Draft Environmental Assessment

Kukui'ula
Conservation District Improvements

Koloa, Kauai, Hawaii

Tax Map Keys: [4] 2-6-02: 12 and 2-6-03: 3 and 20, and
Portion of Lawai Road

Prepared For:

Kukui'ula Development Company (Hawaii), LLC
P.O. Box 280
Koloa, Kauai, Hawaii 96756

Prepared By:

Wilson Okamoto Corporation
Engineers and Planners
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

December 2007

DRAFT ENVIRONMENTAL ASSESSMENT

KUKUI'ULA
CONSERVATION DISTRICT IMPROVEMENTS

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PREFACE

This Draft Environmental Assessment ("EA") is prepared pursuant to Chapter 343, Hawaii Revised Statutes ("HRS"), and Title 11, Chapter 200, Administrative Rules, Department of Health, State of Hawaii. Proposed is an applicant action by Kukui'ula Development Company (Hawaii), LLC ("Applicant") to undertake passive improvements within an approximately 10.0-acre area located adjacent to and west of Spouting Horn Park in Koloa, Island of Kauai. The proposed improvements are intended to fulfill Condition No. 15. f) of Zoning Ordinance No. PM-2004-370 for the adjacent Kukui'ula development which requires that the Applicant provide public pedestrian access to the shoreline areas west of Spouting Horn Park owned by the Applicant. The proposed Project improvements include development of an approximately 1,700 linear-foot turf grass public pedestrian trail along the makai side of the Lawai Road right-of-way; development of new gravel parking areas within the makai shoulder of the Lawai Road right-of-way; the clearing and removal of existing alien (non-native) vegetation within an area along the rocky coastal land adjacent to and makai of the Lawai Road right-of-way and the National Tropical Botanical Garden ("NTBG") tram road and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced; selective removal of existing large alien (non-native) invasive tree species in the area adjacent to and makai of the re-vegetation area and along the mauka side of the NTBG tram road; maintenance of the existing vegetation within the mauka side of the Lawai Road right-of-way and the NTBG tram road; and resurfacing of an approximately 700 linear-foot segment of the existing 12-foot wide asphalt-paved NTBG tram road. Development of an approximately 16,000 square-foot test area within the western portion of the Project Site will occur prior to implementation of the Project improvements to implement and test the proposed vegetation removal and re-vegetation methods. An EA is required in accordance with Chapter 343, HRS, since the proposed improvements are located within the State Conservation District and also involve the use of County lands (Lawai Road).

It is anticipated that a Finding of No Significant Impact ("FONSI") will be issued and filed with the State Office of Environmental Quality Control ("OEQC") by the Approving Agency, the State of Hawaii Department of Land and Natural Resources ("DLNR") Office of Conservation and Coastal Lands ("OCCL"), following public review of the Draft EA.

In conjunction with this Draft EA, a Conservation District Use Application ("CDUA") has been prepared for the proposed improvements and is being concurrently processed by the DLNR OCCL. Since the Project Site is located within the County of Kauai's ("County") Special Management Area ("SMA") boundary, a SMA Use Permit Application has been prepared for the proposed improvements and is being concurrently processed by the County Planning Department.

PROJECT SUMMARY

Applicant:	Kukui'ula Development Company (Hawaii), LLC P.O. Box 280 Koloa, Kauai, Hawaii 96756
Approving Agency:	State Department of Land and Natural Resources ("DLNR") Office of Conservation and Coastal Lands ("OCCL") 1151 Punchbowl Street, Room 131 Honolulu, Kauai, Hawaii 96813
Location:	Koloa, Kauai, Hawaii
Tax Map Keys ("TMKs"):	(4) 2-6-02: 12 and 2-6-03: 3 and 20; and portion of Lawai Road
Affected Area:	Approximately 10.0 acres
Recorded Fee Owners:	Kukui'ula Development Company (Hawaii), LLC (TMKs: (4) 2-6-02: 12 and 2-6-03: 3 and 20) County of Kauai ("County") Department of Public Works (Lawai Road)
Existing Use:	Predominantly undeveloped rocky coastline vegetated primarily with alien species; a portion of Lawai Road; a private paved road owned by the Applicant and used by the National Tropical Botanical Garden's ("NTBG") trams to transport visitors from its visitor center located northeast of the Project Site to the NTBG located to the northwest in Lawai Valley; and a historic coastal trail complex traversing along the inland edge of the coastal embankment, within the central and eastern portions of the Project Site, paralleling the coastline.
State Land Use Classification:	Conservation District
Conservation District Subzone:	Limited (L) Subzone
County General Plan:	Open
Koloa-Poipu-Kalaheo Development Plan:	There is no land use designation for the Project Site in the Koloa-Poipu-Kalaheo Development Plan.
County Zoning:	There is no County zoning designation for the Project Site as it is located within the State Conservation District.

Special Management Area ("SMA"):	Within the SMA
Proposed Action:	The Applicant proposes to undertake passive improvements within an approximately 10.0-acre area located adjacent to and west of Spouting Horn Park in Koloa, Island of Kauai. The proposed improvements are intended to fulfill Condition No. 15. f) of Zoning Ordinance No. PM-2004-370 for the adjacent Kukui'ula development which requires that the Applicant provide public pedestrian access to the shoreline areas west of Spouting Horn Park owned by the Applicant. The proposed Project improvements include development of an approximately 1,700 linear-foot turf grass public pedestrian trail along the makai side of the Lawai Road right-of-way; development of new gravel parking areas within the makai shoulder of the Lawai Road right-of-way; the clearing and removal of existing alien (non-native) vegetation within an area along the rocky coastal land adjacent to and makai of the Lawai Road right-of-way and the NTBG tram road and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced; selective removal of existing large alien (non-native) invasive tree species in the area adjacent to and makai of the re-vegetation area and along the mauka side of the NTBG tram road; maintenance of the existing vegetation within the mauka side of the Lawai Road right-of-way and the NTBG tram road; and resurfacing of an approximately 700 linear-foot segment of the existing 12-foot wide asphalt-paved NTBG tram road. Development of an approximately 16,000 square-foot test area within the western portion of the Project Site will occur prior to implementation of the Project improvements to implement and test the proposed vegetation removal and re-vegetation methods.
Impacts:	No significant impacts are anticipated from the construction and operation of the proposed Project.
Anticipated Determination:	Finding of No Significant Impact ("FONSI")
Required Permits & Approvals:	<u>State of Hawaii</u> Department of Health ▪ National Pollutant Discharge Elimination System ("NPDES") Permit Department of Land and Natural Resources Office of Conservation and Coastal Lands ▪ Conservation District Use Permit

Department of Land and Natural Resources Historic Preservation Division
- Chapter 6E, HRS Historic Preservation

County of Kauai
Planning Department
- Special Management Area Use Permit

Department of Public Works
- Road Permit
- Grubbing Permit

Agencies Consulted In Pre-Assessment Process:

Federal
U.S. Army Corps of Engineers
U.S. Fish & Wildlife Service
U.S. National Marine Fisheries Service

State of Hawaii
Department of Business, Economic Development and Tourism, Office of Planning
Department of Business, Economic Development and Tourism, Land Use Commission
Department of Health, Office of Environmental Quality Control
Department of Land and Natural Resources
Department of Land and Natural Resources, Office of Conservation and Coastal Lands
Department of Land and Natural Resources, Division of Forestry and Wildlife, Na Ala Hele
Department of Land and Natural Resources, Historic Preservation Division
Office of Hawaiian Affairs

County of Kauai
Planning Department
Department of Public Works
Department of Parks and Recreation
Police Department

Others
National Tropical Botanical Garden
Allerton Gardens Trust in Hawaii
A&B Hawaii Inc.

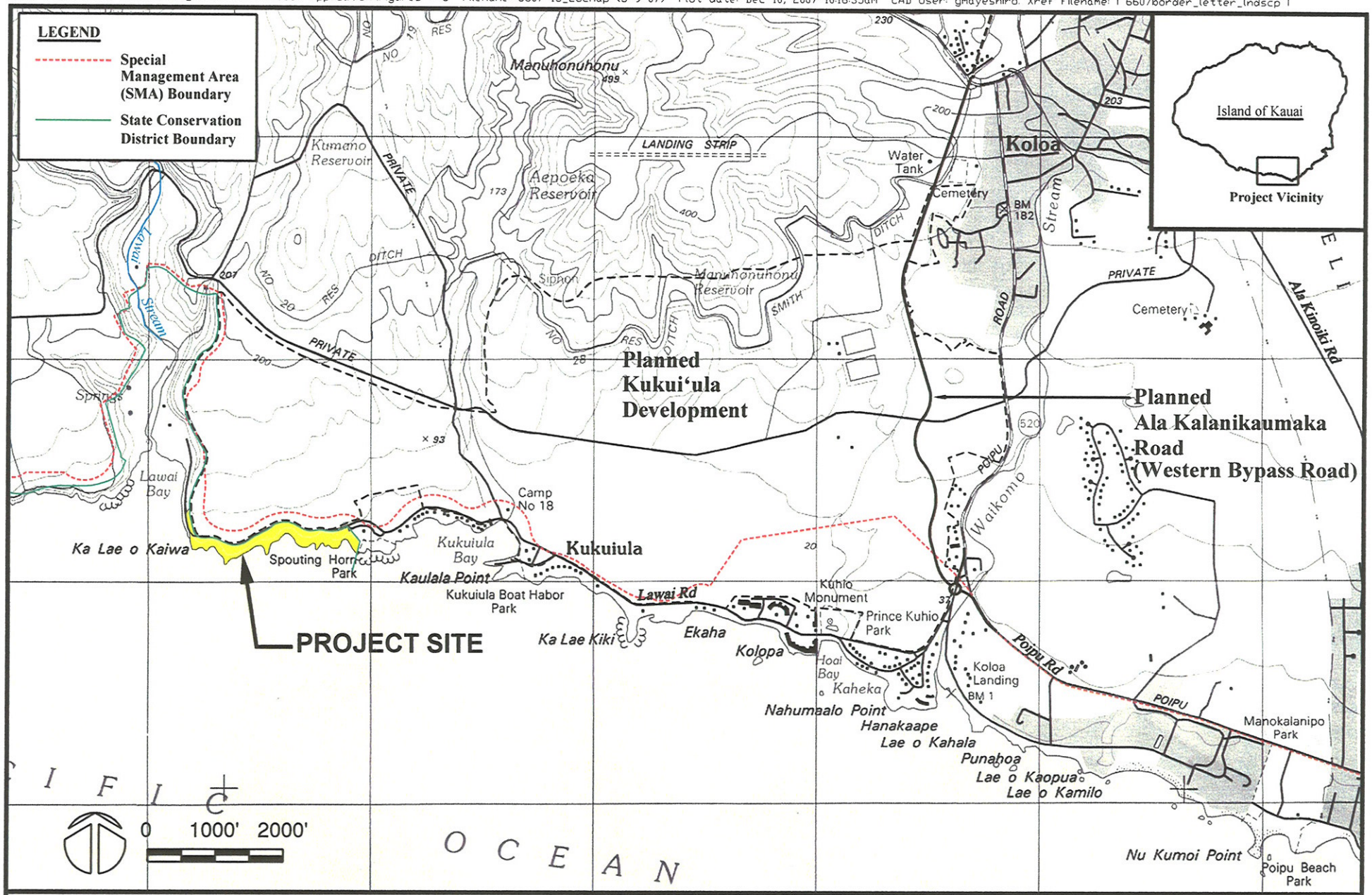
1. INTRODUCTION AND PROJECT SETTING

1.1 Introduction

Kukui'ula Development Company (Hawaii), LLC ("Applicant") proposes to undertake passive improvements within an approximately 10.0-acre area ("Project Site") located adjacent to and west of Spouting Horn Park in Koloa, Island of Kauai. A Location Map depicting the Project Site is included as Figure 1-1. The proposed improvements are intended to fulfill Condition No. 15. f) of Zoning Ordinance No. PM-2004-370 for the adjacent Kukui'ula development which requires that the Applicant provide public pedestrian access to the shoreline areas west of Spouting Horn Park owned by the Applicant. The proposed Project improvements include development of an approximately 1,700 linear-foot turf grass public pedestrian trail along the makai side of the Lawai Road right-of-way; development of new gravel parking areas within the makai shoulder of the Lawai Road right-of-way; the clearing and removal of existing alien (non-native) vegetation within an area along the rocky coastal land adjacent to and makai of the Lawai Road right-of-way and the National Tropical Botanical Garden ("NTBG") tram road and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced; selective removal of existing large alien (non-native) invasive tree species in the area adjacent to and makai of the re-vegetation area and along the mauka side of the NTBG tram road; maintenance of the existing vegetation within the mauka side of the Lawai Road right-of-way and the NTBG tram road; and resurfacing of an approximately 700 linear-foot segment of the existing 12-foot wide asphalt-paved NTBG tram road ("Project"). Development of an approximately 16,000 square-foot test area within the western portion of the Project Site will occur prior to implementation of the Project improvements to implement and test the proposed vegetation removal and re-vegetation methods.

The Project will be developed in conjunction with the planned Kukui'ula development ("Kukui'ula development"), a resort-residential project located on approximately 1,002 acres adjacent to and mauka of the Project Site also under development by the Applicant. The Kukui'ula development, located on former McBryde Sugar Company plantation lands, is shown on Figures 1-1 and 1-2. The Kukui'ula development proposes a maximum of 1,500 units, a resort, an 18-hole golf course, recreational facilities, commercial uses, parks and open space, along with 75 employee housing units and 60 affordable housing units. An Environmental Impact Statement ("EIS") was prepared in April 1989 in conjunction with a County General Plan amendment for the Kukui'ula development. A Supplemental EIS was also subsequently prepared in August 1998 in conjunction with the County General Plan amendment process for the Kukui'ula development's resort core. On July 28, 2004, the County of Kauai ("County") approved a zoning amendment and amendment to the Visitor Destination Area ("VDA") designation for the Kukui'ula development which established Zoning Ordinance No. PM-2004-370.

Preparation of this Environmental Assessment ("EA") pursuant to Chapter 343, Hawaii Revised Statutes ("HRS"), is required since the proposed improvements are located within the State Conservation District and also involves the use of County lands identified as Lawai Road. A Conservation District Use Application ("CDUA") has been prepared for the proposed improvements and is being concurrently processed by the State Department of Land and Natural Resources ("DLNR") Office of Conservation and Coastal Lands ("OCCL"), the Approving Agency for the EA. Since the Project Site is located within the County's Special Management



CONSERVATION DISTRICT IMPROVEMENTS

KUKUI'ULA

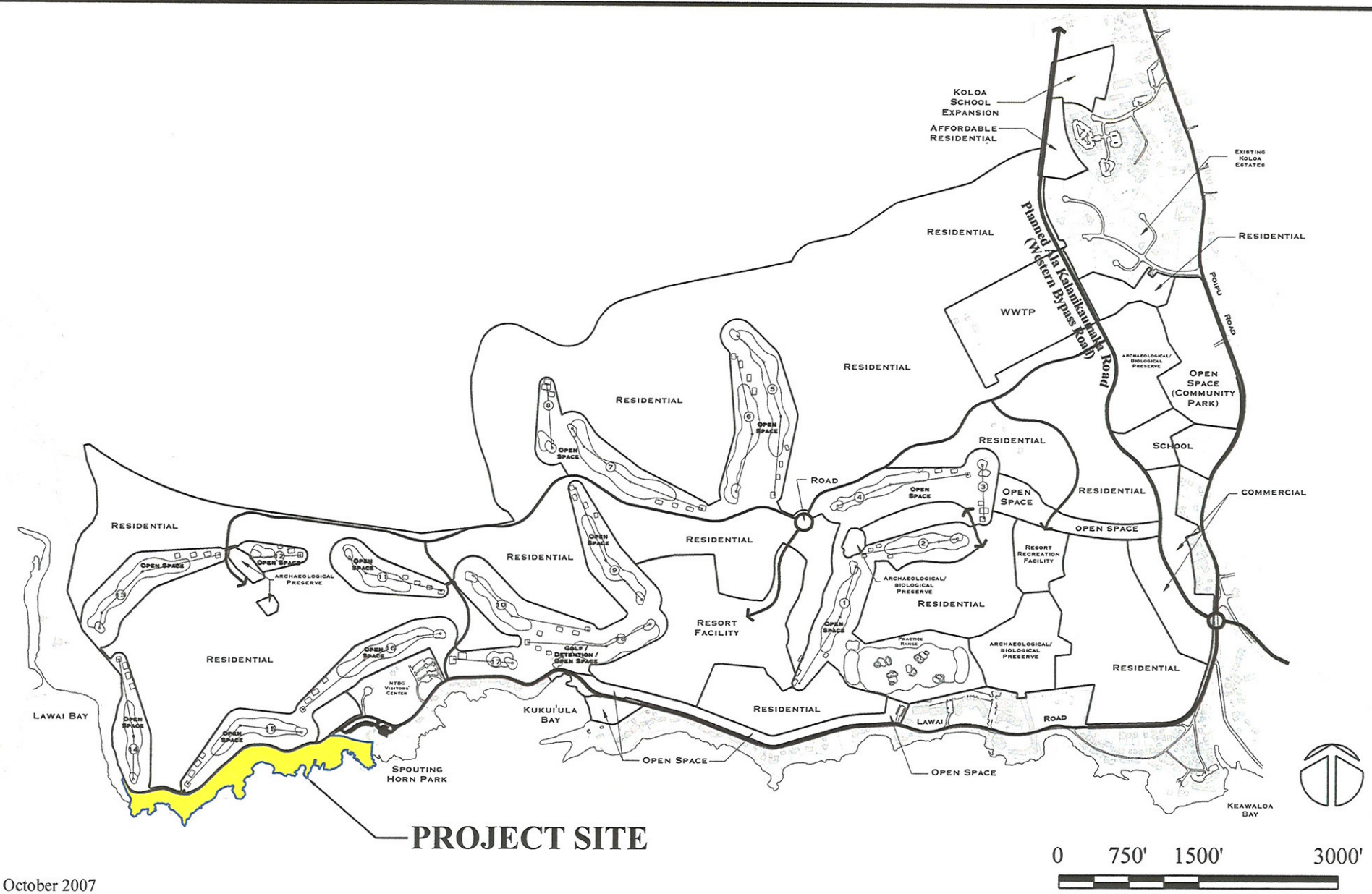
Koloa, Kauai, Hawaii

Location Map

Figure 1-1

Prepared for:
Kukui'ula Development Company (Hawaii), LLC

Prepared by:
Wilson Okamoto Corporation



October 2007

CONSERVATION DISTRICT IMPROVEMENTS

KUKUI'ULA

Koloa, Kauai, Hawaii

Kukui'ula Land Use Plan

Figure 1-2

Prepared for:

Kukui'ula Development Company (Hawaii), LLC

Prepared by:

Wilson Okamoto Corporation

Area ("SMA") boundary, a SMA Use Permit Application has been prepared for the proposed improvements and is being concurrently processed by the County Planning Department.

1.2 Project Location and Setting

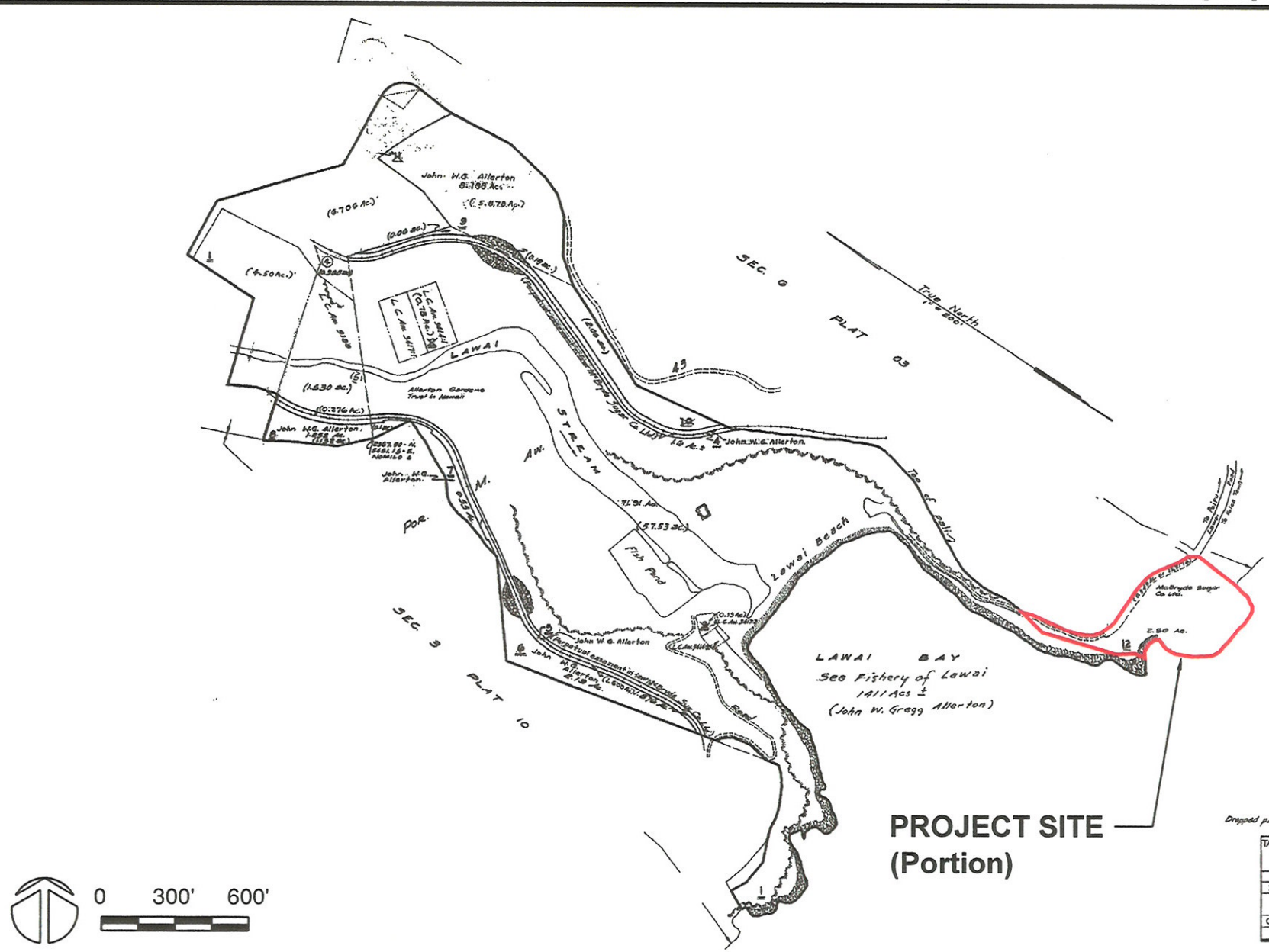
The Project Site is located along the south shore of Kauai, adjacent to and west of Spouting Horn Park, in the Koloa District as shown on Figure 1-1. The Project Site is identified as TMKs: (4) 2-6-02: 12 and 2-6-03: 3 and 20, and a portion of Lawai Road as shown on Figures 1-3 and 1-4. Of the approximately 10.0-acre Project Site, approximately 8.8 acres (TMKs: (4) 2-6-02: 12 and 2-6-03: 3 and 20) are owned by the Applicant. The remaining approximately 1.2 acres of the Project Site include the County-owned segment of Lawai Road which extends approximately 1,760 linear feet west from Spouting Horn Park to the existing NTBG gate.

