). Ironwood grove and lava rock boulders (center). View of where Segment 25 intersects with Segment 26, which crosses Honoapi`ilani Highway (right).

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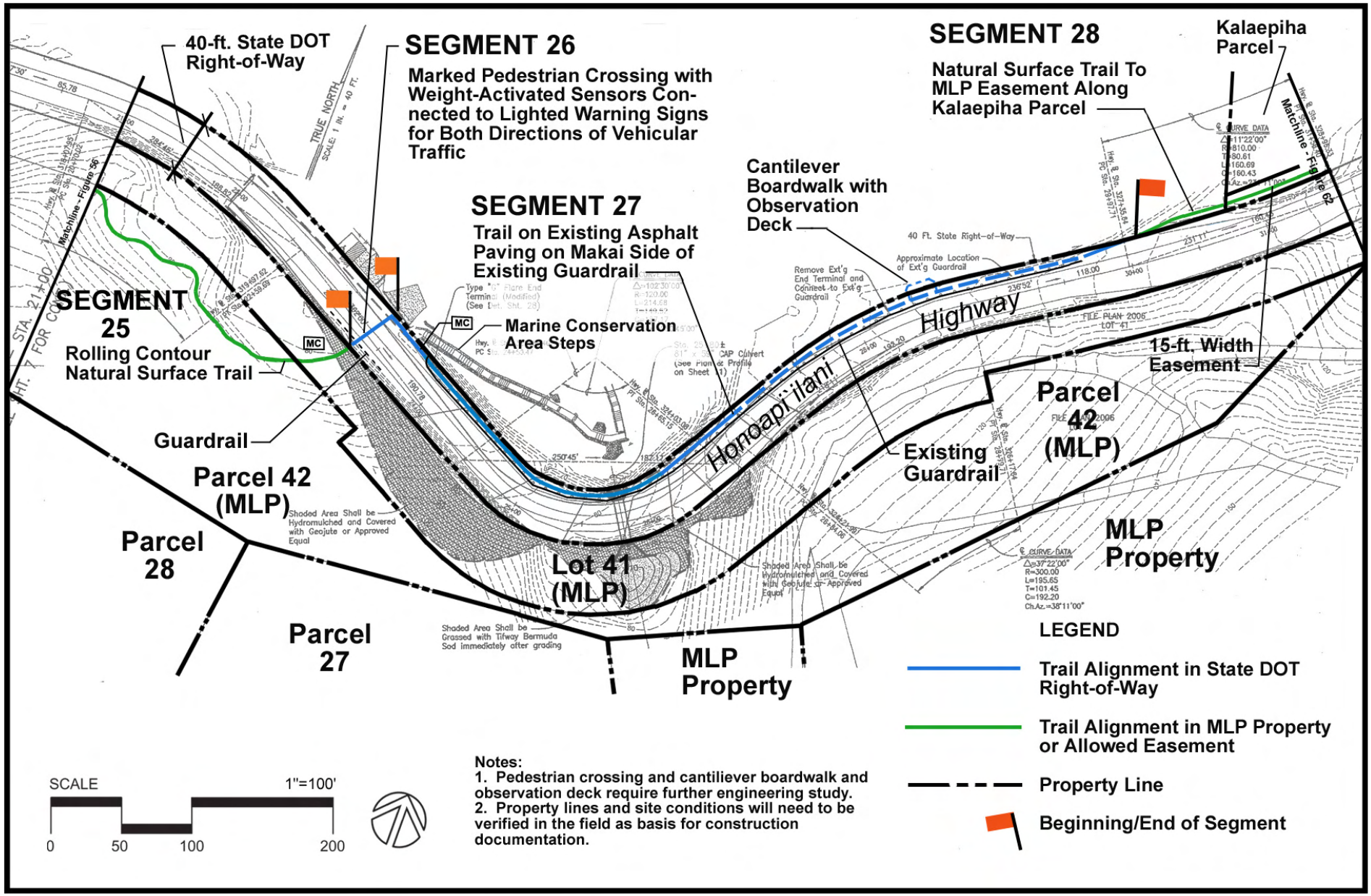
FIGURE 57
Illustrative Photographs of Segment 25.



Notes:
1. Pedestrian crossing and cantiliever boardwalk and observation deck require further engineering study.
2. Property lines and site conditions will need to be verified in the field as basis for construction documentation.

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FIGURE 58
Segments 25 through 28 Plan Enlargement.

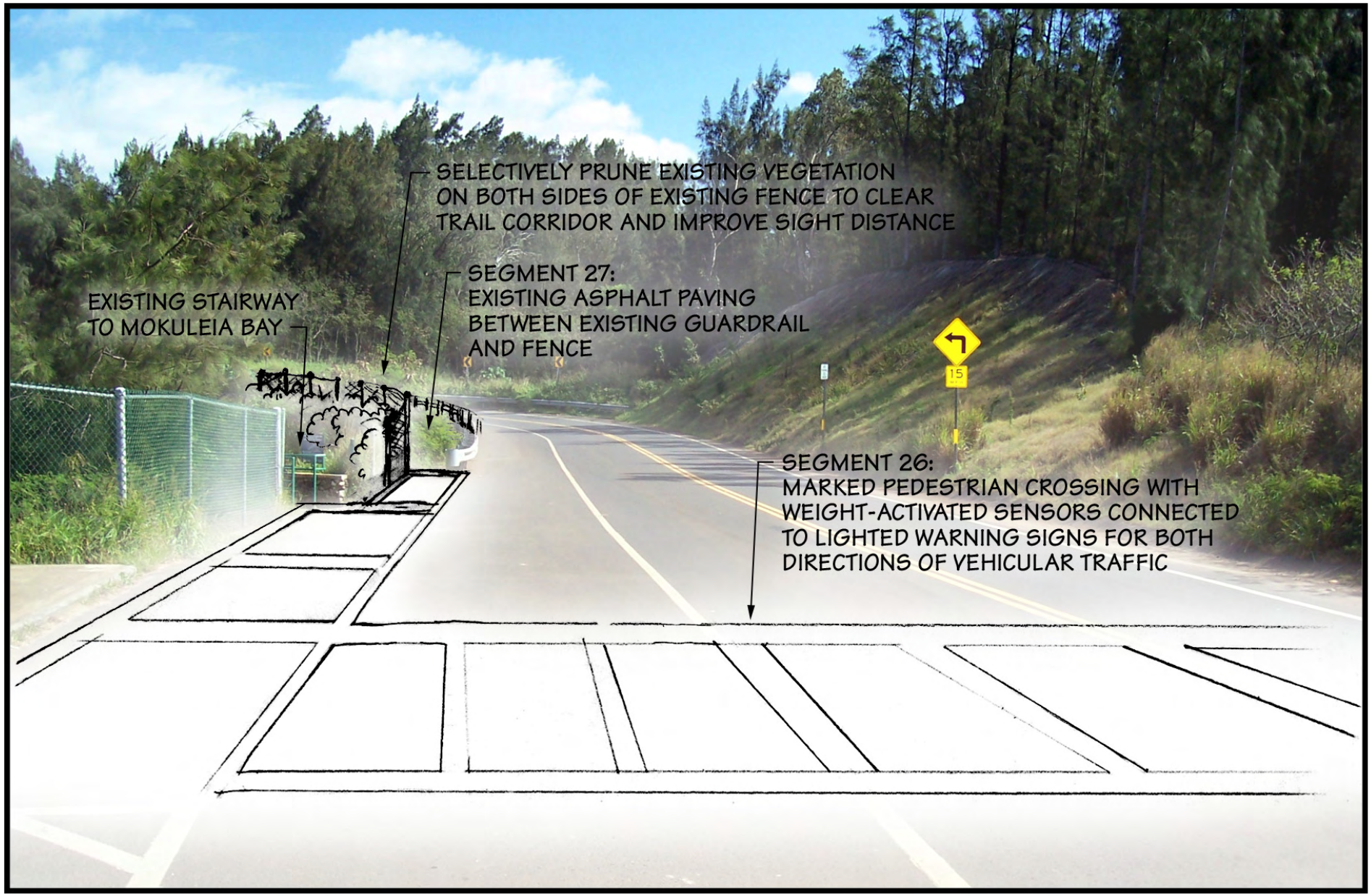

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FIGURE 59
Segment 26 Pedestrian Crossing of Honoapi`ilani Highway.

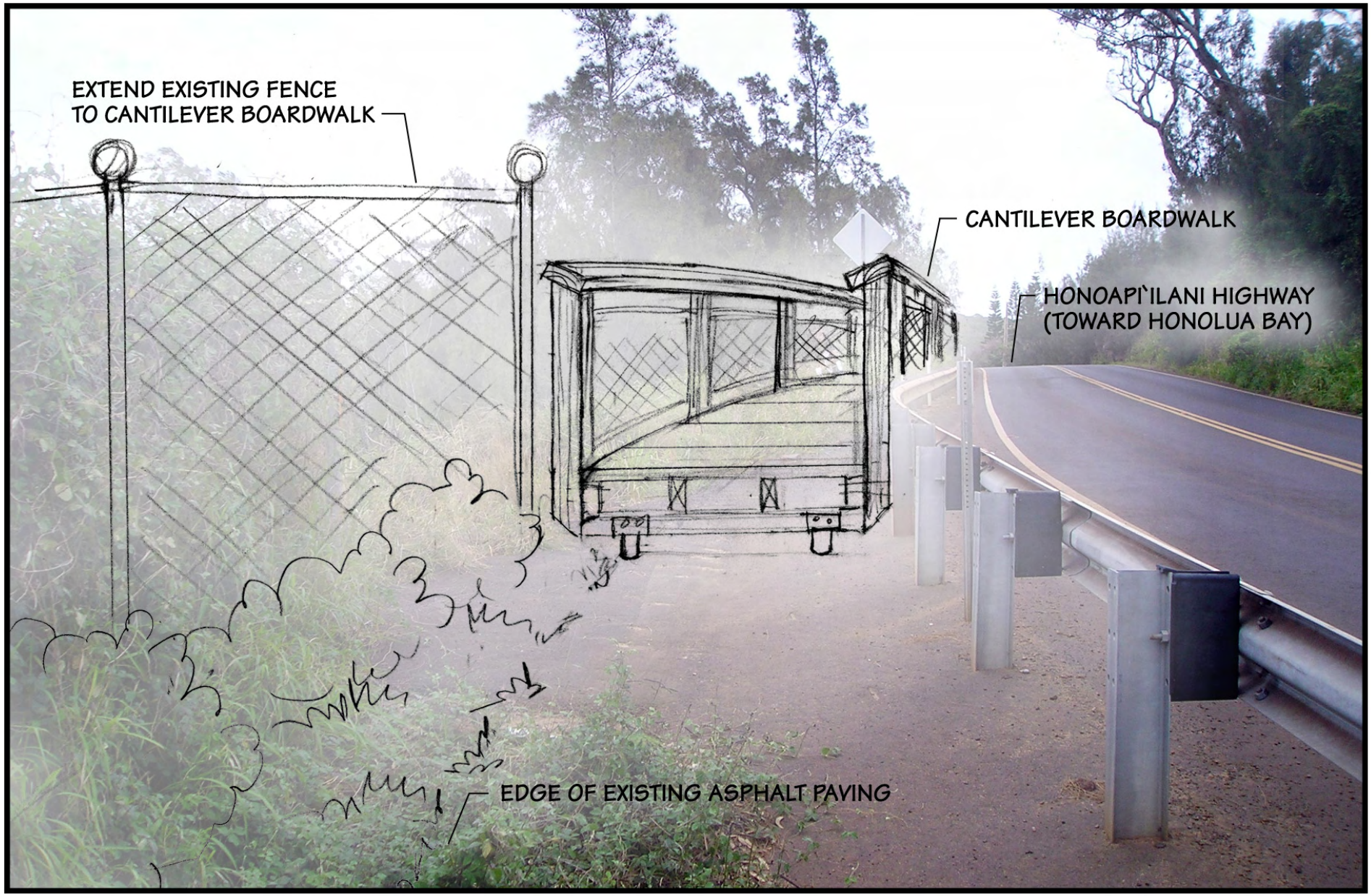

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FIGURE 60
Segment 27 Cantilever Boardwalk.

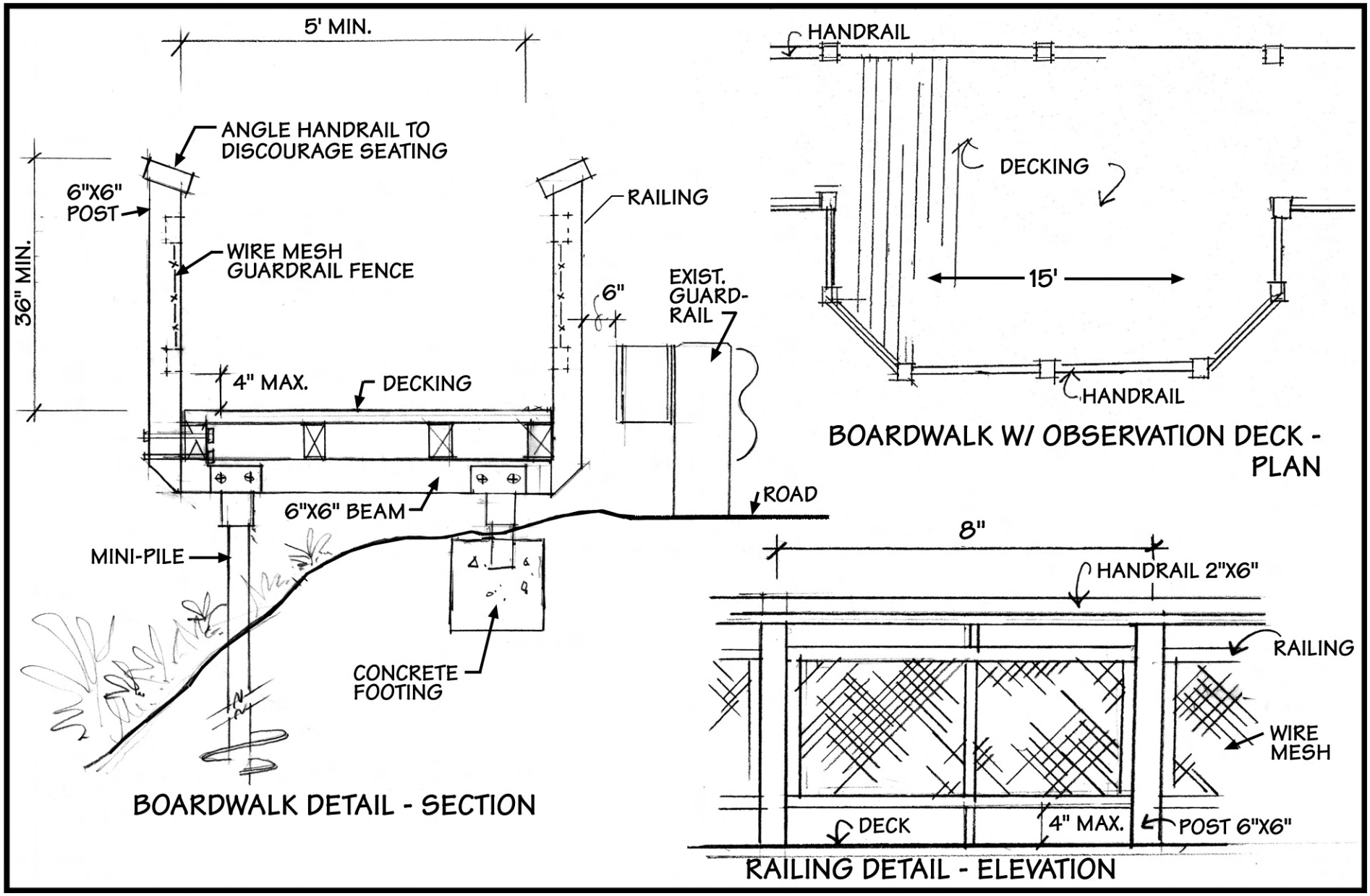

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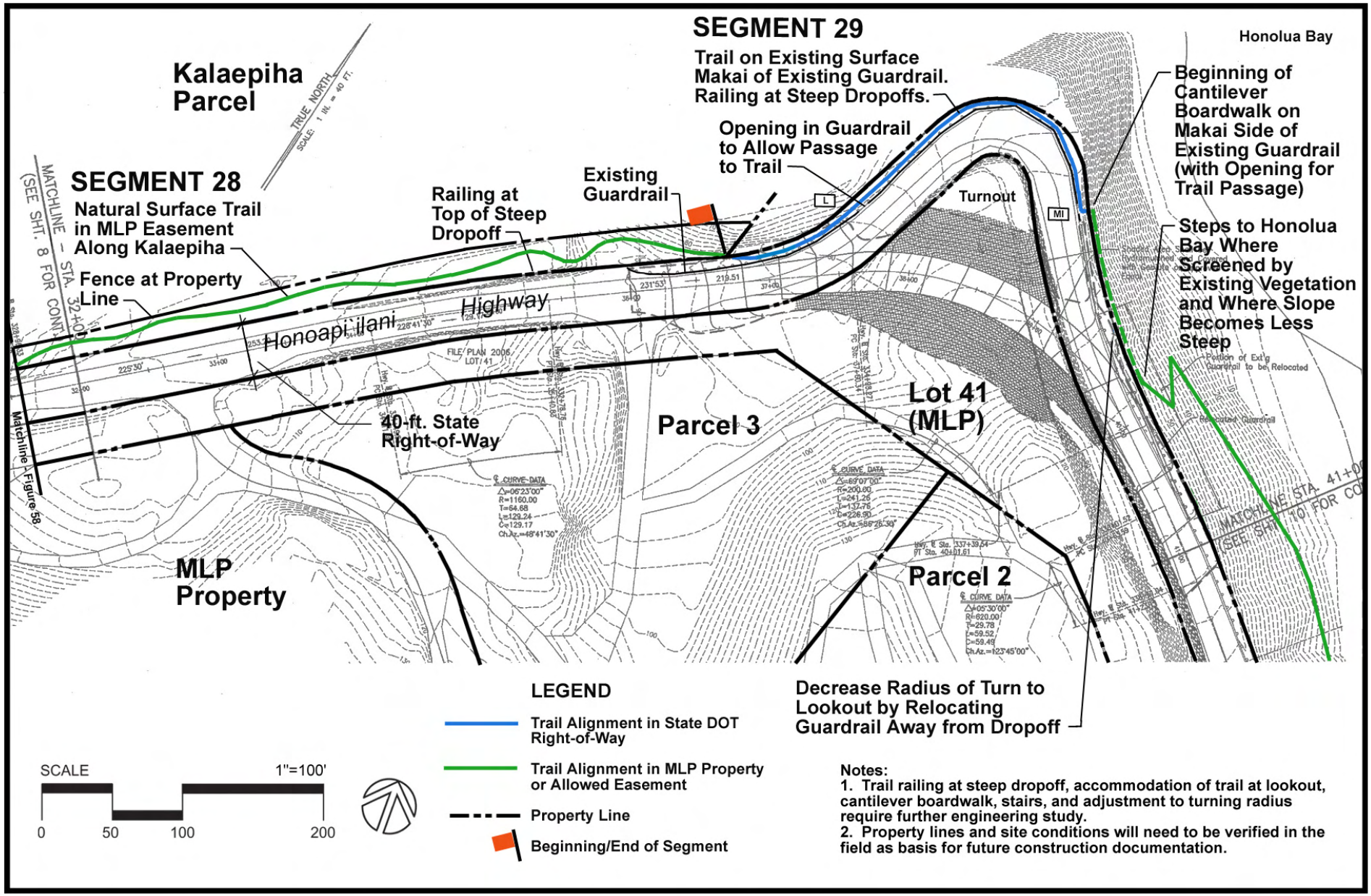
FIGURE 61
Cantilever Boardwalk Details.



Notes:
1. Trail railing at steep dropoff, accommodation of trail at lookout, cantilever boardwalk, stairs, and adjustment to turning radius require further engineering study.
2. Property lines and site conditions will need to be verified in the field as basis for future construction documentation.

KAPALUA COASTAL TRAIL

Maui Land & Pineapple Company

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February 2007

FIGURE 62
Segments 28 and 29 Plan Enlargement.

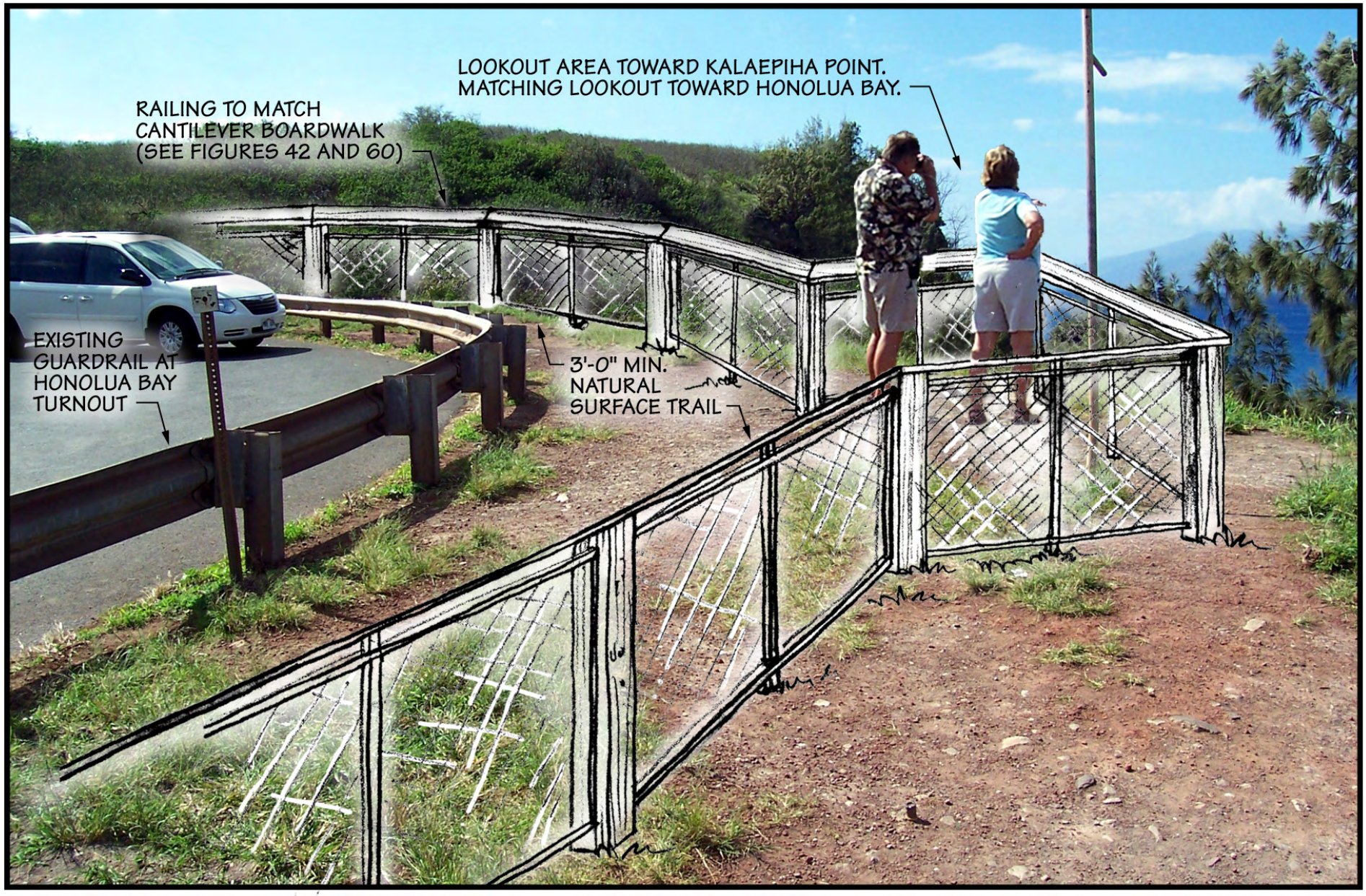

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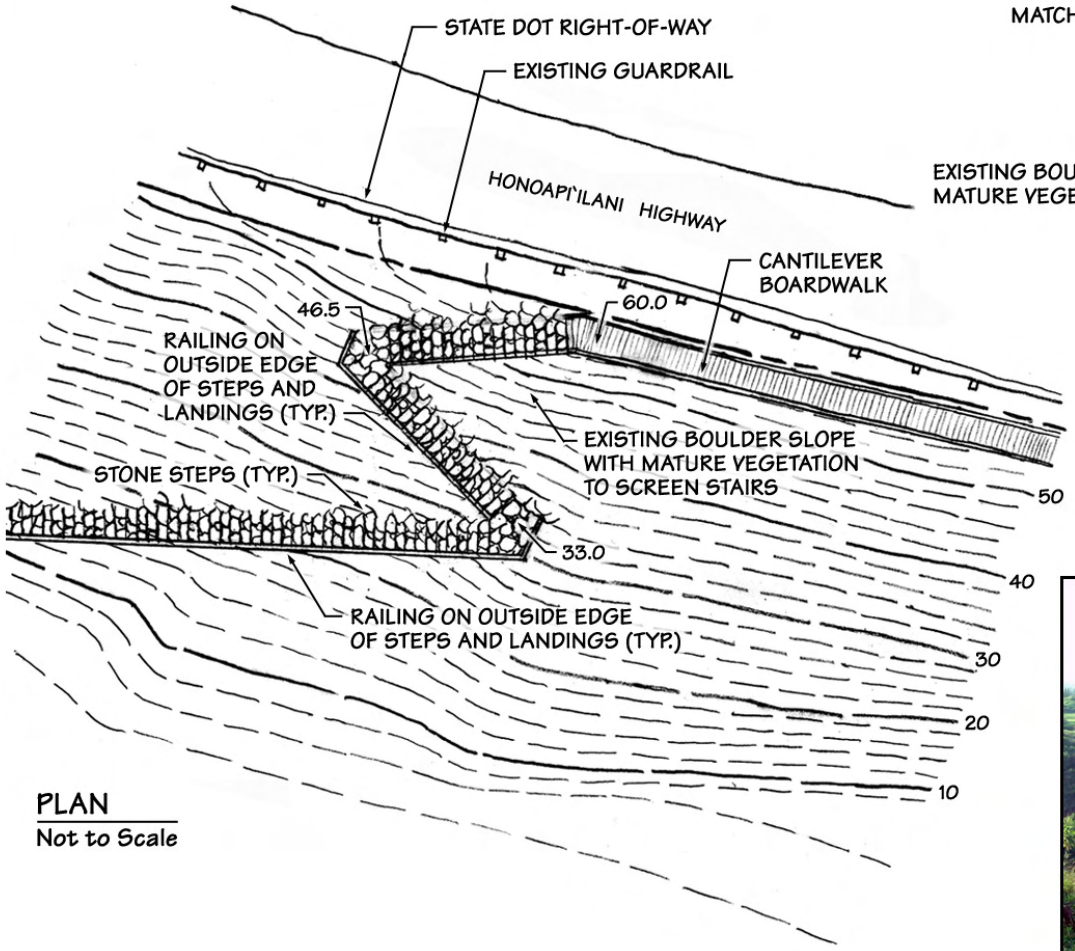
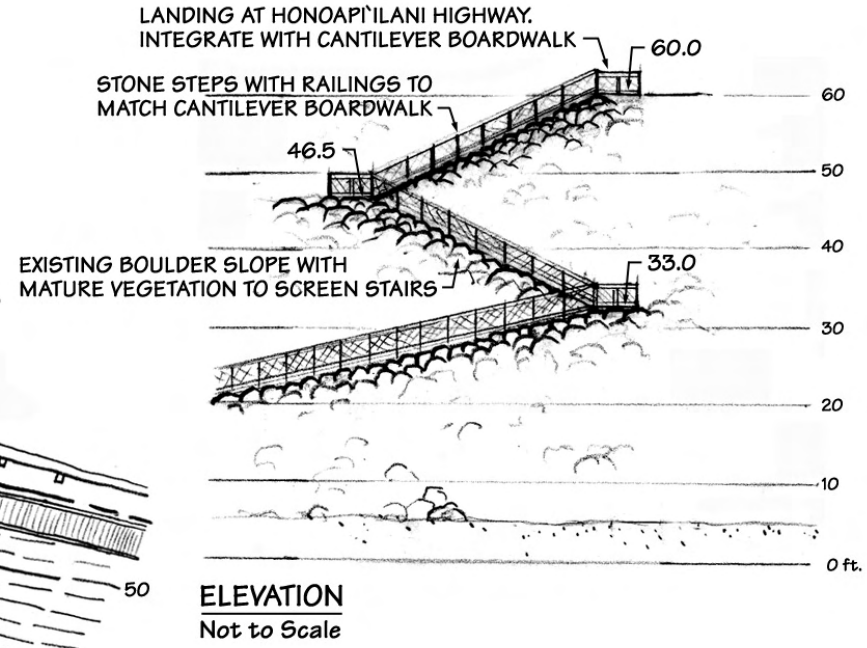
FIGURE 63
Segment 29 at Honolua Bay Turnout.





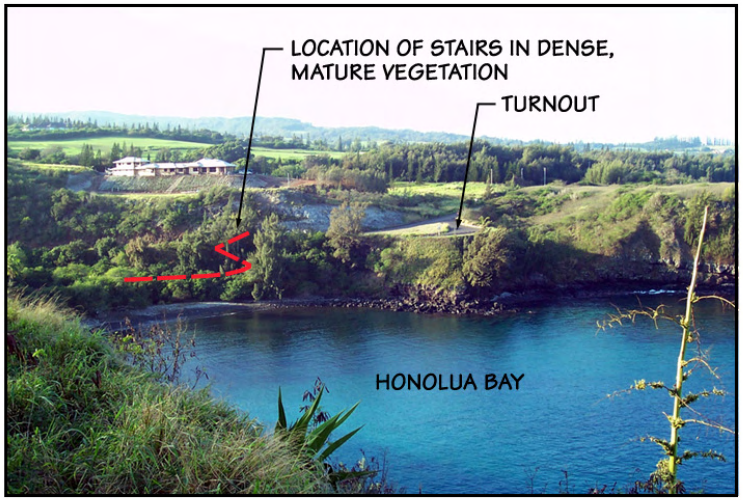


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FIGURE 64
Segment 29 Stone Steps to Honolua Bay.