The approximately 8.8-acre portion of the Project Site owned by the Applicant is comprised of three (3) separate parcels as shown on Figures 1-3, 1-4 and 1-5. The three (3) parcels include Lot M consisting of 3.268 acres (TMK: (3) 2-6-03: 3), Lot N consisting of 3.016 acres (TMK: (4) 2-6-03: 20), and Lot P consisting of 2.5 acres (TMK: 2-6-02: 12). The ALTA/ACSM Land Title Survey Map prepared for the Project Site in March 2003 (Figure 1-5) depicts various acreages for each parcel, including the "Record Area" which is based on the County's Real Property Tax records; the "Observed Area" which is based on existing monuments on the ground during surveying for the March 2003 ALTA survey; the "Less Erosion" area which is the area of erosion which occurred between the time of a previous recorded shoreline survey conducted on April 6, 1936 and the March 2003 ALTA survey; and the "Net Observed Area" which is the difference in acreage between the "Observed Area" and the "Less Erosion" area.

For Lot M, the "Net Observed Area" of 3.268 acres is consistent with the acreage shown on the County's current Real Property Tax records and tax map, and in the title documentation to the Applicant. The "Record Area" for Lot M reflects a larger acreage of 5.300 acres which is based on previous shoreline conditions.

For Lot N, the "Net Observed Area" of 3.016 acres is consistent with the acreage shown on the County's current Real Property Tax records and tax map, and in the title documentation to the Applicant. The "Record Area" for Lot N reflects a larger acreage of 3.762 acres which is based on previous shoreline conditions.

For Lot P, the "Record Area" of 2.5 acres is consistent with the acreage shown on the County's current Real Property Tax records and tax map, and in the title documentation to the Applicant. The "Net Observed Area" includes a lesser land area of 1.94 acres which is likely due to a change in shoreline conditions.



CONSERVATION DISTRICT IMPROVEMENTS

KUKUI'ULA

Koloa, Kauai, Hawaii

Tax Map Key: 2-6-02: 12

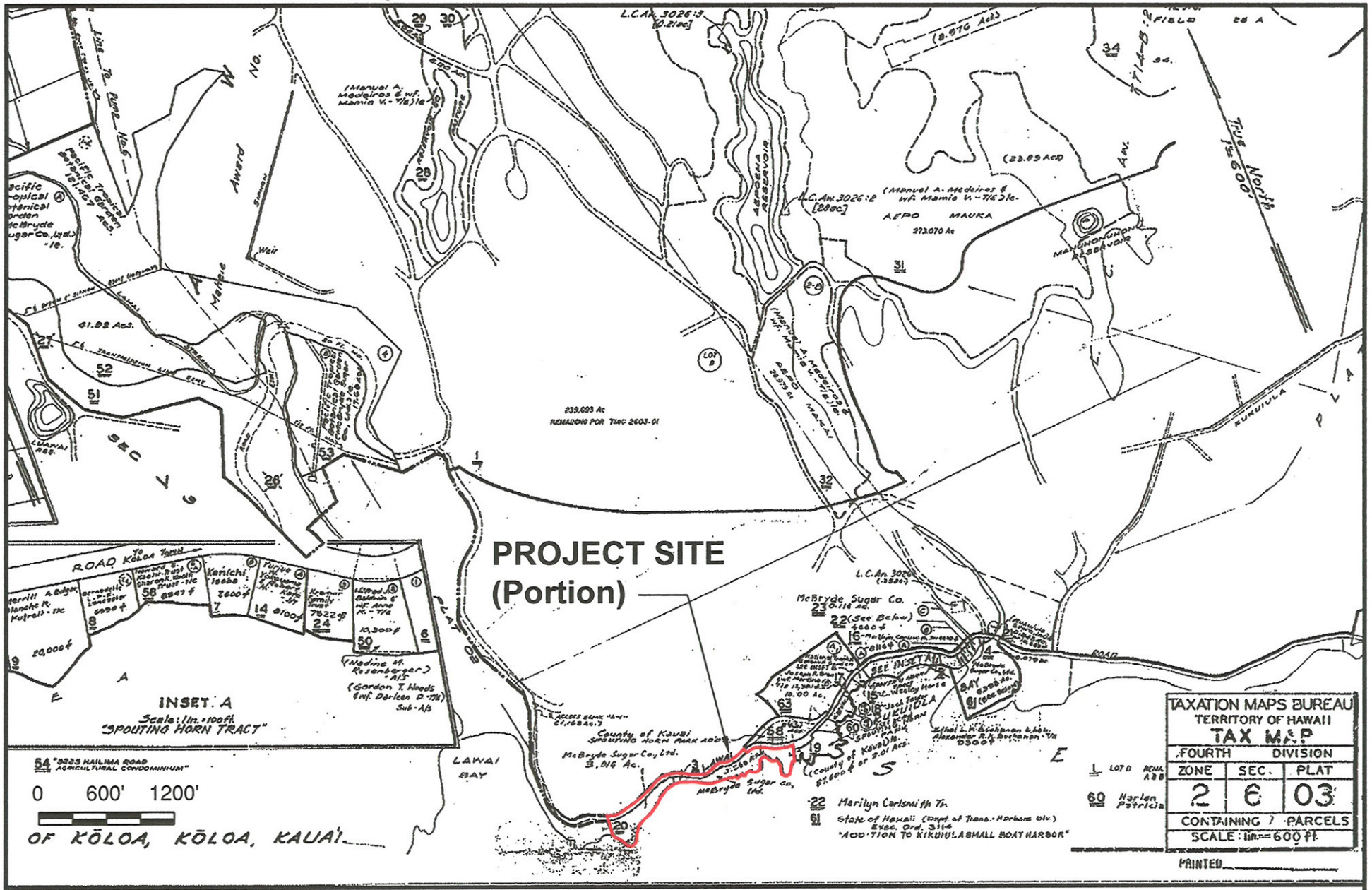
Figure 1-3

Prepared for:

Kukui'ula Development Company (Hawaii), LLC

Prepared by:

Wilson Okamoto Corporation



CONSERVATION DISTRICT IMPROVEMENTS

KUKUI'ULA

Koloa, Kauai, Hawaii

Tax Map Keys: 2-6-03: 3 and 20

Figure 1-4

Prepared for:
Kukui'ula Development Company (Hawaii), LLC

Prepared by:
Wilson Okamoto Corporation

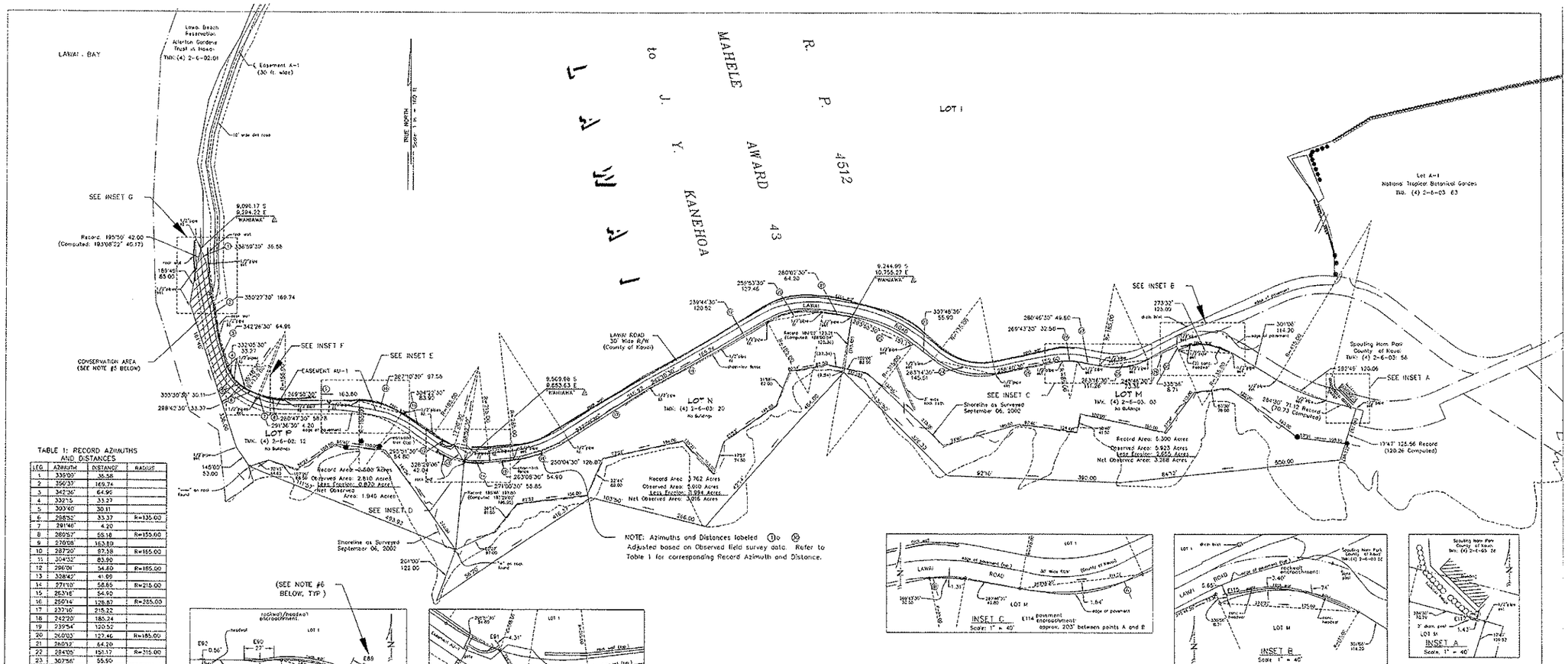
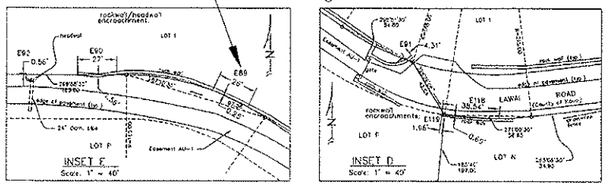
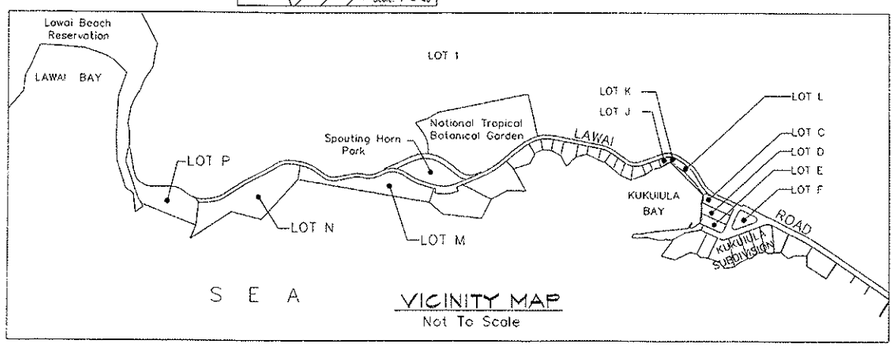


TABLE 1: RECORD AZIMUTHS AND DISTANCES

LTG	AZIMUTH	DISTANCE	RADIUS
1	335°00'	35.58	
2	350°27'	169.74	
3	342°26'	64.95	
4	332°05'	33.27	
5	303°40'	30.11	
6	288°42'	33.37	R=135.00
7	291°46'	4.20	
8	280°47'	58.18	R=155.00
9	270°08'	163.80	
10	287°20'	87.58	R=165.00
11	304°32'	83.80	
12	296°01'	54.80	R=185.00
13	328°42'	41.99	
14	271°10'	58.85	R=215.00
15	263°48'	54.90	
16	250°14'	126.87	R=255.00
17	232°16'	215.22	
18	242°20'	185.24	
19	239°54'	120.52	
20	260°03'	127.46	R=185.00
21	260°12'	64.20	
22	284°05'	151.17	R=215.00
23	307°56'	55.90	
24	283°24'	145.51	R=175.00
25	258°50'	152.60	
26	260°53'	32.56	R=85.00
27	280°56'	49.80	
28	263°20'	111.26	R=185.00
29	245°56'	76.20	
30	N/A	N/A	

NOTE: Azimuths and Distances labeled ① to ㉚ Adjusted based on Observed field survey data. Refer to Table 1 for corresponding Record Azimuth and Distance.





SCHEDULE B EXCEPTIONS PER TITLE GUARANTY OF HAWAII, INC.
PRELIMINARY TITLE REPORT NO. 2002222604; DATED FEBRUARY 17, 2003

AFFECTING LOT(S):	EXCEPTION:
M, N, P	Location of the seaward boundary in accordance with the laws of the State of Hawaii and shoreline setback line in accordance with County regulation and/or ordinance and the effect, if any, upon the area of the land described herein.
M, N, P	Claims arising out of customary and traditional rights and practices, including without limitation those exercised for subsistence, cultural, religious, access or gathering purposes, as provided for in the Hawaii Constitution or the Hawaii Revised Statutes.
M, N, P	Encroachments or any other matters as shown on the Survey.
P	The terms and provisions, including the failure to comply with any covenants, conditions and reservations, contained in the following: INSTRUMENT: DECLARATION OF RESTRICTIVE COVENANTS Dated: March 6, 1985; Recorded: Document No. 85-035023
P	The terms and provisions, including the failure to comply with any covenants, conditions and reservations, contained in the following: INSTRUMENT: QUITCLAIM DEED Dated: December 23, 1997; Recorded: Document No. 97-181059 The foregoing includes, but is not limited to, matters relating to restrictions on use.
P	Rights of others, who may have easement or access rights to the area shown on Exhibit C to the Quitclaim Deed dated December 23, 1997, filed as Document No. 97-181059
M, N, P	Any and all Real Property Taxes that may be due and owing

NOTES:
1. Azimuths and coordinates shown referred to Government Survey Triangulation Station "WAHIAWA" from Kauai Estates Subdivision Map.
2. The Certification shown hereon is not a certification to title or ownership of property shown.
3. Refer to supplemental map for flood zone information.
4. Pins found or set at all property corners unless otherwise noted.
5. Area of Lot P designated as "Conservation Area" as part of Quitclaim Deed Condition in Favor of National Tropical Botanical Garden per State of Hawaii Bureau of Conveyances, Doc. No. 97-181059.
6. Typical encroachment designation. Refer to supplemental 8.5"x11" tabular itemized list of encroachments for specific description.

LEGEND

	Ironwood Tree
	hedge
	chain-link fence
R/W	Right of Way
fd.	found
diam.	diameter
TMK	Tax Map Key
conc.	concrete

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

ALTA/ACSM Land Title Survey (Sheet 3 of 6)

PROJECT NAME: Lots M, N, P; Kukuiula Planned Community

OWNERS: Alexander & Baldwin Inc., and McBryde Sugar Company, Limited

TO: Chicago Title Insurance Company, Title Guaranty of Hawaii, Inc., a Hawaii corporation, Alexander & Baldwin, Inc., McBryde Sugar Company, Limited, and Kukuiula Development Company (Hawaii), LLC, a Hawaii limited liability company

The undersigned hereby certifies that:

1. The undersigned prepared the attached print of survey, Drawing Job No. 02-59, dated March 14, 2003 (the "Survey") of the property reflected in the Survey.
2. The Survey was made on the ground for the property legally described on the Survey and is a true, correct and accurate representation of the property described on the Survey.
3. Except as shown, the title lines and lines of actual possession are the same.
4. The Survey correctly shows:
   a. All lines and determinable position and location of the perimeter of the property described thereon by courses and distances (including the position of the point of beginning if the property is described by metes and bounds).
   b. The size, location (including distance from the nearest facing exterior property lines) and type of buildings and improvements on the property and all other improvements required to be shown thereon in accordance with the "Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys" jointly established and adopted by ALTA, ACSM and NSPS in 1999 (the "Minimum Standards").
   c. All dedicated public streets and alleys abutting the property and providing access thereto, together with the width thereof and all driveways or other curb cuts in the curb along any such streets, and
   d. The location of all easements, encroachments, rights-of-way and other matters of record (with recording reference) based on Preliminary Title Report No. 2002222604 from Title Guaranty of Hawaii, Inc., dated February 12, 2003, and the location of all easements, encroachments and rights-of-way of which I have knowledge or have been advised, whether or not of record.
5. There is no visible evidence of easements and/or servitudes of any kind which actually service or cross the property, or rights-of-way or uses affecting the property appearing from a careful physical inspection of the property, other than those shown and depicted on the Survey.
6. There are no visible discrepancies, conflicts, shortages in area, boundary line conflicts, party walls, encroachments of structural appurtenances and projections by or on abutting streets, on any easements or over setback lines, except as shown and depicted on the Survey.
7. Ingress to and egress from the subject property is provided by Lawai Road, the same being paved publicly dedicated rights-of-way.
8. The boundary lines of the described property "close" by engineering calculations.
9. The property described herein does lot within a federally designated flood hazard area and has designated Flood Zones as shown and defined on the supplemental map or referenced on the Survey based on Federal Flood Insurance Rate Maps.
10. All utility services required for the operation of the property either enter the property or through adjoining public streets, or the survey shows the point of entry and location of any utilities which pass through or are located on adjoining private land. In addition, the Survey shows the approximate location of underground connecting lines for sanitary sewers and storm drains, as are discernible from visible appurtenances.
11. There is no observable evidence of earth moving work, building construction or building additions within recent months, except as shown and depicted on the Survey.
12. Any changes in street right of way lines either completed or proposed, are available from the controlling jurisdictions or evidence of recent street or sidewalk construction or repairs are shown and depicted on the Survey.
13. There is not observable evidence of site use as a solid waste dump, sump or sanitary landfill.
14. There are areas on the property, donated or restricted pursuant to appurtenant beneficial easement areas, which are fully delineated on the Survey, and includes the outlines of any and all buildings, parking and other improvements within any such appurtenant beneficial easement areas, and which is transposed from building location information from available site plans, aerial photographs or other stated sources.
15. The Survey was made in accordance with the Minimum Standards and includes items 1, 2, 3, 4, 7 (without exterior dimensions), 8, 9, 10, 11 (observed evidence), 14, 15 and 16 of Table "A" thereof.

DENNIS M. ESAKI
LICENSED PROFESSIONAL LAND SURVEYOR
No. 4383
HAWAII, U.S.A.