Appendix: Trail Action Items by Segment

Segment	Action	Plan/Detail/Sketch Documentation
1	**Trail Surface:** Marked pedestrian zone and crossing; Coastal Trail concrete paving through planting area to public beach restroom concrete paving; existing stairs and asphalt paving.	Figures 7-10
	Signage *Trail Signs:* (1) medium identification (MI) sign on Lower Honoapi`ilani Road at entrance to public beach right-of-way parking; (1) large (L) trail sign near public restrooms.	Figures 1-3
	Wayfinding Markers: None.	
	Mileage Markers: Where they occur at 1/2 mile increments. Note: Zero mile begins at the large sign near the public restrooms.	Figures 1, 4
	Other: Relocate existing palm to accommodate Coastal Trail concrete paving.	Figure 9
2	**Trail Surface:** No action at this time, since there is an existing 5'-0" width concrete path adequate to connect pedestrians from the public beach right-of-way to The Residences future site.	
	Signage *Wayfinding Markers:* None.	
	Mileage Markers: Where they occur at 1/2 mile increments.	Figures 1, 4
3	**Trail Surface:** Coastal Trail concrete paving. Coordinate with The Residences hardscape design and SMA application.	Figures 10, 11

Segment	Action	Plan/Detail/Sketch Documentation
	Signage *Trail Signs:* (1) medium combination (MC) trail sign.	Figures 1, 3
	Wayfinding Markers: None.	
	Mileage Markers: Where they occur at 1/2 mile increments.	Figures 1, 4
	Other: Minimal cut in slope to create level area for trail.	Figure 12
	Planting Enhancements: Shrub masses for erosion and boundary control on the up slope side of trail. Coordinate with The Residences landscape planting design.	Figure 11
4	**Trail Surface:** Coastal Trail concrete paving. Coordinate with The Residences hardscape design and SMA application.	Figures 10-13
	Signage *Trail Signs:* None.	
	Wayfinding Markers: None.	
	Mileage Markers: Where they occur at 1/2 mile increments.	Figures 1, 4
	Planting Enhancements: Shrub masses for erosion and boundary control on the up slope side of trail. Coordinate with The Residences landscape planting design.	Figures 11-13
	Other: Fencing on down slope side of trail where needed. Cut in slope to create level area for trail.	Figures 11-13
5	**Trail Surface:** Remove existing asphalt paving. Install Coastal Trail concrete paving. Coordinate with The Residences hardscape design and SMA application. At Cliff House entry, trail should have same alignment as existing asphalt paving.	Figures 10, 14

Segment	Action	Plan/Detail/Sketch Documentation
	Signage *Trail Signs:* None.	
	Wayfinding Markers: None.	
	Mileage Markers: Where they occur at 1/2 mile increments.	Figures 1, 4
	Planting Enhancements: Shrub masses for erosion and boundary control on the up slope side of trail. Coordinate with The Residences landscape planting design.	Figure 14
	Other: Fencing on down slope side of trail where needed. Cut in slope to create level area for trail.	Figures 12-14
6	**Trail Surface:** Coastal Trail concrete paving. Coordinate with The Residences hardscape design and SMA application.	Figures 10, 14, 15
	Signage *Trail Signs:* None.	
	Wayfinding Markers: None.	
	Mileage Markers: Where they occur at 1/2 mile increments.	Figures 1, 4
	Planting Enhancements: Screening shrub masses along existing fence and shade trees along trail. Coordinate with The Residences landscape design and SMA application.	Figures 14, 15
7	**Trail Surface:** Supplement existing crushed gravel as necessary. Install headers on both sides to contain gravel and define trail alignment.	Figures 16, 17

Segment	Action	Plan/Detail/Sketch Documentation
	Signage *Trail Signs:* (1) medium combination (MC) sign at intersection with Segment 8.	Figures 1, 3, 16, 18, 19
	Wayfinding Markers: None.	
	Mileage Markers: Where they occur at 1/2 mile increments.	Figures 1, 4
	Planting Enhancements: Remove invasive plants (wedelia and Christmas berry) and supplement mauka naupaka hedge as necessary to create solid boundary.	Figure 16
8	**Trail Surface**: Supplement existing crushed gravel as necessary. Install headers on both sides to contain gravel and define trail alignment. Install header at transition from gravel to sand surface.	Figure 17, 19
	Signage *Trail Signs: (* 1) medium combination (MC) trail sign at intersection with Segment 7; (1) large (L) trail sign at intersection with Segment 9.	Figures 1-3, 18, 19
	Wayfinding Markers: None. markers.	
	Mileage Markers: Where they occur at 1/2 mile increments.	Figures 1, 4
	Planting Enhancements: Naupaka screening masses on The Bay Villas side of path.	Figures 18, 19
	Other: Replace chain with two removable bollards at edge of asphalt apron to accommodate passage of trailgoers. Fill existing tire tracks with gently compacted dune sand.	Figure 19

Segment	Action	Plan/Detail/Sketch Documentation
9	**Trail Surface:** Existing sand and lava outcroppings. Clear trail alignment on lava outcroppings of rubble 3" dia. and larger and mark edges of trail with boulders.	Figures 5, 18
	Signage *Trail Signs:* (1) large (L) trail sign at intersection with Segment 8; (1) medium directional (MD) trail sign at intersection with Spur 9a; and (1) medium directional (MD) trail sign at intersection with Segment 10.	Figures 1, 2, 3, 18
	Wayfinding Markers: 1/16 mile increments or more frequently where necessary.	Figure 4
	Mileage Markers: Where they occur at 1/2 mile increments.	Figures 1, 4
	Planting Enhancements *Immediate Action:* Install temporary barricades with keep out notices at entrances to undesirable social trails to deter access and allow existing vegetation to spread. Supplement existing naupaka on makai side of The Bay Villas maintenance path.	Figure 18
	Future Action: Install and cordon off "tapestry" of native plants along trail and at barricades areas; expand program if initial plantings are successful.	Figure 18
Spur 9a	**Trail Surface:** No action necessary, as existing trail is usable as is.	
	Signage *Trail Signs:* See signage for Segment 9.	
	Wayfinding Markers: 1/16 mile increments.	Figure 4
	Mileage Marker: None.	

Segment	Action	Plan/Detail/Sketch Documentation
10	**Trail Surface:** Existing lava outcroppings. Clear tread of rubble 3" dia. and larger. At flat areas, mark edges of trail with boulders.	Figures 5, 18
	Signage *Trail Signs:* None.	
	Wayfinding Markers: 1/16 mile increments between mileage markers and more frequently where necessary.	Figure 4
	Mileage Markers: Where they occur at 1/2 mile increments.	Figures 1, 4
	Planting Enhancements: Supplement naupaka on makai side of The Bay Villas maintenance path.	Figure 18
	Other: Remove green waste from pruned ironwood trees to create a 3-foot width clear trail corridor.	
11	**Trail Surface:** Existing lava outcroppings. Clear tread of rubble 3" dia. and larger. At flat areas, mark edges of trail with boulders.	Figures 5, 18, 20
	Signage *Trail Signs:* (1) medium directional (MD) sign at bottom of lava outcroppings on Oneloa Beach.	Figure 20
	Wayfinding Markers: 1/16 mile increments and more frequently where necessary.	Figure 4
	Mileage Markers: Where they occur at 1/2 mile increments.	Figures 1, 4
	Planting Enhancements: Supplement naupaka on makai side of Bay Villas maintenance path, especially where Segment 11 comes closest to residences**.**	Figure 20

Segment	Action	Plan/Detail/Sketch Documentation
	Other: Railing segment recommmended. Removal of railing remnants at lava rock steps (up from/down to Oneloa Beach) recommended.	Figures 18, 20
12	**Trail Surface:** Existing sand and grass.	Figures 20-22
	Signage *Trail Signs:* (1) medium directional (MD) sign at top of treated lumber erosion control steps.	Figures 1, 3
	Wayfinding Markers: None.	
	Mileage Markers: Where they occur at 1/2 mile increments, except on beach.	Figures 1, 4
	Planting Enhancements: None.	
	Other: Treated lumber erosion control steps below The Bay Villages existing stairway and treated lumber edge along trail outside of the shoreline setback.	Figures 20-23
13	**Trail Surface:** No action at this time, since there is an existing concrete path and stairs.	
	Signage *Trail Signs:* (1) large (L) trail sign at top of public beach right-of-way. (1) medium (MD) sign at bottom of steps.	Figures 1, 2, 3, 20
	Wayfinding Markers: None.	
	Mileage Markers: Where they occur at 1/2 mile increments.	Figures 1, 4

Segment	Action	Plan/Detail/Sketch Documentation
	Other: Treated lumber erosion control steps below public beach right-of-way. Mitigate tripping hazard at bottom of public beach right-of-way path and adjust drainage for public shower to minimize algae growth on path.	Figure 24
	Planting Enhancements: None	
14	**Trail Surface:** Coastal Trail concrete paving to replace existing 3'-0" width concrete paving and to connect Segment 13 continuously to Segment 15.	Figures 10, 25
	Signage *Trail Signs:* See signage for Segment 13.	
	Wayfinding Markers: None.	
	Mileage Markers: Where they occur at 1/2 mile increments.	Figures 1, 4
	Planting Enhancements: None.	
	Other: Relocate existing fence as necessary to accommodate new paving.	Figure 25
15	**Trail Surface:** New Coastal Trail concrete paving; wheel stops adjacent to Coastal Trail paving between Office Road and Segment 16.	Figures 10, 27, 28
	Signage *Trail Signs:* (1) medium identification (MI) sign at intersection with Segment 14.	Figures 1, 3, 25
	Wayfinding Markers: None.	

Segment	Action	Plan/Detail/Sketch Documentation
	Mileage Markers: Where they occur at 1/2 mile increments.	Figures 1, 4
	Planting Enhancements: None.	
	Other: Marked pedestrian crossings at Lower Honoapi`ilani Road to connect to Spur 15a.	Figure 25
Spur 15a	**Trail Surface:** Coastal Trail concrete paving from Lower Honoapi'ilani Road to existing asphalt trail; existing asphalt paving; cleared natural surface for terminus loop.	Figures 10, 25, 26
	Signage *Trail Signs:* (1) medium combination (MC) trail sign at Lower Honoapi`ilani Road; (1) medium directional (MD) trail sign at end of terminus loop.	Figures 1, 3, 25
	Wayfinding Markers: Install as needed for navigation.	Figure 4
	Mileage Markers: None.	
	Planting Enhancements *Immediate Action:* None.	
	Future Action: Design of educational tropical garden.	
	Other: Create terminus loop beginning at the clearing near the end of the spur, through the ironwood grove (along the existing contours), and back to existing spur. Construction requires making a full bench cut along the existing slope, removing a minimum number of existing ironwood trees, and applying a 3" layer of cover mulch.	Figures 1, 26, 44
16	**Trail Surface:** Marked pedestrian crossing on existing asphalt paving.	Figures 27, 29

Segment	Action	Plan/Detail/Sketch Documentation
	Signage *Trail Signs:* None. *Wayfinding Markers:* None. *Mileage Markers:* Where they occur at 1/2 increments. **Planting Enhancements:** None.	 Figures 1, 4
17	**Trail Surface:** Existing concrete paving with and without textured banding. **Signage** *Trail Signs:* (1) medium combination (MC) trail sign at beginning of segment, facing Segment 16 pedestrian crossing; (1) medium combination (MC) trail sign at intersection with path from Ritz-Carlton hotel, facing hotel. *Wayfinding Markers:* None. *Mileage Markers:* Where they occur at 1/2 mile increments. **Planting Enhancements:** None.	Figures 27, 30, 31, 32, 33 Figures 1, 3, 27, 30 Figures 1, 4
18	**Trail Surface:** New concrete paving to guide trail users to beach park and trail segment across from D. T. Fleming Beach parking lot entry; new 6'-0" width marked asphalt paving on makai side of D. T. Fleming Beach Road. **Signage** *Trail Signs:* (1) two-way large (L) trail sign on the Segment 18 side of the Segments 17-18 intersection; (1) medium directional (MD) trail sign at Segments 18-Alt. 18-19 intersection.	Figures 32-35 Figures 2, 3, 32, 33

Segment	Action	Plan/Detail/Sketch Documentation
	Wayfinding Markers: None.	
	Mileage Markers: Where they occur at 1/2 mile increments.	Figures 1, 4
	Planting Enhancements: Three locations: Near large trail sign at the Segments 17-18 intersection; around backflow devices at parking entrance to D. T. Fleming Beach Park; and along the approach to the first footbridge. Planting enhancements should not obstruct existing fire lane or fire hydrant.	Figures 32-35
	Other: (1) wood footbridge.	Figures 32, 35, 36
Alt. 18	**Hardscape:** New 6'-0" width marked asphalt paving to D. T. Fleming Beach Road crossing; 3'-0" width natural surface to new 6'-0" width asphalt paving approach to Honoapi`ilani Highway crossing.	Figures 26, 37-39, 45
	Signage *Trail Signs:* See trail signage for Segment 18.	Figure 1
	Wayfinding Markers: 1/16 mile increments or more frequently if necessary.	Figure 4
	Mileage Markers: Where they occur at 1/2 mile increments.	Figure 1, 4
	Planting Enhancements: None.	
	Other: (1) wood footbridge over drainageway; guardrails at intersection of D. T. Fleming Beach Road and Honoapi`ilani Highway and at approach to pedestrian crossing of Honoapi`ilani Highway.	Figure 36-38

Segment	Action	Plan/Detail/Sketch Documentation
19	**Trail Surface:** Cleared natural surface; boulder causeway.	Figures 26, 37, 39, 40, 43
	Signage *Trail Signs:* See trail signage for Segment 18.	Figure 1
	Wayfinding Markers: 1/16-mile increments and as needed to navigate through wooded area.	Figure 4
	Mileage Markers: Where they occur at 1/2 mile increments.	Figure 1, 4
	Planting Enhancements: None.	
20	**Trail Surface:** Flood-resistant paving.	Figure 39, 40
	Signage *Trail Signs:* None.	
	Wayfinding Markers: None.	
	Mileage Markers: None.	
	Planting Enhancements: None.	
	Other: Solar electric system with ceiling fixtures to illuminate culvert.	Figure 40
21	**Trail Surface:** Boulder causeway in drainageway; cleared natural surface.	Figures 26, 39, 41, 43
	Signage *Trail Signs:* None.	

Segment	Action	Plan/Detail/Sketch Documentation
	Wayfinding Markers: 1/16 mile increments and as needed to navigate through wooded area.	Figure 4
	Mileage Markers: Where they occur at 1/2 mile increments.	Figures 1, 4
	Planting Enhancements: None.	
	Other: Railing at steep dropoffs along wing wall and head wall above culvert.	Figures 41, 42
22	**Trail Surface:** Cleared natural surface; boulder causeway; crushed gravel with headers; concrete paving; marked pedestrian crossing on existing asphalt (Honoapi`ilani Highway).	Figures 17, 26, 39, 43, 45-52
	Signage *Trail Signs:* (1) medium combination (MC) trail sign at Honolua Bay end of Cook Pine allee.	Figures 3, 45
	Wayfinding Markers: 1/16 mile increments and as needed to navigate through wooded area.	Figure 4
	Mileage Markers: Where they occur at 1/2 mile increments.	Figures 1, 4
	Planting Enhancements: None.	
	Other: (1) wood footbridge over open culvert.	Figures 36, 45, 51
23	**Trail Surface:** Cleared natural surface with switchback(s) and/or steps.	Figures 26, 43, 44, 52, 53, 54
	Signage *Trail Signs:* None.	

Segment	Action	Plan/Detail/Sketch Documentation
	Wayfinding Markers: 1/16 mile increments and as needed to navigate through wooded area.	Figure 4
	Mileage Markers: Where they occur at 1/2 mile increments.	Figures 1, 4
	Planting Enhancements: None.	
24	**Trail Surface:** Cleared natural surface.	Figures 26, 43, 44, 52, 53, 55, 56
	Signage *Trail Signs:* None.	
	Wayfinding Markers: 1/16 mile increments and as needed to navigate through wooded area.	Figure 4
	Mileage Markers: Where they occur at 1/2 mile increments.	Figures 1, 4
	Planting Enhancements: Screening shrubs both below and above trail to protect the privacy of nearby residents.	Figure 56
	Other: Railing at wing walls and head wall of Plantation Estates culverts.	Figures 42, 52, 55
25	**Trail Surface:** Cleared natural surface.	Figures 26, 44, 55-57
	Signage *Trail Signs:* (1) Medium combination (MC) trail sign near intersection with Segment 26.	Figures 1, 3, 58
	Wayfinding Markers: 1/16 mile increments and as needed to navigate through wooded area.	Figure 4

Segment	Action	Plan/Detail/Sketch Documentation
	Mileage Markers: Where they occur at 1/2 mile increments.	Figures 1, 4
	Planting Enhancements: None.	
26	**Trail Surface:** Marked pedestrian crossing on existing asphalt (Honoapi`ilani Highway) with weight-activated sensors connected to warning signs for both directions of vehicular traffic.	Figures 58, 59
	Signage *Trail Signs:* (1) Medium combination (MC) trail sign near entrance to marine sanctuary stairway.	Figures 1, 3, 58
	Wayfinding Markers: None.	
	Mileage Markers: Where they occur at 1/2 mile increments, except at roadway crossing.	Figures 1, 4
	Planting Enhancements: None.	
27	**Trail Surface:** Existing asphalt.	Figures 58, 59
	Signage *Trail Signs:* See trail signs for Segment 26.	
	Wayfinding Markers: None.	
	Mileage Markers: Where they occur at 1/2 mile increments.	Figures 1, 4
	Planting Enhancements: None.	
	Other: Cantilever boardwalk, including observation deck.	Figures 58, 60, 61

Segment	Action	Plan/Detail/Sketch Documentation
28	**Trail Surface:** Cleared natural surface.	Figures 26, 58, and 62
	Signage *Trail Signs:* None	
	Wayfinding Markers: None.	
	Mileage Markers: Where they occur at 1/2 mile increments.	Figures 1, 4
	Planting Enhancements: None.	
	Other: Railing at steep dropoff on mauka side of Kalaepiha easement; chain link fence along makai side of easement.	Figure 42, 62
29	**Trail Surface:** Cleared natural surface.	Figures 26, 62
	Signage *Trail Signs:* (1) large (L) trail sign at opening in guardrail on the Kalaepiha side of turnout; (1) medium identification (MI) trail sign at opening in guardrail where trail transitions to cantilever boardwalk; (1) medium identification (MI) trail sign at bottom of steps.	Figures 2, 3, 62
	Wayfinding Markers: None.	
	Mileage Markers: Where they occur at 1/2 mile increments.	Figures 1, 4
	Planting Enhancements: None.	
	Other: Openings in guardrail (2); railing at steep dropoffs; cantilever boardwalk; (1) stone steps with railing to Honolua Bay.	Figures 42, 61-64

B

Letter from the University of Hawaii Sea Grant Extension Service

UNIVERSITY OF HAWAI'I

Sea Grant Extension Service
Maui Community College

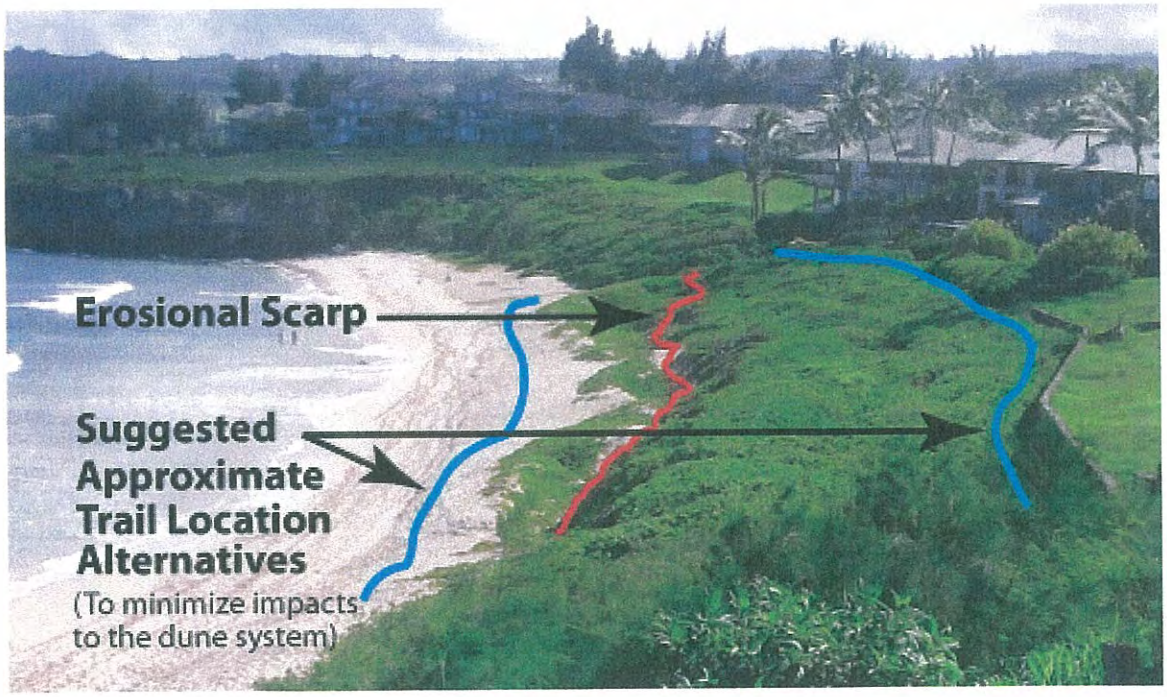
10/25/2006

Yarrow Flower
Community Development
Maui Land & Pineapple Company, Inc.
1000 Kapalua Drive, Lahaina, HI 96761
(808) 665-5459

Aloha Yarrow,

Re: Proposed coastal trail, Kapalua, Ironwoods section

I conducted site visit to Oneloa Beach on October 23rd and November 6th, 2006, to look at the proposed location for the coastal trail. It is my feeling that the trail should either be located right next to or very close to the walls that border the makai edge of the properties, or right on the beach (see image below). The dune system, particularly at the north end of the beach, is too fragile to be able to support regular pedestrian traffic anywhere other than near the walls. In addition to the regular traffic along the trail that will remove the vegetation and increase the vulnerability of the dune, pedestrians have a tendency to stray off the trail and would likely and unknowingly cause damage to other areas of the dune by trampling vegetation, which leads to wind-blow sand loss, or erosion, of the beach and dunes. It is a very windy area, so this is a significant concern.



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I feel that the trail should absolutely not be run across the middle of the dune system because the dune, and quite possibly the trail as well (should it consist of an elevated boardwalk), will be much more likely to suffer negative impacts.

An elevated boardwalk at the suggested location near the wall would help to minimize potential negative impacts to the dune by removing the erosional effect of foot traffic that leads to destruction of vegetation, dune blowouts, erosional gulleys, and windblown sand losses. Handrails on the boardwalks would also help to keep pedestrians from straying off the path and damaging the dunes. However, it is important to understand that even an elevated boardwalk may be vulnerable to failure if the dune regularly changes its morphology (shape). The farther back from the ocean the trail is placed, the less likely that it will be damaged. Clear evidence of how damaging foot traffic can be is evident at the public beach access locations, but perhaps more notably, extensive damage also exists at the beach access trails leading from the private homes despite the fact that access along these privately created paths is likely to be considerably less frequent than at the public access locations.

The image on the left illustrates erosion from a heavily used footpath, and the image on the right illustrates erosion from a presumably less frequently used access from a private residence.

Boardwalks can be constructed in a variety of ways. They can be placed directly on the ground (ie. roughly 6-12" in elevation depending on board dimensions), or they can be elevated up to several feet on posts. A boardwalk placed directly on the ground is preferable over walking directly on the sand because it removes the erosional effect of foot traffic, but a boardwalk raised by several feet may be even more beneficial,

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depending on the location and orientation of the path relative to the prevailing wind direction. Boardwalks directly on the ground may still aggravate wind-blown sand losses as the wind may blow sand onto and over these vegetation-free pathways. Wind-blown sand losses tend to be most problematic when trails are closely aligned to the prevailing wind direction. Sometimes wind-blown sand can also accumulate on low-elevation boardwalks causing a nuisance. If conditions are such that this would be likely, boardwalks elevated by several feet can prevent wind-blown sand losses by allowing plants to grow underneath the boardwalks and catch blowing sand.

A close look at the dune system reveals what is likely an erosional scarp, or drop-off, now slightly obscured by vegetation (see erosional scarp delineation, image on first page). At the base of the scarp the dunes are flatter, lower, and undulating or lumpy in appearance. This suggests likelihood that sometime in the last decade or so there was an erosional event that damaged the dunes quite severely. It is entirely possible that another such event may occur at any time, thus presenting another reason why it is prudent to locate the trail as far back from the ocean as possible.

In looking at the regulations for almost every coastal state in the US, pedestrian traffic on or across dunes is severely restricted because it is widely recognized that dunes and their associated vegetation are very fragile, and that they serve a critical function in terms of storm damage protection and beach erosion mitigation in addition to supporting unique ecosystems. Thank you for considering these factors and my comments. Please contact me if you have any questions.

Sincerely,

Zoe Norcross-Nu'u
Coastal Geologist
Sea Grant Coastal Processes Extension Agent

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C

Biological Resources Survey

BIOLOGICAL RESOURCES SURVEY

for the

KAPALUA COASTAL TRAIL PROJECT

NAPILI, HONOKAHUA & HONOLUA, MAUI

by

ROBERT W. HOBDY
ENVIRONMENTAL CONSULTANT
Kokomo, Maui
May 2006

Prepared for: Maui Land & Pineapple, Company, Inc.

BIOLOGICAL RESOURCES SURVEY
KAPALUA COASTAL TRAIL PROJECT
NAPILI, HONOKAHUA & HONOLUA, MAUI

INTRODUCTION

The Kapalua Coastal Trail Project includes a 12 foot wide corridor that traverses approximately 3.3 miles of coastal land between Kapalua Bay and Honolua Bay, West Maui. The corridor is situated on lands owned by Maui Land and Pineapple Company within the ahupua'a lands of Napili, Honokahua and Honolua. When completed this trail system will link five beaches with a number of resorts and residential communities.

SITE DESCRIPTION

The proposed trail corridor consists of 2.6 miles of primary route and 0.7 miles of side trails that loop through scenic peripheral areas. All parts of the trail are on or close to the coastline with elevations ranging from 15 feet up to about 90 feet above sea level. Parts of the route pass through developed areas where there are sidewalks and landscaping and no further improvements are anticipated. Parts pass through undeveloped brushlands with dense growths of shrubs, grasses and vines. Two loop trails travel out onto scenic, rocky headlands dominated by low-growing, salt-tolerant native plants. One loop trail travels into a small densely wooded valley. Substrates along these routes are mostly poorly developed soils associated with Lava Flows (rLW), Rock Land (rRK), Rough Broken Land (rRR), Dune Land (DL), and Beach Sand (BS) (Foote et al, 1972. Rainfall averages 30 inches per year with the bulk falling during the winter and spring (Armstrong, 1983).

BIOLOGICAL HISTORY

In pre-contact times this area would have supported a rich and diverse native forest with low, windblown vegetation on the coastal bluffs and low elevation ridgetops, and increasingly larger trees with understories of shrub, vines and ferns at higher elevations and in gulches. This would have been complemented with an array of native birds, insects and snails. Hawaiians typically lived in the coastal areas and well-watered gulches where they farmed irrigated terraces and had access to ocean resources. They also made less intensive use of inland forest resources.

Nearly a hundred years ago the gently sloping ridgetops began to be farmed for pineapple. This was expanded and developed into the modern, automated practices we see today. During this time many of the adjacent gulch lands were leased for

cattle grazing. The agricultural and grazing activities over a long period of time have greatly reduced the amount and diversity of native plant and animal species and these have been replaced by hardy and aggressive non-native species. Significant native vegetation survives mainly on the windy and salty coastal bluffs and to a lesser degree on steep gulch sides. Today many of the pineapple fields in the project area have been replaced by resort and residential properties and by golf courses.

SURVEY OBJECTIVES

This report summarizes the findings of a flora and fauna survey of the Kapalua Coastal Trail corridor which was conducted during May, 2006.
The objectives of the survey were to:

1. Document what plant, bird and mammal species occur on the property or may likely occur in the existing habitat.
2. Document the status and abundance of each species.
3. Determine the presence or likely occurrence of any native flora and fauna, particularly any that are Federally listed as Threatened or Endangered. If such occur, identify what features of the habitat may be essential for these species.
4. Determine if the project area contains any special habitats which if lost or altered might result in a significant negative impact on the flora and fauna in this part of the island.
5. Note which aspects of the proposed development pose significant concerns for plants or for wildlife and recommend measures that would mitigate or avoid these problems.

BOTANICAL SURVEY REPORT

SURVEY METHODS

A walk-through botanical survey was used along the entire 3.3 mile long by 12 foot wide proposed trail route. In addition the entire coastal shrubland areas at both Hawea Point and Makaluapuna Point, where loop trails extend, were covered in their entirety to better assess the native plant communities. Notes were made on plant species, distribution and abundance as well as terrain and substrate.

DESCRIPTION OF THE VEGETATION

The vegetation along this 3.3 mile corridor can be placed into four broad categories, each of which is quite different. These are:

Coastal Bluffs – This category includes a rather narrow zone of vegetation that is influenced by the ocean, the wind and salt. It extends from one end of the project to the other with rugged rocky headlands interspersed with white sand beaches. A large percentage of the vegetation here is native. Seventeen native species were found here, most locally common. They are so well adapted to this harsh environment that they can still outcompete the non-native species. Prominent here are naupaka kahakai (*Scaevola taccada*), 'akulikuli (*Sesuvium portulacastrum*), 'ōhelo kai (*Lycium sandwicense*), 'aki'aki (*Sporobolus virginicus*) pā'ū o Hi'iaka (*Jacquemontia ovalifolia* subsp. *sanwicensis*) and 'akia (*Wikstroemia uva-ursi*). The only non-native species that are able to complete in this habitat are common ironwood (*Casuarina equisetifolia*) and Long-leaf ironwood (*Casuarina glauca*) that form dense clumps of small trees, and a few species of hardy grasses.

Developed areas – These areas include resorts, residential areas, golf courses and beach parks. These areas are fully built out with appurtenant infrastructure such as roads, sidewalks, parking areas and restrooms and have intensively managed landscapes. The vegetation includes extensive areas of lawns and fairways with such grasses as manienie (*Cynodon dactylon*) and zoysia (*Zoysia matrella*), hedges such as hibiscus (*Hibiscus rosa-sinensis*), bougainvillea (*Bougainvillea spectabilis*), Natal plum (*Carissa macrocarpa*), oleander (*Nerium oleander*), naupaka kahakai and a variety of ornamental trees such as coconut (*Cocos nucifera*), milo (*Thespesia populnea*), kamani (*Calophyllum inophyllum*) and African tulip-tree (*Spathodea campanulata*).