Date: March 14, 2003

ESAKI SURVEYING AND MAPPING, INC

1610 Haleahaka Street
Lihue, Kauai, Hawaii 96766
Telephone: (808) 246-0625

Dennis M. Esaki
Licensed Professional Land Surveyor
Certificate Number 4383

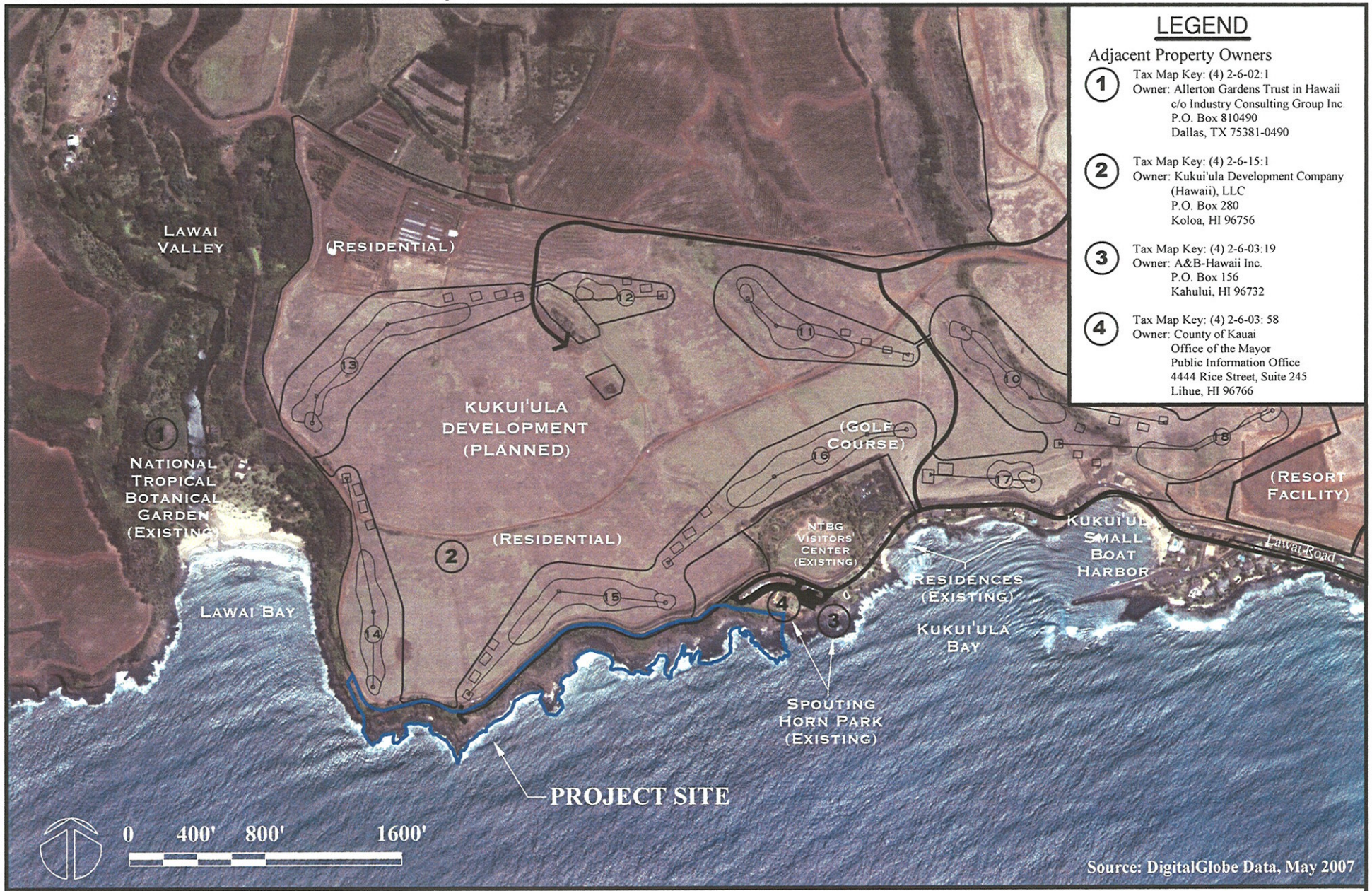
Figure 1-5

1.3 Existing and Surrounding Uses

The following describes the existing uses within the Project Site and the uses surrounding the site. These uses are depicted on the Area Plan included as Figure 1-6 and in the Project Site photos included in Appendix A.

Existing Uses: The Project Site consists predominantly of an undeveloped rocky coastline vegetated primarily with alien species. Within the northern portion of the Project Site, Lawai Road extends west from the vicinity of Spouting Horn Park to the NTBG gate. West of the NTBG gate, a private paved road owned by the Applicant and used by the NTBG's trams to transport visitors from its visitor center located northeast of the Project Site to the NTBG located to the northwest in Lawai Valley, traverses west and then north to the northwestern end of the Project Site. The immediate roadside areas along Lawai Road and the NTBG tram road are vegetated with alien plant species. Within the central and eastern portions of the Project Site, an existing coastal trail complex consisting of a discontinuous historic trail traverses along the inland edge of the coastal embankment, paralleling the coastline.

Surrounding Uses: Land uses bordering the Project Site include the planned Kukui'ula development to the north, Spouting Horn Park to the east, the ocean to the south, and coastline to the west. Other surrounding uses include the NTBG Visitor Center, private and vacation rental residences, and Kukui'ula Small Boat Harbor to the east; and Lawai Bay, Lawai Valley and the NTBG to the northwest.



CONSERVATION DISTRICT IMPROVEMENTS

KUKUI'ULA

Koloa, Kauai, Hawaii

Area Plan

Figure 1-6

Prepared for:

Kukui'ula Development Company (Hawaii), LLC

Prepared by:

Wilson Okamoto Corporation

2. PROJECT DESCRIPTION

2.1 Project Need

The need for the proposed improvements is intended to fulfill Condition No. 15. f) of Zoning Ordinance No. PM-2004-370 for the planned resort-residential Kukui'ula development located adjacent to and mauka of the Project Site. As previously indicated, a zoning amendment and amendment to the VDA designation for the Kukui'ula development was approved by the County on July 28, 2004. As part of the zoning amendment approval, Condition No. 15. f) of Zoning Ordinance No. PM-2004-370 provides the following:

> *15. Pertaining to the Project's recreational impacts to the region:*
>
> *f) The Applicant shall provide public pedestrian access easements to the shoreline areas west of Spouting Horn Park owned by the Applicant consistent with the Project's Conceptual Trails Master Plan.*

Also, in accordance with Condition No. 15. c) of Zoning Ordinance No. PM-2004-370, the Applicant is required to provide a comprehensive pedestrian and biking trail system throughout the Kukui'ula development that will be open to the general public. In accordance with this Condition, the Applicant has developed a Conceptual Path and Trail Plan consisting of a network of pedestrian and biking trail systems within the Kukui'ula development as shown on Figure 2-1. The proposed public pedestrian trail within the Project Site will be developed as part of the Kukui'ula development's comprehensive path and trail system which will be open to the general public. The Applicant will be dedicating easements to the County for all the pedestrian and biking trails within the Kukui'ula development, including the proposed pedestrian trail within the Project Site. Long-term maintenance of the trails will be undertaken by the Applicant.

The proposed clearing and removal of the existing alien (non-native) vegetation and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced, and selective removal of existing large alien (non-native) invasive tree species is intended to encourage the proliferation of native plants presently limited in distribution within and adjacent to the Project Site. Additionally, the vegetation clearing and re-vegetation improvements will restore and visually enhance the coastal views of the area.

2.2 Project Description

The proposed Project includes development of an approximately 1,700 linear-foot turf grass public pedestrian trail along the makai side of the Lawai Road right-of-way; development of new gravel parking areas within the makai shoulder of the Lawai Road right-of-way; the clearing and removal of existing alien (non-native) vegetation within an area along the rocky coastal land adjacent to and makai of the Lawai Road right-of-way and the NTBG tram road and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced; selective removal of existing large alien (non-native) invasive tree species in the area adjacent to and makai of the re-vegetation area and along the mauka side of the NTBG tram road; maintenance of the existing vegetation within the mauka side of the Lawai Road right-of-way and the NTBG tram road; and resurfacing of an approximately 700 linear-foot segment of the existing 12-foot wide asphalt-paved NTBG tram road. Development of an

approximately 16,000 square-foot test area within the western portion of the Project Site will occur prior to implementation of the Project improvements to implement and test the proposed vegetation removal and re-vegetation methods. The proposed improvements are described below and depicted on Figures 2-2 and 2-3.

A turf grass public pedestrian trail ranging in width from 4 feet to 8 feet will be developed along the makai side of the Lawai Road right-of-way, adjacent to the road pavement edge. A Section depicting the proposed trail in relation to Lawai Road is included as Figure 2-4. The varying width of the trail responds to existing conditions along Lawai Road. The pedestrian trail will extend a distance of approximately 1,700 linear feet to the west from the western end of Spouting Horn Park. Low, single-post "No Parking" signs will be strategically placed along the makai side of the turf grass trail to prohibit vehicles from parking on the trail. Although turf grass for the trail's composition is being proposed to complement the natural environment of the area, the Applicant is proposing the potential option of converting the turf grass trail into a granular trail in the future should long-term maintenance become a concern. A future trail connection mauka of Lawai Road and the western end of the proposed pedestrian trail will be provided to the adjacent Kukui'ula development.

New gravel parking areas will be provided in three (3) locations currently used for parking along the unpaved makai shoulder within the Lawai Road right-of-way. A Section depicting the proposed gravel parking areas in relation to Lawai Road is included as Figure 2-5. Parking for approximately ten (10) vehicles total will be provided within these enhanced parking areas. At the proposed locations of the new gravel parking areas, the turf grass trail alignment will abut along the makai edge of the parking areas.

The existing chain link fence along the makai side of the Lawai Road right-of-way will be removed to accommodate the proposed Project improvements.

The Project improvements will also include the clearing and removal of existing alien (non-native) vegetation within an approximately 2.8-acre area extending along the entire length of the rocky coastal land adjacent to and makai of the Lawai Road right-of-way, the existing NTBG tram road and the southwestern portion of Spouting Horn Park. The makai limits of the vegetation clearing/removal and re-vegetation area will extend a distance ranging from approximately 15 feet to 100 feet from the makai side of the Lawai Road right-of-way, the NTBG tram road and the southwestern boundary of Spouting Horn Park. Following clearing and removal of the vegetation, the area will be re-vegetated with native, endemic and indigenous species common to the area or Polynesian-introduced, consisting of a variety and mixture of low-growing shrubs and groundcovers. Shrubs are proposed to include native species such as naupaka, and groundcovers are proposed to include native species such as 'akoko, pohinahina, pa'u o Hi'iaka, 'ilima papa, and naio papa. All of these native plant species are accustomed to growing along rocky coastlines.

Adjacent to and makai of this proposed re-vegetation area, as well as along the mauka side of the NTBG tram road, selective vegetation removal of existing large alien (non-native) invasive tree species will occur within an approximately 3.0-acre area. Within the area makai of Lawai Road and the NTBG tram road, the limits of the selective vegetation removal will occur mauka of the inland edge of the coastal embankment.

LEGEND

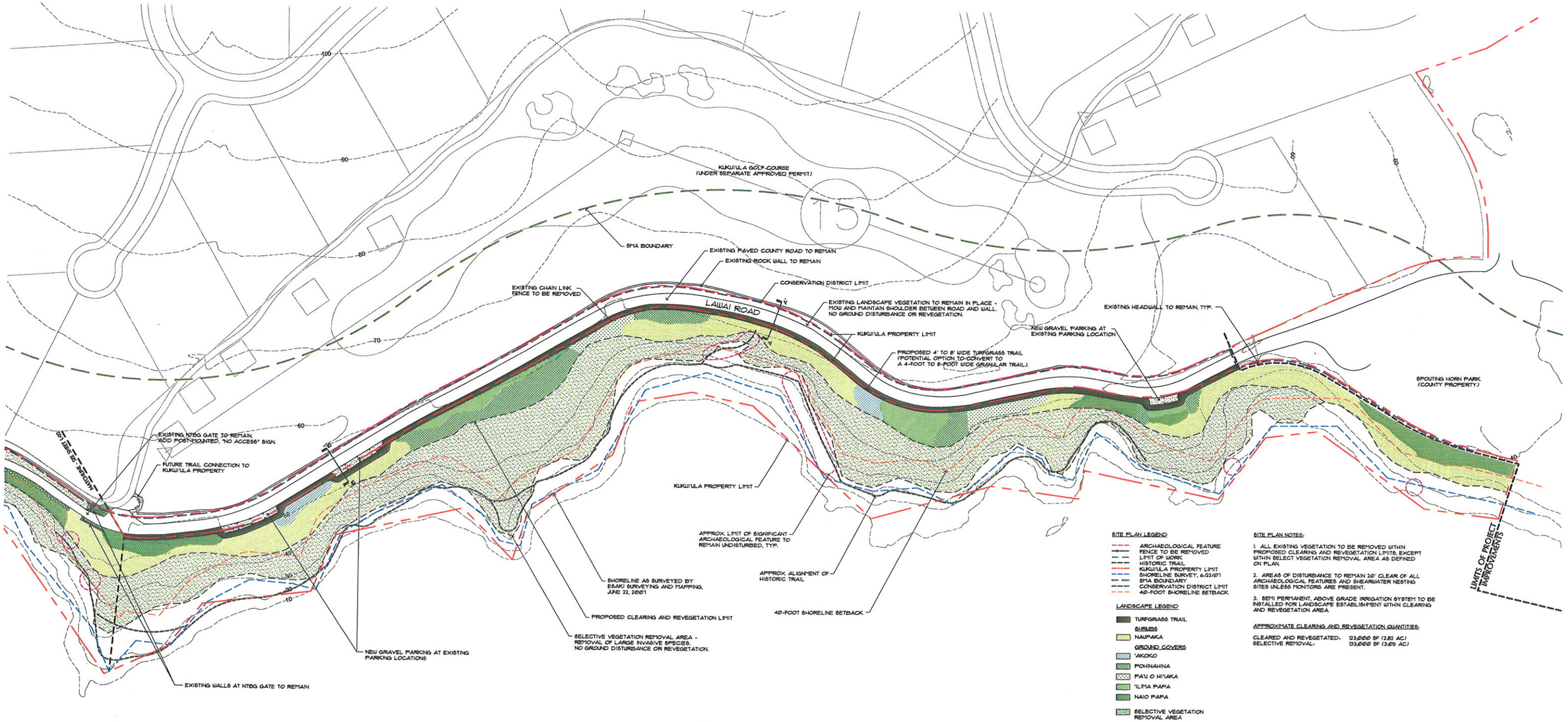
- PROPOSED PEDESTRIAN PATH OR TRAIL
- PEDESTRIAN CONNECTION UTILIZING ROADWAYS OR ROAD SHOULDERS
- EXISTING 4' SIDEWALK
- COMMUNITY LANDMARK

KUKUI 'ULA - Conceptual Path and Trail Plan

MARCH 2006

Figure 2-1

PBR HAWAII



McCELVEY ASSOCIATES
~LANDSCAPE ARCHITECTS~

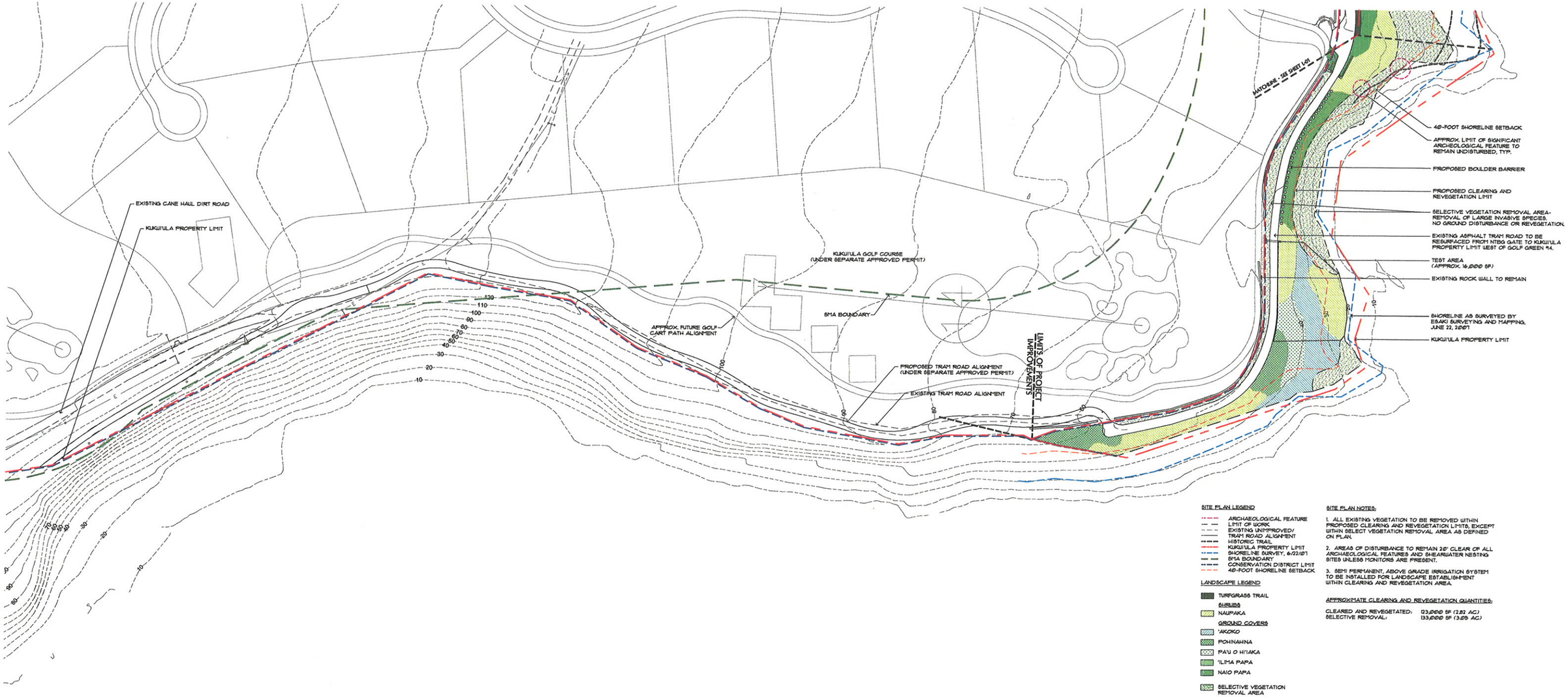
KUKUI'ULA CONSERVATION AREA

Conceptual Site Plan - 1

December 10, 2007

SHEET L-01

Figure 2–2



McCELVEY ASSOCIATES
~LANDSCAPE ARCHITECTS~

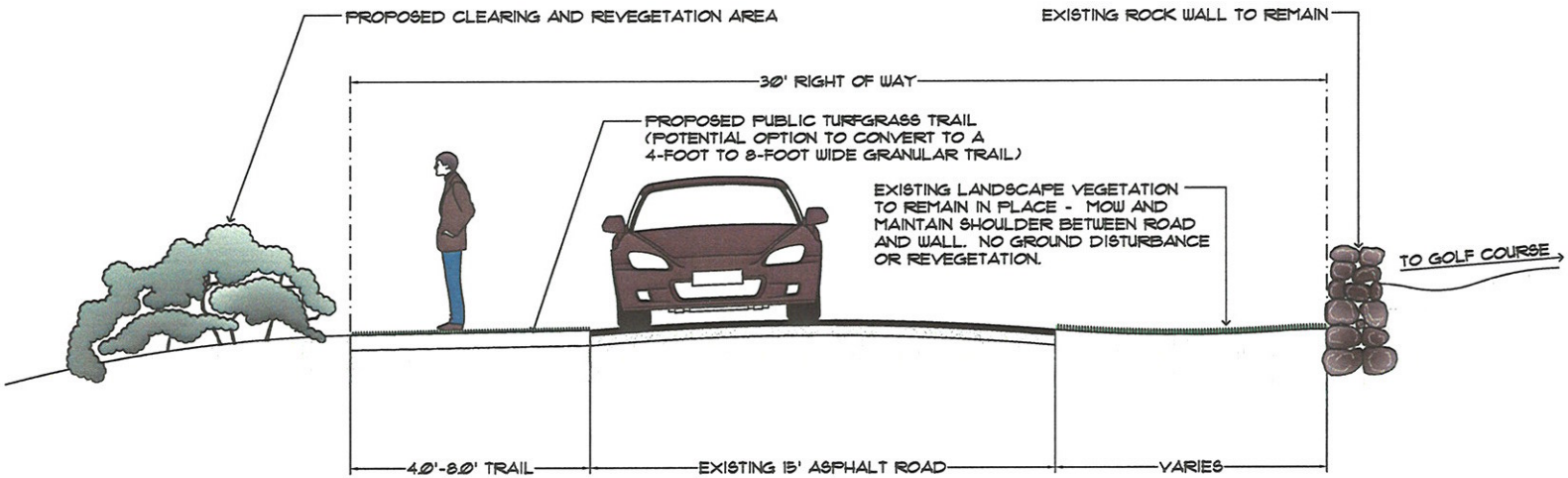
KUKUI'ULA CONSERVATION AREA

Conceptual Site Plan - 2

December 10, 2007

SHEET L-02

Figure 2-3



McCELVEY ASSOCIATES
LANDSCAPE ARCHITECTS

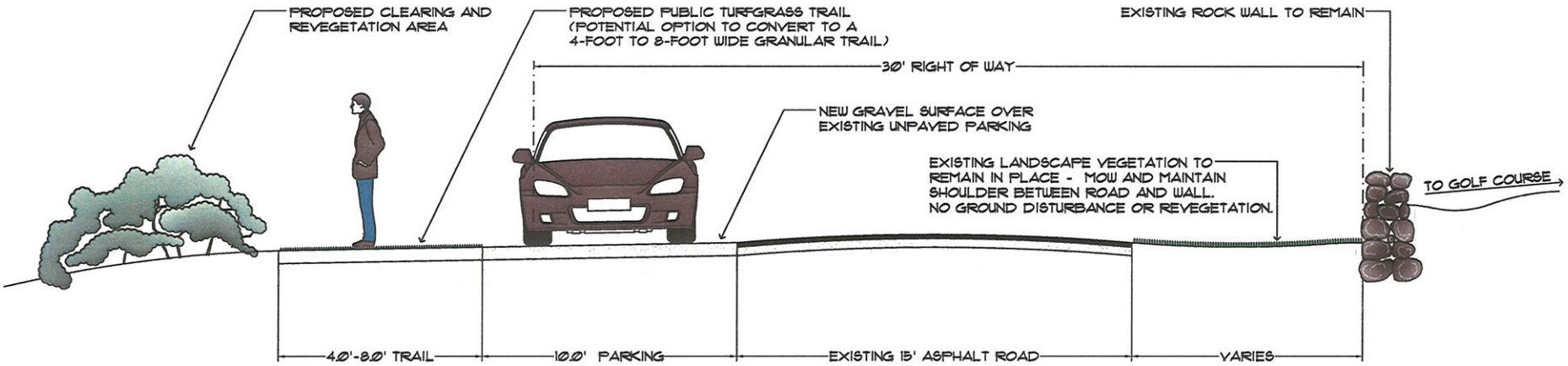
KUKUI'ULA CONSERVATION AREA

Lawai Road - Section A

December 10, 2007

SCALE 1/4" = 1-0"

Figure 2-4



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LANDSCAPE ARCHITECTS

KUKUI'ULA CONSERVATION AREA

Lawai Road - Section B

December 10, 2007

SCALE 1/4" = 1-0"

Figure 2–5

The vegetation along the existing rock wall mauka of Lawai Road will remain and will be mowed and maintained as part of the proposed improvements. No ground disturbance or re-vegetation will occur in this area.

An approximately 700 linear-foot segment of the existing 12-foot wide asphalt-paved NTBG tram road will be resurfaced from the existing NTBG gate located within the western portion of the Project Site to the northwesternmost end of the Project Site where the road enters the Kukui'ula property near the planned 14th green of the Kukui'ula Golf Course. A barrier of boulders is proposed to be installed along an approximately 200 linear-foot segment on the makai side of the tram road where the terrain steeply declines for safety purposes.

Within the Project Site, the proposed removal of existing alien vegetation will also include the removal of 29 diseased/declining non-native ironwood trees (*Casuarina equisetifolia*). In November 2005, a total of 49 ironwood trees within the Project Site were identified as being dead and diseased/declining, with 20 of the trees identified by an arborist as being dead. By letter dated December 20, 2005 from the DLNR OCCL, the Applicant was allowed to remove the 20 dead ironwood trees which was subsequently undertaken. A copy of the DLNR OCCL letter is included as Appendix B.

Prior to implementation of the Project improvements, an approximately 16,000 square-foot test area will be developed within the western portion of the Project Site to implement and test the proposed vegetation removal and re-vegetation methods as described below. The proposed location of the test area, shown on Figure 2-3, is representative of the existing vegetation types and densities within the Project Site. This will provide optimal conditions for testing the proposed vegetation removal and re-vegetation methods in order to determine the most effective methods to implement within the Project Site. The proposed methodologies to be undertaken in the development of the test area are described below. Upon implementation of the test area, the Applicant will coordinate with the DLNR OCCL and County to review the results and confirm the methodology to be used for the vegetation removal and re-vegetation activities within the Project Site.

No grading activities will be undertaken in conjunction with the construction of the Project improvements. Minimal ground disturbance will occur to till in soil along the proposed trail alignment to initiate establishment of the turf grass, to install a permanent below-grade irrigation system for the main irrigation line and the turf grass trail, to remove the existing alien (non-native) vegetation and re-vegetate the area, and to install a temporary above ground irrigation system for the re-vegetated areas.

The removal of the existing alien (non-native) vegetation within the Project Site will be undertaken with the use of mechanical (i.e., hydroAx and chainsaws) and hand clearing (i.e., handsaws and manual trimming tools) methods. The hydroAx will be used to remove existing vegetation within accessible areas makai of the Lawai Road right-of-way. For the removal of the larger vegetation species, hand tools or chainsaws will be used to cut the vegetation to the stump and methods such as wipe-on or brush-on herbicide will be used on the vegetation stumps. Soil will be used to infill small pocket areas within the rocky coastline to help establish the new vegetation, as appropriate.

The main permanent below-grade non-potable irrigation system for the Project Site will include installation of a 3-inch diameter polyvinyl chloride ("PVC") irrigation line that will extend makai from the adjacent Kukui'ula development and across the NTBG tram road within the western portion of the Project Site. From this point, the main irrigation line will extend east approximately 1,600 linear feet along the makai side of the NTBG tram road and Lawai Road. The 3-inch diameter irrigation line will be installed within an approximately 8-inch wide by 12-inch deep trench located across the NTBG tram road and approximately 2 feet makai of the pavement edge of the NTBG tram road and Lawai Road. The trench will be dug with the use of a trencher, except for areas of shallow soils which will require the use of a jackhammer. For the portion crossing the NTBG tram road, the existing asphalt road pavement will be saw-cut prior to the trench being dug. Once the desired trench depth is reached, the 3-inch diameter irrigation line will be installed, followed by backfilling of the ground surface.

Irrigation of the proposed turf grass trail will consist of a permanent below-grade spray irrigation system that will include installation of a 2-inch diameter PVC line located along the entire length of the makai edge of the trail. The 2-inch diameter line will connect to the 3-inch diameter below-grade main irrigation line to be installed along Lawai Road. The 2-inch diameter irrigation line will be installed within an approximately 8-inch wide by 8-inch deep trench. The trench will be dug with the use of a trencher. Once the desired depth is reached, the 2-inch diameter irrigation line will be installed, followed by backfilling of the ground surface. Following preparation of the surface within the trail alignment, the trail will be hydro-seeded to establish the turf grass surface.

Irrigation for the establishment of the re-vegetated areas within the Project Site, including the proposed test area, will include the installation of a temporary aboveground drip irrigation system consisting of a 1-inch diameter poly-urethane irrigation line that will ultimately connect to the 3-inch main irrigation line along the NTBG tram road and Lawai Road. A network of temporary aboveground ¼-inch diameter poly-urethane drip tubing will connect to the 1-inch diameter line to distribute irrigation water to all of the individual new plants. Following establishment of the new vegetation, the temporary irrigation system will be removed.

No artificial lighting, including street lights, will be provided in conjunction with the proposed Project improvements.

The Project improvements will also include the preservation of an existing coastal trail complex which consists of a discontinuous historic trail that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site, paralleling the coastline, and the preservation of two (2) existing rock shelter cave sites located along the coastal cliff within the eastern portion of the site. The preservation of these three (3) sites will be in accordance with a Preservation Plan prepared in December 2004 and approved by the DLNR Historic Preservation Division ("SHPD") in March 2005. Further discussion of the coastal trail complex and the two (2) rock shelter cave sites and the preservation of these sites is included in Section 3.10 Historic and Archaeological Resources of this EA document.

The Applicant will coordinate obtaining an easement from the County as may be required for use of the County's Lawai Road right-of-way for the proposed improvements.

As previously indicated, the Applicant will maintain all proposed Project improvements, including the proposed pedestrian trail which will be conveyed by easement to the County. All proposed Project improvements will be maintained by the Applicant. As part of the long-term maintenance of the Project improvements, the maintenance of the turf grass trail and re-vegetated areas will be undertaken on a weekly basis, while maintenance of the selective vegetation removal areas will occur on a quarterly basis. Equipment used for the maintenance operations will include hand and power tools, with trucks used to haul the greenwaste from the site to an off-site location. Fertilization of the new vegetation and turf grass trail within the Project Site will be applied by directly injecting biofertilizer into the irrigation water and through the irrigation system. This system of fertilization will reduce the amount of fertilizer that would otherwise be required by up to 70 to 90 percent, thereby largely eliminating fertilizer runoff. Appropriate herbicides will be applied to the cut vegetation stumps at a recommended concentration level with a wipe-on or brush-on technique during the initial vegetation clearing activities and as part of the long-term maintenance operations, as needed. The wipe-on or brush-on method of application will minimize the drift overspray that would otherwise occur with a spray-on technique.

The use of large equipment for the proposed Project improvements will occur only during the initial vegetation clearing activities and to haul greenwaste to an off-site location during the long-term maintenance operations. The contractors will be required to have available on-site granular absorbent materials for use for immediate clean-up in the event of accidental fuel or hydraulic spills from the equipment. The contractors will also be required to have available on-site containers for the storage of the spent spill response materials, which will then be required to be properly disposed of at an off-site location.

2.3 Project Schedule

Development of the proposed Project is anticipated to commence by September 2008, with completion by May 2009, subject to the receipt of all necessary permits and plan approvals. Development of the Project improvements will occur in three (3) phases. The first phase will include the improvements within the western portion of the Project Site which is anticipated to commence by September 2008, with completion by November 2008. The second phase will include improvements within the central portion of the Project Site which is anticipated to commence by November 2008, with completion by February 2009. The third phase will include improvements within the eastern portion of the Project Site which is anticipated to commence by February 2009, with completion by May 2009.

3. DESCRIPTION OF THE EXISTING ENVIRONMENT, PROJECT IMPACTS AND MITIGATION MEASURES

The following is a description of the existing environment, assessment of potential impacts and proposed measures to mitigate potential adverse impacts resulting from the proposed Project.

3.1 Climate

The climate of Kauai, relatively moderate throughout most of the year, is characterized as semi-tropical with two (2) seasons. The summer period from May through September is generally warm and dry, with predominantly northeast trade winds. In contrast, the winter season from October through April is associated with lower temperatures, higher rainfall and less prevalent trade winds.

The semi-arid climate of Koloa is typically dry and sunny. Winds are predominantly trade winds from the east or northeast, with wind speeds averaging about 11 to 12 miles per hour. Occasional storms may generate strong winds from the south (Kona winds) for brief periods. Temperatures in the area are generally very moderate, with average daily temperatures ranging from about 68 degrees Fahrenheit (°F) to 81°F. Average annual rainfall in the Project area is approximately 44 inches, with the summer months being the driest.

3.2 Geology, Topography and Soils

Geology: The Island of Kauai is geologically one of the oldest and structurally complex islands in the State, consisting principally of a large volcano, the Kauai shield, which became active approximately four (4) million years ago. The Island's land mass was formed by two (2) major volcanic series identified as the Waimea Canyon Volcanic Series and the Koloa Volcanic Series. The Waimea Volcanic Series, which is more than 3 million years old, refers to the flows that formed the original volcanic shield and caldera of the Island. The Koloa Volcanic Series, which is less than 1.5 million years old, refers to subsequent flows that overlaid much of the Waimea Volcanic Series formations on the lower slopes of the Island. The Koloa Volcanic Series consists of a range of formations from olivine basalt to nepheline basalt. These rocks are much less permeable than some of the rocks of the Waimea Canyon Volcanic Series as they were deposited as nearly flat layers that tend to be massive and devoid of permeability elements.

The regional geology consists of the Koloa Volcanic Series overlying the Waimea Canyon Series. The Koloa Volcanic Series thickens toward the south coast of the Island and the composition ranges from alkalic olivine basalt through basanites to nephelinites and melilite nephelinites.

Topography: The topography within the Project Site slopes seaward from the area just makai of Lawai Road and the NTBG tram road and within the rocky coastal lands down to the coastline. The Project Site ranges in elevation from approximately 66 feet above mean sea level ("msl") within the northwestern-most portion down to msl along the coastline. The slope of the Project Site ranges from 0 percent to approximately 20 percent.

Soils: The U.S. Department of Agriculture Natural Resources Conservation Service classifies the soils within the Project Site as Rock outcrop (rRO) and Makaweli silty clay loam (MgC) as shown on Figure 3-1. The Rock outcrop (rRO) soil type, which encompasses the majority of the Project Site along the rocky coastline, consists of areas where exposed bedrock covers more than 90 percent of the surface. The rock outcrops are mainly basalt and andesite. The Makaweli silty clay loam (MgC) soil type, which encompasses the area within the northwestern-most portion of the Project Site, consists of well-drained soils developed in material weathered from basic igneous rock. Runoff is medium and the erosion hazard is moderate.

The *Detailed Land Classification - Island of Kauai* published by the University of Hawaii Land Study Bureau ("LSB") evaluates the quality or productive capacity of certain lands on the Island for selected crops and overall suitability in agricultural use. A five-class productivity rating system was established with "A" representing the class of highest productivity and "E" the lowest. The Project Site is classified as "E" rated soils, which is considered very poor characteristics for productive agricultural areas.

The *Agricultural Lands of Importance in the State of Hawaii* ("ALISH") map prepared by the State Department of Agriculture classifies the Project Site as "lands of no agricultural importance".

Impacts and Mitigation Measures

No significant impacts to the geology, topography and soils are anticipated with the construction and operation of the proposed Project. No grading activities will be undertaken in conjunction with the construction of the Project improvements. Minimal ground disturbance will occur to till in soil along the proposed trail alignment to initiate establishment of the turf grass, to install the permanent below-grade irrigation system for the main irrigation line and the turf grass trail, to remove the existing alien (non-native) vegetation and re-vegetate the area, and to install the temporary aboveground irrigation system for the re-vegetated areas. Trenching for the installation of the below-grade irrigation lines will be undertaken with a trencher, except for areas of shallow soils which will require the use of a jackhammer. To trench the area within the NTBG tram road crossing for the irrigation line, the existing asphalt road pavement will be saw-cut prior to the trench being dug. All vegetation removal will be undertaken with the use of mechanical (i.e., hydro-Ax and chainsaws) and hand clearing (i.e., handsaws and manual trimming tools) methods. For the removal of the larger vegetation species, hand tools or chainsaws will be used to cut the vegetation to the stump and methods such as wipe-on or brush-on herbicide will be used on the vegetation stumps. Soil will be used to infill small pocket areas within the rocky coastline to help establish the new vegetation, as appropriate.

Appropriate erosion and sediment controls will be instituted during construction of the Project improvements in compliance with the State Department of Health's ("DOH") National Pollutant Discharge Elimination System ("NPDES") Permit program. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural Best Management Practices ("BMPs").

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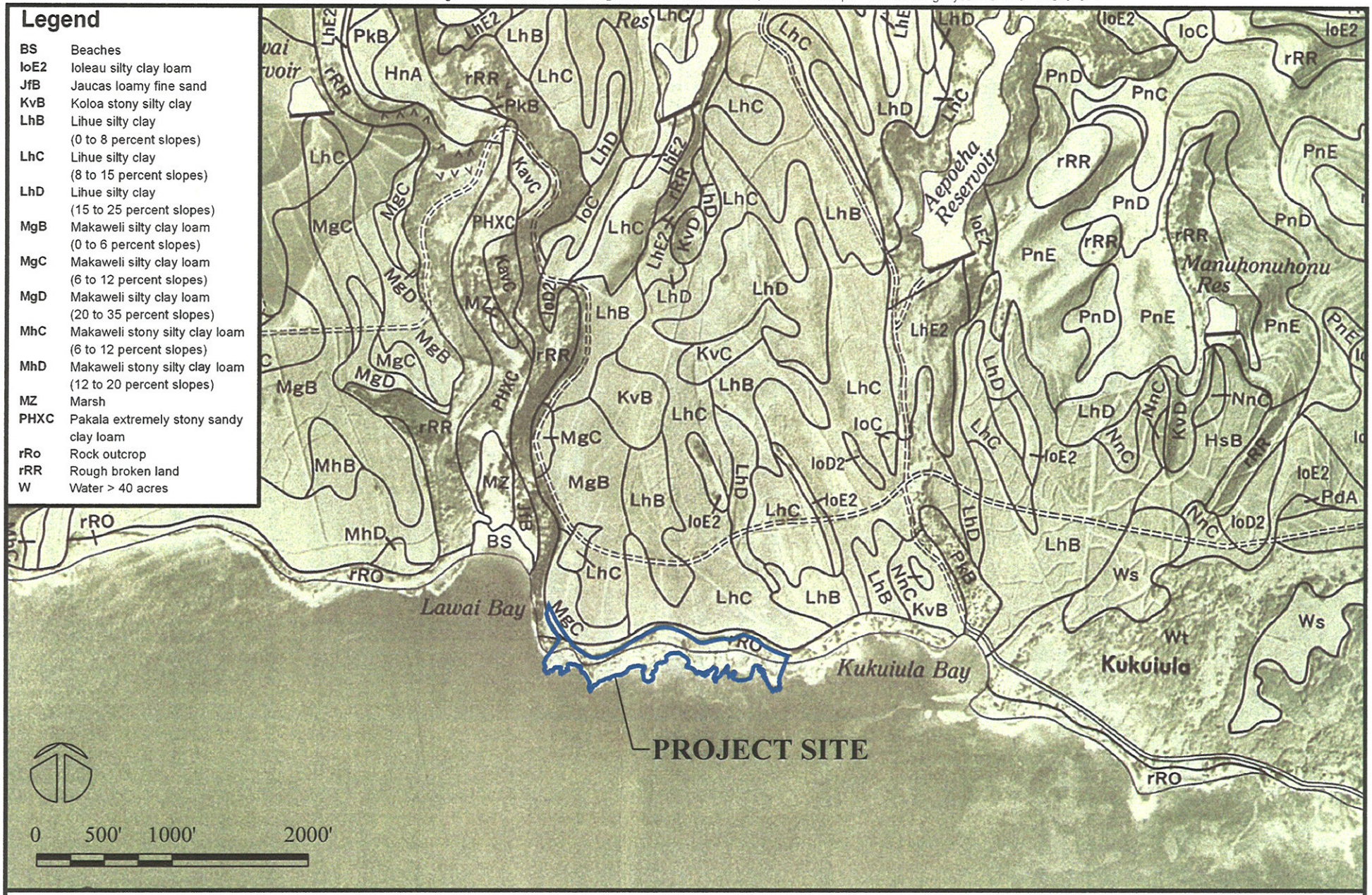


CONSERVATION DISTRICT IMPROVEMENTS

KUKUI'ULA

Koloa, Kauai, Hawaii

Soils Map

Figure 3-1

Prepared for:
Kukui'ula Development Company (Hawaii), LLC

Prepared by:
Wilson Okamoto Corporation

During construction of the turf grass trail, rolled fiber filtration tubing will be installed adjacent to the makai side of the trail alignment along its entire length to prevent sediment-laden storm water runoff from flowing makai. The rolled fiber filtration tubing will remain in place until the turf grass is established within the trail. The hydro-seeding of the trail to establish the turf grass will also help to control erosion.

During clearing and removal of the existing vegetation and re-vegetation activities within the rocky coastal area makai of Lawai Road and the NTBG tram road, silt fencing will be installed along the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. Rolled fiber filtration tubing will also be installed at regular intervals in the area between the turf grass trail and the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. The silt fence and rolled fiber filtration tubing will remain in place until the new vegetation is established.

Development of the Project improvements, including the re-vegetation areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

3.3 Water Resources

Surface Water: There are no surface waters within the Project Site. The closest stream is Lawai Stream to the northwest of the Project Site which flows through Lawai Valley and into Lawai Bay. Currently, storm water runoff enters the Project Site from the adjacent mauka Kukui'ula property and continues makai through the Project Site, eventually running into the ocean at low spots within the site. There are no wetlands located within or in the immediate vicinity of the Project Site.

Groundwater: The Island of Kauai is divided into three (3) groundwater sectors consisting of the Lihue Sector comprising the eastern portion of the Island, the Hanalei Sector comprising the northern portion of the Island, and the Waimea Sector comprising the western portion of the Island. The Sectors are divided into aquifer systems which are areas defined by hydrogeological continuity, particularly hydraulic connections among units.

Five (5) aquifer systems make up the Lihue Sector: Kilauea, Anahola, Wailua, Hanamaulu, and Koloa. The Project Site overlies the groundwater of the Koloa aquifer system. Groundwater occurrence and behavior is controlled by the Koloa formation which covers the Koloa aquifer system, except for isolated ridges of the Napali volcanics located inland. Perched water in the Koloa aquifer system is the most common type of groundwater, but basal water occurs near the coast. (Yuen, 1990). The Koloa aquifer system has a sustainable yield of 30 mgd. (State DLNR, Commission on Water Resource Management ("CWRM"), 2000).

Coastal Waters: The coastal waters in the vicinity of the Project Site are classified as Class A waters by the State DOH. Lawai Bay, which is also classified as Class A waters by the State DOH, is located to the northwest of the Project Site. It is the objective of Class A waters that "their use for recreational purposes and aesthetic enjoyment be protected." *(Water Quality Standards, Title 11, Chapter 54, Hawaii Administrative Rules ("HAR")).*

Impacts and Mitigation Measures

No significant impacts on surface waters, groundwater, and near shore coastal waters are anticipated as a result of the construction and operation of the proposed Project.

No grading activities will be undertaken in conjunction with the construction of the Project improvements. Minimal ground disturbance will occur to till in soil along the proposed trail alignment to initiate establishment of the turf grass, to install the permanent below-grade irrigation system for the main irrigation line and the turf grass trail, to remove the existing alien (non-native) vegetation and re-vegetate the area, and to install the temporary aboveground irrigation system for the re-vegetated areas.

Potential water quality impacts to the near shore coastal waters during construction of the Project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs.

During construction of the turf grass trail, rolled fiber filtration tubing will be installed adjacent to the makai side of the trail alignment along its entire length to prevent sediment-laden storm water runoff from flowing makai. The rolled fiber filtration tubing will remain in place until the turf grass is established within the trail. The hydro-seeding of the trail to establish the turf grass will also help to control erosion.

During clearing and removal of the existing vegetation and re-vegetation activities within the rocky coastal area makai of Lawai Road and the NTBG tram road, silt fencing will be installed along the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. Rolled fiber filtration tubing will also be installed at regular intervals in the area between the turf grass trail and the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. The silt fence and rolled fiber filtration tubing will remain in place until the new vegetation is established.

The phasing of the implementation of the Project improvements will also minimize the overall amount of exposed surfaces and ground disturbance at a given time, thereby further reducing the amount of storm water runoff that may occur. A gravel pad and wash down area will be placed at the planned construction entrance to the Project Site to prevent tracking of sediment onto Lawai Road and the NTBG tram road.

Since the proposed resurfacing activities of the NTBG tram road will occur over the existing asphalt-paved surface, there is anticipated to be no increase in the impervious surface area or storm water runoff. In resurfacing the tram road, the contractor will be required to brush clean the existing pavement surface and to control dust through water spraying. Following preparation of the existing pavement surface, a tack layer of asphaltic emulsion will be spread over the surface to promote bonding between the existing and new pavement prior to the new pavement being constructed.

Construction activities associated with the proposed improvements will not introduce any materials which could adversely affect groundwater.