Undeveloped Brushlands – These are areas that are peripheral to and between presently developed areas, sometimes close to the coast and sometimes slightly inland. Vegetation is mostly unmanaged, wild and dense. The vegetation is composed primarily of common ironwood, kiawe (*Prosopis pallida*), java plum (*Syzygium cumini*), koa haole (*Leucaena leucocephala*), Guinea grass (*Panicum maximum*) and sourgrass (*Digitaria insularis*).

Arboretum – This distinctive area within a densely wooded valley was once the focus of a plan to develop an arboretum featuring native and Polynesian plants. The principal tree here is kukui (*Aleurites moluccana*). Other species include ki (*Cordyline fruticosa*), 'ape (*Alocasia macrorrhizos*), 'awapuhi (*Zingiber zerumbet*) and ulu (*Artocarpus altilis*). A few rare species were planted here like 'anapanapa (*Colubrina asiatica*), two koki'o ke'oke'os (*Hibiscus arnottianus*) and (*Hibiscus waimeae*), and the Endangered koki'o 'ula'ula (*Hibiscus clayi*).

One Federally protected Endangered Hawaiian species, 'āwiwi (*Centarium sebaeoides*), that has been seen in recent years at Hawea Point, was not observed during the survey. 'Āwiwi is an ephemeral annual herb that sometimes appears

following winter rains. When conditions are not favorable, the seeds remain in the soil, often for several years, waiting for the right conditions.

DISCUSSION AND RECOMMENDATIONS

During the course of the survey 183 species of plants were recorded in the four habitat categories. Of these 6 were endemic to Hawaii, 18 were indigenous to Hawaii as well as to other Pacific islands, 9 were of Polynesian origin. The remaining 150 species were non-native, including 18 landscape ornamentals and 132 wild or weedy species. Only one of the 183 species is Federally listed as an Endangered (USFWS 1999) species. It is the koki'o 'ula'ula (*Hibiscus clayi*) that was planted in the Arboretum about 30 years ago.

The coastal bluffs contain nearly all of the naturally occurring native plants, and the populations at Hawea Point and Makaluapuna Point form the most diverse and intact communities within the project. While none of the native plants currently there are Endangered species, these two areas constitute a special habitat that is worthy of protection. The trail alignments through these areas should be carefully laid out to avoid damaging these resources. While not currently growing on Hawea Point, the location where the Endangered 'āwiwi (*Centaurium sebaeoides*) was formerly found is known. It is important that the trail avoid this area as well. Some level of interpretation of the native plant resources would be worthwhile and would enhance the conservation focus.

There are no particular issues or concerns regarding the botanical resources in either the developed areas or in the undeveloped brushlands.

The Arboretum area has a few rare species, including one Endangered koki'o 'ula'ula, which were planted there. Plans to restore this area to some level of its former condition will enhance the protection of these species and feature them as items of interest.

With the above comments and recommendations regarding the coastal bluffs at Hawea Point and Makaluapuna Point, and the Aroboretum area, there are no further concerns, and the development of the Kapalua Coastal Trail should have no significant negative impacts on the botanical resources in this part of West Maui.

Of general concern is that the trail be developed using accepted trail construction practices regarding slope and grade, and the use of water-bars so that excessive runoff and erosion are avoided.

PLANT SPECIES LIST

Following is a checklist of all those vascular plant species inventoried during the field studies. Plant families are arranged alphabetically within each of four groups: Ferns, Gymnosperms, Monocots and Dicots. Taxonomy and nomenclature of the Ferns are in accordance with Palmer (2003). The Gymnosperms, Monocots and Dicots are in accordance with Wagner et al. (1999), and Staples and Herbst (2005).

For each species, the following information is provided:

1. Scientific name with author citation
2. Common English or Hawaiian name.
3. Bio-geographical status. The following symbols are used:
   endemic = native only to the Hawaiian Islands; not naturally occurring anywhere else in the world.
   indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).
   Polynesian = those plants brought to the islands by the Hawaiians during their migrations.
   non-native = all those plants brought to the islands intentionally or accidentally after western contact.
4. Abundance of each species within the project area:
   abundant = forming a major part of the vegetation within the project area.
   common = widely scattered throughout the area or locally abundant within a portion of it.
   uncommon = scattered sparsely throughout the area or occurring in a few small patches.
   rare = only a few isolated individuals within the project area.

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
FERNS			
NEPHROLEPIDACEAE (Sword Fern Family)			
Nephrolepis cordifolia (L.) C. Presl	*ni'ani'au*	indigenous	rare
Nephrolepis multiflora (Roxb.) F.M. Jarret & C.V.Morton	----------	non-native	rare
POLYPODIACEAE (Polypody Fern Family)			
Phymatosorus grossus (Langsdon&Fisch.) Brownlie	*laua'e*	non-native	rare
THELYPTERIDACEAE (Marsh Fern Family)			
Christella parasitica (L.) H. Lev.	----------	non-native	rare
GYMNOSPERMS			
ARAUCARIACEAE (Araucaria Family)			
Araucaria columnaris (Forst.f.) Hook.	Cook pine	non-native	uncommon
MONOCOTS			
AGAVACEAE (Agave Family)			
Cordyline fruticosa (L.) A.Chev.	*ki*	Polynesian	rare
Furcraea foetida (L.) Haw.	Mauritius hemp	non-native	uncommon
ARACEAE (Aroid Family)			
Alocasia macrorrhizos (L.) G. Don	*'ape*	Polynesian	rare
Epipremnum pinnatum (L.) Engl.	taro vine	non-native	rare
Syngonium auritum (L.) Schott	five-finger	non-native	rare
ARECACEAE (Palm Family)			
Cocos nucifera L.	*niu*	Polynesian	rare
Dypsis lutescens L(H.Wendl.) Beentje & J. Dransfield	golden-fruited palm	non-native	rare
BROMELIACEAE (Bromeliad Family)			

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
Neoregelia sp.	----------	non-native	rare
COMMELINACEAE (Spiderwort Family)			
Commelina diffusa N.L. Burm.	*honohono*	non-native	rare
CYPERACEAE (Sedge Family)			
Cyperus gracilis R. Br.	McCoy grass	non-native	rare
Cycreus polystachyos (Rottb.) P. Beauv.	----------	indigenous	rare
Cyperus rotundus L.	nut-sedge	non-native	rare
Fimbristylis cymosa R. Br.	*mau'u 'aki'aki*	indigenous	uncommon
Kyllingia brevifolia Rottb.	*kilio'opu*	non-native	rare
Kyllingia nemoralis o(J.R.Forster & G. Forster) Dandy ex Hutchinson & Dalziel	*kilio'opu*	non-native	uncommon
LILIACEAE (Lily Family)			
Asparagus densiflorus (Kunth) Jessop	asparagus-fern	non-native	rare
MUSACEAE (Banana Family)			
Musa acuminata x balbisiana Colla	banana	non-native	
POACEAE (Grass Family)			
Axonopus compressus (Sw.) P.Beauv.	carpetgrass	non-native	uncommon
Brachiaria mutica (Forssk.) Stapf	California grass	non-native	rare
Brachiaria subquadripara (Trin.) Hitch.	----------	non-native	rare
Cenchrus echinatus L.	common sandbur	non-native	rare
Chloris barbata (L.) Sw.	swollen fingergrass	non-native	uncommon
Cynodon dactylon (L.) Pers.	*manienie*	non-native	common
Digitaria ciliaris (Roetz.) Koeler	Henry's crabgrass	non-native	rare
Digitaria fuscescens (K.Presl) Henr.	creeping *kukaepua'a*	non-native	rare
Digitaria insularis (L.) Mez ex Ekman.	sourgrass	non-native	uncommon
Digitaria violascens Link	*kukae pua'a uka*	non-native	rare

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
Eleusine indica (L.) Gaertn.	wiregrass	non-native	uncommon
Eragrostis pectinacea (Michx.) Nees	Carolina lovegrass	non-native	rare
Melinis repens (Willd.) Zizka	Natal redtop	non-native	rare
Oplismenus hirtellus (L.) P. Beauv.	basketgrass	non-native	rare
Panicum maximum Jacq.	Guinea grass	non-native	common
Paspalum conjugatum Bergius	Hilo grass	non-native	uncommon
Paspalum dilatum Poir.	Dallis grass	non-native	rare
Pennisetum clandestinum Chiov.	Kikuyu grass	non-native	rare
Pennisetum purpureum Schumach.	Napier grass	non-native	rare
Setaria verticillata (L.) P. Beauv.	bristly foxtail	non-native	rare
Sporobolus indicus (L.) R.Br.	West Indian dropseed	non-native	uncommon
Sporobolus virginicus (L.) Kunth	*'aki'aki*	indigenous	uncommon
Stenotaphrum secundatum (Walter) Kuntze	St. Augustine grass	non-native	rare
Zoysia matrella (L.) Merrill	zoysia grass	non-native	rare
ZINGIBERACEAE (Ginger Family)			
Zingiber zerumbet (L.) Sm.	*'awapuhi*	Polynesian	rare
DICOTS			
ACANTHACEAE (Acanthus Family)			
Asystasia gangetica (L.) T.Anderson	Chinese violet	non-native	uncommon
Thunbergia fragrans Roxb.	sweet clock-vine	non-native	rare
AIZOACEAE (Fig-marigold Family)			
Lampranthus amoenus (Salm-Dyck) N.E. Brown	*'akulikuli lei*	non-native	rare
Sesuvium portulacastrum (L.) L.	*'akulikuli*	indigenous	uncommon
Tetragonia tetragonioides (Pall.) Kuntz.	New Zealand spinach	non-native	rare
AMARANTHACEAE (Amaranth Family)			

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
Alternanthera pungens Kunth	khaki weed	non-native	rare
Amaranthus spinosus L.	spiny amaranth	non-native	rare
Amaranthus viridis L.	slender amaranth	non-native	rare
ANACARDIACEAE (Mango Family)			
Mangifera indica L.	mango	non-native	rare
Schinus terebinthifolius Raddi	Christmas berry	non-native	uncommon
APIACEAE (Parsley Family)			
Centella asiatica (L.) Urb.	Asiatic pennywort	non-native	rare
Ciclospermum leptophyllum (Pers.) Sprague	fir-leaved celery	non-native	rare
APOCYNACEAE (Dogbane Family)			
Carissa macrocarpa (Ecklon) A.de Candolle	Natal plum	non-native	rare
Nerium oleander L.	oleander	non-native	rare
Plumeria obtusa L.	Singapore plumeria	non-native	rare
ARALIACEAE (Ginseng Family)			
Shefflera actinophylla (Endl.) Harms	octopus tree	non-native	uncommon
ASTERACEAE (Sunflower Family)			
Ageratum conyzoides L.	*maile hohono*	non-native	rare
Bidens pilosa L.	Spanish needle	non-native	rare
Calyptocarpus vialis Less	----------	non-native	uncommon
Conyza bonariensis (L.) Cronq.	hairy horseweed	non-native	uncommon
Crassocephalum crepidioides (Benth.) S. Moore	----------	non-native	rare
Emilia fosbergii Nicolson	red *pualele*	non-native	uncommon
Hypochoeris glabra L.	smooth cat's ear	non-native	rare
Pluchea carolinensis (Jacq.)G.Don	sourbush	non-native	uncommon
Pluchea indica (L.) Less.	Indian fleabane	non-native	uncommon
Sonchus oleraceus L.	*pualele*	non-native	uncommon

SCIENTIFIC NAME	SCIENTIFIC NAME	STATUS	ABUNDANCE
Sphagneticola trilobata (L.) Pruski	wedelia	non-native	uncommon
Synedrella nodiflora (L.) Gaertn.	nodeweed	non-native	rare
Tridax procumbens L.	coat buttons	non-native	rare
Verbesina encelioides (Cav.) Benth.&Hook.	golden crown-beard	non-native	rare
Youngia japonica (L.) DC.	Oriental hawksbeard	non-native	rare
BIGNONIACEAE (Bignonia Family)			
Macfadyena unguis-cati (L.) A. Gentry	cats-claw climber	non-native	rare
Spathodea campanulata P. Beauv.	African tulip-tree	non-native	rare
BORAGINACEAE (Borage Family)			
Cordia sebestena L.	*kou haole*	non-native	rare
Heliotropium curassavicum L.	*kipukai*	indigenous	rare
Tournefortia argentea L. fil	tree heliotrope	non-native	rare
BRASSICACEAE (Mustard Family)			
Coronopus didymus (L.) Sm.	swinecress	non-native	rare
Lepidium virginicum L.	pepperwort	non-native	rare
CACTACEAE (Cactus Family)			
Hylocereus undatus (Haw.) Britton&Rose	night-blooming cereus	non-native	uncommon
Opuntia ficus-indica (L.) Mill.	*panini*	non-native	rare
CARICACEAE (Papaya Family)			
Carica papaya L.	papaya	non-native	rare
CASUARINACEAE (She Oak Family)			
Casuarina equisetifolia Stickm.	common ironwood	non-native	common
Casuarina glauca Siebold ex Spreng.	long-leaf ironwood	non-native	uncommon
CHENOPODIACEAE (Goosefoot Family)			
Atriplex semibaccata R.Br.	Australian saltbush	non-native	rare
CLUSIACEAE (Mangosteen Family)			

SCIENTIFIC NAME	SCIENTIFIC NAME	STATUS	ABUNDANCE
Calophyllum inophyllum L.	*kamani*	non-native	rare
Clusia rosea Jacq.	autograph tree	non-native	rare
COMBRETACEAE (Indian Almond Family)			
Conocarpus erectus L.	buttonwood	non-native	rare
Terminalia catappa L.	false *kamani*	non-native	rare
CONVOLVULACEAE (Morning Glory Family)			
Ipomoea alba L.	moonflower	non-native	rare
Ipomoea indica (J.Burm.) Merr.	*koali awahia*	indigenous	rare
Ipomoea obscura (L.) Ker-Gawl.	----------	non-native	rare
Ipomoea ochracea (Lindl.) G. Don	----------	non-native	uncommon
Ipomoea pes-caprae (L.) R.Br.	*pohuehue*	indigenous	uncommon
Ipomoea triloba L.	little bell	non-native	rare
Jacquemontia ovalifolia (Choisy) H.Hallier subsp. Sanwicensis(A.Gray)K.Robertson	*pa'u o Hi'iaka*	endemic	uncommon
Merremia tuberosa (L.) Rendle	wood rose	non-native	rare
CUCURBITACEAE (Gourd Family)			
Coccinia grandis (L.) Voigt	ivy gourd	non-native	rare
Momordica charantia L.	balsam pear	non-native	rare
EUPHORBIACEAE (Spurge Family)			
Aleurites moluccana (L.) Willd.	*kukui*	polynesian	uncommon
Chamaesyce hirta (L.) Millsp.	hairy spurge	non-native	rare
Chamaesyce hypericifolia (L.) Millsp.	graceful spurge	non-native	rare
Chamaesyce prostrata (Aiton) Small	prostrate spurge	non-native	rare
Chamaesyce thymifolia (L.) Millsp.	----------	non-native	rare
Euphorbia cyathophora J.A. Murray	Mexican fire plant	non-native	rare
Manihot esculenta Crantz	manioc	non-native	rare
Phyllanthus debilis Klein ex Willd.	niruri	non-native	rare

SCIENTIFIC NAME	SCIENTIFIC NAME	STATUS	ABUNDANCE
Phyllanthus tenellus Roxb.	----------	non-native	rare
Ricinus communis L.	Castor bean	non-native	uncommon
FABACEAE (Pea Family)			
Acacia confusa Merr.	Formosa koa	non-native	rare
Acacia farnesiana (L.) Willd.	klu	non-native	rare
Alysicarpus vaginalis (L.) DC.	----------	non-native	rare
Cajanus cajan (L.) Millsp.	pigeon pea	non-native	rare
Chamaecrista nictitans (L.) Moench	partridge pea	non-native	uncommon
Crotalaria pallida Aiton	smooth rattlepod	non-native	rare
Desmanthus pernambucanus (L.) Thellung	slender mimosa	non-native	uncommon
Desmodium incanum DC	Spanish clover	non-native	uncommon
Desmodium tortuosum (Sw.) DC.	Florida beggarweed	non-native	rare
Desmodium triflorum (L.) DC.	----------	non-native	rare
Erythrina variegata L.	fastigiate tropical coral	non-native	rare
Indigofera hendecaphylla Jacq.	creeping indigo	non-native	rare
Indigofera suffruticosa Mill.	*iniko*	non-native	rare
Leucaena leucocephala (Lam.) de Wit	*koa haole*	non-native	uncommon
Macroptilium atropurpureum (DC) Urb.	----------	non-native	uncommon
Macroptilium lathyroides (L.) Urb.	wild bean	non-native	rare
Medicago lupulina L.	black medick	non-native	rare
Neonotonia wightii (Wight&Arnott) Lackey	tineroo	non-native	uncommon
Pithecellobium dulce (Roxb.) Benth.	*'opiuma*	non-native	rare
Prosopis pallida (Humb.&Bonpl.ex Willd) Kunth	*kiawe*	non-native	uncommon

SCIENTIFIC NAME	SCIENTIFIC NAME	STATUS	ABUNDANCE
Samanea saman (Jacq.) Merr.	monkeypod	non-native	uncommon
Senna pendula (Humb.&Bonpl.ex Willd.) H.Irwin & Barneby Merr.	----------	non-native	rare
Senna suratttensis (N.L.Burm.) H.Irwin & Barneby	*kolomona*	non-native	uncommon
GOODENIACEAE (Goodenia Family)			
Scaevola taccada (Gaertn.) Roxb.	*naupaka kahakai*	indigenous	common
MALVACEAE (Mallow Family)			
Abutilon grandifolium (Willd.) Sweet	hairy abutilon	non-native	uncommon
Hibiscus arnottianus A. Gray	*koki'o ke'oke'o*	endemic	rare
Hibiscus clayi O. & I. Degener	*koki'o 'ula'ula*	endemic	rare
Hibiscus rosa-sinensis L.	hybrid hibiscus	endemic	rare
Hibiscus waimeae A. Heller	*koki'o ke'oke'o*	endemic	rare
Malvastrum coromandelianum (L.) Garcke.	false mallow	non-native	uncommon
Sida fallax Walp.	*'ilima*	indigenous	uncommon
Sida rhombifolia L.	Cuban jute	non-native	rare
Talipariti tileaceum (L.) Fryxell	*hau*	Polynesian	rare
Thespesia populnea (L.) Sol.ex Correa	*milo*	Polynesian	rare
MORACEAE (Mulberry Family)			
Aetocarpus altilis R. & G. Forster	*'ulu*	Polynesian	rare
Artocarpus heterophyllus Lamarck	jackfruit	non-native	rare
Ficus microcarpa L. fil.	Chinese banyan	non-native	rare
MYRTACEAE (Myrtle Family)			
Eucalyptus rudis Endl.	desert gum	non-native	rare
Psidium guajava L.	guava	non-native	rare
Syzygium cumini (L.) Skeels	Java plum	non-native	uncommon
NYCTAGINACEAE (Four-o'clock Family)			

SCIENTIFIC NAME	SCIENTIFIC NAME	STATUS	ABUNDANCE
Boerhavia coccinea Mill.	---------	non-native	rare
Boerhavia herbstii Fosb.	*alena*	non-native	rare
Bougainvillea spectabilis Willd.	bougainvillea	non-native	rare
Mirabilis jalapa L.	four-o'clock	non-native	rare
OXALIDACEAE (Wood Sorrel Family)			
Oxalis corniculata L.	yellow wood sorrel	indigenous	rare
Oxalis debilis Kunth	pink wood sorrel	non-native	rare
PASSIFLORACEAE (Passion Flower Family)			
Passiflora edulis Sims	passion fruit	non-native	rare
Passiflora foetida L.	love-in-a-mist	non-native	rare
Passiflora suberosa L.	*huehue haole*	non-native	uncommon
PLUMBAGINACEAE (Plumbago Family)			
Plumbago zeylanica L.	*'ilie'e*	non-native	rare
POLYGONACEAE (Buckwheat Family)			
Coccoloba uvifera (L.)	sea-grape	non-native	rare
PORTULACACEAE (Purslane Family)			
Portulaca oleracea L.	pigweed	non-native	rare
Portulaca pilosa L.	----------	non-native	uncommon
PRIMULACEAE (Primrose Family)			
Anagallis arvensis L.	scarlet pimpernel	non-native	uncommon
RHAMNACEAE (Buckthorn Family)			
Colubrina asiatica (L.) Brongn.	*'anapanapa*	indigenous	rare
ROSACEAE (Rose Family)			
Osteomeles Anthyllidifolia (Sm.) Lindl.	*'u'ulei*	indigenous	rare
RUBIACEAE (Coffee Family)			

SCIENTIFIC NAME	SCIENTIFIC NAME	STATUS	ABUNDANCE
Spermacoce assurgens Ruiz & Pav.	buttonweed	non-native	rare
SAPINDACEAE (Soapberry Family)			
Dodonaea viscosa Jacq.	*'a'ali'i*	indigenous	rare
SOLANACEAE (Nightshade Family)			
Lycium sandwicense A.Gray	*'ohelo kai*	indigenous	uncommon
Nicotiana glauca R.C. Graham	tree tobacco	non-native	rare
Solanum americanum Mill.	*popolo*	indigenous	rare
Solanum seaforthianum Andr.	----------	non-native	rare
STERCULIACEAE (Cacao Family)			
Waltheria indica L.	*'uhaloa*	indigenous	rare
THYMELAEACEAE ('Akia Family)			
Wikstroemia uva-ursi A.Gray	*'akia*	endemic	uncommon
VERBENACEAE (Verbena Family)			
Lantana camara L.	lantana	non-native	uncommon
Stachytarpheta jamaicensis (L.) Vahl	Jamaica vervain	non-native	uncommon
Stachytarpheta cayennensis (Rich.) Vahl	nettle-leaved vervain	non-native	rare
Verbena litoralis Kunth	*ha'u owi*	non-native	rare

FAUNA SURVEY REPORT

SURVEY METHODS

A walk-through survey method was conducted in conjunction with the botanical survey covering the entire 3.3 miles of the trail corridor. Field observations were made with the aid of binoculars and by listening to vocalizations. Notes were made on species abundance, activities and location as well as observations of trails, tracks scat and signs of feeding. In addition an evening visit was made to the area to record crepuscular activities and vocalizations and to see if there was any evidence of occurrence of the Endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) in the area.

RESULTS

MAMMALS

Only three species were observed in the project area during three site visits to the property. Taxonomy and nomenclature follow Tomich (1986).

Mongoose (*Herpestes auropunctatus*) - One mongoose was seen in the Arboretum area. Mongoose are widespread and feed on rodents and birds.

Roof rats (*Rattus rattus*) – One rat was seen along a trail to the beach during the evening survey. Rats are common, feeding on a variety of seeds, fruits, vegetation and bird eggs.

Domestic dog (*Canis familiaris*) – Dogs as pets were seen at beaches and along roads and sidewalks with their owners. Tracks were seen at Hawea Point.

Dense vegetation prevented good visibility of ground dwelling animals, but a significant population of mice (*Mus domesticus*) and cats (*Felis catus*) would be expected. Mice feed on seeds, fruits and herbaceous vegetation and cats feed on rodents and birds. Cats can be major predators of ground-nesting seabirds.

A special effort was made to look for the native Hawaiian hoary bat by making an evening survey at Hawea Point. When present in an area these bats can be easily identified as they forage for insects, their distinctive flight patterns clearly visible in the glow of twilight. No evidence of such activity was observed though visibility was excellent. This area does not represent ideal bat habitat and there have been no reports of bat sightings in the vicinity.

BIRDS

Birdlife was moderate in both diversity and numbers considering the large size of the project area and the wide range of habitats. An ample supply of grass and herbaceous plant seeds were available following a wet winter, but flowers and fruits were sparse as well as insects. Twelve species of birds were recorded during three visits to the property, including one indigenous seabird and eleven common, introduced birds. Taxonomy and nomenclature follow American Ornithologists' Union (2005).

Common myna (*Acridotheres tristis*) – Mynas were abundant on all parts of the project area in all types of habitats, feeding, socializing and flying about.

Zebra dove (*Geopelia striata*) – Zebra doves were common throughout the area in small groups feeding in clearings and calling from trees.

Northern cardinal (*Cardinalis cardinalis*) – These bright red birds with loud, distinctive calls were common in the areas with trees and brush.

House sparrow (*Passer domesticus*) – Sparrows were common around developed areas and homes where they congregate in trees.

House finch *(Carpodacus mexicanus)* – Pairs of these finches were seen in forested areas and especially around ironwood trees.

'Ua'u kani, Wedge-tailed shearwater (*Puffinus pacificus*) – Approximately 20 nesting burrows were observed in native shrubland at Hawea Point. Birds were seen flying in from the ocean after sunset and heard moaning in their burrows. These indigenous seabirds used to be plentiful, but now struggle to survive in land-based colonies due to numerous predators (cats, mongoose and dogs) and habitat destruction.

Japanese white-eye (*Zosterops japonica*) – A few white-eyes were seen and heard calling from trees in thicker vegetation.

Red-crested cardinal (*Paroaria coronata*) – A few individuals and pairs were seen in trees around Kapalua Beach and at Honokahua.

Gray francolin (*Francolinus pondicerianus*) – A few pairs were seen in fairway margins and forest clearings.

Rock dove (*Columba livia*) – A few quite tame individuals were seen on lawns at Kapalua Beach and flying about.

Spotted dove (*Streptopelia chinensis*) – These large doves were inexplicably rare throughout the project area. Two were seen.

Chicken (*Gallus gallus*) – A few chickens were seen and heard around a residence in Kahauiki Valley where they were no doubt domesticated.

A few migratory birds that one might expect to see along the coastline such as kōlea (*Pluvialis fulva*), 'akekeke (*Arenaria interpres*), hunakai (*Calidris alba*) and 'ulili (*Heteroscelus incanus*) were absent due to their recent departure to their arctic breeding grounds.

No native forest birds were seen at this low elevation area. Avian diseases that are transmitted by mosquitoes have long since exterminated lowland populations of these birds.

While insects in general were not tallied, they were common throughout the area and fueled the bird activity observed. Although not found on the project site, one native Sphingid moth species, Blackburn's sphinx moth (*Manduca blackburni*), has been put on the federal Endangered species list and this designation requires special focus (USFWS 2000). Blackburn's sphinx moth occurs on Maui although it has not been found in this area. Its native host plants are species of 'Aiea (*Nothocestrum*) and a non-native alternative host plant is tree tobacco (*Nicotiana glauca*). There are no 'aiea on or near the project area but about 5 tree tobacco plants were seen growing in one disturbed area. Each of these plants was carefully examined but no Blackburn's sphinx moth or their larvae were observed.

DISCUSSION AND RECOMMENDATIONS

Fauna surveys are seldom comprehensive due to the short windows of observation, the seasonal nature of animal activities and the usually unpredictable nature of their daily movements. This survey would have turned up more non-native and migratory species had it been extended to different times of the year.

Of the twelve species of birds seen, only one, the 'ua'u kani, is native to Hawaii. While still relatively common on offshore islands, the 'ua'u kani that choose to nest on the main islands struggle to survive due to predators and habitat disturbance. Efforts are underway to protect these colonies where they occur. The colony at Hawea Point represents one such effort. The proposed trail needs to avoid the

burrow sites and walkers need to be educated about not contributing to threats and disturbances. The proposed trail corridor appears to adequately avoid burrow sites.

Other than the above 'ua'u kani, no other bird, mammal or insect requires any special environmental consideration. With the implementation of the above recommendations the Kapalua Coastal Trail is not expected to have any significant negative impacts on the fauna resources in this part of West Maui.

ANIMAL SPECIES LIST

Following is a checklist of the animal species inventoried during the field work. Animal species are arranged in descending abundance within two groups: Mammals and Birds. For each species the following information is provided:

1. Common name

2. Scientific name

3. Bio-geographical status. The following symbols are used:

   endemic = native only to Hawaii; not naturally occurring anywhere else in the world.
   indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).
   non-native = all those animals brought to Hawaii intentionally or accidentally after western contact.
   migratory = spending a portion of the year in Hawaii and a portion elsewhere. In Hawaii the migratory birds are usually in the overwintering/non-breeding phase of their life cycle.

4. Abundance of each species within the project area:

   abundant = many flocks or individuals seen throughout the area at all times of day.
   common = a few flocks or well scattered individuals throughout the area.
   uncommon = only one flock or several individuals seen within the project area.
   rare = only one or two seen within the project area.

COMMON NAME	SCIENTIFIC NAME	STATUS	ABUNDANCE
MAMMALS			
Mongoose	*Herpestes auropunctatus*	non-native	rare
Roof rat	*Rattus rattus*	non-native	rare
Domestic dog	*Canis familiaris*	non-native	rare
BIRDS			
Common myna	*Acridotheres tristis*	non-native	abundant
Zebra dove	*Geopelia striata*	non-native	common
Northern cardinal	*Cardinalis cardinalis*	non-native	common
House sparrow	*Passer domesticus*	non-native	common
House finch	*Carpodacus mexicanus*	non-native	common
'ua'u kani, Wedge-tailed shearwater	*Puffinus pacificus*	indigenous	uncommon
Japanese white-eye	*Zosterops japonica*	non-native	uncommon
Red-crested cardinal	*Paroaria coronata*	non-native	uncommon
Gray francolin	*Francolinus pondicerianus*	non-native	uncommon
Rock dove	*Columbia livia*	non-native	uncommon
Spotted dove	*Streptopelia chinensis*	non-native	rare
Chicken	*Gallus gallus*	non-native	rare

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D

Archaeological Inventory Survey

SCS Project Number 688-1

AN ARCHAEOLOGICAL INVENTORY SURVEY FOR THE PROPOSED KAPALUA COASTAL TRAIL LOCATED IN THE AREAS OF KAPALUA AND HONOKĀHAU, HONOKAHUA AND NĀPILI 2 & 3 AHUPUA`A, LĀHAINĀ DISTRICT, ISLAND OF MAUI, HAWAI`I [TMK: (2) 4-2 AND 4-3 VARIOUS]

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March 2007

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ABSTRACT

At the request of Maui Land and Pineapple Company, Scientific Consultant Services (SCS), Inc. conducted Archaeological Inventory Survey of various land parcels on which the proposed Kapalua Coastal Trail is to be located. The project area generally lies within the *ahupua`a* of Honokahua and Nāpili 2 & 3, District of Lāhainā, Island of Maui, Hawai`i [TMK: (2) 4-2 and 4-3]. The approximate 3.5 mile proposed coastal trail provides linear shoreline access along much of the Kapalua and Honokahua coastline to Honolua Bay, with spurs that extend both inland and toward the ocean.