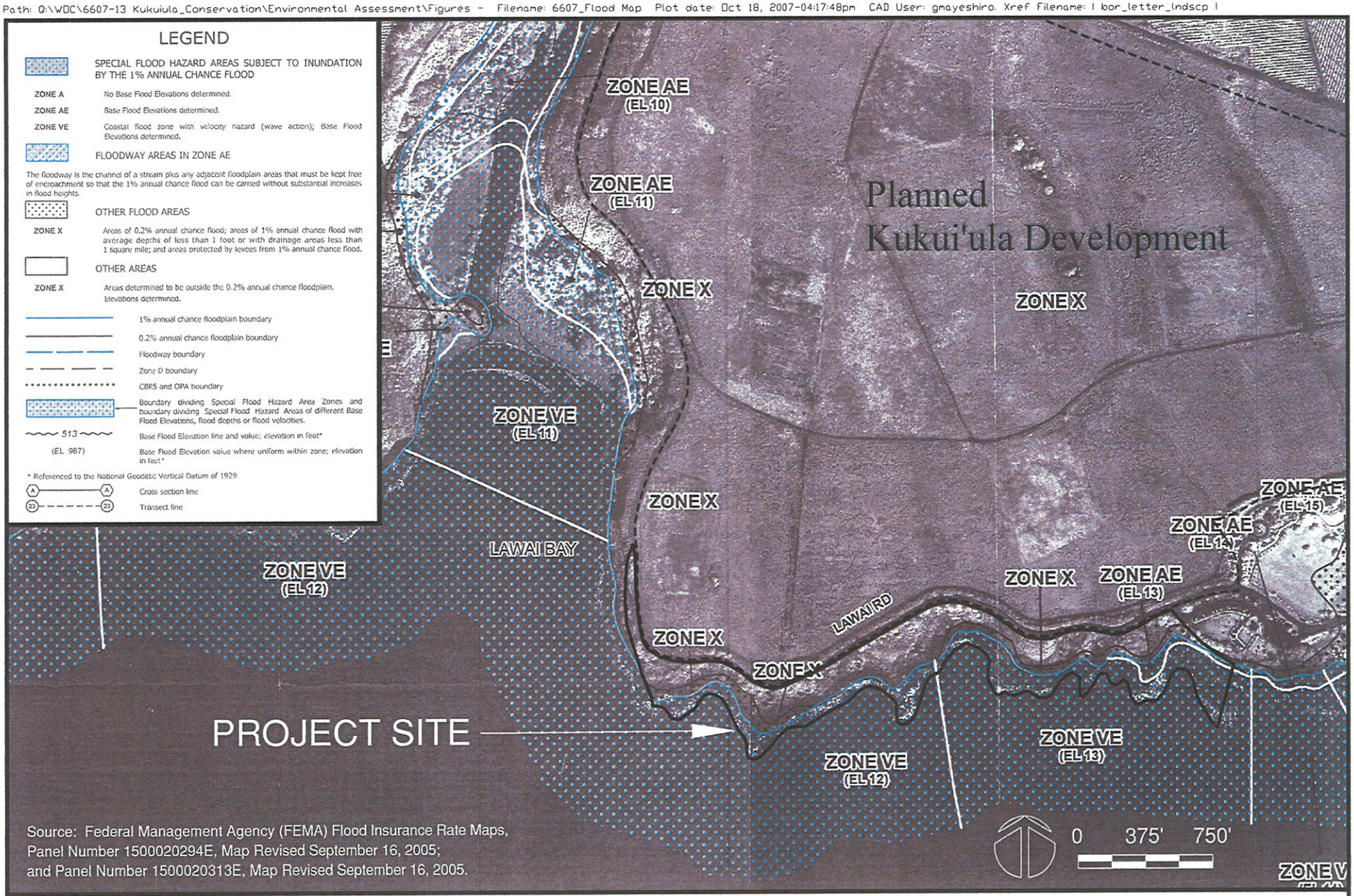
The proposed method of fertilization of the new vegetation and turf grass trail within the Project Site, which will be applied by directly injecting biofertilizer into the irrigation water and through the irrigation system, will substantially reduce the amount of fertilizer that would otherwise be required by up to 70 to 90 percent, thereby largely eliminating fertilizer runoff. The proposed application of appropriate herbicides to the cut vegetation stumps at a recommended concentration level with a wipe-on or brush-on technique will minimize the drift overspray that would otherwise occur with a spray-on technique.

With the use of large equipment during construction and long-term maintenance operations of the Project improvements, the contractors will be required to have available on-site granular absorbent materials for use for immediate clean-up in the event of accidental fuel or hydraulic spills from the equipment. The contractors will also be required to have available on-site containers for the storage of the spent spill response materials, which will then be required to be properly disposed of at an off-site location.

Development of the proposed Project improvements will produce no adverse effects from storm runoff to the adjacent coastal waters and adjacent properties. As discussed in Section 3.18.2 Drainage System of this EA, the projected small increase in storm water runoff from the Project Site will be offset by the large reduction of storm water runoff from the adjacent mauka Kukui'ula development due to the planned detention of runoff from that development. Therefore, the overall rate of storm water runoff into the ocean from the Project Site will be less than pre-development levels. Development of the Project improvements, including the re-vegetation areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

3.4 Flood Hazard

According to the Flood Insurance Rate Map ("FIRM") prepared by the Federal Emergency Management Agency ("FEMA"), the majority of the Project Site mauka of the inland edge of the coastal embankment is located within Zone "X", "Areas determined to be outside the 0.2% annual chance floodplain" as shown on Figure 3-2. A sliver of land adjacent to and makai of this area is designated Zone "X", "Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood." An area within the easternmost portion of the Project Site, makai of the Zone "X" flood zone, is designated Zone "AE", "Special flood hazard areas subject to inundation by the 1% annual chance flood with base flood elevations determined". The base flood elevation for the "AE" zone within this portion of the Project Site is 13 feet above msl. The makai-most portions of the Project Site which are mostly located makai of the coastal embankment are designated Zone "VE", "Special flood hazard areas subject to inundation by the 1% annual chance flood; coastal flood zone with velocity hazard (wave action); with base flood elevations determined". The base flood elevations for the "VE" zone within this portion of the Project Site are between 12 and 13 feet above msl.



Source: Federal Management Agency (FEMA) Flood Insurance Rate Maps, Panel Number 1500020294E, Map Revised September 16, 2005; and Panel Number 1500020313E, Map Revised September 16, 2005.

CONSERVATION DISTRICT IMPROVEMENTS
KUKUI'ULA
Koloa, Kauai, Hawaii

Flood Zone Map

Figure 3-2

Prepared for:
Kukui'ula Development Company (Hawaii), LLC

Prepared by:
Wilson Okamoto Corporation

Impacts and Mitigation Measures

Construction and operation of the proposed Project are not anticipated to result in flooding of the Project Site or lower elevation properties. All proposed Project improvements, except for various areas where selective vegetation removal will occur, are located outside and mauka of the designated flood zones. The proposed selective vegetation removal activities within the designated flood zones will be undertaken in full compliance with the flood plain management requirements of the County. No structures will be built within the Project Site as part of the proposed improvements.

3.5 Flora

A botanical survey of the Project Site was conducted by AECOS Consultants in February 2005. The botanical survey is included in Appendix C and is summarized below. The botanical survey area also encompassed an area mauka of the Project Site, along the eastern rim of Lawai Valley. For purposes of this EA, however, the discussion focuses on the botanical resources within the Project Site.

The botanical resources recorded within the Project Site during the survey are dominated by alien species. The floristic make-up of this survey area is typical of lands which have been extensively disturbed, adjacent to previous intensively cultivated sugar cane fields now fallow. Of the 48 species of plants recorded within the Project Site, only four (4) species are native and all are very common indigenous species. Two of these native species, the *'ilima papa* (*Sida fallax* Walp.) and the *pa'u o Hi'iaka* (*Jacquemontia ovalifolia*), were limited to a relatively narrow band along the top of the coastal embankment, makai of Lawai Road, where these species find a harsh but relatively open (unshaded) habitat, and where they generally compete favorably with the alien grass *Chloris radiata*. The other two (2) native species, the *'uhaloa* (*Waltheria indica L.*) and the yellow wood sorrel, *'ihi'ae* (*Oxalis corniculata L.*), are weedy roadside species.

Vegetation along the makai side of Lawai Road is also comprised predominantly of alien species, including *koa haole*, common ironwood (*Casuarina equisetifolia*), and various weedy forbs and grasses. However, close to the top of the coastal embankment, remnants of the native plant community were observed, with *'ilima papa* (*Sida falax*) and *pa'u o Hi'iaka* (*Jacquemontia ovalifolia*) locally abundant but limited in distribution due to the numerous alien trees and shrubs present within this area.

Further west, the vegetation along the makai side of the NTBG tram road includes an assortment of cacti and succulents, many presumably spreading vegetatively from initial plantings. Especially prominent are the caustic pencil tree (*Euphorbia tirucalli*) and night-blooming cereus (*Hylocereus unadatus*), in addition to many of the previously mentioned alien trees, shrubs and herbs. The pencil tree (*Euphorbia tirucalli*) is a potential hazard owing to the caustic nature of the milky sap exuded from the plant where tissue damage occurs from breaking or cutting of the branches. Extreme care must be taken in removing this plant, a task made difficult by the size of the specimens in this area. The pencil tree (*Euphorbia tirucalli*) is also abundant within the easternmost portion of the Project Site, along the boundary of Spouting Horn Park.

Vegetation along the mauka side of Lawai Road and the NTBG tram road is comprised of alien plant species typical of roadside ruderal communities found on the south coast of the Island. In parts not regularly disturbed, this assemblage is dominated by Guinea grass (*Panicuim*

maximum) and *koa haole* (*Leucaena leucocephala*), with some ornamental hibiscus (*Hibiscus rosa-sinensis*) present. The mowed areas contain a diversity of alien herbaceous weeds, including several grasses (especially radiate fingergrass (*Chloris radiata*), Bermuda grass (*Cynodon dactylon*), and beach wiregrass (*Eleusine indica*)).

Impacts and Mitigation Measures

No significant impacts on flora are anticipated from the construction and operation of the proposed Project. No species of special interest, or species listed as threatened or endangered were recorded within the Project Site during the survey. Removal of the existing alien (non-native) vegetation within the Project Site will not have an adverse impact on native and indigenous botanical resources within the site. Removal of the existing alien (non-native) vegetation and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced is anticipated to have a beneficial impact on encouraging the proliferation of native plants presently limited in distribution within and adjacent to the Project Site.

3.6 Vertebrate Fauna

A faunal survey of the Project Site was conducted by Rana Productions, Ltd. in February 2005. The faunal survey is included in Appendix C and is summarized below. The faunal survey area also encompassed an area mauka of the Project Site, along the eastern rim of Lawai Valley. For purposes of this EA, however, the discussion focuses on the faunal resources within the Project Site.

During the survey, a total of 15 avian species, representing 12 separate families, were recorded within the Project Site. All 15 species detected are regularly encountered alien species, common in the low- to mid-elevation areas on the south side of the Island. An additional three (3) species were detected as incidental observations within the Project Site. One species, the Short-eared Owl (*Asio flammeus sandwichensis*) is an endemic sub-species, although not listed under the Federal or State of Hawaii endangered species programs. The other two (2) species recorded were the Ring-necked Pheasant (*Phasianus colchicus*) and Chestnut Munia (*Lonchura atricapilla*), both of which are common, widely distributed alien passerines.

Avian diversity and densities were relatively low. Three (3) species, Japanese White-eye (*Zosterops japonicus*), House Finch (*Carpodacus mexicanus frontalis*), and Nutmeg Mannikin (*Lonchura punctulata topela*) accounted for 48 percent of the total number of birds recorded. No avian species currently protected, or proposed for protection under the Federal Endangered Species Act of 1973, as amended, or State of Hawaii endangered species program were recorded during the survey.

Although no Hawaiian hoary bats (*Lasiurus cinereus semotus*) were detected, it is likely that this endangered species forages for insects over the Project Site. Hawaiian hoary bats are regularly seen in and around the Koloa and Poipu areas, as well as within most of the lowland areas on the Island.

Although no rodents were detected during the survey, it is likely that roof rats (*Rattus r. rattus*), Norway rats (*Rattus norvegicus*), European house mice (*Mus domesticus*), and possibly Polynesian rats (*Rattus exulans hawaiiensis*) use various resources found within the Project Site. During the survey, scat and signs of dog (*Canis f. familiaris*), cat (*Felis cattus*) and horse

(*Equus c. caballus*) were encountered within the general study area. No mammalian species currently listed, or proposed for listing under either Federal or State of Hawaii endangered species statutes were recorded during the survey.

There is an active Wedge-tailed Shearwater (*Puffinus pacificus*) nesting colony located in and around the existing rock wall located on the mauka side of Lawai Road, outside of the Project Site. It is probable that the birds also nest makai of Lawai Road in the sea cliffs along this portion of the coastline. Wedge-tailed Shearwaters are a year-round resident pelagic seabird species commonly encountered throughout the Hawaiian Islands. They return to land to their nesting colonies in mid-March or so, and spend the next month-and-a half excavating or refurbishing their burrows and courting. Copulation and a pre-laying exodus occur sometime in early May. Birds return to their colonies to lay their single egg in June, and the peak of egg laying occurs in mid-June. They incubate their eggs for 53 days and fledging occurs in November, with the peak period occurring in the last two (2) weeks of November. At the time of the survey, the colony was so overgrown with Guinea grass and other vegetation that it was impossible to quantify the number of burrows, or to delineate the boundaries of the colony. In previous visits to this colony, adults, eggs and young have been observed, as has predation of chicks and eggs by rats and cats.

Although not detected during the survey, it is likely that the endangered Hawaiian Petrel (*Pterodroma sandwichensis*) and the threatened, endemic sub-species of the Newell's Shearwater (*Puffinus auricularis newelli*) overfly the Project Site between April and the end of November each year. Both species have been well-documented crossing the northern, eastern and southern coastlines of Kauai during the breeding season. Both species of seabirds, especially fledging birds, can become disoriented by exterior lighting on their way to sea in the Fall. When disoriented, these seabirds often collide with manmade and naturally occurring physical features. If the downed birds are not killed outright, the dazed and/or injured birds become easy targets for feral mammals. However, the primary cause of mortality of both of these seabird species is thought to be predation by alien mammalian species at the nesting colonies. There are no nesting colonies or appropriate nesting habitat for either seabird species within or close to the Project Site.

Impacts and Mitigation Measures

No significant impacts on fauna within the Project Site are anticipated from the construction and operation of the proposed Project. The clearing of alien vegetation along the makai side of the Lawai Road right-of-way and the NTBG tram road is not anticipated to have a negative impact on any avian or mammalian species currently protected, or proposed for protection under the Federal Endangered Species Act of 1973, as amended, or under the State of Hawaii endangered species program. Since artificial lighting, including street lights, will not be provided in conjunction with the proposed Project, there will be no associated impacts on wildlife in the area.

The clearing of alien vegetation along the makai side of the Lawai Road right-of-way and the NTBG tram road has the potential to adversely impact the Wedge-tailed Shearwater colony that may be located within the Project Site if care is not taken to limit on-ground disturbance to the months when the birds are not present in their colony. Conversely, the removal of the invasive alien plant species that may currently be covering most of the Wedge-tailed Shearwater colony will greatly enhance the usability of the area for seabird nesting. Removal of the existing

cactus, large ironwood trees and dense Guinea grass will also help to facilitate the Wedge-tailed Shearwaters to come and go from their nesting colonies with greater ease and safety.

To ensure that the proposed vegetation clearing within the Project Site does not result in adverse impacts to the resident Wedge-tailed Shearwaters and their nesting colony, the following measures will be implemented:

- The removal of existing vegetation and re-vegetation along the makai side of Lawai Road and the NTBG tram road and the mowing and maintaining of the existing vegetation along the rock wall on the mauka side of Lawai Road will be undertaken so as to not disturb subsurface features such as burrows. The proposed vegetation removal and re-vegetation activities will not be undertaken during the Wedge-tailed Shearwaters breeding season.

- Following removal of the existing vegetation and prior to re-vegetation activities, a qualified biologist will be retained by the Applicant to survey the Project Site to ascertain the location and number of Wedge-tailed Shearwater burrows that may be present.

- Following the on-ground survey by the qualified biologist, a Wedge-tailed Shearwater colony management plan will be prepared which will include methods for maintaining and improving the Wedge-tailed Shearwater nesting habitat that may be present within the Project Site.

3.7 Invertebrate Fauna

Although subterranean habitat for the endemic, endangered Kauai cave wolf spider (*Adelocosa anops*) and the Kauai cave amphipod (*Spelaeorchestia koloana*) have been identified in the Koloa-Poipu region, the Project Site is not located within any of the Critical Habitat Units designated for these two (2) cave species by the U.S. Fish & Wildlife Service ("USFWS") final rule published April 9, 2003.

Impacts and Mitigation Measures

Since the Project Site is not located within any of the Critical Habitat Units designated for the endemic, endangered Kauai cave wolf spider and the Kauai cave amphipod by the USFWS final rule published April 9, 2003, it is not anticipated that the development of the Project will have an adverse impact on either species or their habitat. In the unlikely event that either listed species is encountered during development of the Project, construction will be halted, consultation with the USFWS will be initiated, and appropriate mitigative measures will be implemented.

3.8 Air Quality

Ambient air quality in the vicinity of the Project Site is primarily attributed to vehicular-related emissions in the form of carbon monoxide ("CO") generated from traffic traveling along Lawai Road which occurs at relatively low levels.

Impacts and Mitigation Measures

Potential air quality impacts resulting from construction of the Project improvements will be mitigated by complying with the State DOH Administrative Rules, Title 11, Chapter 60, Air Pollution Control. The construction contractor(s) will be responsible for complying with the State

DOH regulations that prohibit visible dust emissions at property boundaries. Compliance with State regulations will require adequate measures to control airborne dust by methods such as water spraying and sprinkling of loose or exposed soil or ground surface areas and dust-generating equipment during construction. Regular wetting of surface areas will be implemented during the vegetation clearing activities and these areas will be re-vegetated soon thereafter to control dust. The proposed temporary aboveground irrigation system will also serve to wet surface areas within the re-vegetated areas which will help to control dust. The hydro-seeding of the pedestrian trail to establish the turf grass will also help to control dust.

No significant air quality impacts are anticipated from the operation of the proposed Project due to the passive nature of the improvements.

3.9 Noise

Ambient noise in the vicinity of the Project Site is predominantly attributed to vehicular traffic along Lawai Road which occurs at relatively low levels.

Impacts and Mitigation Measures

Construction noise will be unavoidable during the duration of the construction period of the proposed Project. Operation of construction equipment such as trucks, trencher, hydroAx, jackhammers, chainsaws, and pavers will raise ambient noise levels in the Project vicinity. Unavoidable construction noise impacts will be mitigated by complying with the provisions of the State DOH Administrative Rules, Title 11, Chapter 46, "Community Noise Control" regulations which require a noise permit if the noise levels from construction activities are expected to exceed the allowable noise levels stated in the Rules. The hours of permitted construction noise operations specified in the Rules will be adhered to and enforced. It shall be the contractor's responsibility to minimize noise by properly maintaining noise mufflers and other noise-attenuating equipment, and to maintain noise levels within regulatory limits. Construction activities that generate noise which may disturb potential nesting colonies of the Wedge-tailed Shearwaters within the Project Site will not be undertaken during the Wedge-tailed Shearwaters breeding season.

No significant noise impacts are anticipated from the operation of the proposed Project due to the passive nature of the improvements.

3.10 Historic and Archaeological Resources

An archaeological inventory survey of the Project Site was conducted by Cultural Surveys Hawaii in June 2002. The archaeological inventory survey is included in Appendix D and is summarized below.

The settlement pattern of the Lawai Ahupua'a indicates that permanent habitation and intensive agriculture (irrigated and non-irrigated) was focused on the valley floor flood plain, with intensive agricultural pursuits occurring on the table lands between Lawai Kai and Kukui'ula Bay. The historical documentation indicates house sites, taro lo'i and some kula were situated on the alluvial flood plain within Lawai Valley. No kuleana were awarded on the table lands or within the Project Site. Archaeological evidence suggests permanent occupation in the Koloa area (ca. A.D. 1200-1400), although earlier dates (ca. A.D. 600-1200) for temporary shoreline sites have been recorded.

Based on previous data, the Project Site was not a focus of habitation or agriculture during the pre-contact era. The only previous archaeological survey that focused specifically on the Project Site (i.e., Kikuchi 1963) located and described two "looted" shoreline shelter caves.

Three (3) archaeological sites were located within the Project Site during the inventory survey, including a coastal trail complex paralleling the coastline and two (2) rock shelter cave sites located within the eastern portion of the Project Site, makai of Lawai Road.

Coastal Trail Complex (State Site 50-30-10-990): Site –990 is a discontinuous shoreline trail which traverses along the coastal embankment within the central and eastern portions of the Project Site. The trail is not discernable in places where it crosses exposed outcrop and where the vegetation is extremely dense. Ranging in width from 1.6 feet to 4.9 feet, with an average width of 2.3 feet, the trail follows a logical route along the inland edge of the cliffs above the tidal flats. Large sections of the trail are currently used by the public for coastal access. For most of its length, the trail is a dirt path. The trail site includes four (4) separate features: Feature A is the paved curb stone section of the trail; Feature B is a short retaining wall section of the trail; Feature C is a short section of cut basalt block stairs with an associated wall section; and Feature D is another short section of cut basalt block stairs.

The trail complex is historic in age, but likely follows a pre-historic trail corridor. The trail also likely relates to historic access from Lawai Kai to the Koloa Landing area east of the Project Site. Although just a modern trodden dirt path in places, the trail represents a time when foot transit was the primary means of transportation. The remaining stone constructed sections of the trail are in good condition and exhibit quality masonry work.

Rock Shelter (State Site 50-30-10-3071): Site –3071 is a rock shelter located along the coastal embankment within the eastern portion of the Project Site near Spouting Horn Park. The site consists of a natural rock overhang that measures 32.8 feet north-south at the entrance by 18.7 feet east-west. The interior height of the ceiling within the shelter has a maximum height of 8.5 feet. The interior of the shelter is undulating and filled with boulders and cobbles. No midden or artifacts were observed within the rock shelter. It appears that the site has been looted, used in modern times, and affected by wave action.

Rock Shelter (State Site 50-30-10-3072): Site –3072 is a rock shelter located along the coastal embankment within the eastern portion of the Project Site near Spouting Horn Park. The site consists of a natural rock overhang that measures 20 feet northwest-southeast at the entrance by 6.9 feet northeast-southwest. The interior height of the ceiling within the shelter has a maximum height of 4.5 feet. The interior of the shelter is filled with boulders and cobbles. Two (2) dirt piles located outside of the shelter's entrance may correlate with looting activities. No midden or artifacts were observed within the rock shelter. It appears that the site has been looted, used in modern times, and affected by wave action.

The two (2) rock shelter sites, previously located and described by Kikuchi (1963), were listed on the State Register of Historic Places on September 30, 1988 and remain on the State Register.

The three (3) site types are indicative of the type of former land use within this narrow shoreline cliff area. The shelter caves were for temporary use by fishermen, presumably from pre-contact

into modern times. The trail allowed for coastal access within a similar time range, although the cut stone steps and curbing are indicative of historic construction techniques.

Impacts and Mitigation Measures

No significant impacts on archaeological/historic resources within the Project Site are anticipated from the construction and operation of the proposed Project.

The significance assessments for the three (3) archaeological sites located within the Project Site are based on the broad criteria established for the State and National Registers of Historic Places:

A. Site reflects major trends or events in the history of the state or nation.

B. Site is associated with the lives of persons significant in our past.

C. Site is an excellent example of a site type.

D. Site may be likely to yield information important in prehistory or history.

The coastal trail (Site 50-30-10-990) is assessed solely under Criterion D. Although certain sections of the trail exhibit quality workmanship (i.e. Criterion C), the discontinuous nature of the trail argues against site integrity. The two (2) rock shelter caves (Sites 50-30-10-3071 and -3072) are also assessed as significant under Criterion D.

Following consultation with the SHPD and in consideration that the two (2) shelter cave sites (Sites 50-30-10-3071 and –3072) remain on the State Register of Historic Places, it was determined that these two (2) sites and the coastal trail site (Site 50-30-10-990) will be preserved. By letter dated September 17, 2002, the SHPD accepted the archaeological inventory survey report and agreed with the commitment to preserve the three (3) historic sites. A copy of this letter is attached in Appendix D.

A preservation plan for the coastal trail complex (Site 50-30-10-990) and the two (2) shelter cave sites (Sites 50-30-10-3071 and -3072) was prepared by Cultural Surveys Hawaii in December 2004. The preservation plan is included in Appendix E and is summarized below. The preservation plan was approved by the SHPD by letter dated March 1, 2005, a copy of which is included in Appendix E. The preservation plan was also approved by the County's Kauai Historic Preservation Review Commission ("KHPRC") by memorandum dated December 8, 2004, a copy of which is included in Appendix E.

The preservation plan describes mitigation measures to protect these archaeological sites during the proposed vegetation removal and re-vegetation improvements within the Project Site, and long-term preservation measures for the sites. The preservation measures were developed in accordance with the Draft Hawaii Administrative Rules, Title 13, Sub-Title 13, Chapter 277, "Rules Governing Requirements for Archaeological Site Preservation and Development". During the preparation of the preservation plan, consultation with the County's KHPRC, the Royal Order of Kamehameha, Kaumuali'i Chapter, and other ethnic Hawaiian organizations was conducted.

Preservation Plan for Coastal Trail Complex (Site 50-30-10-990): Preservation of the coastal trail will take the form of avoidance and protection (conservation). The coastal trail is located entirely outside and makai of the area within the Project Site that is proposed for vegetation removal and re-vegetation activities, and traverses through portions of the makai edges of the areas proposed for selective vegetation removal. At this time, no stabilization or restoration of the coastal trail is deemed necessary. To ensure that the trail is not inadvertently impacted during implementation of the Project, a 20-foot buffer zone will be designated on each side of the trail prior to the selective vegetation removal activities. On the landward (mauka) side of the trail, the buffer zone will be flagged. On the seaward (makai) side of the trail, the buffer zone will be flagged where appropriate since the seaward buffer zone may often be difficult to demarcate since the trail follows the steep cliff embankment. A 20-foot buffer zone will also be flagged on both sides of Features A to D associated with the trail. If selective removal of existing vegetation is necessary within the buffer zones, only hand removal of vegetation will be allowed, and an archaeologist will monitor all activity within the buffer zone. The monitor will also hold a briefing with the work crew prior to implementation of the proposed Project activities to explain the significance of the coastal trail site. Where the trail is discontinuous (specifically at the western end), the buffer zone will cover areas where the trail most likely occurred.

Long-term preservation of the coastal trail will be passive preservation in the form of avoidance and conservation.

Preservation Plan for Rock Shelter Sites (Sites 50-30-10-3071 and –3072): Preservation of the two (2) rock shelter cave sites will take the form of avoidance and protection (conservation). Both shelter sites are located entirely outside of and makai of the areas within the Project Site that are proposed for vegetation removal and re-vegetation activities. No reconstruction or stabilization of the sites will be undertaken. Although the two (2) shelter sites are located on the coastal embankment cliff, a 20-foot buffer zone will be designated around each site prior to the selective removal of existing vegetation in the nearby areas to ensure that the sites are not inadvertently impacted. An archaeologist will monitor all activity near the buffer zone during the selective vegetation removal activities. The monitor will also hold a briefing with the work crew prior to implementation of the proposed Project activities to explain the significance of the shelter cave sites.

Long-term preservation of the two (2) shelter sites will be passive preservation in the form of avoidance and conservation.

Should any previously unidentified burial, archaeological or historic sites be found during the course of implementation activities within the Project Site, the Applicant will stop work in the immediate vicinity and the SHPD will be notified immediately. The significance of these finds will then be determined and appropriate mitigation measures will be approved by the SHPD and the Kauai/Niihau Islands Burial Council, as appropriate. Subsequent work will proceed after SHPD authorization has been received and mitigative measures have been implemented.

3.11 Cultural Resources

A cultural impact assessment was undertaken for the Project by Cultural Surveys Hawaii in October 2007. The cultural impact assessment is included in Appendix F and is summarized below.

It is noted that the cultural impact assessment is based on the Project improvements which were originally proposed for the Project Site. The original Project proposal included similar improvements to those currently proposed, although at a more extensive level. The primary difference with the original proposal included the removal of existing alien (non-native) vegetation and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced within the entire rocky coastal area makai of Lawai Road up to the inland edge of the coastal embankment, and within the mauka side of Lawai Road along the existing rock wall; and the construction of a 4-foot wide, approximately 2,300 linear-foot granular public trail within the area makai of Lawai Road, paralleling the coastline, with three (3) overlook areas proposed along the trail. The other improvements proposed in the original plan were the same as those currently proposed, including the provision of gravel parking areas within the makai Lawai Road right-of-way, the resurfacing of the existing NTBG tram road, and the preservation of the existing historic coastal trail complex and the two (2) existing rock shelter cave sites.

Subsequent to the community consultation phase of the cultural impact assessment, modifications were made to the proposed Project as described in this EA which included a reduction in the level of improvements originally proposed. The modifications were made due to long-term maintenance considerations and the potential impacts due to the more extensive nature of the improvements originally proposed. Generally, if substantive changes are made to a project proposal following the community consultation phase, the cultural consultation participants would be re-contacted to inform them of the project changes and to invite further comment for a revised cultural impact assessment. For the proposed Project modifications, however, Cultural Surveys Hawaii determined that it was not necessary to re-open the community consultation phase of the cultural impact assessment since: 1) the scope and modified improvements proposed for the Project have not substantially changed and have, in fact, been reduced; 2) the Project Site boundaries remain unchanged; and 3) the Project was well-received by the community consultation participants and did not raise any substantial cultural concerns.

Based on research of historic documents, cultural documentation, and archaeological studies, it is apparent that the Lawai Ahupua'a and the current Project Site extended well back in pre-contact times. It is likely that Lawai was inhabited and tilled before the neighboring Koloa Field System was developed, as it is a typical traditional valley setting with habitation sites on or near the narrow beach and the taro *lo'i* along the flood plain.

During the pre-contact era, *heiau* are known to have existed. The presence of multiple *heiau* within the *ahupua'a* suggests the relative importance of Lawai in traditional times. *Heiau* were located in both the uplands and near the shore. Cultural accounts, as well as LCA documentation, indicated settlement within the *ahupua'a* was focused along Lawai Stream, the lower valley and along the shore. The sheltered waters and sandy shoreline of Lawai Bay would have allowed for harvesting of marine resources and provided an ideal landing site for canoes. Traditional burial interment practices included cave burials within the slopes of Lawai Valley and in caves along the coastal regions of Lawai Kai.

Forest areas miles inland would have been utilized for a variety of purposes, such as gathering of timber, avian resources, medicinal and ceremonial plants, and famine food resources.

Nineteenth-century documents (namely, Land Commission Award records and historic maps) provide a picture of the settlement pattern for the Lawai Ahupua'a; permanent habitation and intensive agriculture (irrigated and non-irrigated) focused on the valley floor flood plain and presumed intensive agricultural pursuits on the table lands between Lawai Kai and Kukui'ula Bay. The historical documentation, especially *Mahele* and *kuleana* data, indicates house sites, taro *lo'i* and some *kula* were situated on the alluvial flood plain within Lawai Valley. No kuleana were awarded within the present Project Site. Queen Emma's residence was located on the tablelands *mauka* of the current Project Site and her house was later moved to the Valley Floor. Archaeological evidence suggests permanent occupation in the Koloa area ca. A.D. 1200 to 1400, although earlier dates (ca. A.D. 600 to 1200) for temporary shoreline sites have been recorded (Rosendahl 1990, Toenjes et.al 1991, and Hammatt et.al. 1998).

By the late 1870s, Queen Emma leased the land of Lawai to Duncan McBryde for 15 years, though she reserved a house lot and several acres of taro patch land. In 1886, after the Queen's death, Mrs. Elizabeth McBryde purchased the entire *ahupua'a*. The upper lands were planted in sugar cane, and the valley was leased to Chinese rice growers and taro planters.

By the early decades of the 20th century, western commercial entrepreneurial interests had transformed the Lawai landscape into sugar cane fields and pasture lands, and had dispersed remaining native residents. Mrs. Elizabeth McBryde bought the 12,000 acres in the Kona section of Kauai in 1886 and, in 1899, her lands along with the McBryde estate joined to form the McBryde Sugar Company. The McBryde Sugar Company started its railroad operations in 1899. Expansion of the cane fields and plantation rail lines was rapid. The Lawai Stream Valley was surrounded east and west by sugar cane lands, and Field 216 lay just *mauka* of Lawai Road near the Project Site. By 1947, all cane-hauling activities were taken over by trucking.

In 1964, Robert Allerton established the Pacific Tropical Botanical Garden. In 1986, it became the National Tropical Botanical Gardens.

The community contacts queried for this cultural impact assessment identified a few ongoing cultural practices within the Project Site in the broader context of the encompassing Lawai Ahupua'a landscape. Fishing and marine resource (namely *opihi*) gathering practices continue to occur along the coastal areas of Lawai Kai. Although native stream animals supplied the Hawaiian diet with a rich source of protein, none of the community contacts queried identified any ongoing fishing activities associated with Lawai Stream. Ms. Sabra Kauka, cultural practitioner and *kumu*, commented that she gathers plants such as *'ilima kahakai* (*Sida* spp.) for lei-making and upon occasion for making tea along the coast in and around the Project Site, but noted that the native plants are being increasingly squeezed out by invasive species.

Community members queried spoke about traditional Hawaiian sites in the Lawai Ahupua'a outside of the Project Site. Ms. Kehualani Kekua mentioned that the Hawaiians built a small *heiau* named Mamalu near the area on which the Allerton Home was built, believing it would have functioned as an agricultural *heiau*. *Kupuna* Betty Snowden stated that the *heiau* "Niukapukapu" played a significant and historical role in the Hawaiian culture in the area of Lawai Kai. Three (3) archaeological sites were located within the Project Site, including a coastal trail complex (Site 50-30-10-990) and two rock shelter cave sites (50-30-10-3071 and –3072). The shoreline trail is a mix of modern and historic sections currently in use by the public

for coastal access. The two (2) rock shelter sites were both placed on the State Register of Historic Places. A preservation plan has since been prepared for these three (3) sites and approved by the SHPD and KHPRC.

No human burials have been documented within the Project Site. The community members queried discussed native Hawaiian burials located in caves within the Lawai Ahupua'a outside of the Project Site. Ms. Kehaulani Kekua mentioned that further inland, the *kupuna* know of several caves that served as burial sites for the ancestors. Kupuna Betty Snowden stated that Pu'u Kiloia is the repository of the *'Ohana No Iwi* or family bones and suggested that at one time, it was the favored place of repose for those sacrificed at Niukapukapu.

In traditional times, trails served to connect the various settlements throughout the *ahupua'a* and districts of the Hawaiian Islands. As previously indicated, the coastal trail complex (Site 50-30-10-990) within the Project Site is currently in use by the public for coastal access. According to historic research, Mr. Alexander McBryde, who lived in Lawai Valley where the only access in Queen Emma's day had been by trail down the cliffs, created a road along the shore from "Spouting Horn" by blasting away the *pali* to make the narrow horse and buggy trail (Allerton 1972:9). NTBG Librarian Richard Hanna also noted that the Allertons built trails in the 1950s and 1960s which were destroyed in the 1982 hurricane.

Dr. David Burney of the NTBG mentioned the cultural and environmental significance of the rock wall along Lawai Road and surrounding area, emphasizing that the Project Site and proximity is a nesting ground for the indigenous Wedge-tailed Shearwaters and an important destination for school groups on educational tours, as well as a social gathering place for community members.

Impacts and Mitigation Measures

None of the community contacts queried for the cultural impact assessment identified any strong cultural concerns about the proposed Project. However, a few of the participants expressed concerns and, in some cases, made suggestions regarding the re-vegetation plan for the proposed Project as follows:

1. Cautioned against removing the ironwood trees (*Casuarina* spp.) in the Project Site before native replacement trees are well-established, as the trees provide a windbreak and shade for the Wedge-tailed Shearwaters that nest in the rock wall along Lawai Road.

2. Cautioned against grading or landscaping the Project Site in a way that could lead to runoff and (further) degradation of the watershed.

3. Expressed concern about the decline of certain native species with ethnobotanical value such as *'ilima* (Sida spp.).

As previously indicated, the clearing of existing alien (non-native) vegetation along the makai side of the Lawai Road right-of-way and the NTBG tram road has the potential to adversely impact the Wedge-tailed Shearwater colony that may be located within the Project Site if care is not taken to limit on-ground disturbance to the months when the birds are not present in their colony. Conversely, the removal of the invasive alien plant species that may currently be covering most of the Wedge-tailed Shearwater colony will greatly enhance the usability of the

area for seabird nesting. Removal of the existing cactus, large ironwood trees and dense Guinea grass will also help to facilitate the Wedge-tailed Shearwaters to come and go from their nesting colonies with greater ease and safety. To ensure that the proposed vegetation clearing within the Project Site does not result in adverse impacts to the resident Wedge-tailed Shearwaters and their nesting colony, the proposed vegetation removal and re-vegetation activities will not be undertaken during the Wedge-tailed Shearwaters breeding season.

No grading activities will be undertaken in conjunction with the construction of the proposed Project improvements. Minimal ground disturbance will occur to till in soil along the proposed trail alignment to initiate establishment of the turf grass, to install the permanent below-grade irrigation system for the main irrigation line and the turf grass trail, to remove the existing alien (non-native) vegetation and re-vegetation of the area, and to install the temporary aboveground irrigation system for the re-vegetated areas.

Potential water quality impacts to the near shore coastal waters during construction of the Project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs.

During construction of the turf grass trail, rolled fiber filtration tubing will be installed adjacent to the makai side of the trail alignment along its entire length to prevent sediment-laden storm water runoff from flowing makai. The rolled fiber filtration tubing will remain in place until the turf grass is established within the trail. The hydro-seeding of the trail to establish the turf grass will also help to control erosion.

During clearing and removal of the existing vegetation and re-vegetation activities within the rocky coastal area makai of Lawai Road and the NTBG tram road, silt fencing will be installed along the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. Rolled fiber filtration tubing will also be installed at regular intervals in the area between the turf grass trail and the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. The silt fence and rolled fiber filtration tubing will remain in place until the new vegetation is established.

No native vegetation species will be removed from the Project Site. The proposed removal of the existing alien (non-native) vegetation and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced is anticipated to have a beneficial impact on encouraging the proliferation of native plants presently limited in distribution within and adjacent to the Project Site.

Based on the above, the proposed Project will have minimal impact upon native Hawaiian cultural resources, beliefs and practices.

3.12 Visual Resources

Existing public views of the Project Site are predominantly of roadside and other alien vegetation species consisting of *koa haole,* common ironwood (*Casuarina equisetifolia*), and various weedy forbs and grasses; and portion of Lawai Road. Glimpses of the coastline and ocean can be seen through openings in the vegetation makai of Lawai Road. Further west within the Project Site, views include the NTBG tram road and roadside vegetation consisting of an assortment of cacti and succulents, and alien trees, shrubs and herbs. Views from the northwesternmost portion of the Project Site include the Kukui'ula property to the east and Lawai Bay and a portion of Lawai Valley to the west.

Impacts and Mitigation Measures

The proposed vegetation clearing/removal and re-vegetation improvements within the Project Site will restore and visually enhance the coastal views of the area. With the proposed vegetation clearing and re-vegetation activities, the currently overgrown, alien (non-native) vegetation makai of Lawai Road and the NTBG tram road will be replaced with native, endemic and indigenous species common to the area or Polynesian-introduced which will improve and complement the scenic and natural environment of the area. The proposed re-vegetation of the coastal lands within the Project Site with low-growing native shrubs and groundcover plantings will help to maintain and preserve the scenic public views to and along the coastline. The scenic environment will be further enhanced with the visual greenbelt to be provided by the proposed turf grass pedestrian trail along the makai side of the Lawai Road right-of-way.

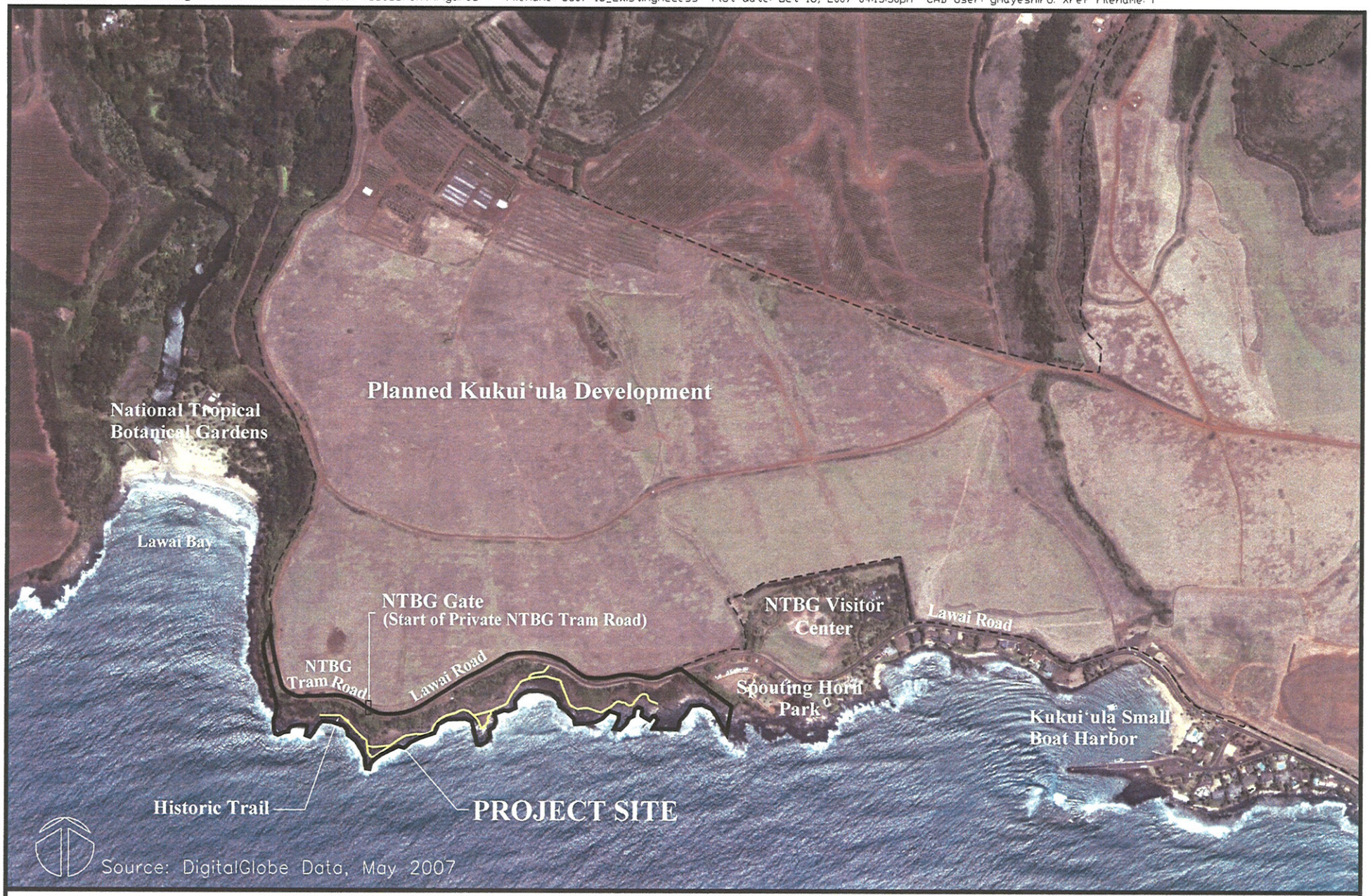
3.13 Traffic

Existing access to the Project Site is provided by Lawai Road, a two-way, two-lane County roadway that is generally oriented in the east-west direction, providing access to Spouting Horn Park and the coastal area further west. Existing access in the nearby Project vicinity is shown on Figure 3-3. Further east of the Project Site, Lawai Road follows the coastline in the westerly direction after its "Y" intersection with Poipu Road and terminates at the NTBG gate west of Spouting Horn Park. Within the segment of Lawai Road which traverses through the Project Site, the pavement width is approximately 15 feet wide.