Previously recorded sites within the trail corridor were re-identified and assessed. These primarily included two sites (Site 50-50-01-1346 and -1347) first identified by Kirch (1973) on Hawea Point. No previously undocumented sites were identified within the entirety of the trail routing. Surface site clusters were identified at Hawea Point, in the central portion of the project area (Honokahua Burial Grounds), and beyond the trail terminus at Honolua Bay. Additional testing was not conducted at any of the previously identified sites during the current research as in the segments containing sites, the trail will not impede into subterranean contexts and second, all the documented sites are to be avoided and preserved.

As the overall goal of the coastal trail is to provide low-impact access along the coastline and more *mauka* areas ultimately connecting Kapalua with the Honolua Bay area, all identified sites are recommended for Preservation. All the sites have been documented and described (most, multiple times) and as they are to be preserved, no further work is recommended at the sites. A Preservation Plan detailing the interim and permanent preservation measures for all the sites along the coastal trail will be forwarded to the SHPD for review. Archaeological Monitoring is proposed along several segments should vegetation clearing be required.

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INTRODUCTION

At the request of Maui Land and Pineapple Company, Scientific Consultant Services (SCS), Inc. conducted Archaeological Inventory Survey of various land parcels on which the proposed Kapalua Coastal Trail is to be located. The present work follows a Field Inspection of the property in June, 2007. The project area generally lies within the *ahupua`a* of Honokahua and Nāpili 2 & 3, District of Lāhainā, Island of Maui, Hawai`i [TMK: (2) 4-2 and 4-3] (Figures 1 and 2). Archaeological fieldwork of the proposed routing, inclusive of alternate routes and spurs, was initially conducted by G. Tome, B.A. during a 3-day period commencing on June 5th and concluding June 7, 2006. A second phase of fieldwork was conducted over multiple days in March, 2007 by D. Perzinski, B.A., and project director M. Dega, Ph.D.

Inventory Survey was conducted to assess the presence/absence of archaeological sites within the corridor of the proposed Kapalua Coastal Trail route. If sites were indeed present within the corridor, they were to be evaluated for significance. As is discussed below, several previously recorded sites were present near the proposed trail alignment; these sites were evaluated in terms of previous recording standards. Another goal of the survey, albeit less crucial, was to determine the probability of archaeological deposits occurring in subterranean depths along the proposed routing, this in turn, delineating more sensitive/non-sensitive areas along the trail. This goal was less critical as the trail will be constructed on the surface, with intrusions into subterranean deposits being minimal and only potentially required in non-sandy areas. Research was focused on the presence/absence of above-ground sites. Overall, and in keeping with the proactive wishes of the developers, the results of the survey have allowed planners to re-route the trail around known sites and/or archaeologically sensitive areas.

The following text presents background information on the proposed project area and the results of the Inventory Survey. Please note that the primary mitigating strategy for sites near the proposed trail route is avoidance, wherein the trail has been re-routed around the sites discussed below, regardless of their varying levels of significance.

PROJECT AREA LOCATION

The approximate 3.5 mile proposed Kapalua Coastal trail provides linear shoreline access along much of the Kapalua and Honokahua coastline, with spurs that extend both inland and toward the ocean (Figure 3). Geographically, the proposed trail route is located on the lower, northwestern slope of what is commonly referred to as the West Maui Mountains. Path elevation above sea level extends from near sea level (a minimum elevation of approximately 0–12 meters

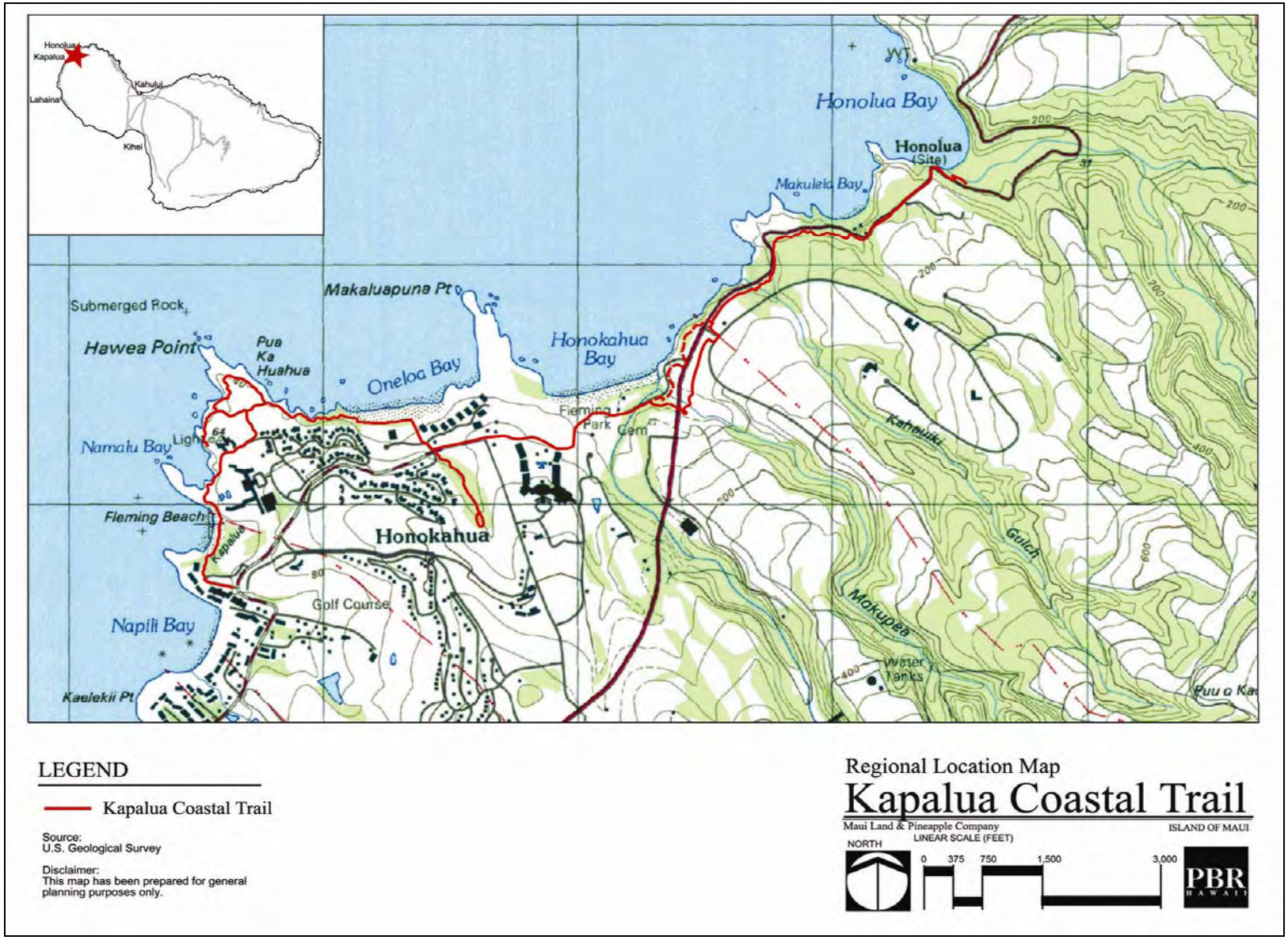

Figure 1: United States Geological Survey (USGS) Napili Quadrangle Showing Proposed Kapalua Coastal Trail Route.

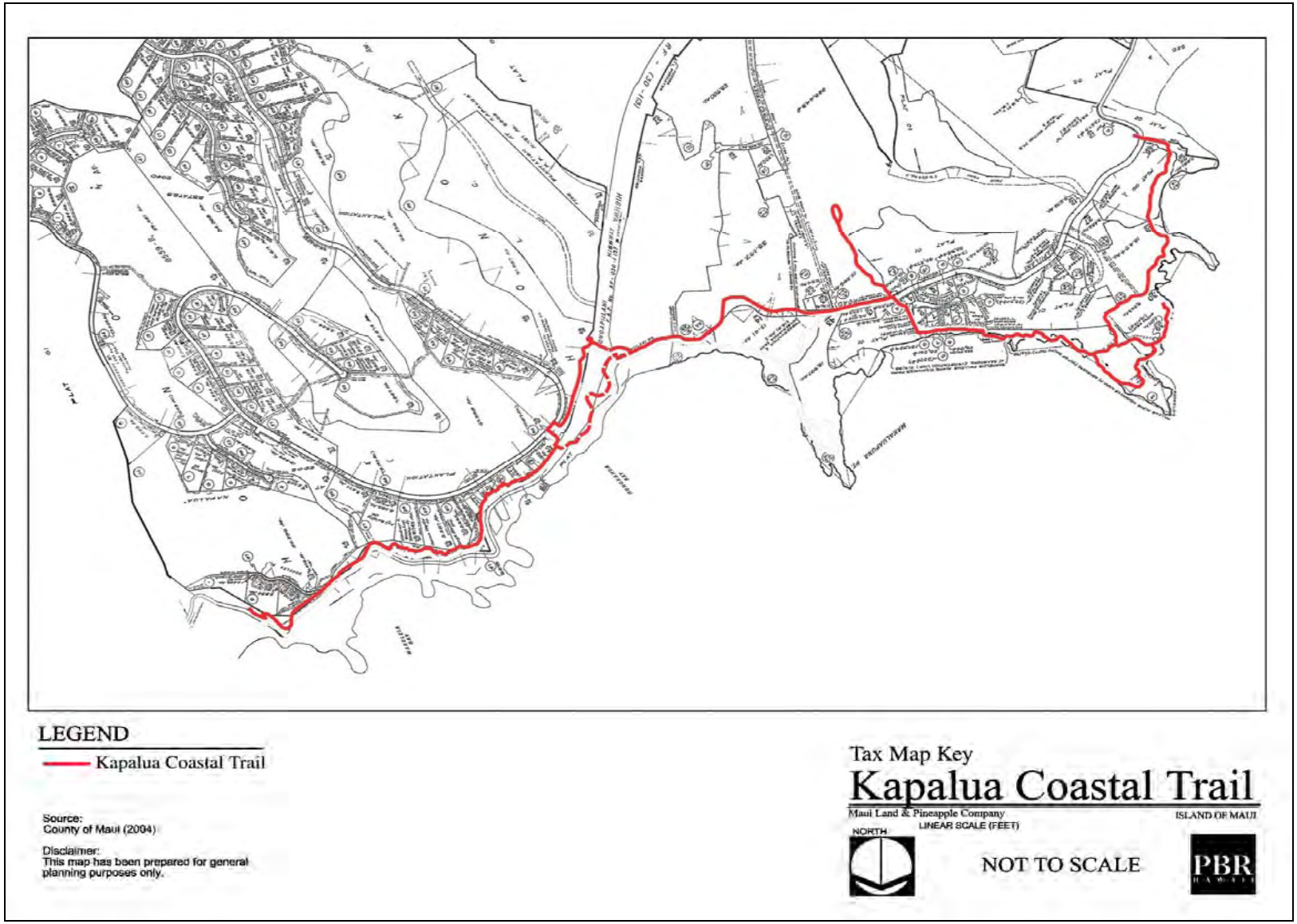

Figure 2: Tax Map Key [TMK] 4-2 and 4-3 Various Showing Proposed Kapalua Coastal Trail Route.

Figure 3: Aerial Photograph of the Proposed Kapalua Coastal Trail Showing the Location of Segments 1-29.

or 40 feet) to an approximated maximum elevation of 37 meters (120 feet). The western terminus of the proposed trail occurs near a public beach parking lot in the area known as Kapalua, and extends northeast toward the Honolua Bay Beach at its eastern terminus. The trail incorporates various types of terrain such as established infrastructure (*i.e.* paved concrete trails, asphalt parking lots, and gravel pathways), wooded areas, basalt outcrops, and disparate soil matrices from fill to sandy sediment.

SOIL SURVEY

While basalt outcrops are located mainly on the peninsulas (*i.e.* Hāwea Point), they are also observed along short portions of the trail route. Sandy matrices associated with the coastal shorelines were present up to 12 meters above mean sea level (amsl). Based on the Foote *et al*. (1972) soil survey, various types of matrices and uses exist throughout the proposed Kapalua Coastal Trail route. These are listed below:

A. `Alaeloa Silty Clay (AeC). Used for pineapple.
B. `Alaeloa Silty Clay (AeE). Used for pineapple, pasture, truck crops, orchards, wildlife habitat, and homesites.
C. Beaches (BS). No farming value, used for recreational purposes and resort development.
D. Dune Land (DL). Used for wildlife habitat, recreational areas, and as a source of Liming material.
E. Kahana Silty Clay (KbB). Used for sugarcane, pineapple, and homesites.
F. Kahana Silty Clay (KbC). Used for sugarcane, pineapple, and homesites.
G. Pulehu Clay Loam (PsA). Used for sugarcane, truck crops, and pasture.
H. A`a Lavaflows (rLW). Source (*i.e.* Foote et al. 1972) does not state use.
I. Rock Land (rRK). Used for pasture, wildlife habitat, and water supply.
J. Rough Broken Land (rRR). Used for watershed, wildlife habitat, and pasture.
K. Rough Broken and Stony Land (rRS). Used for pasture, wildlife habitat, and watershed.

VEGETATION REGIMES

An estimated 50 percent of the proposed Kapalua Coastal Trail route is located on currently covered (vegetation) lands, while the remaining 50 percent is located on lands previously developed as recreational areas. The terrain of the vegetated areas imitates that of a common shoreline peninsula: low areas, mild to steep grade slopes, and undulating basalt outcrops. Vegetation throughout the trail route is variable and includes introduced species such as beach *naupaka* (*Scaevola taccada*), ironwood (*Casuarina* sp.), Chinese violet (*Asystasia gangetica*), *koa haole* (*Leucaena leucocephala*), *kiawe* (*Prosopis pallida*), and Christmas berry (*Schinus terebinthifolius*). While movement throughout portions of the proposed trail route is

facilitated by a number of different pathways/roads, vegetation in most non-developed areas generally exceeds over three feet in height, thereby making ground visibility more challenging.

Current vegetation within the proposed Kapalua Coastal Trail was identified using Merlin (1980) and Whistler (1995). No testing was accomplished during this project.

COASTAL AND MARINE RESOURCES

The project area was not blessed with rich soils for cultivation, although it is possible that sweet potatoes—which Native Hawaiians managed to produce under some relatively marginal conditions—may have once been planted. The coastal and marine environments adjacent to the project area would have provided a far richer resource, and a much better reason for coming to this site in ancient times, for traditional subsistence foragers and fishermen.

Kirch's (1973) survey noted a large number of fish species in the near-coastal waters here, including: *weke* (*Mulloidichthys auriflamma*), *kumu* (*Upeneus prophyreus*), *mamo* (*Abudefduf abdominalis*), *manini* (*Acanthurus triostegus*), *palani* (*Acanthurus bariene*), *enenue* (*Kyphosus fuscus*), *kukala* (*Diodon hystrix*), *hinalea* (Family, Labridae), *uhu* (*Scarus perspicillatus*), *`ala`ihi* (*Holocentrus* sp.), *kala* (*Acanthurus* sp.), and *nehu* (*Anchoviella purpurea*). In addition to a relatively high density of gastropods and pelecypods (including *Nerita picea* and *Littorina pintado*), Kirch (1973) also noted at least five species of sea urchin: *Centrechinus paucispinus*, *Tripneustes gratilla*, *Podophora atrata*, *Heterocentrotus mammillatus*, and *Echinometra mathaei*.

TRADITIONAL AND HISTORIC SETTING

This section is predominantly based on information from several classic references on traditional Native Hawaiian lifeways and archaeological sites (*e.g.*, Thrum 1909, 1917; Walker 1931; Handy and Handy 1972; Sterling 1998). Additional information (cited as appropriate) has been gleaned from representative archaeological reports available at the SHPD library (Kapolei) and the SCS library (Honolulu). It is noteworthy that the Honokahua Burial Site (-1342) is not even mentioned in any of the standard oral history sources compiled by Sterling (1998). This illustrates that historic conditions and surface observations do not always correlate with traditional Native Hawaiian settlement patterns and site distribution, particularly as documented in subsurface excavation contexts (see EXPECTED FINDINGS).

PRE-CONTACT ERA

The project area is located in the modern political district of Lahaina, which comprises the entire leeward half of West Maui. Lahaina Town, located some 16 km (10 miles) to the south of the project area, has been the largest population center in leeward West Maui for quite some time. Handy and Handy (1972) quote Vancouver's naturalist and surgeon Menzies (in 1793) and traveler Arago (in 1819) as marveling at the state of cultivation and fertility of the greater Lahaina area, which was extensively planted in wet taro (*lo`i*) and other subsistence crops (*e.g.*, breadfruit, sweet potato, and coconut palms).

In traditional times, the current project area was probably more closely identified with the cultural district of Ka`anapali, starting north of Lahaina Town, and comprising roughly the northwest quadrant of West Maui. Ka`anapali District consisted of five major stream valleys draining the leeward slopes of West Maui, *i.e.*, Honokowai, Kahana, Honokahua, Honolua, and Honokohau. These valleys were all productive wet taro (*lo`i*) lands, with extensive systems of terracing reported from early historic and later times, into the early 20th century.

Compared with other populated regions of Maui, there are relatively few references in Sterling (1998) to the *ahupua`a* in and around the project area, especially to the south. Napili Ahupua`a is mentioned only once, in reference to a traditional battle. The neighboring *ahupua`a* to the south (Honokeana) is not mentioned, and the next land division (Alaeloa) is mentioned only once (a possible *heaiu*, see below). Further to the south, the *ahupua`a* of Honokowai and Kahana are mentioned numerous times. Honokahua Ahupua`a, the neighboring land division to the north of Napili, is mentioned twice, with increasing numbers of references as one moves northeast of Honokahua (especially Honolua and Honokohau).

Based on these observations, it is probable that the region in and around the project area was inhabited and farmed, at least in later pre-Contact times through the early historic era; however, it was unlikely to have supported a particularly large population.

HEIAU FROM MAHINAHINA TO HONOKOHAU AHUPUA`A

The early surveys of Thrum (1909, 1917) and Walker (1931) identified seven religious shrines (*heiau*) from Mahinahina to Honokohau Ahupua`a. No *heiau* were documented in the project area (Napili 2-3 Ahupua`a), nor in the adjacent (to the southwest) Honokeana Ahupua`a. The closest *heiau* reported by these early surveys was located in the adjacent (to the northeast) Honokahua Ahupua`a (Kahauiki Heiau, Walker Site No. 16), just over 1.0 km (0.6 miles) northeast of the project area. This "small irregular platform" (Sterling 1998:52) was located "a

short distance up the west side of a gulch of the same name" [*i.e.*, Kahauili] (*ibid.*). This gulch drains into the eastern terminus of Honokahua Bay, on the other (northeast) side (from the project area) of the Honokahua Burial Site (-1342). Of the other six *heiau* between Mahinahina to Honokohau Ahupua`a documented by Walker and/or Thrum, only three were visited/confirmed. From south (Mahinahina Ahupua`a) to north (Honokohau Ahupua`a), these six *heiau* are as described as follows:

- Kahana Heiau (Walker Site No. 12), located along the seashore, destroyed (Mahinahina Ahupua`a);
- Hihiho Heiau (Walker Site No. 14), located along "County Road near Kalaeokaea Point" (*ibid.*), destroyed to built road (Mailepai or Kahana Ahupua`a);
- Mailepai Heiau (Walker Site No. 13), located near Mailepai Point, "washed away" (*ibid.*), destroyed (Mailepai Ahupua`a);
- Unnamed Heiau (Walker Site No. 15), located on a "bluff at south side of rocky cove between Alaeloa and Papaua Points" described as a "small rectangular enclosure" (*ibid.*) with a small platform in the interior SW corner (Alaeloa Ahupua`a);
- Honua`ula Heiau (Walker Site No. 18), located at Honolua Gulch, described as the remains of old stone platforms and walls, with pavement in the entire interior (Honolua Ahupua`a);
- `Ili`ilikea Heiau (Walker Site No. 19, Rogers and Rosendahl 1992), located "on the top of ridge at west side of Punaha Gulch, just above the road", described as a site complex of enclosures, pavements, and burials occupying an area of at least 30,000 square feet (Honokahau Ahupua`a).

OTHER LARGE-SCALE SITES AND FEATURES FROM MAHINAHINA TO HONOKOHAU AHUPUA`A

Several other large-scale sites and features in the district of Ka`anapali attest to the area's settlement history in traditional times. Ka`anapali District is noted for an *alaloa* (a path or trail) that reportedly encircled the entire island. Walker (cited in Sterling 1998:46) wrote:

> The north end of Maui also is traversed by a paved trail. Sections of it can be seen from Honolua to Honokohau to Kahakuloa. It is paved with beach rocks and has a width of four to six feet…This trail is also spoken of as the Kihapiilani Trail.

A large *heiau* dedicated to human sacrifice (Walker Site No. 20) was reportedly located on a cliff on the east side of Honokohau Valley, some 60 m (200 ft.) above the seashore (Honokohau Ahupua`a, east of the Honokahua Burial Site). Kamakau (in Sterling 1998) reported oral history accounts of a 'death pit' at 'Waiuli' (also Honokohau Ahupua`a), near Honokohau and Honolua, into which dead commoners from Lahaina to Kahakuloa were thrown.

A *ko`a* (fishing shrine, Walker Site No. 17), located "[*makai*] to Honolua Park along the shore" (Honolua Ahupua`a), was described by Walker (Sterling 1998:53) as a "level space showing some paving with small stones." Walker (*ibid.*) also reported oral history accounts of a *hōlua* (slide or sledding ramp) at Honolua Ahupua`a, destroyed by the time of his survey (1920s-30s) by commercial pineapple agriculture.

SUBSISTENCE ECONOMY IN KA`ANAPALI DISTRICT

As stated above, the traditional district of Ka`anapali consisted of five major stream valleys (Honokowai, Kahana, Honokahua, Honolua, and Honokohau), all of which were extensively terraced for wet taro (*lo`i*) in early historic and later times (in Honokohau, well into the 1930s). Honokahua Valley, just northeast of the project area, was described as having wet taro (*lo`i*) lands, although of no great abundance (according to Handy quoting D.L. Fleming, in Sterling 1998:52).

Sweet potatoes were reportedly grown between Honokohau and Kahakuloa Ahupua`a, presumably on lower *kula* lands (Sterling 1998).

Kahana Ahupua`a, well south of the project area, was known as a place of salt gathering for the people of Lahaina (Sterling 1998).

HISTORICAL ERA

An 1831 census estimated the entire population of Ka`anapali District as 2,980 people, which was reduced to less than half (1,341) only five years later (Schmidt 1973). Whaling (centered on Lahaina Town) was the first commercial enterprise in West Maui, but it had more or less collapsed by the 1860s. Commercial sugarcane production was the next large capitalist venture in West Maui, starting as early as 1863, and it was focused between Ka`anapali and Lahaina.

The area in and around the project area, which was located at the margins of sugarcane enterprises in West Maui (Dorrance and Morgan 2000), was most important as a center of commercial ranching (cattle raising) and, subsequently, pineapple production.

In the late 18th to early 19th century, the entire *ahupua`a* of Honokahua, immediately adjacent to (north of) the project area was given to Isaac Davis by Kamehameha I. Following the death of Davis in 1810, the land was eventually passed on to a succession of owners, from John Young to both Davis' and Young's heirs (1835) to Davis' daughter (Kele Sally Davis) during the Mahele (1848) (LCA 8522-B, RP 2236). In the later 19th century, these lands were owned by

James Campbell, who first established the Honolua Ranch. Cattle ranching started in the area around this time, and was continued by Henry Perrine Baldwin, who acquired the lands from Campbell in 1890 (Fredricksen and Fredrickson 2003). In addition to ranching, other early (but not particularly successful) commercial activities included coffee.

Fredricksen and Fredricksen (2002) compiled data on 19 Land Commission Awards (LCA) for Honolua Ahupua`a, just northeast of the project area. These documents indicate land use for taro and sweet potato cultivation, *kula* lands (roughly 'pasture'), and house lots. One of these awards (LCA 4243C) is located at the mouth of the Honolua Stream, along the coast; it was used for sweet potato cultivation, which Native Hawaiians managed to practice even in the relatively poor (sandy) soils found at the coast.

David T. Fleming became manager of Honolua Ranch in 1911 (or 1912). Fleming was well-versed in pineapple production from the Haiku area and gradually began shifting the ranch's initiative to pineapple production. The Honolua Ranch/Baldwin Packers complex shifted from Honolua to Honokahua in 1915, and a pineapple cannery was constructed. A major commercial pineapple industry emerged in West Maui during the 1920s. The plantation communities of Honokahua and Napili emerged and developed as Honolua Ranch/Baldwin Packers pineapple operations grew. The population of the Lahaina area increased with the successful economic operations of the pineapple plantation. Baldwin Packers merged with MLP in 1962. After this time, much of the Honolua Ranch lands were converted for resort development, a process that continues to this day. Both the Ritz-Carlton Kapalua and the Kapalua Resort are part of this ongoing process.

It is worth reiterating at this point that the project area was probably never planted in pineapple (nor coffee, nor sugarcane), given its predominantly sand dune deposits and shoreline location.

The Honokahua Historic District (State Site No. 50-50-01-1340) is located just east of the project area. This historic district includes the plantation village of Honokahua, the Baldwin Packers cannery and associated facilities, Honolua Ranch Stables, Honolua Ditch (constructed in 1902), the Maui Pineapple Company offices, the Honolua Store, plantation camp housing, and two churches (Fredericksen 2001).

TRADITIONAL SETTLEMENT IN LĀHAINĀ DISTRICT: KAPALUA REGION

Kirch (1985) suggested a general settlement model for Lahaina District that involved coastal marine foraging and fishing with more upland agricultural pursuits. Dating at least from the later pre-Contact period (if not earlier), traditional people in this area would have moved between the coast and the upland agricultural fields to exploit the full range of resources available within the *ahupua`a*. Although semi-permanent and permanent habitation loci were constructed in both coastal and upland settings, substantial dwellings would have been unlikely in Dune Lands, which comprise between 40 and 50 percent of the proposed Kapalua Coastal Trail route.

Early occupation of Lāhainā District, in general, was documented from the Honokahua Burial Site, which yielded radiocarbon dates from as early as A.D. 700–800 (Donham 2000). These dates are among the earliest in the Hawaiian Islands. The dates, although arguably earlier than is currently thought for habitation in the area, intimate a long and continuous occupation of the Kapalua landscape.

PREVIOUS ARCHAEOLOGY AND SETTLEMENT PATTERNS

OVERVIEW

The majority of previous archaeological research conducted in leeward West Maui has been completed in and around the Lāhainā area, particularly in the Ka`anapali region, due to the large concentration of modern development. Lāhainā Town itself has also seen a profusion of archaeological studies; again, mostly related to development of the town through time. The history of Lāhainā from pre-Contact times through the present has been fairly well documented. Relatively less is known about the archaeology of the Honokahua-Kapalua area because it has not been developed as intensively as areas to the south and perhaps because it was not the major population center of leeward West Maui during traditional times. The Honokahua Burial Site (State Inventory Historic Properties 50-50-01-1342), however, remains the most significant traditional site in the vicinity of the proposed Kapalua Coastal Trail route. The results from archaeological investigations of the site have several important implications for the area in which the coastal trail route is situated.

IMMEDIATE VICINITY OF THE PROPOSED KAPALUA COASTAL TRAIL

Kirch (1973) conducted the first systematic archaeological survey in an area that now occurs in and around the proposed Kapalua Coastal Trail route (Figure 4).

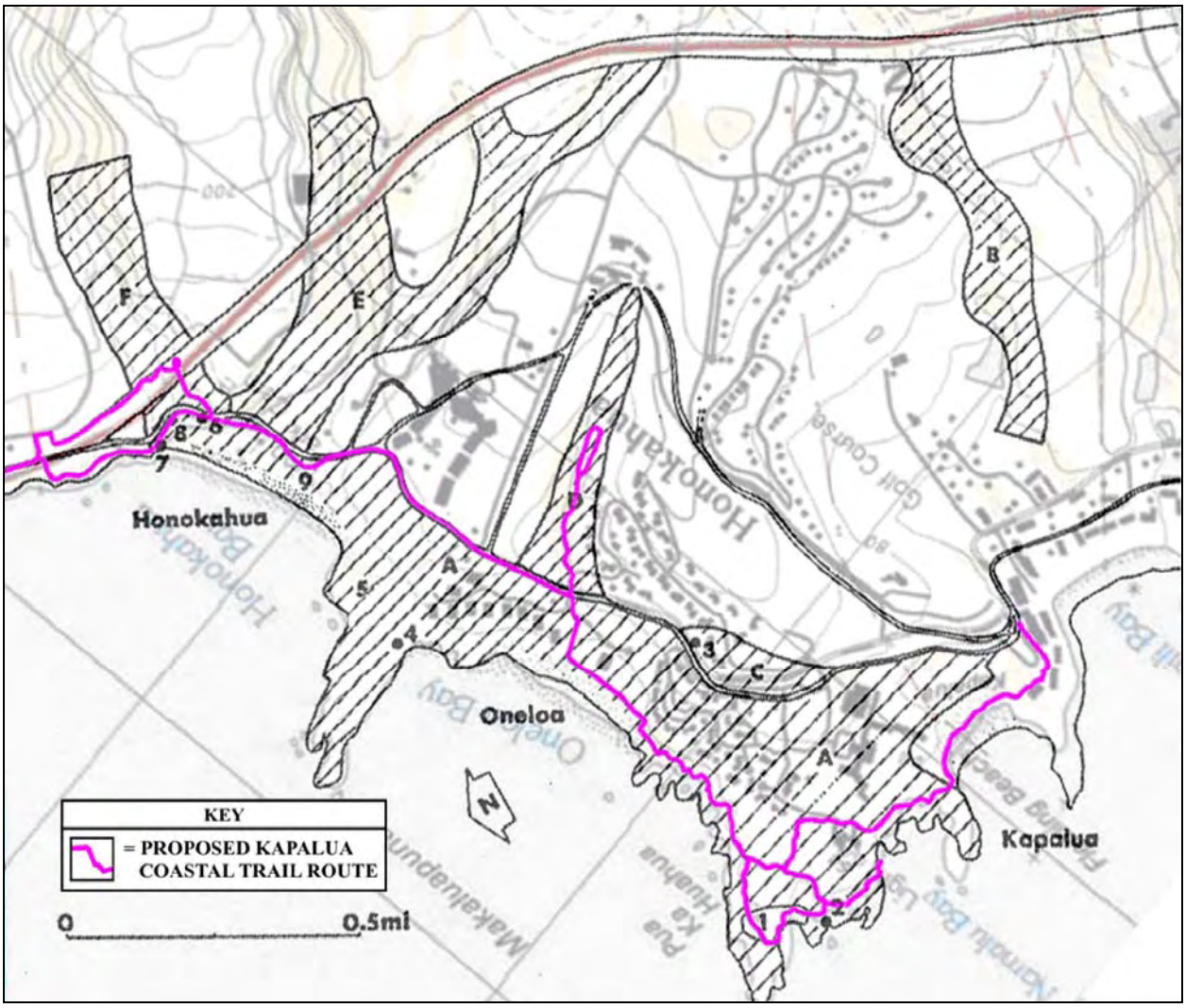

Figure 4: Kirch (1973:3) Survey Map of the Development Area with Coastal Trail Route Overlay.