West of Lawai Road and the NTBG gate is an approximately 12-foot wide asphalt-paved private road owned by the Applicant that provides access to the NTBG facility in Lawai Valley and to the mauka adjacent Kukui'ula property. Vehicular access through the secured NTBG gate is accessible only by authorized personnel of the NTBG and the Applicant.

Lawai Road and the private paved access road to the west are used by the NTBG to transport visitors in trams from the NTBG Visitor Center located east of the Project Site near Spouting Horn Park to the NTBG facility located in Lawai Valley northwest of the Project Site. The NTBG trams operate seven days a week and depart the NTBG Visitor Center on an hourly basis during the daytime hours.

Aside from use by the NTBG trams, existing vehicular traffic along the portion of Lawai Road within the Project Site is relatively low, with most of the traffic attributed to motorists accessing the coastline area for recreational purposes.



CONSERVATION DISTRICT IMPROVEMENTS

KUKUI'ULA

Koloa, Kauai, Hawaii

Existing Access

Figure 3-3

Prepared for:

Kukui'ula Development Company (Hawaii), LLC

Prepared by:

Wilson Okamoto Corporation

Impacts and Mitigation Measures

Short-term impacts on traffic in the immediate Project vicinity will result from the construction of the proposed improvements. Construction access to the Project Site will be from the west along an unpaved road within the mauka Kukui'ula property, and then through the NTBG gate. During construction of the turf grass trail, new gravel parking areas, and the clearing/removal of existing vegetation and re-vegetation activities, the makai portion of Lawai Road will be coned off in the vicinity where the Project activities are occurring, thereby allowing through vehicular access along the mauka portion of the road. Traffic control will be provided by flagmen, signage or security personnel, as needed. During the duration of the resurfacing activities of the private road west of the NTBG gate, coordination will be undertaken with the NTBG to temporarily re-route its tram route along an existing unpaved road within the makai portion of the Kukui'ula property which connects to the NTBG Visitor Center parcel to the east and the existing NTBG tram road to the west, mauka of the Project Site.

As the Project improvements will be conducted in three (3) phases, the construction traffic impacts will be temporary in nature and will shift to different locations within the Project Site as the previous phase is completed.

No significant long-term impacts on vehicular traffic associated with the operation of the proposed Project improvements are anticipated due to the passive nature of the improvements.

3.14 Socio-Economic Characteristics

The Project Site is located just to the west of the Poipu Census Tract ("CT") 406. The following is an overview of the socio-economic characteristics of the Poipu CT.

Population and Housing: Based on the 2000 Census, the population in Poipu has increased just slightly since the 1990 Census. In 1990, Poipu (CT 406) had a population of 1,068 and in 2000 the population had increased to 1,075. During the same 10-year period, the population of the Island of Kauai had increased 14.2 percent, from 51,177 to 58,463. The slight population change in Poipu is indicative of stability.

- The median age of the population in Poipu is higher than on Kauai at 48.6 versus 38.4;
- By racial mix, there are more Whites and less Asians and Native Hawaiian and other Pacific Islanders in Poipu than Kauai;
- Households in Poipu have a smaller average size, but slightly higher married-couple families and more non-family householders than Kauai; and
- There are substantially more vacant units in Poipu than Kauai.

Economy: According to the 2000 Census, the labor force for the Poipu CT was 59.7 percent, compared to 63.1 percent for Kauai. The median household income for the Poipu CT was $51,442, which is greater than the median household income for Kauai which was $45,020. The per capita income for Poipu was $35,800, which is higher than the $20,301 per capita income for Kauai.

Impacts and Mitigation Measures

In the short term, the Project will confer positive benefits in the local area. Direct economic benefits will result from construction expenditures both through the purchase of material from local suppliers and through the employment of local labor, thereby stimulating that sector of the

economy. Indirect economic benefits may include benefits to local retailing businesses resulting from construction activities.

Construction activities associated with the proposed Project will create some adverse short-term impacts such as temporary disruption of traffic, unavoidable noise impacts, and air quality impacts in the vicinity of the Project Site. The construction contractor(s) will be required to mitigate potential vehicular traffic impacts through appropriate traffic control measures (see Section 3.13 Traffic). Unavoidable construction noise impacts will be mitigated by complying with the provisions of the State DOH Administrative Rules, Title 11, Chapter 46, Community Noise Control (see Section 3.9 Noise). Potential air quality impacts during construction of the proposed Project will be mitigated by complying with the State DOH Administrative Rules, Title 11, Chapter 60, Air Pollution Control (see Section 3.8 Air Quality).

There are no significant adverse long-term socio-economic impacts anticipated with the operation of the proposed Project. In the long-term, the proposed Project improvements will provide public pedestrian access to the shoreline areas west of Spouting Horn Park and restore and visually enhance the coastal views of the area.

3.15 Police, Fire and Ambulance Service

Police protection service in the Project area is provided by the County Police Department's Waimea District. The Waimea Police Station is located to the northwest of the Project Site along Kaumualii Highway at the intersection with Menehune Road. There is also a mini police substation located approximately 3.0 miles to the east of the Project Site in Poipu Kai at the Pe'e Road/Poipu Road intersection.

Fire protection service for the Project area is provided by the County's Koloa Fire Station located at the intersection of Poipu Road and Lawai Road, approximately 1.8 miles east of the Project Site.

Emergency medical service in the Project area is provided by American Medical Response, a private ambulance service contracted by the County, located on Poipu Road across from the Koloa Fire Station, approximately 1.8 miles east of the Project Site.

Impacts and Mitigation Measures

Construction of the Project improvements will not adversely impact the response time of police, fire and ambulance services in the nearby vicinity since Lawai Road will remain passable during the duration of construction activities.

No significant long-term impacts on police, fire and ambulance services associated with the operation of the Project are anticipated due to the passive nature of the improvements.

3.16 Recreational Facilities and Public Access

Existing County parks in the region include the Anne Knudsen District Park, Waikomo Neighborhood Park and Weliweli Neighborhood Park. County beach parks in the region include Poipu Beach Park and Brennecke Beach Park in Poipu and the Spouting Horn Park adjacent to and east of the Project Site. The State's Kukui'ula Small Boat Harbor is located to the east of the Project Site with facilities including a boat launching ramp, pier, parking lot, and comfort

station. The region has two (2) golf courses, including the Kiahuna Golf Club located to the east of the Project Site and the Poipu Bay Golf Course located further to the east in Poipu.

Recreational activities which occur within the Project Site include shoreline fishing along the rocky coastline.

An existing coastal trail complex consisting of a discontinuous historic trail traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site, paralleling the coastline, as shown on Figure 3-3. This shoreline trail is a mix of modern and historic sections, with large sections of the trail currently used by the public for coastal access. For most of its length, the trail is a dirt path.

Impacts and Mitigation Measures

During construction of the Project improvements, recreational use and public access to and along the coastline within the Project Site will remain unaffected, except for specific areas where the construction activities are occurring. Since the Project improvements will be constructed in phases, the construction activities will shift to different locations within the Project Site as the previous phase is completed, thereby allowing continued recreational use and public access to the remaining areas within the site.

In the long-term, the proposed Project will enhance the recreational use of the Project area by providing public pedestrian access to the shoreline areas west of Spouting Horn Park. The proposed scenic public pedestrian trail along the makai side of the Lawai Road right-of-way will be developed as part of the Kukui'ula development's comprehensive path and trail system which will be open to the general public. A future trail connection mauka of Lawai Road and the western end of the proposed pedestrian trail will be provided to the adjacent Kukui'ula development.

New gravel parking areas will be provided in three (3) locations currently used for parking by the public along the unpaved makai shoulder within the Lawai Road right-of-way, adjacent to the proposed public pedestrian trail. Public parking for approximately 10 vehicles total will be provided within these enhanced parking areas.

The Project improvements will include the preservation of the existing historic coastal trail complex that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site.

3.17 Solid Waste Disposal

The County Department of Public Works ("DPW") maintains an Island-wide solid waste collection and disposal system. The existing Kekaha Landfill is the primary disposal site for solid waste on the Island. The County is currently seeking a lateral extension of the Kekaha Landfill which could extend its capacity by about six (6) years, and is also seeking another landfill site.

Impacts and Mitigation Measures

No significant impacts to solid waste disposal are anticipated from the construction and operation of the proposed Project. During initial clearing and removal of the existing alien (non-native) vegetation within the Project Site, the vegetation will be transported to a green waste site within the adjacent Kukui'ula property for composting.

Operation of the Project will generate little solid waste and, therefore, will not impact the Kekaha Landfill. During maintenance operations of the Project improvements, the green waste material accumulated from the vegetated areas will be transported to an off-site location for composting.

3.18 Utilities

3.18.1 Water System

The land comprising the adjacent Kukui'ula development has been irrigated during most of the last century with water from the Lawai Stream, using an irrigation system owned by McBryde Sugar Company, Limited. A major portion of the water is now controlled by the Applicant. The existing non-potable water system in the Project vicinity includes the irrigation system, irrigation wells, and eight (8) reservoirs located mauka of the Project Site and the Kukui'ula development. The irrigation system includes the Lawai Intake and the Lawai Intake Ditch. The irrigation system inflow averages approximately 4 million gallons per day ("mgd"), and may be supplemented by the Poeleele Well and the Kauai Pine Well which can provide an estimated total of 6 mgd.

An existing 2-inch PVC waterline is located within the portion of Lawai Road within the northeast corner of the Project Site and extends eastward along the road.

Impacts and Mitigation Measures

No significant impacts are anticipated on the existing water system in the Project vicinity as a result of the construction and operation of the proposed Project improvements. Non-potable water will be used to irrigate the proposed turf grass pedestrian trail and re-vegetated areas within the Project Site. The source of non-potable water will be the surface water from the existing irrigation system owned by the McBryde Sugar Company, Limited located mauka of the Project Site. Operation of the Project improvements will not result in a significant increase in water consumption demand. The average daily water demand for irrigation of the re-vegetated areas within the Project Site is estimated to be approximately 9,650 gallons per day ("gpd"), with the peak daily water demand estimated to be approximately 14,455 gpd.

The non-potable irrigation water will be conveyed to the Project Site via a 3-inch diameter PVC below-grade main irrigation line that will extend makai from the adjacent Kukui'ula development and across the NTBG tram road within the western portion of the Project Site. From this point, the main irrigation line will extend east approximately 1,600 linear feet along the makai side of the NTBG tram Road and Lawai Road.

Irrigation of the proposed turf grass pedestrian trail will consist of a permanent below-grade spray irrigation system that will include installation of a 2-inch diameter PVC line located along the entire length of the makai edge of the trail. The 2-inch diameter irrigation line will connect to the 3-inch diameter below-grade main irrigation line to be installed along Lawai Road.

Irrigation for the establishment of the re-vegetated areas within the Project Site, including the proposed test area, will include installation of a temporary aboveground drip irrigation system consisting of a 1-inch diameter poly-urethane irrigation line that will ultimately connect to the 3-inch below-grade main irrigation line. A network of temporary aboveground ¼-inch diameter poly-urethane drip tubing will connect to the 1-inch diameter poly-urethane line to distribute irrigation water to all of the individual new plants. Following establishment of the new vegetation, the temporary irrigation system will be removed.

3.18.2 Drainage System

A drainage report was prepared for the proposed Project improvements by Austin, Tsutsumi & Associates, Inc. in December 2007. The drainage report is included in Appendix G and is summarized below. The purpose of the drainage report is to describe how the proposed Project improvements meet the requirements of the County's Stormwater Runoff System Manual (2001).

Currently, storm water runoff enters the Project Site from the off-site mauka Kukui'ula property and continues makai through the Project Site, eventually running into the ocean at low spots within the site. Within the Project Site, the existing storm water runoff rate for the 2-year, 1-hour storm event is 9.69 cubic feet per second ("cfs").

The existing and proposed drainage system for the Kukui'ula development was assessed in the Drainage System Master Plan Report for Kukui'ula (March 2003) and the Supplement No. 2 to the Drainage System Master Plan Report for Kukui'ula (March 2005). That report takes into account the storm water runoff patterns and runoff rates from the Kukui'ula development and how they will be handled. The Kukui'ula Drainage System Master Plan Report, as supplemented, was approved by the County DPW on April 25, 2006.

Impacts and Mitigation Measures

Generally, the proposed Project improvements will allow existing storm water runoff patterns to be maintained. The planned off-site improvements within the Kukui'ula development will help to improve and control the storm water runoff that currently enters the Project Site. The Kukui'ula development will include vegetated buffers along its boundaries with drainage basins, swales and landscaping to control the existing erosion.

It is noted that for drainage purposes, the drainage report for the Project Site assumes a gravel surface for the proposed pedestrian trail. For mitigation purposes, however, the drainage report assumes a turf grass trail.

The proposed Project improvements will result in nominal change to the amount of hard surfaces, although the surfaces will remain porous (i.e., compacted gravel). Since the proposed resurfacing activities of the NTBG tram road will occur over the existing asphalt-paved surface, there is anticipated to be no increase in the impervious surface area or storm water runoff. In resurfacing the tram road, the contractor will be required to brush clean the existing pavement surface and to control dust through water spraying. Following preparation of the existing pavement surface, a tack layer of asphaltic emulsion will be spread over the surface to promote bonding between the existing and new pavement prior to the new pavement being constructed. From the standpoint of vegetative cover, the proposed re-vegetation within the Project Site will improve the area by covering areas which are currently barren, exposed and rutted earth.

The overall improvements within the Project Site will not significantly change the drainage area characteristics, as the only change in surface treatment will be the addition of a pervious gravel path and gravel parking areas. The proposed re-vegetated areas will actually improve existing drainage infiltration and sediment control as planting is added or restored, and areas will be cleared and maintained.

The proposed Project improvements will result in a total storm water runoff rate of 10.73 cfs for the 2-year, 1-hour storm event. This represents an increase of 1.04 cfs in storm water runoff from existing conditions.

It is noted that much of the storm water runoff from the mauka Kukui'ula property that currently runs into the ocean will be detained within the Kukui'ula development with the planned improvements for that site. Storm water discharge from the Kukui'ula development will be reduced to less than existing conditions, which will greatly contribute to the prevention of erosion that currently occurs within the Project Site. Therefore, although the improvements within the Project Site will result in a slight increase in the storm water runoff rate from existing conditions, overall, there will be a net decrease in storm water runoff from the Project Site due to the planned detention of runoff from the Kukui'ula development. As indicated in the Drainage Master Plan Report for Kukui'ula, the 100-year, 24-hour storm water runoff rate from the planned Kukui'ula development will be reduced from an existing peak runoff of 5,090 cfs to a proposed peak runoff of 4,369 cfs due to the planned increased detention volume.

To address the potential of erosion and sediment due to storm water runoff, temporary and permanent erosion control measures and BMPs will be implemented prior to, during and following construction of the proposed Project improvements.

Potential water quality impacts to the near shore coastal waters during construction of the Project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs.

During construction of the turf grass trail, rolled fiber filtration tubing will be installed adjacent to the makai side of the trail alignment along its entire length to prevent sediment-laden storm water runoff from flowing makai. The rolled fiber filtration tubing will remain in place until the turf grass is established within the trail. The hydro-seeding of the trail to establish the turf grass will also help to control erosion.

During clearing and removal of the existing vegetation and re-vegetation activities within the rocky coastal area makai of Lawai Road and the NTBG tram road, silt fencing will be installed along the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. Rolled fiber filtration tubing will also be installed at regular intervals in the area between the turf grass trail and the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. The silt fence and rolled fiber filtration tubing will remain in place until the new vegetation is established.

The phasing of the implementation of the Project improvements will also minimize the overall amount of exposed surfaces and ground disturbance at a given time, thereby further reducing the amount of storm water runoff that may occur.

As previously indicated, Project-related construction vehicles will access the Project Site from the west along an unpaved road within the Kukui'ula property, and then through the NTBG gate. A gravel pad and wash down area will be placed at the planned construction entrance to the Project Site to prevent tracking of sediment onto the NTBG tram road and Lawai Road.

Development of the Project improvements, including the re-vegetation areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

In summary, the proposed Project improvements will produce no adverse effects from storm water runoff to the adjacent coastal waters and adjacent properties. The projected small increase in storm water runoff from the Project Site will be offset by the projected large reduction of storm water runoff from the adjacent mauka Kukui'ula development. Therefore, the overall rate of storm water runoff into the ocean from the Project Site will be less than pre-development levels. In addition, the implementation of temporary and permanent erosion control measures and BMPs prior to, during and following Project implementation will ensure that storm water runoff quality will be maintained and will not degrade the surrounding environment.

4. RELATIONSHIP TO LAND USE PLANS AND POLICIES

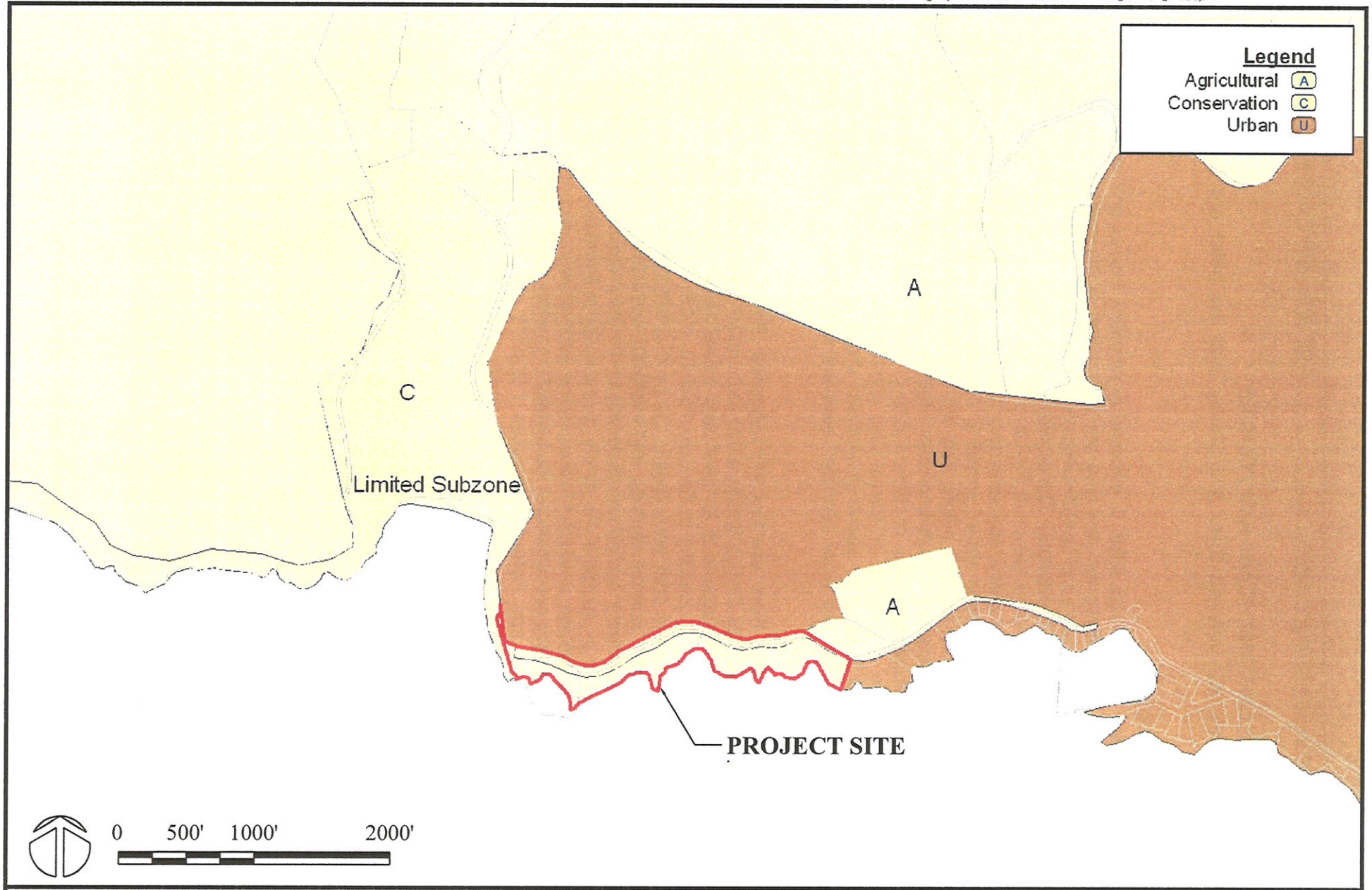
The Project's consistency with relevant State and County land use plans and policies is discussed below.