Maui Land and Pineapple Company (MLP), Inc. contracted the B.P. Bishop Museum to conduct the survey in advance of development for the Honolua Development Area. The proposed coastal trail represents only a small portion of the entire Honolua Development Area, which extends from Kapalua to Honokahua, and includes mostly seashore and near-shore lands with some (limited) *mauka* uplands.

Kirch (1973, 1973) documented a total of nine, mostly traditional, archaeological sites in the Honolua Development Area. Most of these sites were located in and around Honokahua, and included the Honokahua Burial Site (Bishop Museum Site D13-9; State Site 50-50-01-1342). Two previously documented sites were identified during the current Archaeological Field

Inspection in the path of the proposed Kapalua Coastal Trail route; one site was excavated. These two sites identified by Kirch (1973a) were interpreted as:

- a small, temporary fishing village at TMK: 4-2-04: por.10 & por. 30 (SIHP No. 50-50-01-1346, Bishop Museum Site D13-1); the site consisted of eight features (labeled A through H), that included several small shelters, one *ahu* (stone cairn), and midden;

- a small shelter cave (State Site 50-50-01-1347, Bishop No. D13-2) beneath the overhanging oceanfront *pali*;

A total of 4.0 m^2 was excavated at the small, temporary fishing village (Site -1346) [Kirch 1973a]. Several formal tools were recovered during excavation: one unfinished bone fishhook, one bone fishhook blank, one shell adze fragment, ten coral abraders, one sea urchin abrader, and three dog tooth ornaments. Midden recovered from the surface and from the excavation units consisted of marine shells, sea urchins, fish bone, and *kukui* nut shell (*Aleurites moluccana*). A radiocarbon sample (charcoal) from an excavation at a small, temporary fishing camp which yielded a calibrated of A.D. 1400–1700.

In the Coconut Grove condominiums parcel (TMK: 4-2-04:26), Fredericksen (2001) dated a buried cultural layer, interpreted as a probable habitation site, to the later pre-Contact period (A.D. 1490–1665).

Two additional, brief archaeological surveys/field inspections were conducted on the adjacent parcel (TMK: 4-2-04:30) in which Kirch (1973, 1973a) documented the small, temporary fishing village and rockshelter. P. Rosendahl (1988a) did not locate any additional sites in the area. However, Kennedy (1990) recorded three additional sites, all stacked-rock features, which consisted of a low, soil-filled platform, an L-shaped alignment, and a C-shaped structure. These sites were relatively dated to traditional times. No excavation was conducted at these sites.

Archaeological Inventory Survey (Fredericksen and Fredericksen 1996, Fredericksen *et al*. 1994) and Archaeological Monitoring (Fredericksen 2001) were conducted on TMK: 4-2-04: 26. The survey area was extensively excavated with backhoe trenches and manual test units. No significant sites or features were identified during the Inventory Survey projects, although one area of buried sand dune deposits was recommended for Monitoring. Three sites were identified during the Monitoring program:

- State Site 50-50-03-4815 consisted of a buried (subsurface) cultural layer (interpreted as a probable habitation site) that measured approximately 15 cm thick, was located approximately 1.5 m below the ground surface, and contained three traditional artifacts (coral abrader, bone fishhook blank, and utilized basalt flake), shell midden, fire-cracked rock, and a hearth; one radiocarbon date indicated a later pre-Contact occupation (A.D. 1490–1665, 2 Sigma);

- Site -4814 was composed of a historic burial feature that contained two individuals, was located approximately 1.7–1.9 m below the ground surface, and cut into and through the cultural layer (-4815); the burial feature consisted of a stone-lined crypt, probably topped with a wooden cover; stratigraphic evidence and artifact style (of the nails used to construct the overlying cover) suggest that the burial feature dates from the late 19th to early 20th century;

- Site -5059 consisted of a scatter of fragmentary human remains, representing one or more individuals, in previously disturbed sediments; (footnotes 6 & 7, Fredericksen 2001).

In addition, P. Rosendahl (1988) conducted Archaeological Reconnaissance Survey at Kapalua Place, a residential development near Oneloa Bay. This project area included sand dune sediments; however, the 10.8 acre coastal parcel did not contain any significant surface sites or features. P. Rosendahl (1988b) subsequently conducted subsurface testing (excavation) by bulldozer, backhoe, and manually (auguring). No significant surface sites or features were located. No burials or human remains were observed.

Monahan (2005) recorded a subsurface, pre-historic cultural layer in TMK: 4-2-04:28 during an Archaeological Inventory Survey. In addition to simple stone tools, a radiocarbon sample from the cultural layer provided a 210 ± 60 B.P. date. Given the type of cultural material found in context with the radiocarbon sample, the site was interpreted as a temporary habitation area. These site types and dates are in accord with studies in the vicinity of the current project area.

HONOKAHUA BAY AND ENVIRONS

Kirch's (1973) survey led to the identification of six sites in and around Honokahua Bay, of which the Honokahua Burial Site (SIHP 50-50-01-1342, Bishop Museum Site D13-9) is the most significant. The site is located north of the proposed Kapalua Coastal Trail route on TMK: 4-2-04:14. First reported by Kirch (1973), the site represents one of the largest traditional Native Hawaiian cemeteries ever recorded, with over 1,000 sets of human remains recovered during excavation (Donham 1986, 1989, 2000; Pietrusewsky *et al.* 1991). Only the Mōkapu site in Kane`ohe (O`ahu) has yielded as many burials in one place (*cf.* Bowen 1961; Snow 1974;

Cleghorn 1987), and it is likely that additional remains—as yet undiscovered—are preserved *in situ* in the vicinity of the documented burial sites at Honokahua. The Honokahua Burial Site represents the single, most informative sample of human remains from traditional Native Hawaiian times.

The Honokahua Burial Site (-1342) is included with five other traditional sites in the Honokahua Archaeological District (-1340). The cemetery, which is included on the National Registry of Historic Places, was used by Native Hawaiians presumably as early as A.D. 700–800, to as late as the early 19th century (Donham 2000). Burials were located in stabilized dune sand deposits located just inland of, and slightly above (elevation), the seashore at Honokahua Bay. This north-facing location is significant because it, along with the prevailing northeast trade winds, has contributed to the formation of at least two generations of sand dunes: a lower and an upper dune. The upper dune is located just above the 20 m (65 ft) elevation. Traditional burials were located in both the upper and lower dunes. At least 1,029 sets of human remains were excavated. A complete description of this important site is clearly beyond the scope of this report (see Donham 1986, 1989, 2000; Ferguson *et al.* 1989; Pietrusewsky *et al.* 1991 for more details).

In addition to the Honokahua Burial Site, Donham's (1986) archaeological survey of the Kapalua Hotel Development Site 2-H led to the identification of seven additional sites, including two traditional features (-2015 and -2016, a trail remnant and a buried cultural layer, respectively), three historic ranching features (associated with the Honolua Ranch), and two features of indeterminate age.

Archaeological studies by Guerriero *et al*. (1993) and by Fredericksen and Fredericksen (1996; TMK: 4-2-04:26) on parcels just to the east of the Honokahua Burial Site led to the documentation of additional burials, which were interpreted as an extension of the Honokahua burial ground. Other identified sites in this area included a habitation site (-2873) and part of an historic trail (-2876).

In addition to the Honokahua Burial Site, Kirch (1973) also documented several other features: a stone enclosure (Bishop Museum D13-4, interpreted as a traditional house site) on a terraced area, with informal paving and midden (recovered in a single 50 cm by 50 cm test pit), on Makāluapuna Point, northwest of the Honokahua Burial Site; a series of relatively recent, historic walls (D13-5, interpreted as cattle pens), west of the Honokahua Burial Site, and an historic midden (D13-8) east of the Honokahua Burial Site; and, an eroding shell midden with a

hammerstone (D13-6, interpreted as representing temporary, pre-Contact occupation), and a large basalt grinding stone (D13-7) on a large (1.6 m by 1.0 m) boulder, east of the Honokahua Burial Site.

Spriggs (1989) visited the coastal area around Makāluapuna Point, between Oneloa Bay and Honokahua Bay, and described several previously unreported sites in the area surveyed by Kirch (1973). These additional sites were all located on the northeastern side of the point and included a *ko`a* (fishing shrine), eroding midden, possible earth ovens (*imu*), a stone ramp, and a remnant section of a trail.

Fredericksen and Fredericksen (2002) conducted an Archaeological Inventory Survey on an approximately 23 acre parcel (TMK: 4-2-04:32) that extended from eastern Honokahua Bay to Honolua Bay. The eight sites (two previously recorded) that were documented included a paved platform/enclosure with auxiliary features (-5093), a remnant of a possible habitation area (-5094), two coastal rock shelters (-5097), a traditional Native Hawaiian burial (-5098), a remnant of the Old Government Road (-5095), and a concrete slab associated with a former slaughter house (-5096). The previously identified sites were a plantation-era refuse dump (-5006) and a coastal enclosure (-5007).

Archaeological Inventory Survey was conducted by Morawski and Dega (2004) on approximately 10 acres within the *ahupua`a* of Honokahua, Lahaina (formerly Kaanapali) District, Maui Island, Hawai`i [TMK: (2) 4-2-04:037 and a portion of (2) 4-2-04:024]. Inventory Survey led to the documentation of State Site Number 50-50-01-5636, a previously known burial site belonging to Kale Davis. A Portuguese bread oven was located at the base of the slope below the southern end of the parcel. This site was designated as State Site Number 50-50-01-5637. This project area was encompassed within the Honokahua Historical District, State Site 50-50-01-1591.

HONOLUA ENVIRONS

Jimenez and Rosendahl (1995) conducted an Archaeological Inventory Survey on a 2.47 acre portion of TMK: 4-2-04:31 along the coast in Honolua. Five sites were documented and included a subsurface (buried) hearth (-4141), an historic burial site containing multiple individuals (-4142), a platform, interpreted as a permanent (traditional) habitation (-4143), a modified outcrop with an associated stone alignment and surface midden (-4144), and a boundary rock wall (-4145).

A study of Honolua Bay proper was conducted by Moore *et al*. (1974), with follow-up work conducted by SCS in 2006 (Pickett and Dega 2007). As the trail terminates within the upper portion of the bay area, adjacent to the highway, none of the documented sites will be directly impacted by the proposed trail. A total of twelve sites have been documented in Honolua Bay proper (Figure 5), beyond the terminus of the coastal trail. These sites include the following:

Site D14-5:	State Site No. -1471	Honuaula Heiau
Site D14-6:	State Site No. -1751	Grinding Stones
Site D14-7:	State Site No. -1752	Historic Structure
Site D14-8:	State Site No. -1753	Possible Midden
Site D14-9:	State Site No. -1754	Historic Structures
Site D14-10:	State Site No. -1755	House Platform/Burial Complex
Site D14-11:	State Site No. -1756	Agricultural Complex
Site D14-12:	State Site No. -1757	Walled Enclosure
Site D14-13:	State Site No. -1758	Historic House and Burials
Site D14-14:	State Site No. -1759	Wall Segment
Site D14-15:	State Site No. -1760	Skeletal Remains
Site D14-16:	State Site No. -1761	Midden

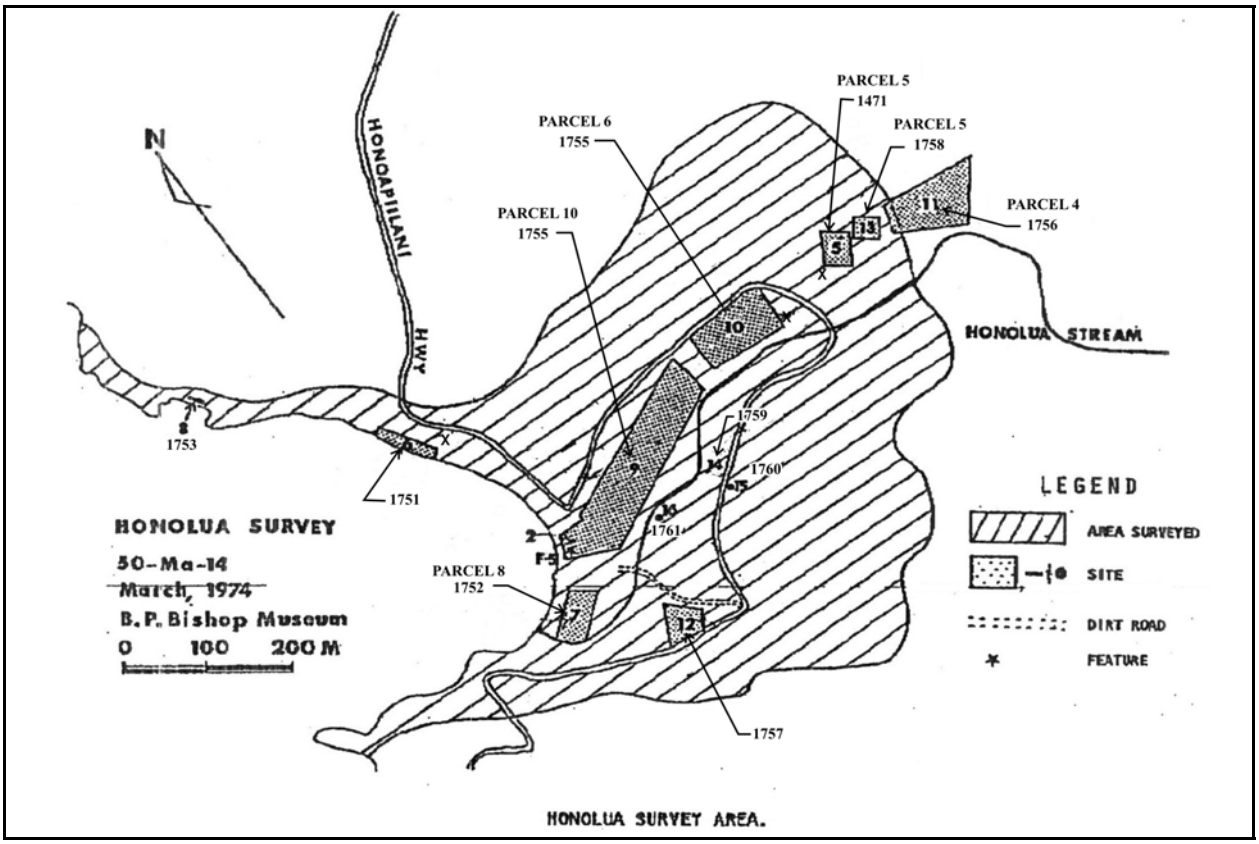

Figure 5: Sites Documented by Moore *et al*. (1974) in Honolua Bay Survey Area.

A majority of these sites are proposed for permanent preservation as part of a separate project.

EXPECTED FINDINGS

Based on the available physiographic and archaeological research, the following expectations guided this study. These expectations were realized prior to actual fieldwork and were based primarily on the natural setting of the proposed trail routing and the results of previous archaeological work in the area. Please note that no subsurface exploration was accomplished during the present study as the proposed trail itself will not disturb subterranean contexts. Thus, subsurface expectations could not be confirmed through the current study.

- Surface archaeological sites were expected to have remained preserved through time, particularly those documented by Kirch (1973). However, Kirch's (1973) survey of the area (including the area of the proposed Kapalua Coastal Trail route) failed to document all surface sites, as evidenced by Spriggs (1989) and Kennedy (1990). It is possible that previously undocumented surface sites could be present.

- Discovering unmarked burials and/or scattered human remains is unlikely but possible, given the many factors cited above. The Kale Davis grave site above Fleming Beach provides one example of a known burial that was not previously recorded.

- Subsurface evidence (*e.g.* buried cultural layers) of temporary habitation loci, workshops, and other traditional sites related to fishing and foraging for coastal and marine resources may exist. As sandy matrices are identified, this would hold more valid.

- Subsurface evidence of permanent habitation and agricultural features is unlikely in the areas where Dune Lands are the dominant matrix. Shifting dunes tend to provide a dynamic landscape were not favorable places for long-term settlement or for cultivation.

- Surface evidence of permanent habitation and agricultural features are possible where Dune Lands do not exist and have not been developed for commercial and/ or aesthetic purposes (*e.g.* landscaping, resort areas). Several portions of the coastal trail, particularly those nearer the Honolua area, may reveal such features.

- Both fill sediments and undisturbed, natural sand dune deposits were expected as approximately 50 percent of the proposed Kapalua Coastal Trail route has been modified for resort/recreational activities. The main question that remained was in regards to the spatial distribution of intact sands versus disturbed and/or filled areas. Clearly, undisturbed sand dune deposits are of utmost importance for this part of

Maui, in particular, but the presence of unequivocal fill sediments is also important, since Fredericksen (2001) identified a subsurface scatter of fragmentary human remains, which represented one or more individuals, in previously disturbed sediments at the Coconut Grove condominiums.

SURVEY METHODOLOGY

In addition to analysis, interpretation, and preparation of this document, the work described in this Archaeological Inventory Survey consisted of archival research, fieldwork, consultation, and limited laboratory work. Specifics on all of these research activities are described below.

ARCHIVAL METHODS

In addition to referencing available resources at SCS, archival research was conducted at the SHPD library facility (Kapolei, HI) and on the SHPD website before, during, and after the fieldwork described in this report. Archival work consisted of general research on the history and archaeology of the project area, as well as specific searches of previous archaeological studies in and around the project area. Historic land use data, maps, and narrative information were obtained from the Kapalua Land Company's archives (see Monahan 2005).

FIELDWORK

The proposed Kapalua Coastal Trail route was surveyed utilizing several references in concert. The first reference consisted of a combination of fluorescent green paint dots and flagging tape left by professional surveyors from Helber, Hastert and Fee (HHF). These symbols demarcated the proposed route on the ground. The second reference was an aerial color photo map with the trail overlay provided by HHF and dated February 2007.

Full, systematic pedestrian survey occurred along the length of the proposed trail, with the centerline being demarcated and the crew (1-2 persons) walking the centerline and 10 meters on each side of the centerline to evaluate the presence/absence of sites. Ground visibility was extremely high in Segments 1-17, with variable visibility in Segments 18-29 due to a slight understory but larger overstory.

As previously identified archaeological sites and features were identified in the field, they were described on standard recording forms, demarcated on the provided aerial map of the trail route, marked by a handheld global positioning system (GPS) Garmin GPS 12 unit (no external receiver), and digitally photographed. All previously documented sites were assessed for

preservation condition and completeness of former recordation. Based on the present fieldwork, all previously recorded sites were indeed documented fairly well, to current Inventory Survey standards. One feature, Site -1346, Feature A, was cleared and re-recorded during the current research. Additional descriptive information is provided per each site.

All previously documented archaeological sites and features potentially subject to impact by the placement/construction of the proposed coastal trail were re-identified and photographed. This includes sites adjacent to the trail (20 m from center line) as the trail will be re-routed to avoid all sites. The datum for the GPS unit was NAD83 using UTM/UPS coordinates. The GPS coordinates of a representative sample of the Hawea Point sites are included as Appendix A. Recent photographs of the sites, included herein, were to be taken of all the re-identified sites, per SHPD recommendations.

CONSULTATION

Consultation was conducted on three separate occasions (to date) per the coastal trail. First, Dr. Melissa Kirkendall (SHPD-Maui) was consulted by phone by the authors before, during, and after fieldwork. The SHPD commented on the initial Field Inspection for this project as part of an SMA review (Log No.:2006.3919; Doc No.:0701JP61), and requested the present Inventory Survey. Second, formal consultation was also undertaken by the project director (Ms. Yarrow Flower) of Maui Land and Pine (ML&P) at the January 25, 2007 meeting of the Maui/Lana`i Islands Burial Council (MLIBC). Finally, a field visit per re-assessing several sections of the coastal trail was conducted in February, 2007 by Mr. Cliff Nae`ole (Hawaiian Cultural Specialist, Ritz-Carlton Kapalua), Leslie Kuloloio (MLIBC), Hinano Rodrigues (SHPD-Cultural Historian, Maui), Jenny L. Pickett (SHPD-Maui), Kalani Schmidt (ML&P), and the author (M. Dega).

LABORATORY METHODS AND CURATION

As the focus of this Inventory Survey was on surface sites, and no excavation was conducted during the investigation, laboratory work was focused on map and site illustration. No surface artifacts or ecofacts were identified for analysis. All field notes, maps, and photographs pertaining to this project are being curated at the SCS laboratory in Honolulu until further notice.

SURVEY RESULTS

Archaeological Inventory Survey, conducted along a 3.5 mile corridor and over multiple types of terrain (*e.g.* flat, undulating, sloping) and botanical regimes (*i.e.* understory and overstory), revealed the presence of multiple, previously recorded surface archaeological sites and areas in which sites could be present in subsurface contexts should excavation ever be warranted in those locales. Twenty-nine segments of the coastal trail were subject to the present Inventory Survey. The survey was conducted along the trail corridor itself, as was demarcated by the professional survey crew, and the 20 m zone as recommended by the SHPD (February 2, 2007 letter notated above).

Of the twenty-nine segments surveyed, five segments and a spur of one segment contained previously recorded archaeological sites (Segments 4, 9, 9a, 16, 18, and 29). No previously unrecorded sites were identified during the current research. The sites previously documented in Segment 4 and Segment 18 occurred in subsurface contexts and will not be adversely impacted during the current project. The remaining sites all occur on the surface and will be preserved (see below).

The following presents the results of survey for each of the twenty-nine segments as well as proposed improvements to each segment of the trail. Please again note that as the current coastal trail will not be intruding into subsurface contexts within sensitive areas (*i.e*., sand), no testing was done within any segment studied herein. Figure 3 (above) depicts the location of each segment discussed below.

SEGMENT 1
The western terminus of the proposed Kapalua Coastal Trail route begins at an asphalt parking lot and links with an established concrete walkway along the Coconut Grove complex. The path in this segment is restricted to the existing walkway. Soil research for Segment 1 indicates that Kahana Silty Clay and Dune Lands are present below this infrastructure. No archaeological sites were observed within the segment route.

SEGMENT 2
Segment 2 is also comprised of an existing concrete pathway that parallels vegetation on the *mauka* side of Kapalua Bay. The trail in this segment will run on the existing concrete walkway. Soil research for Segment 2 indicates that the existing concrete pathway was constructed over beach land. No archaeological sites were observed on or near the segment route.

SEGMENT 3
Segment 3 consists of a portion of the concrete pathway of Segment 2 that leads onto manicured grassland. The trail in this segment will remain on the concrete pathway and additive concrete will be added across the grass to complete the segment. Please note that the trail in this segment, as well as Segment 4, 5, and 6 will be concrete and constructed (non-intrusive) as part of the Kapalua Bay SMA requirements. Soil research for Segment 3 indicates that the existing concrete pathway and manicured grass were constructed over beach land. No archaeological sites were observed within the segment route.

SEGMENT 4
Like most of Segment 3, a large portion of Segment 4 does not have an existing pathway but rather, a manicured lawn. The trail in this segment will consist of a concrete walkway. Segment 4 is located on Dune Land. Although no surface archaeological sites were observed, available archival research has indicated that Monahan's (2005) Inventory Survey led to the identification a buried prehistoric cultural layer (State Site Number 50-50-01-5565) approximately 10 meters from the proposed coastal trail route. The boundaries of the site were not fully determined in the field (Monahan 2005). On-going Archaeological Monitoring by SCS in this area has been conducted since April, 2006. At present, only a subsurface hearth was documented (which dated to late prehistoric times). Further inland, far removed from the proposed trail (100+ meters), several burials have been identified (State Site No. 50-50-01-6228). No significant historic properties have been identified on the surface of Segment 4, which was typical for the developed area.

SEGMENT 5
Segment 5 currently consists of a dilapidated asphalt golf cart pathway. The trail in this section will be improved by addition of a concrete walkway. Segment 5 is located on Dune Land. No archaeological sites were observed on the surface of the segment route.

SEGMENT 6
Segment 6 is a combination of an informal gravel path and manicured grassland. The trail route through this segment will be restricted to a concrete path which will be added over the existing gravel pathway. Segment 6 is also located on Dune Land. No archaeological sites were observed on or near the segment route.

SEGMENT 7
The trail through Segment 7 consists of an informal gravel path. The path will remain the same as at present with the addition of edging stones. Segment 7 is associated with Dune Land. No archaeological sites were observed on or near the segment route.

SEGMENT 8
Segment 8 is a combination of an informal gravel path for small maintenance vehicles and an informal trail worn on Dune sand. The trail boundary through Segment 8 will be maintained as is, with stone edging being added to more clearly demarcate the trail. Segment 8 is located on both Dune Land and A`ā Lava Flow, as well as part of the Maui Coastal Land Trust easement at Hāwea Point. No archaeological sites were observed on or near the segment route.

SEGMENT 9

Segment 9 is located within the Maui Coastal Land Trust easement boundary on Hawea Point. The trail currently consists of a well worn path. This segment will remain "as is", with improvements such as edging and boulders lining the course. The segment mainly consists of A`ā Lava Flow, although Dune Land-type matrices (*i.e.* sand) were also observed along the southern and northern flanks of the route. The current research led to the re-identification of several archaeological sites identified by then-Bishop Museum archaeologist P. Kirch in 1973 (Figure 6). The two archaeological sites within the Maui Coastal Land Trust easement were designated as Site 50-MA- D13-1 (State Site No. 50-50-01-1346), a complex of eight features (Features A through H) functioning as a temporary settlement during marine resource acquisition and Site 50-MA-D13-2 (State Site No. 50-50-01-1347), a shelter identified in the Segment 9 spur (see below). The eight features composing Site -1346 were interpreted as: stone platform (Feature A, in Spur 9a; see below), surface midden scatter (Feature B; Figure 7), scattered surface midden (Feature C; Figure 8), low, stone-faced platform (Feature D; Figure 9), small stone-faced terrace (Feature E; Figure 10), waterworn-cobble paving (Feature F; Figure 11), low stone cairn (Feature G; Figure 12), and a small shelter or overhang (Feature H; Figure 13). Two earthen ovens identified in Feature B yielded a radiocarbon date range of A.D. 1400-1700. Feature B also yielded a shell adze fragment, coral abraders, and non-complete fishhooks. Feature D, the platform, yielded charcoal, postmolds, shell midden, and numerous artifacts (coral abraders, sea urchin spine abraders, fishhook blanks, faunal tools, and dog teeth ornaments (Kirch 1973a).

Two additional archaeological investigations, completed by P. Rosendahl (1988a) and Kennedy (1990), were conducted following Kirch's (1973, 1973a) investigations. Rosendahl's study was concentrated in the southwestern portion of the project area, within Segment 9 and Spur 9a, as was Kennedy's study. Although the Rosendahl study did not lead to the identification of any new archaeological features, Kennedy (1990) did identify three previously unrecorded features, these being associated with Site -1346. These features are situated between Features A and B, as noted by Kirch under Site -1346 (see Figure 6; Figure 14). The three features include a low, soil filled platform (Figure 15), an L-shaped alignment (Figure 16), and a C-shaped structure (Figure 17 (Kennedy 1990:7). All three sites were evaluated in "good" condition and were not tested.

All the sites and component features noted above on Hawea Point have been identified and assessed for preservation condition. The sites have been located on survey maps and will be avoided by the coastal trail; all the sites will be preserved. The trail has been re-routed around these sites; the trail will not be paved through this segment and it will remain a natural surface trail, similar to what currently exists. Preservation of these features will be proposed within a Preservation Plan.

SPUR 9a

An existing trail (c. 2 feet wide) is present through this segment and is clearly bordered by low grasses and shrubs. This section of the coastal trail will remain "as is", without modifications. Although soil research indicates that Spur 9a is located primarily on A`ā Lava Flow, Dune Land-matrices (*i.e.* sand) and silty loam were also observed. As suggested in the HHF (2006), no trail construction is to be completed here as an existing trail, although informal, is usable.

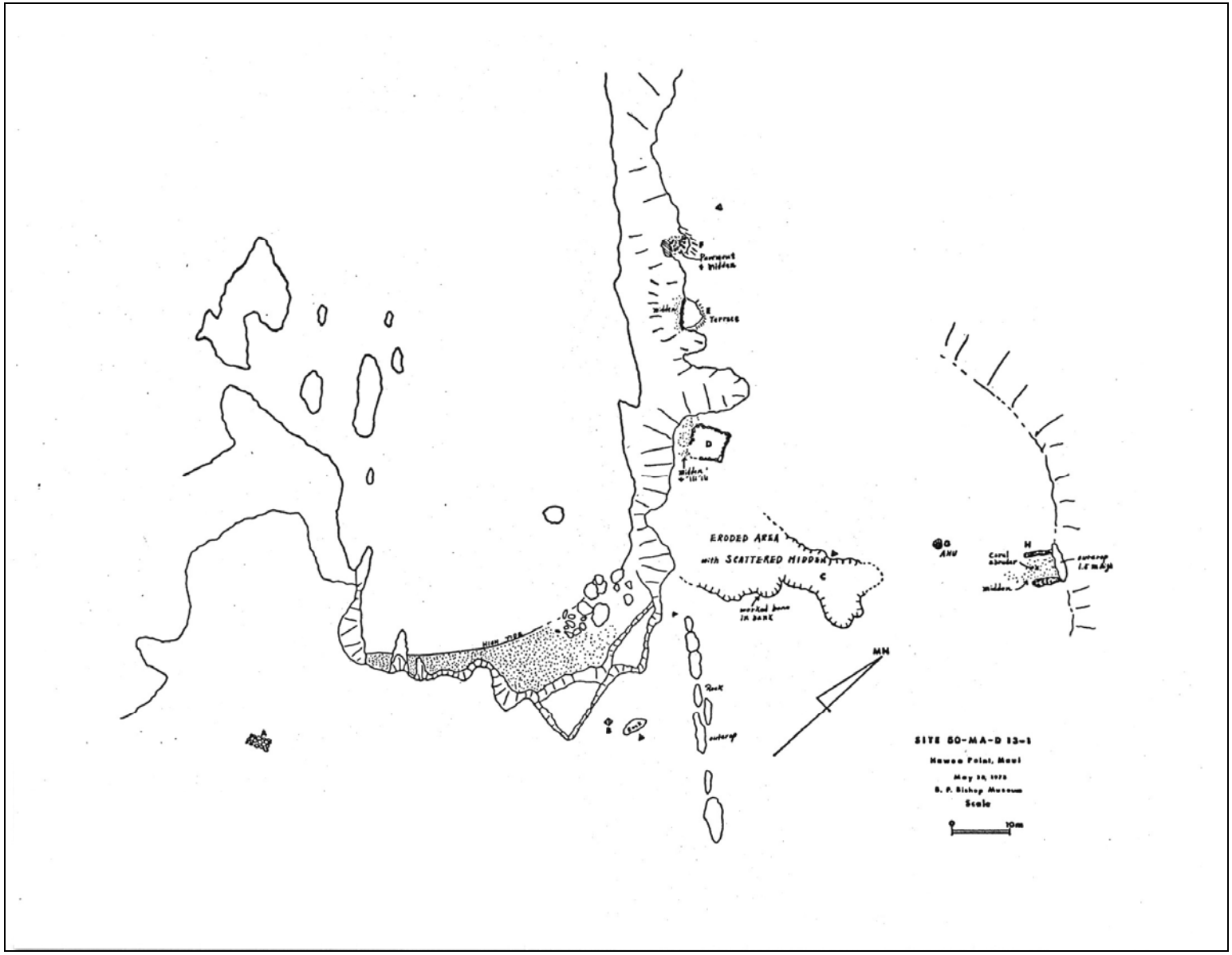

Figure 6: Planview Map of Site 50-50-01-1346 (Kirch 1973a:9).

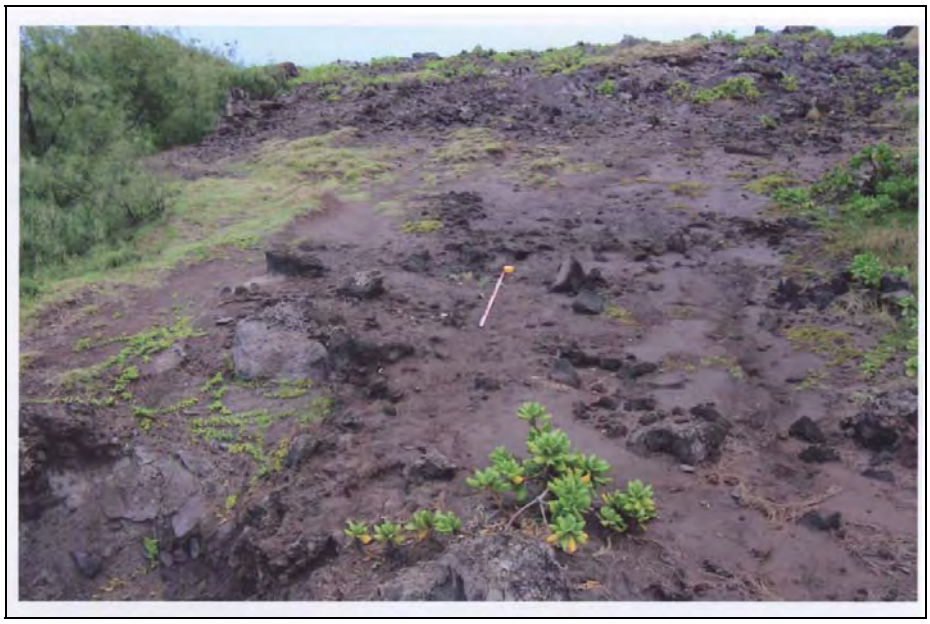

Figure 7: Photograph of Site -1346, Feature B surface midden scatter. View to Northwest.

Figure 8: Photograph of Site -1346, Feature C scattered midden. View to Southwest.

Figure 9: Photograph of Site -1346, Feature D platform. View to Southeast.

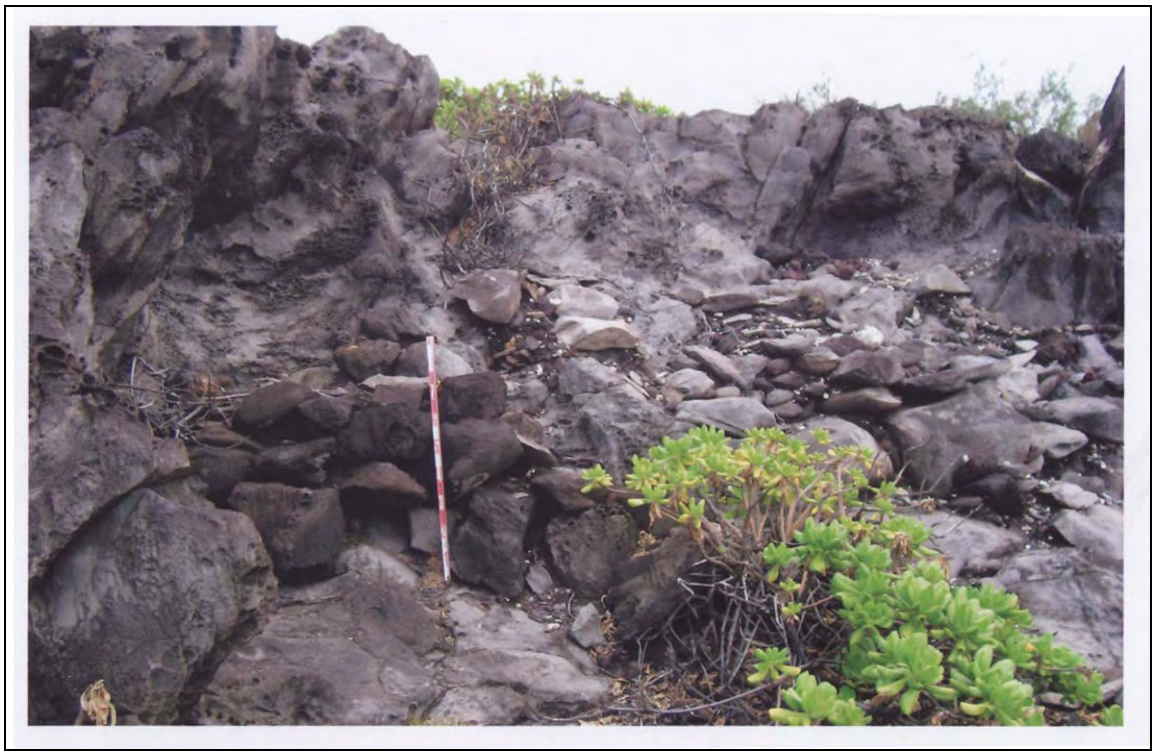

Figure 10: Photograph of Site -1346, Feature E terrace. View to West.

Figure 11: Photograph of Site -1346, Feature F paving. View to West.

Figure 12: Photograph of Site -1346, Feature G stone cairn. View to West.

Figure 13: Photograph of Site -1346, Feature H shelter. View to Northeast.

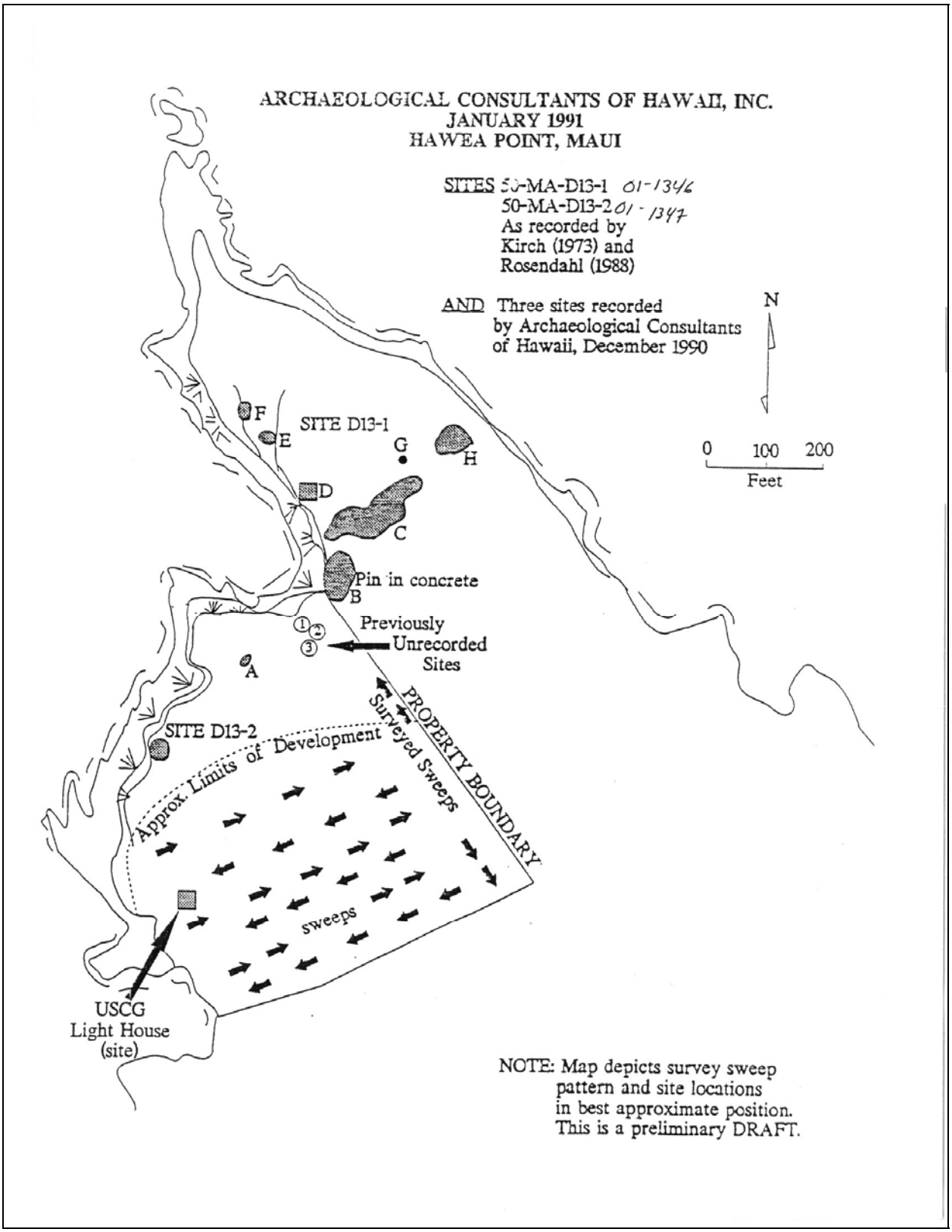

Figure 14: Plan View Map of Archaeological Sites in Hawea Point Area (Kennedy 1990).

Figure 15: Photograph of Site 1 (Kennedy 1990). View to Southeast.

Figure 16: Photograph of Site 2 (Kennedy 1990). View to West.

Figure 17: Photograph of Site 3 (Kennedy 1990). View to Northwest.

One feature of Site -1346 (Feature A, platform) and State Site No. 50-50-01-1347 (Kirch 1973 Site 50-MA-D13-2) were previously documented in Spur 9a by Kirch (1973). Feature A of Site -1346 was cleared and again recorded during the current research.

<u>Site -1346, Feature A</u>

This feature, initially described by Kirch (1973) as a platform, consisted of a single, small enclosure identified in the central portion of the Spur 9a section (see Figure 6; Figures 18, 19, & 20). Surrounding vegetation includes grasses, *naupaka*, and other small shrubs. The single-feature consists of a rectangular enclosure measuring 4.18 m long by 1.80 m wide and was documented to the northeast of Site -1347, the shelter. The Feature A enclosure is oriented on a northeast-southwest axis at 60°/240°. The single-course feature, composed of non-modified basalt cobbles, is filled with *'ili 'ili* stones, abundant *opihi* shell, waterworn coral, fragments of branch coral, and other marine midden (shells). Scattered, partially buried boulders are also present within the interior of the feature. Some shell and coral fragments were also observed on the exterior of the feature. This feature was interpreted during current fieldwork as a habitation loci associated with prehistoric times. A majority of the features in the surrounding area are also traditional in nature. Excavation was not conducted within the enclosure as the client (ML&P) wished to preserve this site (and all others) without disturbance. The site is located c. 3-5 feet from one flank of the proposed trail route. This site will be protected in perpetuity.

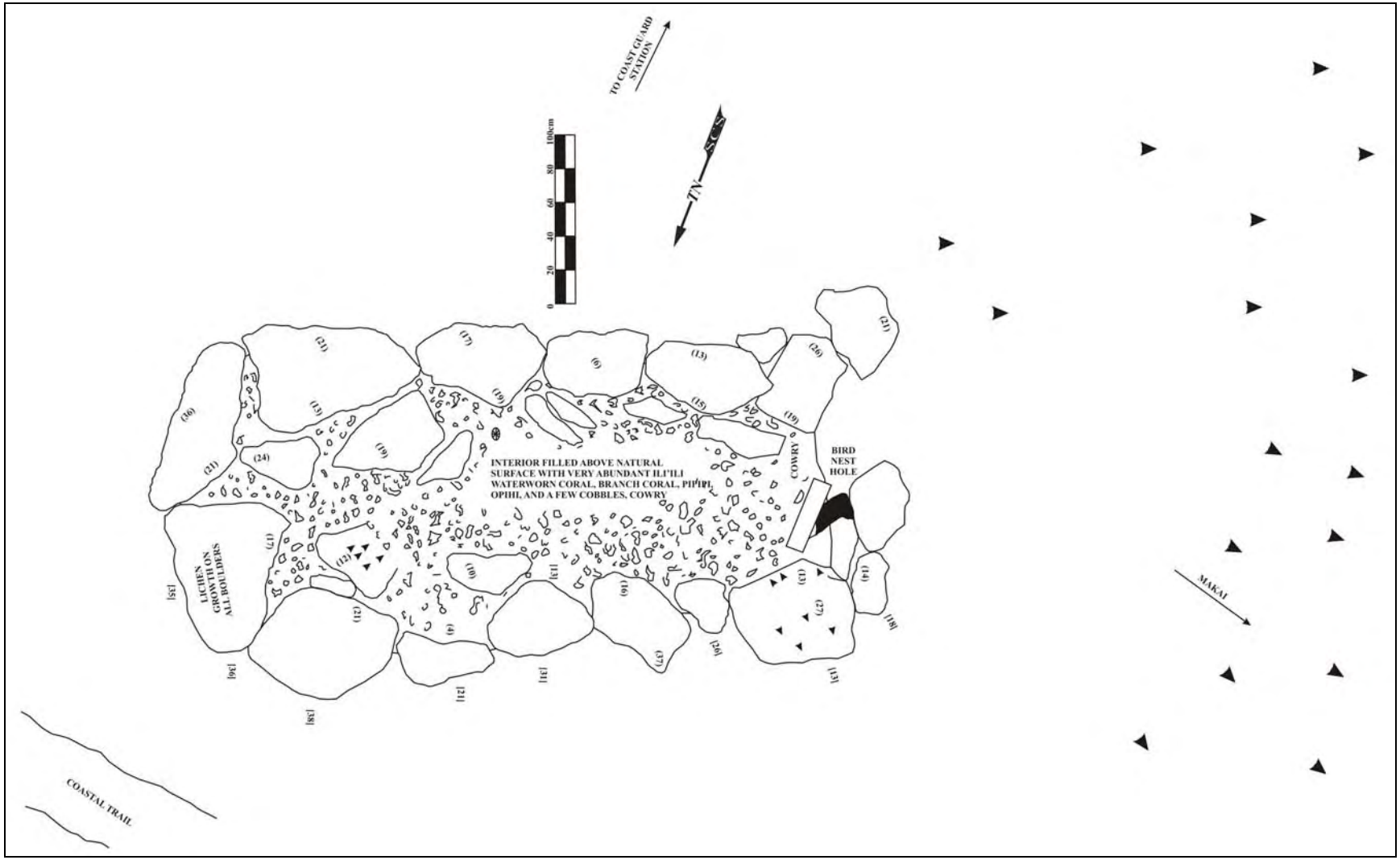

Figure 18: Plan View Map of Site -1346, Feature A Enclosure.

Figure 19: Photograph of Site -1346, Feature A Enclosure. View to South.

Figure 20: Photograph of Site -1346, Feature A Enclosure. View to North.

Site -1347

The site consists of a shelter occurring to the southwest of Site -1346 and beneath an overhanging cliff (Figure 21). The site measures some 6 m deep with a bedrock floor. The shelter was suspected to have been utilized by fisherman during traditional times (Kirch 1973:5). This site was re-identified by Kennedy (1990:6) and also during the current study. No testing of the site was completed during any of the Hawea Point projects.

Figure 21: Photograph of Site -1347. View to East.

In addition to the above noted sites, Kennedy (1990) surveyed the general Spur 9a area, a 7.7 acre area for a proposed USCG Light House relocation site. This is the current location of the Ramsey Estate. No archaeological sites were identified by Kennedy (1990) during the survey.

SEGMENT 10

Segment 10 contains an existing, informal trail. Although soil research indicates that Segment 10 is located primarily on Dune Land, A`ā Lava Flow was also observed, perhaps in greater frequency. As suggested in HHF (2006), no formal trail construction will occur here as natural surfaces were determined as usable. The trail will be cleared and further demarcated with boulders but no subsurface intrusion will occur. No archaeological sites were observed within the segment route.

SEGMENT 11

At present, no formal trail occurs within Segment 11. Although soil research indicates that Segment 11 is located primarily on Dune Land, much A`ā Lava Flow was also observed. As suggested in HHF (2006), no trail construction per se will be done for Segment 11 as natural

surfaces were determined as usable. The trail will be cleared and demarcated with rocks but no subsurface intrusion will occur. Again, no archaeological sites were observed within this segment route.

SEGMENT 12
Segment 12 does not contain an existing trail and is located entirely within Dune Land along the coastline. Plans for the trail in this segment consist of surface vegetation clearing and demarcation of the route by boulders. No archaeological features were observed on or near the presently-based segment route.

SEGMENT 13
Segment 13 utilizes both an informal dirt-based pathway and a concrete walkway. Although Segment 13 is classified as being located on Dune Land, only the lower half of the segment appears to be sandy; the upper portion of the segment, as it proceeds to a higher elevation, reveals the presence of reddish brown silty clay-clay peds. As suggested in HHF (2006), the only modifications that would be applied to this segment, in the form of wooden steps laid for erosion control, would be completed between the existing concrete walkway and the start of the trail access from Oneloa Bay Beach. No archaeological sites were observed within or near this segment route.

SEGMENT 14
Segment 14 combines a portion of the concrete walkway of Segment 13 and a right-of-way through an existing asphalt parking lot. A portion of the existing concrete walkway in Segment 14 will be replaced, also by concrete. Segment 14 is located primarily on Kahana Silty Clay, which is also present in the upper portions of Segment 13. No archaeological sites were observed within this developed segment.

SEGMENT 15
Segment 15 incorporates both a previously established concrete walkway and an asphalt roadway. The trail in this section will be restricted to the concrete walkway, which occurs in the road right-of-way. Segment 15 is located on Kahana Silty Clay over bedrock and is developed. No archaeological sites were observed within or near the segment route.

SPUR 15a
Spur 15a is located in a vegetated area just *mauka* of Lower Honoapi`ilani Highway and extends in *mauka-makai* fashion from the near terminus of Segment 14. A dilapidated asphalt pathway for small vehicles was observed along the proposed trail route, as was a modern soil retention feature. The asphalt pathway will be repaired for us as a trail segment. This modern feature abuts the western flank of the spur. Subterranean reaches of Spur 15a consist of Kahana Silty Clay. Kirch (1973) conducted Archaeological Survey in an area incorporating Spur 15a that yielded negative results. The current survey confirmed this observation.

SEGMENT 16
Through consultation, Segment 16 has been re-routed away from the Honokahua Burial Grounds and follows an existing concrete walkway to the *makai* side of the Ritz-Carlton Hotel. The trail in this section is restricted to the existing walkway. The Honokahua Burial Grounds (Site -

1342), the single-most important prehistoric burial site on Maui, occurs to the north of this segment.

The location of Segment 16 to the burial grounds is such that the former will not intrude into the site's boundaries; the segment passes to the south of the site and the burial ground will continue to be enclosed by landscaping. The existing lawn area will not be disturbed in any form. No added trail surfaces will be added to this area.

SEGMENT 17
Segment 17 maintains its contact with the existing Segment 16 concrete walkway and access is restricted to the concrete area. Segment 17 overlies a combination of three different soil matrices: Dune Land, Rough Broken Land, and Pulehu Clay Loam. No archaeological sites were observed on or near this developed segment route.

SEGMENT 18
Segment 18 does not have an existing trail and based on the HHF February 2007 aerial map, the trail route passes along the *makai* side of Lower Honoapi`ilani Road. Segment 18 is situated on Pulehu Clay Loam and is removed from the beach sand occurring within Fleming Beach Park proper. No surface archaeological sites were observed during the present study as the segment primarily occurs in the road right-of-way. The *in situ* human remains discovered in a basin-shaped pit during sewer line trenching at Fleming Beach Park (Fredericksen and Fredericksen 1996; TMK: 4-2-04:16) are far removed from the trail segment, being much closer to the beach dune itself. The burial represented the remains of a native Hawaiian individual interred in a flexed position.

ALTERNATIVE SEGMENT 18
Alternative Segment 18 does not have an existing trail as it is partially situated on both the *mauka* and *makai* flanks of the lower highway as it winds through both open and heavily vegetated areas. A 2-foot wide trail will be cleared through this segment. The *mauka* portions of this segment were previously subject to Inventory Survey (Morawski and Dega 2005) and yielded negative results, as was confirmed during the current research. Alternative Segment 18 is situated on Rough Broken Land and Rock Land. Although no archaeological sites were observed, dense vegetation on the eastern portion of segment obscured full surface visibility.

SEGMENT 19
Segment 19 does not contain an existing trail but its proposed course leads to the *makai* side of Honoapi`ilani Highway, beneath an existing viaduct. Vegetation along the segment was high but did not totally obscure visibility. Segment 19 is located on Rough Broken Land. No archaeological sites were observed on or near the segment route.

SEGMENT 20
Segment 20 does not contain an existing trail and its course is situated on both slopes of Honoapi`ilani Highway, as well as across the highway itself. As is the case with a majority of these segments along the highway, most of the trail occurs in right-of-way areas. Segment 20 is also situated on Rough Broken Land, a pattern common for this more inland area. No archaeological sites were observed on or near this segment.

SEGMENT 21
Segment 21 does not contain an existing trail but is proposed along the *mauka* side of the highway. A 2-foot trail will be cleared for this segment. Vegetation is high along the segment but ground accessibility was fair. Like most of the *mauka* segments, Segment 21 is located on Rough Broken Land. No surface sites were identified in this segment.

SEGMENT 22
Segment 22 is located on a slight slope on the *mauka* side of the highway and does not contain an existing trail or path. The proposed trail segment now runs across manicured grasses associated with the Kapalua Plantation Golf Course. Segment 22 is located on Rough Broken Land, Kahana Silty Clay, and Rock Land. A modern concrete ditch was identified in the segment but no historic properties were present on the surface.

SEGMENT 23
Segment 23 also runs on the *mauka* side of the highway and does not presently contain a trail. A 2-foot trail access will be cleared for this segment. Vegetation in the segment is tall but did not obscure decent observation of the surface. Segment 23 is located on Rough Broken Land; the terrain of the area, consisting of a steep and undulating landscape, is aptly classified. No sites were documented in this segment.

SEGMENT 24
Segment 24 does not have a current trail or pathway and mirrors the terrain of Segment 23 in that it is steep and undulating. This segment will also consist of a 2-foot cleared trail route. Segment 24 is also located on Rough Broken Land. Although the vegetation in this segment somewhat obscured ground visibility, no archaeological sites were observed on or near the segment.

SEGMENT 25
Still continuing along the *mauka* side of the highway, Segment 25 does not have an existing trail and primarily consists of undulating land. This section will consist of a 2-foot wide cleared trail. Segment 25 is also located on Rough Broken Land. While vegetation in this segment somewhat obscured ground visibility, surface visibility was decent. The segment was also void of surface features.

SEGMENT 26
Segment 26 starts the last few segments continuing on the *makai* side of the highway and is proposed near the right-of-way shoulder, off the highway. A 2-foot area will be cleared for the trail along this segment. This segment does not have a current trail component and is located on Rough Broken Land. No archaeological sites were observed on or near this segment.

SEGMENT 27
Segment 27, located on the *makai* side of Honoapi`ilani Highway, also does not have an existing trail; the trail is proposed to be a 2-foot cleared area off the highway right-of-way. Segment 27 is located on fairly steep Rough Broken Land and was void of sites.

SEGMENT 28
Segment 28, a fairly lengthy downhill phase, is also located on the *makai* side of Honoapi`ilani Highway and current does not have an existing trail. A 2-foot cleared area will demarcate the trail in this location. Segment 27 is located on `Alaeloa Silty Clay but was devoid of sites, mostly likely due to the steepness of the area.

SEGMENT 29
Segment 29 is the final segment of the proposed Kapalua Coastal Trail route that was surveyed during this study. Segment 29 includes a portion of Honoapi`ilani Highway (right-of-way). From the Highway, the trail will descend the steep slope via stone steps to provide access to the Honolua Bay area. While several *kuleana* parcels are present within the valley near the shoreline, and documented sites occur on the parcel (Moore *et al*. 1974; see also Pickett and Dega 2007), the trail will not pass through any of these parcels or sites as it terminates on an existing dirt road at the southern, upper portion of Honolua Bay proper near the highway. No archaeological sites are present within this segment.

DISCUSSION

Archaeological Inventory Survey conducted along the 3.5 mile coastal trail corridor revealed the presence of previously recorded surface archaeological sites and areas in which sites could be present in subsurface contexts should excavation ever be warranted in those locales. No previously unrecorded sites were documented within the coastal trail route. Five segments and one spur of the total twenty-nine segments contained previously recorded archaeological sites (Segments 4, 9, Spur 9a, 16, 18, and 29). The sites previously documented in Segment 4 and Segment 18 occurred in subsurface contexts and will not be adversely impacted during the current project.

Site -5565, previously documented in Segment 4 by Monahan (2005) consisted of a subsurface cultural deposit with associated charcoal and small sample of lithics. The temporary habitation site was dated to late prehistoric times, a time range consistent with other recently documented features in the area (see Kirch 1973a). Segment 9 yielded multiple features again associated with temporary habitation, but more formalized through architecture (platforms, C-shape, enclosure, etc.). Segment 9 and Spur 9a also yielded temporary activities in the form of overhangs and a small enclosure. These sites were all identified in the Hawea Point area. Besides the Honokahua Burial Ground and associated significant deposits, as well as a burial identified in D.T. Fleming Beach Park by Fredericksen and Fredericksen (1996), Segments 10-28 were devoid of archaeological sites. These segments course through existing infrastructure, along existing concrete and dirt paths, or occur in the highway right-of-way; modern land alterations may have deleted surface evidence of these sites, if indeed any were present. Few sites were expected on rocky lands such as characterize Segments 23 and 24, for instance, unless

they occurred nearer the coast on rocky headlands (see Pickett and Dega 2007). The terminus of the coastal trail at Honolua Bay does not proceed into the multiple sites documented on the parcel.

Overall, the proposed trail fairly well follows coastal locations in which temporary activities primarily associated with marine acquisition strategies have left signatures for impermanent residence during traditional times. As shown below, the trail runs over dynamic landscapes, those not preferable to longer-term occupation. In this regards, the thesis that the more stable the land surface, the greater probability for long-term settlement appears valid. Rocky, windswept coastlines and sandy coastal sands were not ideal locations for permanent habitation but were important for various other reasons: direct coastal access to a rich and diverse resource base. More table inland surfaces have indeed yielded very sacred sites (Honokahua Burial Ground) and extensive cultural deposits. In terms of mythology, these peninsulas or points hold special value in traditional cultural beliefs. Makaluapuna Point, for instance, not in the coastal trail plans, is a sacred region for the leaping of spirits. In this regard, not only the archaeological sites noted above will be preserved by the trail, but the sites in subterranean reaches and the mythological areas along the corridor.

SIGNIFICANCE ASSESSMENTS

Multiple sites were re-identified in the project area during Inventory Survey. Table 1 below provides a listing of sites occurring directly within the proposed coastal trail corridor (20 m from centerline). Other sites do exist outside the corridor but will not be directly affected by the present trail routing nor occur within the 20 m setback from the trail. The listed sites have been both previously evaluated and presently re-assessed for significance according to the established criteria for the Hawai`i State Register of Historic Places §13-275-6. The five criteria are classified as follows:

Criterion A: Site is associated with events that have made a significant contribution to the broad patterns of our history;

Criterion B: Site is associated with the lives of persons significant to our past;

Criterion C: Site is an excellent site type; embodies distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual construction;

Criterion D: Site has yielded or has the potential to yield information important in prehistory or history; and

Criterion E: Site has cultural significance to an ethnic group; examples include religious structures, burials, major traditional trails, and traditional cultural places (State of Hawai`i criteria only).

State Site No.	Site Type/Period	Site Function	Trail Segment	Significance; Recommendation
50-50-01-5562 (Monahan 2005)	Subsurface Cultural Deposit; Traditional	Temporary Habitation	Segment 4	Criterion D; Preservation
50-50-01-1346 (Kirch 1973, Kennedy 1990)	Midden Scatter, Platform, Enclosure, Terrace, Overhang, Paving, Cairn, C-shape, Alignment; Traditional	Temporary Habitation	Segment 9	Criterion D; Preservation
50-50-01-1347 (Kirch 1973)	Overhang/Shelter; Traditional-Modern	Temporary Habitation	Segment 9, Spur 9a	Criterion D; Preservation
50-50-01-1342 (Kirch 1973; Donham 1989)	Cemetery; Traditional	Ceremonial	Segment 16	Criterion A, D, E; Preservation

Table 1 lists significance assessments for the sites occurring in the coastal trail proper area. All the sites re-identified during the Inventory Survey have been found to be significant under Criterion D, with the most significant site in the area, Site -1342, continuing to be significant under multiple criteria.

RECOMMENDATIONS

All the sites and component features denoted in Table 1 (above) will be preserved. A Preservation Plan outlining interim and permanent preservation measures will be submitted to the SHPD for review prior to any work being completed on the coastal trail. The sites occurring in the Honolua Bay region, just beyond the terminus of the present survey area, will be preserved under a separate project. Site -1342, Honokahua Burial Ground, will remain preserved in perpetuity as dictated by former agreements between ML&P, the MLIBC, and others.

As the coastal trail is not designed to intrude into subsurface deposits, full-time monitoring of each segment is not recommended. However, there are segments which contain the combination of beach sand/dune land which will require surface clearance due to vegetation overgrowth. It is recommended herein that an Archaeological Monitor be present during any surface clearing work within the following segments: Segment 9 (Spur 9a), Segment 10, Segment 11, and Segment 12. Any excavation work within segments on the *makai* flank of the highway containing sandy or silty clay deposits should be subject to full-time Monitoring due to the potential for identifying human remains and/or cultural deposits. In addition, the initial presence of an Archaeological Monitor is recommended for those areas where vegetation overgrowth prevented full observation of the ground surface. These areas include Segments 19 through 21 as well as 23 through 29. Clearance and monitoring may occur concurrently.

Per existing infrastructure (*e.g.* concrete walkways, asphalt parking lots), the removal/modification of such to accommodate the coastal trail route, depending on the area in which the specific trail segment lies, may require Archaeological Monitoring for excavation work below existing infrastructure. Should Archaeological Monitoring be required, the frequency (*e.g.* full-time or intermittent) to which Monitoring is necessary may be dictated through consultation with SHPD archaeologist Dr. Melissa Kirkendall. To these ends, the SCS crew has worked closely with trail developers (ML&P) and concessions are being made by the latter to practice avoidance and preservation of known sites that occur in or near trail routing.

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APPENDIX A: PROPOSED KAPALUA COASTAL TRAIL ARCHAEOLOGICAL SITES GLOBAL POSITIONING SYSTEM (GPS) UTM/UPS COORDINATES[1]

1. Kirch (1973b) Site D13-1 Feature C: East 04 Q 0742636 / North 2324467

2. Kirch (1973b) Site D13-1 Feature D: East 04 Q 0742614 / North 2324479

3. Kirch (1973b) Site D13-1 Feature H: East 04 Q 0742f667 / North 2324496

4. Kirch (1973a) Site D13-5: East 04 Q 0743798 / North 2324475

[1] Although there are more features of Kirch's (1973b) Site D13-1 present, the above presents a representative GPS sample of the coordinates. The trail will be re-routed around these sites to avoid impact and Preservation will ensure their perpetual preservation.

E

Crosswalk Warrant Study

Crosswalk Warrant Study

Kapalua Coastal Trail

Prepared for:
Maui Land & Pineapple Company, Inc.

Prepared by:
Wilson Okamoto Corporation

February 2007

CROSSWALK WARRANT STUDY

FOR THE

KAPALUA COASTAL TRAIL

Prepared for:

Maui Land & Pineapple Company, Inc.
1000 Kapalua Drive
Lahaina, Hawaii 96761

Prepared by:

Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826
WOC Ref #7656-01

February 2007

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I. INTRODUCTION

A. Purpose of Study

The purpose of this study is to determine if crosswalks are warranted for three crossings of the proposed Kapalua Coastal Trail along Honoapiilani Highway in Kapalua on the island of Maui. The proposed trail originates at Lower Honoapiilani Road near Kapalua Bay, winds northward approximately 3.5 miles, and terminates west of Honoapiilani Highway near Honolua Bay.

B. Scope of Study

This report presents the findings and conclusions of the traffic study, the scope of which includes:

A. Description of the proposed Kapalua Coastal Trail and the subject crossings of Honoapiilani Highway.

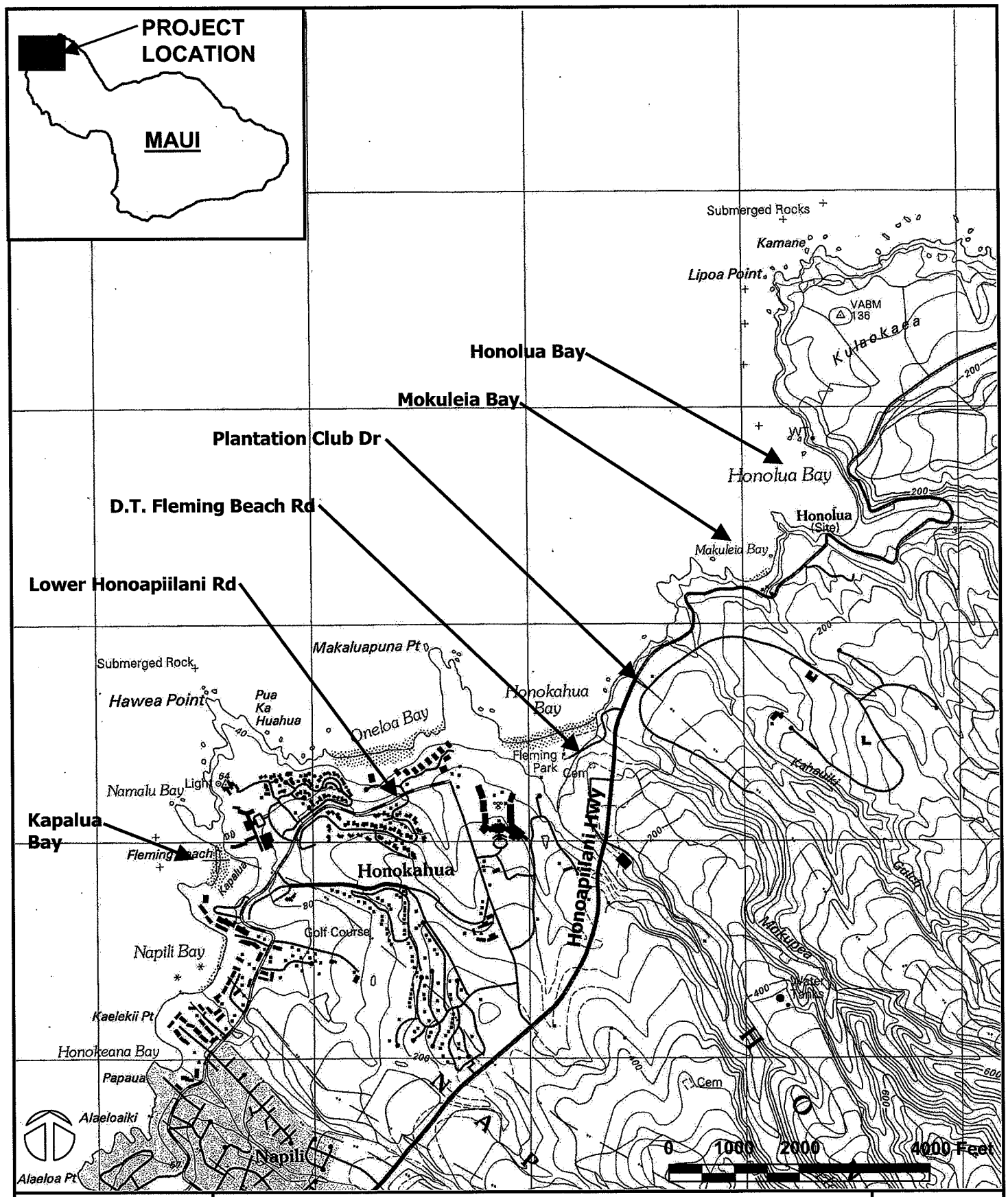
B. Description of existing traffic volumes during the morning and afternoon peak hours of traffic.

C. Determination if the traffic conditions warrant the installation of crosswalks.

II. PROJECT DESCRIPTION

The proposed 3.5-mile Kapalua Coastal Trail will extend between Kapalua Bay and Honolua Bay along the western coastline of Maui (see Figures 1 and 2). The trail is intended to be a continuous major, but low-impact pedestrian route that will provide residents and visitors with alternate routes to destinations in and around Kapalua Resort. In addition, the trail will provide dramatic vistas of the shoreline, neighboring islands, and resort features, as well as, exposure to important aspects of Hawaiian culture, geology, and plant and animal life. The Kapalua Coastal Trail will be comprised of 29 segments and is expected to make three at-grade roadway crossings along its alignment. The first and second crossings occur within Segment Alternate 18 of the trail while Segment 26 comprises the third crossing.

Segment Alternate 18 of the proposed trail begins midway along D.T. Fleming Beach Road and is intended to be an alternate route to Segments 19, 20, 21, and 22 when water levels in the nearby culverts make the use of those segments too dangerous for trail users (see Figure 3). The trail continues northeast from the juncture with Segments 18 and 19 towards Honoapiilani Highway. At the highway, the trail crosses D.T. Fleming Beach Road and



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KAPALUA COASTAL TRAIL

LOCATION MAP

FIGURE 1

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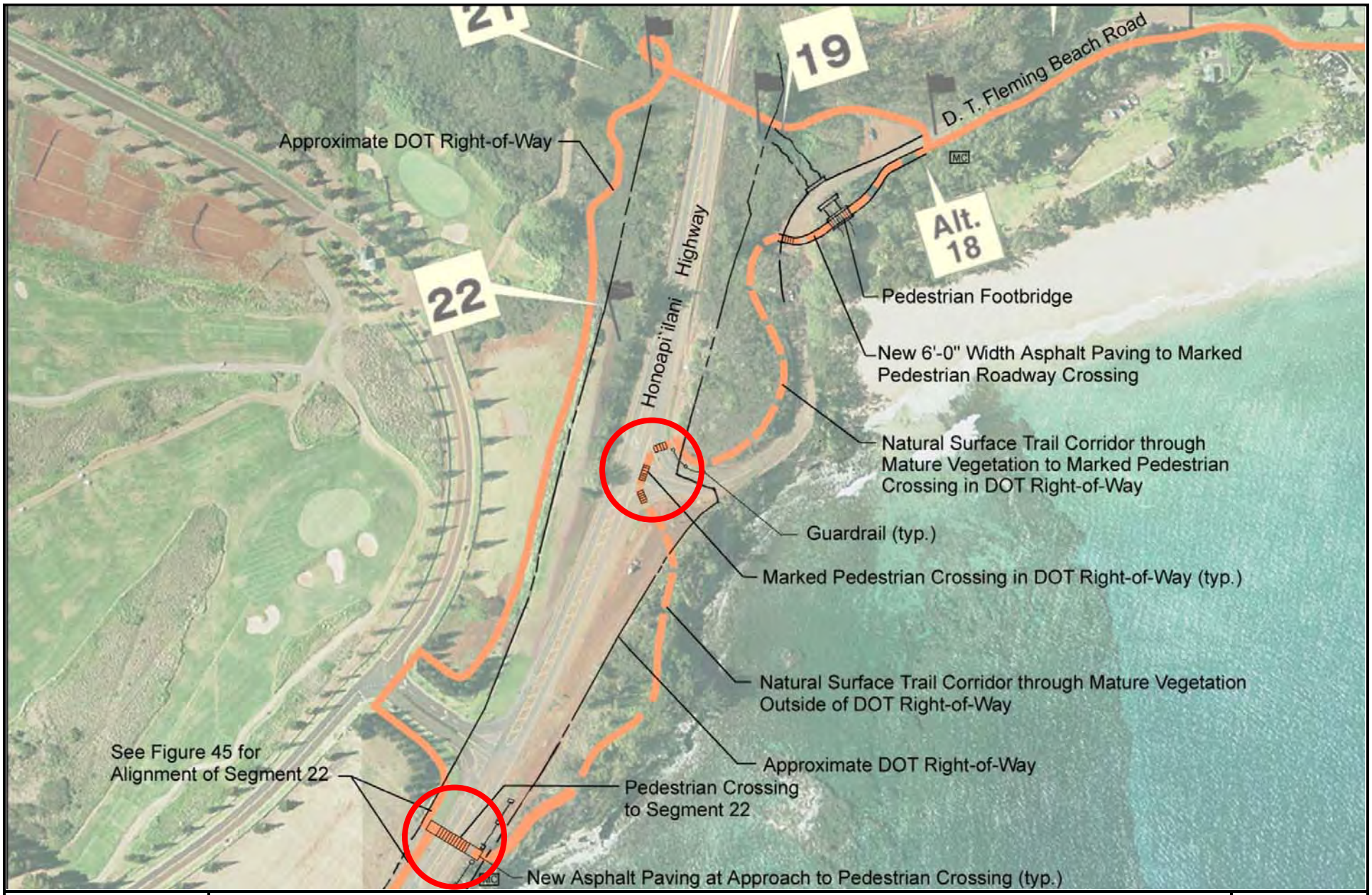
KAPALUA COASTAL TRAIL

PROPOSED TRAIL ALIGNMENT

FIGURE
2



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KAPALUA COASTAL TRAIL

SEGMENT ALTERNATE 18

FIGURE 3

continues northward along the west (makai) side of the highway (see Figure 4). North of the intersection with Plantation Club Drive, the trail crosses Honoapiilani Highway and intersects Segments 22 and 23. In the vicinity of these two roadway crossings, Honoapiilani Highway is a predominantly two-lane, two-way divided roadway generally oriented in the north-south direction. The speed limit along the highway varies in this section with the speed limit for northbound vehicles posted at 25 miles per hour while the speed limit for southbound vehicles is posted at 30 mph north of the intersection with D.T. Fleming Beach Road and 45 mph south of the intersection.

The Kapalua Coastal Trail continues northward from Segment 22 along the east (mauka) side of Honoapiilani Highway until it reaches Segment 26 near an existing pedestrian stairway that leads to Mokuleia Bay (see Figures 5 and 6). At this crossing of Honoapiilani Highway, the highway is a two-lane, two-way undivided roadway with a posted speed limit of 25 mph with a posted advisory speed of 15 mph.

III. Traffic Volumes and Conditions

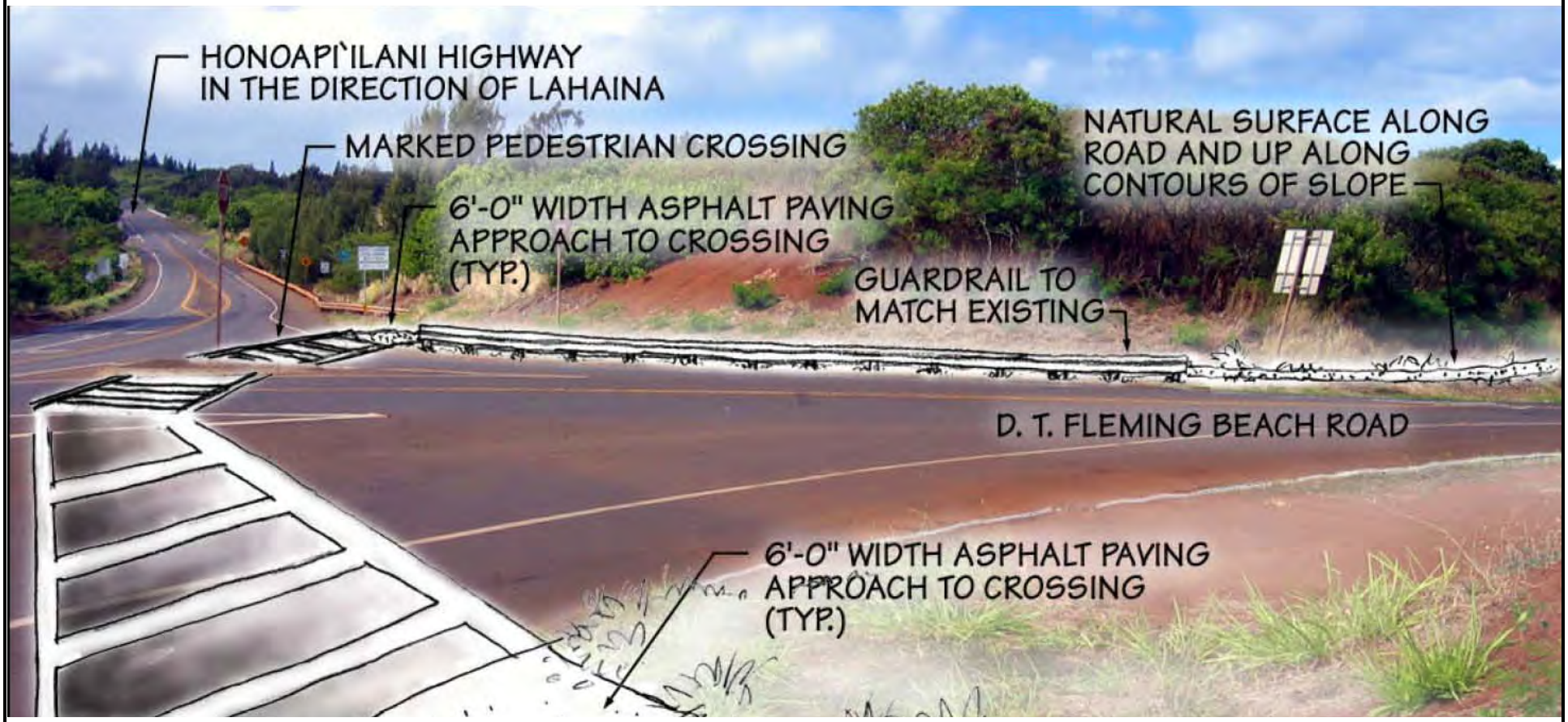
A. Field Investigation

Field investigations were conducted on November 27-28, 2006 and December 14, 2006, and included pedestrian traffic count and 24-hour mechanical count surveys along Honoapiilani Highway. The pedestrian traffic count surveys were conducted between the morning peak hours of 9:00 AM and 12:00 PM, and the afternoon peak hours of 3:00 PM and 6:00 PM. The 24-hour mechanical counts were taken along D.T. Fleming Beach Road and Honoapiilani Highway. Appendix A includes the existing traffic count data.

B. Existing Conditions

Figure 7 shows the daily vehicular traffic volumes (ADT) near the three roadway crossings, as well as, the existing AM and PM pedestrian peak hour traffic volumes near the existing stairway to Mokuleia Bay. The AM pedestrian peak period generally occurs between 11:00 AM and 12:00 PM while the PM pedestrian peak period generally occurs between the hours of 3:15 PM and 4:15 PM.

The first roadway crossing of the trail occurs at the intersection of Honoapiilani Highway with D.T. Fleming Beach Road. Just south of the intersection, Honoapiilani Highway carries 4,231 vehicles per day while D.T. Fleming Beach



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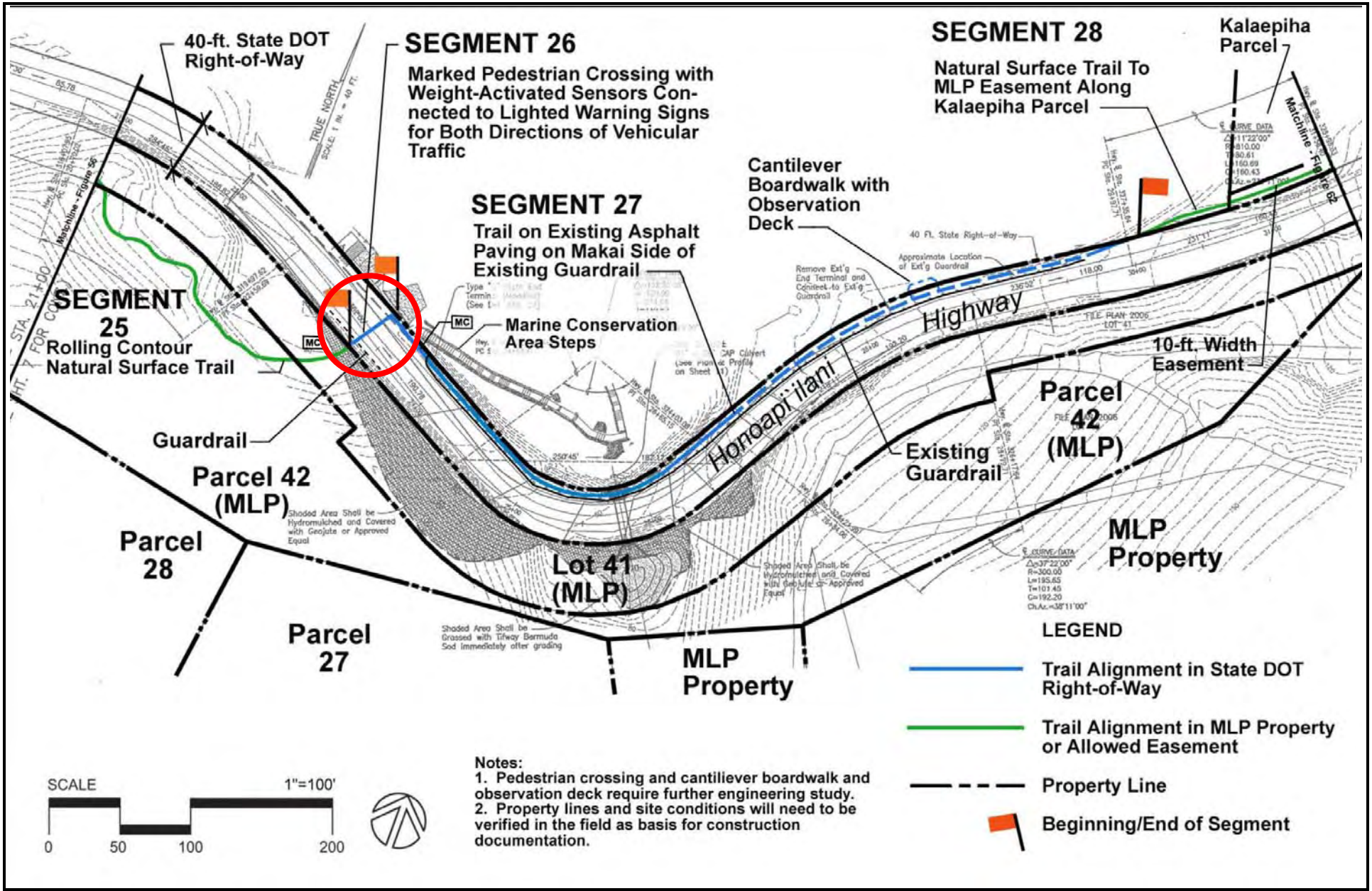
KAPALUA COASTAL TRAIL

CROSSING AT THE INTERSECTION OF HONOAPIILANI HWY
AND D.T. FLEMING BEACH RD

FIGURE
4



Notes:
1. Pedestrian crossing and cantiliever boardwalk and observation deck require further engineering study.
2. Property lines and site conditions will need to be verified in the field as basis for construction documentation.

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KAPALUA COASTAL TRAIL

SEGMENT 26

FIGURE 5

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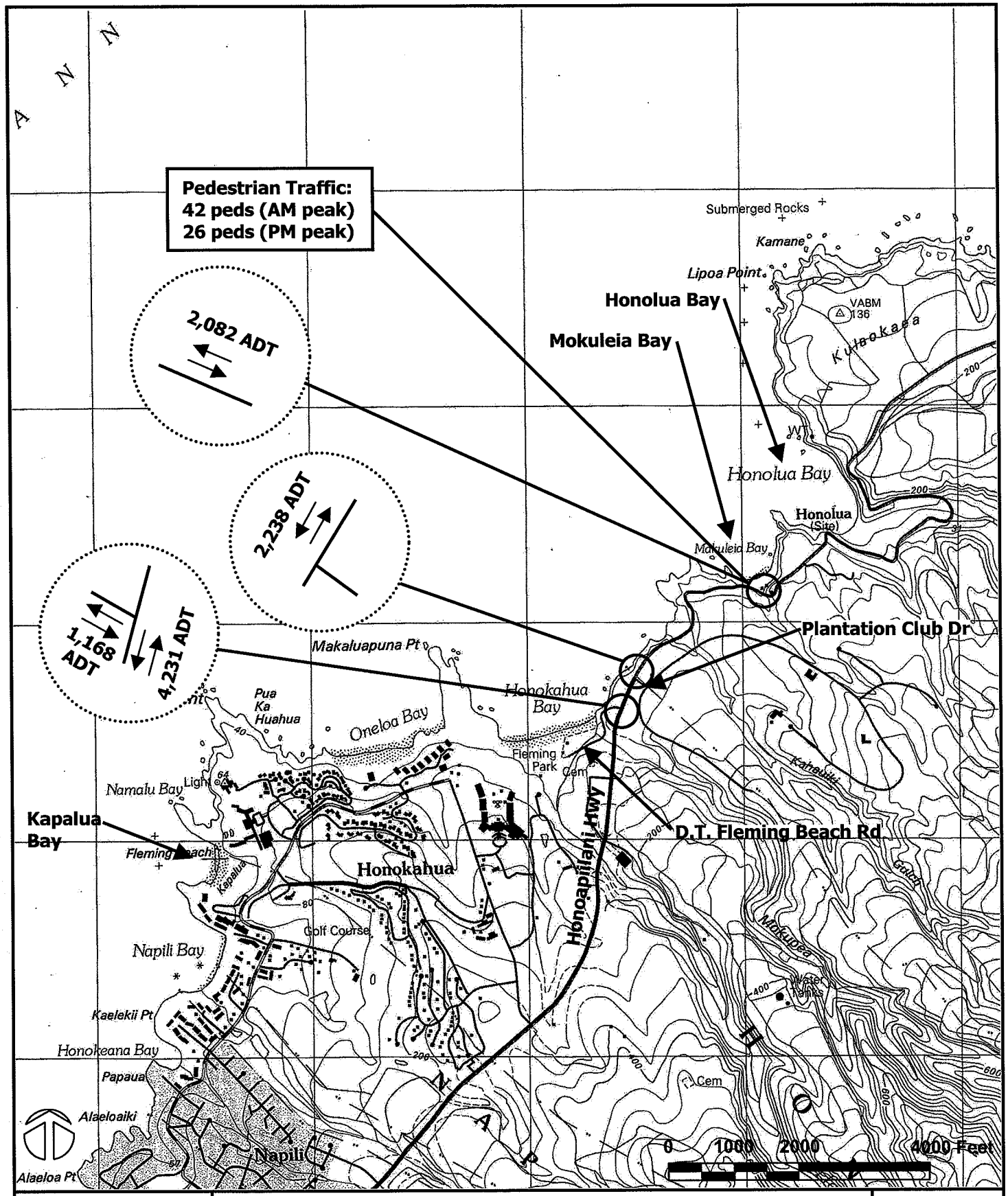
KAPALUA COASTAL TRAIL

CROSSING OF HONOAPIILANI HIGHWAY NEAR STAIRWAY TO MOKULEIA BAY

FIGURE 6



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KAPALUA COASTAL TRAIL

EXISTING TRAFFIC VOLUMES

FIGURE 7

Road carries 1,168 vehicles per day just west of the intersection. At the second trail crossing north of Plantation Club Drive, Honoapiilani Highway carries 2,238 vehicles per day. The third trail crossing occurs near the stairway to Mokuleia Bay where the highway carries 2,082 vehicles per day. During the AM peak period, 42 pedestrians were observed utilizing the stairway to access Mokuleia Bay with a total of 81 pedestrians observed over the entire three-hour survey period. During the PM peak period, 26 pedestrians were observed utilizing the stairway with a total of 60 pedestrians observed over the entire three-hour survey period.

C. Projected Conditions

The Kapalua Coastal Trail is intended to be a continuous pedestrian route that will provide residents and visitors with alternate routes to destinations in and around Kapalua Resort. A portion of the pedestrian traffic along this trail will consist of current users of the individual facilities, such as D.T. Fleming Beach and Mokuleia Bay, along its alignment. Although there are currently no projections regarding the expected use of the proposed trail, the pedestrian traffic at the facilities along the trail alignment can provide some insight regarding the potential volume of pedestrian traffic along the trail and at the three subject roadway crossings. Since there are limited parking areas provided at many of these facilities, a portion of the existing pedestrian traffic might still elect to drive. For the purpose of this report, it was assumed that approximately 65% of the existing pedestrian traffic observed at Mokuleia Bay would utilize the trail instead while the remaining 35% were assumed to continue driving to the bay. As such, 27 of the existing pedestrians at Mokuleia Bay are assumed to utilize the proposed trail during the AM peak period.

IV. CROSSWALK WARRANT ASSESSMENT

A. General

The Federal Highway Administration's (FHWA) "Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations: Executive Summary and Recommended Guidelines" which was published in February 2002 provides guidance regarding the marking of crosswalks. Potential crossing locations should be assessed to determine if a marked crosswalk is warranted based upon pedestrian and vehicular traffic volumes, speed limits, and roadway configurations with a minimum required

pedestrian traffic volume of 20 pedestrians at the crossing per peak hour. However, even if a marked crosswalk is warranted, other factors such as sight distance should also be assessed to determine if additional roadway or intersection modifications are required (i.e., traffic-calming treatments, traffic signals, etc.) to ensure pedestrian safety at the crossing.

B. Honoapiilani Highway and D.T. Fleming Beach Road Intersection Crossing

Just south of the intersection with D.T. Fleming Beach Road, Honoapiilani Highway carries 4,231 vehicles per day while D.T. Fleming Beach Road carries 1,168 vehicles per day just west of the intersection. The posted speed limit near the crossing is 30 mph (higher of the two posted speed limits near the intersection) and the roadway configuration is a 2-lane roadway. In addition, the trail is expected to carry 27 pedestrians during the AM peak period which meets the required minimum of 20 pedestrians per peak hour. Utilizing Table 1 from the aforementioned FHWA publication, this crossing is a candidate site for a marked crosswalk. In addition, since the crosswalk location is located across the minor road of an intersection, sight distance should be sufficient at this location.

C. Honoapiilani Highway Crossing North of Plantation Club Drive

Just north of Plantation Club Drive, Honoapiilani Highway carries 2,238 vehicles per day and the posted speed limit near the crossing is 30 mph (higher of the two posted speed limits in the vicinity). The roadway configuration is a 2-lane roadway and since the trail is expected to carry 27 pedestrians during the AM peak period, the required minimum of 20 pedestrians per peak hour is satisfied. Utilizing Table 1 from the aforementioned FHWA publication, this crossing is a candidate site for a marked crosswalk. Field measurements indicate that the available sight distances at the crossing location are approximately 350 feet to the north and 500 feet to the south which should be sufficient for typical crossing maneuvers.

D. Honoapiilani Highway Crossing Near Stairway to Mokuleia Bay

Near the stairway to Mokuleia Bay, Honoapiilani Highway carries 2,082 vehicles per day and the posted speed limit near the crossing is 25 mph and a posted advisory speed limit of 15 mph. The roadway configuration is a 2-lane roadway and

since the trail is expected to carry 27 pedestrians during the AM peak period, the required minimum of 20 pedestrians per peak hour is satisfied. Utilizing Table 1 from the aforementioned FHWA publication, this crossing is a candidate site for a marked crosswalk. Field measurements indicate that the available sight distances at the crossing location are approximately 200 feet to the north and 100 feet to the south which are not sufficient for typical crossing maneuvers. However, the proposed project includes the provision of additional roadway modifications to ensure pedestrian safety at the crossing. Solar powered weight-activated sensors connected to lighted warning signs will be provided for both directions of vehicular traffic to heighten pedestrian visibility at the crosswalk.

V. CONCLUSION

The proposed 3.5-mile Kapalua Coastal Trail, which will extend between Kapalua Bay and Honolua Bay along the western coastline of Maui, is intended to be a continuous major, but low-impact pedestrian route that will provide residents and visitors with alternate routes to destinations in and around Kapalua Resort while providing dramatic vistas of the shoreline, neighboring islands, and resort features, as well as, exposure to important aspects of Hawaiian culture, geology, and plant and animal life. Along its alignment, the trail is expected to make three at-grade roadway crossings. These crossings occur at the intersection of Honoapiilani Highway with D.T. Fleming Beach Road intersection, along Honoapiilani Highway north of Plantation Club Drive, and along Honoapiilani Highway near the stairway to Mokuleia Bay.

Based upon guidance published in the Federal Highway Administration's (FHWA) "Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations: Executive Summary and Recommended Guidelines" in February 2002, all of the at-grade crossings warrant marked crosswalks. However, field measurements indicate that there is insufficient sight distance at the crossing along Honoapiilani Highway near the stairway to Mokuleia Bay. However, the proposed project includes the provision of additional roadway modifications to ensure pedestrian safety at the crossing by heightening pedestrian visibility at the crosswalk

APPENDIX A

EXISTING TRAFFIC COUNT DATA

WILSON OKAMOTO CORPORATION
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826

Counter:D1-0525
Counted:TO
Weather:Clear

File Name : AM Count
Site Code : 00000001
Start Date : 11/28/2006
Page No : 1

Groups Printed- Unshifted

	Kapalua Plantation Golf Course Southbound		Westbound		Fleming Beach Entrance Northbound		Eastbound		
Start Time	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Int. Total
09:00 AM	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0
Apprch %	0		0		0		0		
Total %									

	Kapalua Plantation Golf Course Southbound		Westbound		Fleming Beach Entrance Northbound		Eastbound		
Start Time	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Int. Total
Peak Hour Analysis From 09:00 AM to 11:45 AM - Peak 1 of 1									
Peak Hour for Entire Intersection Begins at 09:00 AM									
09:00 AM	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0		0		0		0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

WILSON OKAMOTO CORPORATION
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826

Counter:D1-0525
Counted:TO
Weather:Clear

File Name : PM Count
Site Code : 00000001
Start Date : 11/27/2006
Page No : 1

Groups Printed- Unshifted

	Kapalua Plantation Course Entrance Southbound		Westbound		Fleming Beach Entrance Northbound		Eastbound		
Start Time	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Int. Total
03:00 PM	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	0	0	1	1	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	1	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	1	1	0	0	1
Apprch %	0		0		100		0		
Total %	0	0	0	0	100	100	0	0	

	Kapalua Plantation Course Entrance Southbound		Westbound		Fleming Beach Entrance Northbound		Eastbound		
Start Time	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1									
Peak Hour for Entire Intersection Begins at 03:15 PM									
03:15 PM	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	0	0	**1**	**1**	0	0	**1**
Total Volume	0	0	0	0	1	1	0	0	1
% App. Total	0		0		100		0		
PHF	.000	.000	.000	.000	.250	.250	.000	.000	.250

WILSON OKAMOTO CORPORATION
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826

Counter:D1-0768
Counted:GMT
Weather:Clear

File Name : GMT AM Count
Site Code : 00000002
Start Date : 11/28/2006
Page No : 1

Groups Printed- Unshifted

	Peds Going Down The Stairs Southbound		Westbound		Peds Going Up The Stairs Northbound		Eastbound		
Start Time	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Int. Total
09:00 AM	6	6	0	0	0	0	0	0	6
09:15 AM	3	3	0	0	3	3	0	0	6
09:30 AM	3	3	0	0	0	0	0	0	3
09:45 AM	6	6	0	0	4	4	0	0	10
Total	18	18	0	0	7	7	0	0	25
10:00 AM	3	3	0	0	1	1	0	0	4
10:15 AM	0	0	0	0	0	0	0	0	0
10:30 AM	4	4	0	0	0	0	0	0	4
10:45 AM	6	6	0	0	0	0	0	0	6
Total	13	13	0	0	1	1	0	0	14
11:00 AM	9	9	0	0	1	1	0	0	10
11:15 AM	7	7	0	0	4	4	0	0	11
11:30 AM	7	7	0	0	5	5	0	0	12
11:45 AM	0	0	0	0	9	9	0	0	9
Total	23	23	0	0	19	19	0	0	42
Grand Total	54	54	0	0	27	27	0	0	81
Apprch %	100		0		100		0		
Total %	66.7	66.7	0	0	33.3	33.3	0	0	

	Peds Going Down The Stairs Southbound		Westbound		Peds Going Up The Stairs Northbound		Eastbound		
Start Time	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Int. Total
Peak Hour Analysis From 09:00 AM to 11:45 AM - Peak 1 of 1									
Peak Hour for Entire Intersection Begins at 11:00 AM									
11:00 AM	**9**	**9**	0	0	1	1	0	0	10
11:15 AM	7	7	0	0	4	4	0	0	11
11:30 AM	7	7	0	0	5	5	0	0	**12**
11:45 AM	0	0	0	0	**9**	**9**	0	0	9
Total Volume	23	23	0	0	19	19	0	0	42
% App. Total	100		0		100		0		
PHF	.639	.639	.000	.000	.528	.528	.000	.000	.875

WILSON OKAMOTO CORPORATION
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826

Counter:D1-0768
Counted:GMT
Weather:Clear

File Name : GMT PM Count
Site Code : 00000002
Start Date : 11/27/2006
Page No : 1

Groups Printed- Unshifted

	Peds Going Down The Stairs Southbound		Westbound		Peds Going Up The Stairs Northbound		Eastbound		
Start Time	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Int. Total
03:00 PM	2	2	0	0	0	0	0	0	2
03:15 PM	3	3	0	0	4	4	0	0	7
03:30 PM	0	0	0	0	7	7	0	0	7
03:45 PM	0	0	0	0	4	4	0	0	4
Total	5	5	0	0	15	15	0	0	20
04:00 PM	8	8	0	0	0	0	0	0	8
04:15 PM	3	3	0	0	3	3	0	0	6
04:30 PM	0	0	0	0	6	6	0	0	6
04:45 PM	2	2	0	0	4	4	0	0	6
Total	13	13	0	0	13	13	0	0	26
05:00 PM	5	5	0	0	0	0	0	0	5
05:15 PM	0	0	0	0	5	5	0	0	5
05:30 PM	2	2	0	0	2	2	0	0	4
05:45 PM	0	0	0	0	0	0	0	0	0
Total	7	7	0	0	7	7	0	0	14
Grand Total	25	25	0	0	35	35	0	0	60
Apprch %	100		0		100		0		
Total %	41.7	41.7	0	0	58.3	58.3	0	0	

	Peds Going Down The Stairs Southbound		Westbound		Peds Going Up The Stairs Northbound		Eastbound		
Start Time	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1									
Peak Hour for Entire Intersection Begins at 03:15 PM									
03:15 PM	3	3	0	0	4	4	0	0	7
03:30 PM	0	0	0	0	**7**	**7**	0	0	7
03:45 PM	0	0	0	0	4	4	0	0	4
04:00 PM	**8**	**8**	0	0	0	0	0	0	**8**
Total Volume	11	11	0	0	15	15	0	0	26
% App. Total	100		0		100		0		
PHF	.344	.344	.000	.000	.536	.536	.000	.000	.813

Wilson Okamoto Coporation

1907 S. Beretania Street #400
Honolulu, HI 96826

Title1 : Kapalua Coastal Trail
Title2 : Honoapiilani Highway
Title3 : South of Fleming

Site:
Date: 11/27/06

Day: Monday

Interval	SB			NB			Combined		
Begin	AM	PM		AM	PM		AM	PM	
12:00	*	*		*	*		*	*	
12:15	*	*		*	*		*	*	
12:30	*	*		*	*		*	*	
12:45	*	*		*	*		*	*	
01:00	*	*		*	*		*	*	
01:15	*	*		*	*		*	*	
01:30	*	*		*	*		*	*	
01:45	*	*		*	*		*	*	
02:00	*	*		*	*		*	*	
02:15	*	23		*	24		*	47	
02:30	*	42		*	39		*	81	
02:45	*	53		*	41		*	94	
03:00	*	54	226	*	34	145	*	88	371
03:15	*	65		*	40		*	105	
03:30	*	48		*	33		*	81	
03:45	*	59		*	38		*	97	
04:00	*	71	220	*	28	115	*	99	335
04:15	*	56		*	23		*	79	
04:30	*	36		*	38		*	74	
04:45	*	57		*	26		*	83	
05:00	*	34	117	*	22	77	*	56	194
05:15	*	32		*	25		*	57	
05:30	*	20		*	16		*	36	
05:45	*	31		*	14		*	45	
06:00	*	31	86	*	12	37	*	43	123
06:15	*	22		*	9		*	31	
06:30	*	19		*	10		*	29	
06:45	*	14		*	6		*	20	
07:00	*	18	41	*	12	36	*	30	77
07:15	*	10		*	9		*	19	
07:30	*	8		*	7		*	15	
07:45	*	5		*	8		*	13	
08:00	*	7	26	*	9	34	*	16	60
08:15	*	8		*	6		*	14	
08:30	*	3		*	10		*	13	
08:45	*	8		*	9		*	17	
09:00	*	4	20	*	5	19	*	9	39
09:15	*	2		*	3		*	5	
09:30	*	8		*	4		*	12	
09:45	*	6		*	7		*	13	
10:00	*	12	24	*	2	9	*	14	33
10:15	*	5		*	3		*	8	
10:30	*	6		*	2		*	8	
10:45	*	1		*	2		*	3	
11:00	*	3	7	*	2	8	*	5	15
11:15	*	0		*	3		*	3	
11:30	*	1		*	3		*	4	
11:45	*	3		*	0		*	3	
Totals	0	885		0	584		0	1,469	
Split%	*	60.2		*	39.8				

Day Totals	885	584	1,469
Day Splits	60.2	39.8	

Peak Hour	*	03:15	*	02:30	*	03:15
Volume	*	243	*	154	*	382
Factor	*	0.86	*	0.94	*	0.91

Wilson Okamoto Coporation

1907 S. Beretania Street #400
Honolulu, HI 96826

Title1 : Kapalua Coastal Trail
Title2 : Honoapiilani Highway
Title3 : South of Fleming

Site:
Date: 11/28/06

Day: Tuesday

Interval	SB				NB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	3	3	52	195	1	6	70	264	4	9	122	459
12:15	0		53		3		64		3		117	
12:30	0		53		1		66		1		119	
12:45	0		37		1		64		1		101	
01:00	2	4	52	204	1	3	58	186	3	7	110	390
01:15	0		60		1		42		1		102	
01:30	2		42		1		46		3		88	
01:45	0		50		0		40		0		90	
02:00	0	2	64	223	2	3	39	175	2	5	103	398
02:15	2		51		1		42		3		93	
02:30	0		56		0		38		0		94	
02:45	0		52		0		56		0		108	
03:00	0	2	62	180	0	2	39	106	0	4	101	286
03:15	0		48		1		36		1		84	
03:30	1		70		1		31		2		101	
03:45	1		0		0		0		1		0	
04:00	0	2	*		1	5	*		1	7	*	
04:15	0		*		1		*		1		*	
04:30	0		*		2		*		2		*	
04:45	2		*		1		*		3		*	
05:00	0	8	*		4	27	*		4	35	*	
05:15	0		*		12		*		12		*	
05:30	4		*		8		*		12		*	
05:45	4		*		3		*		7		*	
06:00	9	51	*		11	70	*		20	121	*	
06:15	5		*		11		*		16		*	
06:30	19		*		15		*		34		*	
06:45	18		*		33		*		51		*	
07:00	17	77	*		41	132	*		58	209	*	
07:15	16		*		27		*		43		*	
07:30	22		*		32		*		54		*	
07:45	22		*		32		*		54		*	
08:00	21	84	*		36	176	*		57	260	*	
08:15	20		*		47		*		67		*	
08:30	24		*		55		*		79		*	
08:45	19		*		38		*		57		*	
09:00	32	134	*		64	224	*		96	358	*	
09:15	35		*		46		*		81		*	
09:30	30		*		62		*		92		*	
09:45	37		*		52		*		89		*	
10:00	34	145	*		48	205	*		82	350	*	
10:15	36		*		56		*		92		*	
10:30	37		*		54		*		91		*	
10:45	38		*		47		*		85		*	
11:00	42	171	*		52	201	*		94	372	*	
11:15	36		*		54		*		90		*	
11:30	43		*		48		*		91		*	
11:45	50		*		47		*		97		*	
Totals	683		802		1,054		731		1,737		1,533	
Split%	39.3		52.3		60.7		47.7					
Day Totals		1,485				1,785				3,270		
Day Splits		45.4				54.6						
Peak Hour	11:00		02:45		09:00		12:00		11:00		12:00	
Volume	171		232		224		264		372		459	
Factor	0.86		0.83		0.88		0.94		0.96		0.94	

Wilson Okamoto Coporation

1907 S. Beretania Street #400
Honolulu, HI 96826

Title1 : Kapalua Coastal Study
Title2 : Fleming Beach Entrance
Title3 :

Site:
Date: 11/27/06

Interval	EB			WB			Combined			Day: Monday
Begin	AM	PM		AM	PM		AM	PM		
12:00	*	*		*	*		*	*		
12:15	*	*		*	*		*	*		
12:30	*	*		*	*		*	*		
12:45	*	*		*	*		*	*		
01:00	*	*		*	*		*	*		
01:15	*	*		*	*		*	*		
01:30	*	*		*	*		*	*		
01:45	*	*		*	*		*	*		
02:00	*	18	57	*	4	44	*	22	101	
02:15	*	11		*	16		*	27		
02:30	*	14		*	10		*	24		
02:45	*	14		*	14		*	28		
03:00	*	19	67	*	17	62	*	36	129	
03:15	*	16		*	10		*	26		
03:30	*	16		*	22		*	38		
03:45	*	16		*	13		*	29		
04:00	*	13	65	*	12	46	*	25	111	
04:15	*	9		*	13		*	22		
04:30	*	21		*	16		*	37		
04:45	*	22		*	5		*	27		
05:00	*	6	30	*	8	24	*	14	54	
05:15	*	8		*	2		*	10		
05:30	*	10		*	4		*	14		
05:45	*	6		*	10		*	16		
06:00	*	7	12	*	0	7	*	7	19	
06:15	*	1		*	3		*	4		
06:30	*	3		*	3		*	6		
06:45	*	1		*	1		*	2		
07:00	*	1	3	*	2	4	*	3	7	
07:15	*	1		*	0		*	1		
07:30	*	1		*	2		*	3		
07:45	*	0		*	0		*	0		
08:00	*	0	3	*	0	6	*	0	9	
08:15	*	1		*	2		*	3		
08:30	*	2		*	3		*	5		
08:45	*	0		*	1		*	1		
09:00	*	1	7	*	0	2	*	1	9	
09:15	*	0		*	0		*	0		
09:30	*	1		*	1		*	2		
09:45	*	5		*	1		*	6		
10:00	*	4	7	*	0	2	*	4	9	
10:15	*	0		*	1		*	1		
10:30	*	2		*	1		*	3		
10:45	*	1		*	0		*	1		
11:00	*	0	1	*	0	0	*	0	1	
11:15	*	0		*	0		*	0		
11:30	*	1		*	0		*	1		
11:45	*	0		*	0		*	0		
Totals	0	252		0	197		0	449		
Split%	*	56.1		*	43.9					
Day Totals		252			197			449		
Day Splits		56.1			43.9					
Peak Hour	*	03:00		*	02:45		*	03:00		
Volume	*	67		*	63		*	129		
Factor	*	0.88		*	0.72		*	0.85		

Wilson Okamoto Coporation

1907 S. Beretania Street #400
Honolulu, HI 96826

Title1 : Kapalua Coastal Study
Title2 : Fleming Beach Entrance
Title3 :

Site:
Date: 11/28/06

Day: Tuesday

Interval	EB				WB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	0	0	14	56	0	1	24	78	0	1	38	134
12:15	0		13		0		16		0		29	
12:30	0		12		0		15		0		27	
12:45	0		17		1		23		1		40	
01:00	1	1	9	59	0	0	12	59	1	1	21	118
01:15	0		12		0		13		0		25	
01:30	0		18		0		22		0		40	
01:45	0		20		0		12		0		32	
02:00	0	1	16	56	0	2	22	54	0	3	38	110
02:15	1		12		2		8		3		20	
02:30	0		14		0		12		0		26	
02:45	0		14		0		12		0		26	
03:00	0	0	16		0	0	14		0	0	30	
03:15	0		11		0		8		0		19	
03:30	0		0		0		0		0		0	
03:45	0		*		0		*		0		*	
04:00	0	1	*		0	2	*		0	3	*	
04:15	0		*		0		*		0		*	
04:30	0		*		2		*		2		*	
04:45	1		*		0		*		1		*	
05:00	0	2	*		1	3	*		1	5	*	
05:15	1		*		0		*		1		*	
05:30	0		*		0		*		0		*	
05:45	1		*		2		*		3		*	
06:00	2	8	*		0	12	*		2	20	*	
06:15	1		*		2		*		3		*	
06:30	4		*		1		*		5		*	
06:45	1		*		9		*		10		*	
07:00	2	9	*		4	20	*		6	29	*	
07:15	1		*		2		*		3		*	
07:30	5		*		5		*		10		*	
07:45	1		*		9		*		10		*	
08:00	6	34	*		6	49	*		12	83	*	
08:15	10		*		14		*		24		*	
08:30	8		*		14		*		22		*	
08:45	10		*		15		*		25		*	
09:00	12	40	*		9	50	*		21	90	*	
09:15	6		*		17		*		23		*	
09:30	8		*		12		*		20		*	
09:45	14		*		12		*		26		*	
10:00	6	43	*		7	66	*		13	109	*	
10:15	10		*		7		*		17		*	
10:30	16		*		29		*		45		*	
10:45	11		*		23		*		34		*	
11:00	17	53	*		12	61	*		29	114	*	
11:15	10		*		19		*		29		*	
11:30	10		*		12		*		22		*	
11:45	16		*		18		*		34		*	
Totals	192		198		266		213		458		411	
Split%	41.9		48.2		58.1		51.8					
Day Totals		390				479				869		
Day Splits		44.9				55.1						
Peak Hour	10:15		01:15		10:30		12:00		10:30		01:15	
Volume	54		66		83		78		137		135	
Factor	0.79		0.82		0.72		0.81		0.76		0.84	

Wilson Okamoto Coporation

1907 S. Beretania Street #400
Honolulu, HI 96826

Title1 : Kapalua Coastal Trail
Title2 : Honoapiilani Highway
Title3 : North of Golf Co

Site: 100000000000
Date: 11/27/06

Day: Monday

Interval	NB			SB			Combined		
Begin	AM	PM		AM	PM		AM	PM	
12:00	*	*		*	*		*	*	
12:15	*	*		*	*		*	*	
12:30	*	*		*	*		*	*	
12:45	*	*		*	*		*	*	
01:00	*	*		*	*		*	*	
01:15	*	*		*	*		*	*	
01:30	*	*		*	*		*	*	
01:45	*	*		*	*		*	*	
02:00	*	*		*	*		*	*	
02:15	*	8		*	10		*	18	
02:30	*	26		*	30		*	56	
02:45	*	36		*	35		*	71	
03:00	*	27	73	*	28	106	*	55	179
03:15	*	14		*	33		*	47	
03:30	*	15		*	23		*	38	
03:45	*	17		*	22		*	39	
04:00	*	14	63	*	19	81	*	33	144
04:15	*	13		*	26		*	39	
04:30	*	24		*	22		*	46	
04:45	*	12		*	14		*	26	
05:00	*	15	39	*	20	64	*	35	103
05:15	*	5		*	9		*	14	
05:30	*	12		*	11		*	23	
05:45	*	7		*	24		*	31	
06:00	*	2	17	*	18	41	*	20	58
06:15	*	5		*	8		*	13	
06:30	*	5		*	6		*	11	
06:45	*	5		*	9		*	14	
07:00	*	7	21	*	2	9	*	9	30
07:15	*	4		*	2		*	6	
07:30	*	5		*	3		*	8	
07:45	*	5		*	2		*	7	
08:00	*	3	18	*	0	2	*	3	20
08:15	*	6		*	0		*	6	
08:30	*	4		*	2		*	6	
08:45	*	5		*	0		*	5	
09:00	*	3	10	*	1	10	*	4	20
09:15	*	3		*	3		*	6	
09:30	*	4		*	3		*	7	
09:45	*	0		*	3		*	3	
10:00	*	3	6	*	3	8	*	6	14
10:15	*	0		*	3		*	3	
10:30	*	1		*	1		*	2	
10:45	*	2		*	1		*	3	
11:00	*	3	7	*	1	5	*	4	12
11:15	*	2		*	0		*	2	
11:30	*	1		*	1		*	2	
11:45	*	1		*	3		*	4	
Totals	0	324		0	401		0	725	
Split%	*	44.7		*	55.3				

Day Totals		324		401		725	
Day Splits		44.7		55.3			
Peak Hour	*	02:30	*	02:30	*	02:30	
Volume	*	103	*	126	*	229	
Factor	*	0.72	*	0.90	*	0.81	

Wilson Okamoto Coporation

1907 S. Beretania Street #400
Honolulu, HI 96826

Title1 : Kapalua Coastal Trail
Title2 : Honoapiilani Highway
Title3 : North of Golf Co

Site: 100000000000
Date: 11/28/06

Day: Tuesday

Interval	NB				SB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	0	4	40	142	0	1	36	121	0	5	76	263
12:15	3		38		0		16		3		54	
12:30	1		28		1		34		2		62	
12:45	0		36		0		35		0		71	
01:00	2	2	24	104	1	1	31	118	3	3	55	222
01:15	0		23		0		28		0		51	
01:30	0		27		0		24		0		51	
01:45	0		30		0		35		0		65	
02:00	1	1	23	120	1	1	40	127	2	2	63	247
02:15	0		34		0		32		0		66	
02:30	0		27		0		29		0		56	
02:45	0		36		0		26		0		62	
03:00	1	2	35		0	1	38		1	3	73	
03:15	0		0		0		0		0		0	
03:30	1		*		1		*		2		*	
03:45	0		*		0		*		0		*	
04:00	1	1	*		0	1	*		1	2	*	
04:15	0		*		0		*		0		*	
04:30	0		*		0		*		0		*	
04:45	0		*		1		*		1		*	
05:00	2	5	*		0	4	*		2	9	*	
05:15	0		*		0		*		0		*	
05:30	1		*		1		*		2		*	
05:45	2		*		3		*		5		*	
06:00	5	23	*		4	42	*		9	65	*	
06:15	6		*		7		*		13		*	
06:30	6		*		20		*		26		*	
06:45	6		*		11		*		17		*	
07:00	14	50	*		7	44	*		21	94	*	
07:15	13		*		12		*		25		*	
07:30	10		*		13		*		23		*	
07:45	13		*		12		*		25		*	
08:00	15	86	*		9	45	*		24	131	*	
08:15	17		*		10		*		27		*	
08:30	26		*		12		*		38		*	
08:45	28		*		14		*		42		*	
09:00	19	111	*		13	71	*		32	182	*	
09:15	34		*		22		*		56		*	
09:30	30		*		16		*		46		*	
09:45	28		*		20		*		48		*	
10:00	32	125	*		17	79	*		49	204	*	
10:15	33		*		16		*		49		*	
10:30	34		*		22		*		56		*	
10:45	26		*		24		*		50		*	
11:00	31	138	*		14	88	*		45	226	*	
11:15	34		*		24		*		58		*	
11:30	28		*		27		*		55		*	
11:45	45		*		23		*		68		*	
Totals	548		401		378		404		926		805	
Split%	59.2		49.8		40.8		50.2					
Day Totals		949				782				1,731		
Day Splits		54.8				45.2						
Peak Hour	11:00		12:00		10:45		01:45		11:00		12:00	
Volume	138		142		89		136		226		263	
Factor	0.77		0.89		0.82		0.85		0.83		0.87	

Wilson Okamoto Coporation

1907 S. Beretania Street #400
Honolulu, HI 96826

Title1 : Kapalua Coastal Trail
Title2 : Honoapiilani Highway
Title3 : Near Steps Down

Site: 100000000000
Date: 11/27/06

Day: Monday

Interval	NB			SB			Combined		
Begin	AM	PM		AM	PM		AM	PM	
12:00	*	*		*	*		*	*	
12:15	*	*		*	*		*	*	
12:30	*	*		*	*		*	*	
12:45	*	*		*	*		*	*	
01:00	*	*		*	*		*	*	
01:15	*	*		*	*		*	*	
01:30	*	*		*	*		*	*	
01:45	*	*		*	*		*	*	
02:00	*	*		*	*		*	*	
02:15	*	*		*	*		*	*	
02:30	*	26		*	26		*	52	
02:45	*	35		*	32		*	67	
03:00	*	24	72	*	27	97	*	51	169
03:15	*	18		*	27		*	45	
03:30	*	17		*	21		*	38	
03:45	*	13		*	22		*	35	
04:00	*	13	59	*	20	78	*	33	137
04:15	*	11		*	24		*	35	
04:30	*	20		*	22		*	42	
04:45	*	15		*	12		*	27	
05:00	*	11	37	*	18	61	*	29	98
05:15	*	6		*	8		*	14	
05:30	*	11		*	14		*	25	
05:45	*	9		*	21		*	30	
06:00	*	4	17	*	18	40	*	22	57
06:15	*	3		*	7		*	10	
06:30	*	5		*	6		*	11	
06:45	*	5		*	9		*	14	
07:00	*	7	22	*	2	8	*	9	30
07:15	*	5		*	2		*	7	
07:30	*	4		*	3		*	7	
07:45	*	6		*	1		*	7	
08:00	*	2	17	*	0	2	*	2	19
08:15	*	4		*	0		*	4	
08:30	*	6		*	2		*	8	
08:45	*	5		*	0		*	5	
09:00	*	3	10	*	1	9	*	4	19
09:15	*	3		*	4		*	7	
09:30	*	4		*	2		*	6	
09:45	*	0		*	2		*	2	
10:00	*	1	5	*	3	8	*	4	13
10:15	*	2		*	3		*	5	
10:30	*	1		*	1		*	2	
10:45	*	1		*	1		*	2	
11:00	*	2	8	*	1	5	*	3	13
11:15	*	3		*	0		*	3	
11:30	*	2		*	1		*	3	
11:45	*	1		*	3		*	4	
Totals	0	308		0	366		0	674	
Split%	*	45.7		*	54.3				
Day Totals		308			366			674	
Day Splits		45.7			54.3				
Peak Hour	*	02:30		*	02:30		*	02:30	
Volume	*	103		*	112		*	215	
Factor	*	0.74		*	0.88		*	0.80	

Wilson Okamoto Coporation

1907 S. Beretania Street #400
Honolulu, HI 96826

Title1 : Kapalua Coastal Trail
Title2 : Honoapiilani Highway
Title3 : Near Steps Down

Site: 100000000000
Date: 11/28/06

Day: Tuesday

Interval	NB				SB				Combined			
Begin	AM		PM		AM		PM		AM		PM	
12:00	0	4	40	142	0	1	29	105	0	5	69	247
12:15	3		38		0		16		3		54	
12:30	1		28		1		30		2		58	
12:45	0		36		0		30		0		66	
01:00	1	2	28	100	1	1	29	111	2	3	57	211
01:15	1		22		0		24		1		46	
01:30	0		20		0		24		0		44	
01:45	0		30		0		34		0		64	
02:00	1	1	28	116	1	1	30	100	2	2	58	216
02:15	0		24		0		22		0		46	
02:30	0		38		0		22		0		60	
02:45	0		26		0		26		0		52	
03:00	0	2	36		0	1	32		0	3	68	
03:15	1		26		0		32		1		58	
03:30	1		0		1		0		2		0	
03:45	0		*		0		*		0		*	
04:00	0	1	*		0	1	*		0	2	*	
04:15	1		*		0		*		1		*	
04:30	0		*		0		*		0		*	
04:45	0		*		1		*		1		*	
05:00	0	5	*		0	4	*		0	9	*	
05:15	2		*		0		*		2		*	
05:30	1		*		1		*		2		*	
05:45	2		*		3		*		5		*	
06:00	4	19	*		3	37	*		7	56	*	
06:15	4		*		8		*		12		*	
06:30	6		*		16		*		22		*	
06:45	5		*		10		*		15		*	
07:00	16	46	*		6	41	*		22	87	*	
07:15	10		*		10		*		20		*	
07:30	12		*		12		*		24		*	
07:45	8		*		13		*		21		*	
08:00	12	77	*		6	33	*		18	110	*	
08:15	17		*		6		*		23		*	
08:30	20		*		10		*		30		*	
08:45	28		*		11		*		39		*	
09:00	20	113	*		12	59	*		32	172	*	
09:15	36		*		18		*		54		*	
09:30	26		*		12		*		38		*	
09:45	31		*		17		*		48		*	
10:00	27	123	*		17	73	*		44	196	*	
10:15	33		*		16		*		49		*	
10:30	37		*		18		*		55		*	
10:45	26		*		22		*		48		*	
11:00	30	124	*		14	84	*		44	208	*	
11:15	32		*		22		*		54		*	
11:30	24		*		24		*		48		*	
11:45	38		*		24		*		62		*	
Totals	517		420		336		380		853		800	
Split%	60.6		52.5		39.4		47.5					
Day Totals		937				716				1,653		
Day Splits		56.7				43.3						
Peak Hour	09:45		12:00		11:00		12:30		11:00		12:00	
Volume	128		142		84		113		208		247	
Factor	0.86		0.89		0.88		0.94		0.84		0.89	