4.1 State Land Use District

The State Land Use Law, Chapter 205, HRS, is intended to preserve, protect and encourage the development of lands in the State for uses that are best suited to the public health and welfare of Hawaii's people. The State Land Use Commission classifies all lands in the State into four (4) land use districts: Urban, Agricultural, Conservation, and Rural. The Project Site is within the State Conservation District as shown in Figure 4-1. As stated in Chapter 205-2 (e), HRS, "*Conservation districts shall include areas necessary for protecting watersheds and water sources; preserving scenic and historic areas; providing park lands, wilderness, and beach reserves; conserving indigenous or endemic plants, fish, and wildlife, including those which are threatened or endangered; preventing floods and soils erosion; forestry; open space areas whose existing openness, natural conditions, or present state of use, if retained, would enhance the present or potential value of abutting or surrounding communities, or would maintain or enhance the conservation of natural or scenic resources; areas of value for recreational purposes; other related activities; and other permitted uses not detrimental to a multiple use conservation concept.*"

Within the Conservation District, there are four (4) subzones: Protective (P), Limited (L), Resource (R), and General (G). The Project Site is within the Limited (L) subzone as shown in Figure 4-1. The objective of this subzone is to "*limit uses where natural conditions suggest constraints on human activities.*" According to Section 13-5-12, HAR, Conservation District, State DLNR, the Limited (L) subzone shall encompass: *"(1) Land susceptible to floods and soil erosion; lands undergoing major erosion damage and requiring corrective attention by the county , state, or federal governments; and (2) Lands necessary for the protection of the health, safety, and welfare of the public by reason of the land's susceptibility to inundation by tsunami, flooding, volcanic activity or landslides, or which have a general slope of forty percent or more."* The proposed Project improvements are allowed in the Limited (L) subzone and require a permit from the State Board of Land and Natural Resources ("BLNR") (Section 13-5-23, HAR, Conservation District, State DLNR). A CDUA has been prepared for the proposed improvements and is being concurrently processed by the DLNR OCCL, the Approving Agency for the EA.

The proposed Project is consistent with the Conservation District designation. The Project will enhance the recreational use of the Project area by providing public pedestrian access to the shoreline areas west of Spouting Horn Park. The proposed vegetation clearing/removal and re-vegetation improvements within the Project Site will restore and visually enhance the coastal views of the area. With the proposed vegetation clearing and re-vegetation activities, the currently overgrown, alien (non-native) vegetation makai of Lawai Road and the NTBG tram road will be replaced with native, endemic and indigenous species common to the area or Polynesian-introduced which will improve and complement the scenic and natural environment of the area. The proposed re-vegetation of the coastal lands within the Project Site with low-growing native shrubs and groundcover plantings will help to maintain and preserve the scenic public views to and along the coastline. The scenic environment will be further enhanced with the visual greenbelt to be provided by the proposed turf grass pedestrian trail along the makai side of the Lawai Road right-of-way.



CONSERVATION DISTRICT IMPROVEMENTS
KUKUI'ULA
Koloa, Kauai, Hawaii

Existing State Land Use Districts and Conservation District Subzones Map

Figure 4-1

Prepared for:
Kukui'ula Development Company (Hawaii), LLC

Prepared by:
Wilson Okamoto Corporation

The Project improvements will include the preservation of an existing coastal trail complex which consists of a discontinuous historic trail that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site, paralleling the coastline, and the preservation of two (2) existing rock shelter cave sites located along the coastal cliff within the eastern portion of Area One. The two (2) rock shelter sites were listed on the State Register of Historic Places on September 30, 1988 and remain on the State Register. The preservation of these three (3) sites will be in accordance with a Preservation Plan prepared in December 2004 and approved by the SHPD in March 2005 and the KHPRC in December 2004. Long-term preservation of these three (3) sites will be passive preservation in the form of avoidance and conservation. Further discussion of the coastal trail complex and the two (2) rock shelter cave sites and the preservation of these sites is included in Section 3.10 Historic and Archaeological Resources of this EA.

Removal of the existing alien (non-native) vegetation and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced is anticipated to have a beneficial impact on encouraging the proliferation of native plants presently limited in distribution within and adjacent to the Project Site. The removal of the invasive alien plant species that may currently be covering most of the Wedge-tailed Shearwater colony that may be located within the Project Site will greatly enhance the usability of the area for seabird nesting. Removal of the existing cactus, large ironwood trees and dense Guinea grass will also help to facilitate the Wedge-tailed Shearwaters to come and go from their nesting colonies with greater ease and safety.

The proposed Project is consistent with the objective of the Limited (L) subzone. According to the FIRM prepared by FEMA, the majority of the Project Site mauka of the inland edge of the coastal embankment is located within Zone "X", "Areas determined to be outside the 0.2% annual chance floodplain". A sliver of land adjacent to and makai of this area is designated Zone "X", "Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood." An area within the easternmost portion of the Project Site, makai of the Zone "X" flood zone, is designated Zone "AE", "Special flood hazard areas subject to inundation by the 1% annual chance flood with base flood elevations determined". The base flood elevation for the "AE" zone within this portion of the Project Site is 13 feet above msl. The makai-most portions of the Project Site which are mostly located makai of the coastal embankment are designated Zone "VE", "Special flood hazard areas subject to inundation by the 1% annual chance flood; coastal flood zone with velocity hazard (wave action); with base flood elevations determined". The base flood elevations for the "VE" zone within this portion of the Project Site are between 12 and 13 feet above msl.

Construction and operation of the proposed Project are not anticipated to result in flooding of the Project Site or lower elevation properties. All proposed Project improvements, except for various areas where selective vegetation removal will occur, are located outside and mauka of the designated flood zones. The proposed selective vegetation removal activities within the designated flood zones will be undertaken in full compliance with the flood plain management requirements of the County. No structures will be built within the Project Site as part of the proposed improvements.

Development of the Project improvements, including the re-vegetation areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

4.2 Hawaii State Plan

Hawaii State Plan: The Hawaii State Plan, embodied in Chapter 226, HRS, serves as a guide for goals, objectives, policies, and priorities for the State. The State Plan provides a basis for determining priorities, allocating limited resources, and improving coordination of State and County plans, policies, programs, projects, and regulatory activities. The proposed Project is consistent with the following State Plan objectives and policies.

Section 226-11 Objectives and policies for the physical environment – land-based, shoreline, and marine resources.
(b)(2) Ensure compatibility between land-based and water-based activities and natural resources and ecological systems.
(b)(3) Take into account the physical attributes of areas when planning and designing activities and facilities.

Section 226-13 Objectives and policies for the physical environment – land, air, and water quality.
(b)(3) Promote effective measures to achieve desired quality in Hawaii's surface, ground, and coastal waters.

No grading activities will be undertaken in conjunction with the construction of the Project improvements. Minimal ground disturbance will occur to till in soil along the proposed trail alignment to initiate establishment of the turf grass, to install the permanent below-grade irrigation system for the main irrigation line and the turf grass trail, to remove the existing alien (non-native) vegetation and re-vegetate the area, and to install the temporary aboveground irrigation system for the re-vegetated areas.

Potential water quality impacts to the near shore coastal waters during construction of the Project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs.

During construction of the turf grass trail, rolled fiber filtration tubing will be installed adjacent to the makai side of the trail alignment along its entire length to prevent sediment-laden storm water runoff from flowing makai. The rolled fiber filtration tubing will remain in place until the turf grass is established within the trail. The hydro-seeding of the trail to establish the turf grass will also help to control erosion.

During clearing and removal of the existing vegetation and re-vegetation activities within the rocky coastal area makai of Lawai Road and the NTBG tram road, silt fencing will be installed along the makai boundary of the re-vegetated areas to prevent sediment-laden storm water

runoff from flowing makai. Rolled fiber filtration tubing will also be installed at regular intervals in the area between the turf grass trail and the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. The silt fence and rolled fiber filtration tubing will remain in place until the new vegetation is established.

Since the proposed resurfacing activities of the NTBG tram road will occur over the existing asphalt-paved surface, there is anticipated to be no increase in the impervious surface area or storm water runoff. In resurfacing the tram road, the contractor will be required to brush clean the existing pavement surface and to control dust through water spraying. Following preparation of the existing pavement surface, a tack layer of asphaltic emulsion will be spread over the surface to promote bonding between the existing and new pavement prior to the new pavement being constructed.

The phasing of the implementation of the Project improvements will also minimize the overall amount of exposed surfaces and ground disturbance at a given time, thereby further reducing the amount of storm water runoff that may occur. A gravel pad and wash down area will be placed at the planned construction entrance to the Project Site to prevent tracking of sediment onto Lawai Road and the NTBG tram road.

Construction activities associated with the proposed improvements will not introduce any materials which could adversely affect groundwater.

Development of the proposed Project improvements will produce no adverse effects from storm runoff to the adjacent coastal waters and adjacent properties. As discussed in Section 3.18.2 Drainage System of this EA, the projected small increase in storm water runoff from the Project Site will be offset by the large reduction of storm water runoff from the adjacent mauka Kukui'ula development due to the planned detention of runoff from that development. Therefore, the overall rate of storm water runoff into the ocean from the Project Site will be less than pre-development levels. Development of the Project improvements, including the re-vegetation areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

The proposed method of fertilization of the new vegetation and turf grass trail within the Project Site, which will be applied by directly injecting biofertilizer into the irrigation water and through the irrigation system, will substantially reduce the amount of fertilizer that would otherwise be required by up to 70 to 90 percent, thereby largely eliminating fertilizer runoff. The proposed application of appropriate herbicides to the cut vegetation stumps at a recommended concentration level with a wipe-on or brush-on technique will minimize the drift overspray that would otherwise occur with a spray-on technique.

With the use of large equipment during construction and long-term maintenance operations of the Project improvements, the contractors will be required to have available on-site granular absorbent materials to be used for immediate clean-up in the event of accidental fuel or hydraulic spills from such equipment. The contractors will also be required to have available on-site containers for the storage of the spent spill response materials, which will then be required to be properly disposed of at an off-site location.

Section 226-12 Objective and policies for the physical environment – scenic, natural beauty, and historic resources.

(b)(1) Promote the preservation and restoration of significant natural and historic resources.
(b)(3) Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.

The Project improvements will include the preservation of an existing coastal trail complex which consists of a discontinuous historic trail that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site, paralleling the coastline, and the preservation of two (2) existing rock shelter cave sites located along the coastal cliff within the eastern portion of Area One. The two (2) rock shelter sites were listed on the State Register of Historic Places on September 30, 1988 and remain on the State Register. The preservation of these three (3) sites will be in accordance with a Preservation Plan prepared in December 2004 and approved by the SHPD in March 2005 and the KHPRC in December 2004. Long-term preservation of these three (3) sites will be passive preservation in the form of avoidance and conservation. Further discussion of the coastal trail complex and the two (2) rock shelter cave sites and the preservation of these sites is included in Section 3.10 Historic and Archaeological Resources of this EA.

The proposed vegetation clearing/removal and re-vegetation improvements within the Project Site will restore and visually enhance the coastal views of the area. With the proposed vegetation clearing and re-vegetation activities, the currently overgrown, alien (non-native) vegetation makai of Lawai Road and the NTBG tram road will be replaced with native, endemic and indigenous species common to the area or Polynesian-introduced which will improve and complement the scenic and natural environment of the area. The proposed re-vegetation of the coastal lands within the Project Site with low-growing native shrubs and groundcover plantings will help to maintain and preserve the scenic public views to and along the coastline. The scenic environment will be further enhanced with the visual greenbelt to be provided by the proposed turf grass pedestrian trail along the makai side of the Lawai Road right-of-way.

4.3 Hawaii Coastal Zone Management Program

The National Coastal Zone Management Program was created through passage of the Coastal Zone Management Act of 1972. Hawaii's Coastal Zone Management Program, adopted as Chapter 205A, HRS, provides a basis for protecting, restoring and responsibly developing coastal communities and resources. A discussion of the Project's consistency with the objectives and policies of the Coastal Zone Management Program is provided below.

(1) *Recreational Resources*

Objective:
(A) Provide coastal recreational opportunities accessible to the public.

Policies
(A) Improve coordination and funding of coastal recreational planning and management; and
(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 use 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.

(vii) Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and

(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.

The proposed Project will enhance the recreational use of the Project area by providing public pedestrian access to the shoreline areas west of Spouting Horn Park. The proposed scenic public pedestrian trail along the makai side of the Lawai Road right-of-way will be developed as part of the Kukui'ula development's comprehensive path and trail system which will be open to the general public. A future trail connection mauka of Lawai Road and the western end of the proposed pedestrian trail will be provided to the adjacent Kukui'ula development.

New gravel parking areas will be provided in three (3) locations currently used for parking by the public along the unpaved makai shoulder within the Lawai Road right-of-way, adjacent to the proposed public pedestrian trail. Public parking for approximately ten (10) vehicles total will be provided within these enhanced parking areas.

The Project improvements will include the preservation of the existing historic coastal trail complex that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site.

Potential water quality impacts to the near shore coastal waters during construction of the Project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be

instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs, such as silt fencing and rolled fiber filtration tubing to prevent sediment-laden storm water runoff from flowing makai.

Development of the proposed Project improvements will produce no adverse effects from storm runoff to the adjacent coastal waters and adjacent properties. As discussed in Section 3.18.2 Drainage System of this EA, the projected small increase in storm water runoff from the Project Site will be offset by the large reduction of storm water runoff from the adjacent mauka Kukui'ula development due to the planned detention of runoff from that development. Therefore, the overall rate of storm water runoff into the ocean from the Project Site will be less than pre-development levels. Development of the Project improvements, including the re-vegetation areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

(2) Historic Resources

Objective:

(A) 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.

Policies:

(A) Identify and analyze significant archaeological resources;

(B) Maximize information retention through preservation of remains and artifacts or salvage operations; and

(C) Support state goals for protection, restoration, interpretation, and display of historic resources.

The Project improvements will include the preservation of an existing coastal trail complex which consists of a discontinuous historic trail that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site, paralleling the coastline, and the preservation of two (2) existing rock shelter cave sites located along the coastal cliff within the eastern portion of Area One. The two (2) rock shelter sites were listed on the State Register of Historic Places on September 30, 1988 and remain on the State Register. The preservation of these three (3) sites will be in accordance with a Preservation Plan prepared in December 2004 and approved by the SHPD in March 2005 and the KHPRC in December 2004. Long-term preservation of these three (3) sites will be passive preservation in the form of avoidance and conservation. Further discussion of the coastal trail complex and the two (2) rock shelter cave sites and the preservation of these sites is included in Section 3.10 Historic and Archaeological Resources of this EA.

(3) Scenic and Open Space Resources

Objective:

(A) Protect, preserve, and where desirable, restore or improve the quality of coastal scenic and open space resources.

Policies:

(A) Identify valued scenic resources in the coastal zone management area;

(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;

(C) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and

(D) Encourage those developments which are not coastal dependent to locate in inland areas.

The proposed vegetation clearing/removal and re-vegetation improvements within the Project Site will restore and visually enhance the coastal views of the area. With the proposed vegetation clearing and re-vegetation activities, the currently overgrown, alien (non-native) vegetation makai of Lawai Road and the NTBG tram road will be replaced with native, endemic and indigenous species common to the area or Polynesian-introduced which will improve and complement the scenic and natural environment of the area. The proposed re-vegetation of the coastal lands within the Project Site with low-growing native shrubs and groundcover plantings will help to maintain and preserve the scenic public views to and along the coastline. The scenic environment will be further enhanced with the visual greenbelt to be provided by the proposed turf grass pedestrian trail along the makai side of the Lawai Road right-of-way.

(4) Coastal Ecosystems

Objective:

(A) Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

Policies:

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

(B) Improve the technical basis for natural resource management;

(C) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;

(D) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and

(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.

No grading activities will be undertaken in conjunction with the construction of the Project improvements. Minimal ground disturbance will occur to till in soil along the proposed trail alignment to initiate establishment of the turf grass, to install the permanent below-grade irrigation system for the main irrigation line and the turf grass trail, to remove the existing alien (non-native) vegetation and re-vegetate the area, and to install the temporary aboveground irrigation system for the re-vegetated areas.

Potential water quality impacts to the near shore coastal waters during construction of the Project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs.

During construction of the turf grass trail, rolled fiber filtration tubing will be installed adjacent to the makai side of the trail alignment along its entire length to prevent sediment-laden storm water runoff from flowing makai. The rolled fiber filtration tubing will remain in place until the turf grass is established within the trail. The hydro-seeding of the trail to establish the turf grass will also help to control erosion.

During clearing and removal of the existing vegetation and re-vegetation activities within the rocky coastal area makai of Lawai Road, silt fencing will be installed along the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. Rolled fiber filtration tubing will also be installed at regular intervals in the area between the turf grass trail and the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. The silt fence and rolled fiber filtration tubing will remain in place until the new vegetation is established.

Since the proposed resurfacing activities of the NTBG tram road will occur over the existing asphalt-paved surface, there is anticipated to be no increase in the impervious surface area or storm water runoff. In resurfacing the tram road, the contractor will be required to brush clean the existing pavement surface and to control dust through water spraying. Following preparation of the existing pavement surface, a tack layer of asphaltic emulsion will be spread over the surface to promote bonding between the existing and new pavement prior to the new pavement being constructed.

The phasing of the implementation of the Project improvements will also minimize the overall amount of exposed surfaces and ground disturbance at a given time, thereby further reducing the amount of storm water runoff that may occur. A gravel pad and wash down area will be placed at the planned construction entrance to the Project Site to prevent tracking of sediment onto Lawai Road and the NTBG tram road.

Development of the proposed Project improvements will produce no adverse effects from storm runoff to the adjacent coastal waters and adjacent properties. As discussed in Section 3.18.2 Drainage System of this EA, the projected small increase in storm water runoff from the Project Site will be offset by the large reduction of storm water runoff from the adjacent mauka Kukui'ula development due to the planned detention of runoff from that development. Therefore, the overall rate of storm water runoff into the ocean from the Project Site will be less than pre-development levels. Development of the Project improvements, including the re-vegetation areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

The proposed method of fertilization of the new vegetation and turf grass trail within the Project Site, which will be applied by directly injecting biofertilizer into the irrigation water and through the irrigation system, will substantially reduce the amount of fertilizer that would otherwise be required by up to 70 to 90 percent, thereby largely eliminating fertilizer runoff. The proposed application of appropriate herbicides to the cut vegetation stumps at a recommended concentration level with a wipe-on or brush-on technique will minimize the drift overspray that would otherwise occur with a spray-on technique.

With the use of large equipment during construction and long-term maintenance operations of the Project improvements, the contractors will be required to have available on-site granular absorbent materials to be used for immediate clean-up in the event of accidental fuel or hydraulic spills from such equipment. The contractors will also be required to have available on-site containers for the storage of the spent spill response materials, which will then be required to be properly disposed of at an off-site location.

(5) Economic Uses

Objective:

(A) Provide public or private facilities and improvements important to the State's economy in suitable locations.

Policies:

(A) Concentrate coastal dependent development in appropriate areas;

(B) Ensure that coastal dependent developments such as harbors and ports, and coastal related development such as visitor facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and

(C) Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:

(i) Use of presently designated locations is not feasible;

(ii) Adverse environmental effects are minimized; and

(iii) The development is important to the State's economy.

The proposed Project improvements will be developed in conjunction with the planned Kukui'ula development, a resort-residential project located on approximately 1,002 acres to be developed by the Applicant. The proposed improvements are intended to fulfill Condition No. 15. f) of Zoning Ordinance No. PM-2004-370 for the Kukui'ula development which requires that the Applicant provide public pedestrian access to the shoreline areas west of Spouting Horn Park owned by the Applicant.

(6) Coastal Hazards

Objectives:

(A) Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.

Policies

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

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

(C) Ensure that developments comply with requirements of the Federal Flood Insurance Program;

(D) Prevent coastal flooding from inland projects.

According to the FIRM prepared by FEMA, the majority of the Project Site mauka of the inland edge of the coastal embankment is located within Zone "X", "Areas determined to be outside the 0.2% annual chance floodplain". A sliver of land adjacent to and makai of this area is designated Zone "X", "Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood." An area within the easternmost portion of the Project Site, makai of the Zone "X" flood zone, is designated Zone "AE", "Special flood hazard areas subject to inundation by the 1% annual chance flood with base flood elevations determined". The base flood elevation for the "AE" zone within this portion of the Project Site is 13 feet above msl. The makai-most portions of the Project Site which are mostly located makai of the coastal embankment are designated Zone "VE", "Special flood hazard areas subject to inundation by the 1% annual chance flood; coastal flood zone with velocity hazard (wave action); with base flood elevations determined". The base flood elevations for the "VE" zone within this portion of the Project Site are between 12 and 13 feet above msl.

Construction and operation of the proposed Project are not anticipated to result in flooding of the Project Site or lower elevation properties. All proposed Project improvements, except for various areas where selective vegetation removal will occur, are located outside and mauka of the designated flood zones. The proposed selective vegetation removal activities within the designated flood zones will be undertaken in full compliance with the flood plain management requirements of the County. No structures will be built within the Project Site as part of the proposed improvements.

(7) Managing Development

Objective:

(A) Improve the development review process, communication, and public participation in the management of coastal resource and hazards.

Policies:

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

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

(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.*

Government agencies, organizations and the general public are being notified of the proposed Project and provided an opportunity to comment on the Project through the environmental review and land use permit approvals process. Short- and long-term impacts which may result from the construction and operation of the proposed Project have been assessed in this EA.

(8) *Public Participation*

Objective:

(A) *Stimulate public awareness, education, and participation in coastal management.*

Policies:

(A) *Promote public involvement in coastal zone management processes;*

(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

(C) *Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.*

Government agencies, organizations and the general public are being notified of the proposed Project and provided an opportunity to comment on the Project through the environmental review and land use permit approvals process.

(9) *Beach Protection*

Objective:

(A) *Protect beaches for public use and recreation.*

Policies:

(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;

(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

(C) Minimize the construction of public erosion-protection structures seaward of the shoreline.

The portion of the Project Site makai of Lawai Road and the NTBG tram road consists of undeveloped rocky coastline vegetated primarily with alien species. There are no beach areas within the Project Site. Existing public recreational uses within the Project Site will remain unaffected by the proposed improvements. There will be no structures or erosion-protection structures constructed as part of the Project improvements.

(10) Marine Resources

Objective:

(A) Promote the protection, use, and development of marine and coastal resources to assure their sustainability.

Policies:

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

(B) Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;

(C) Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;

(D) Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and

(E) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

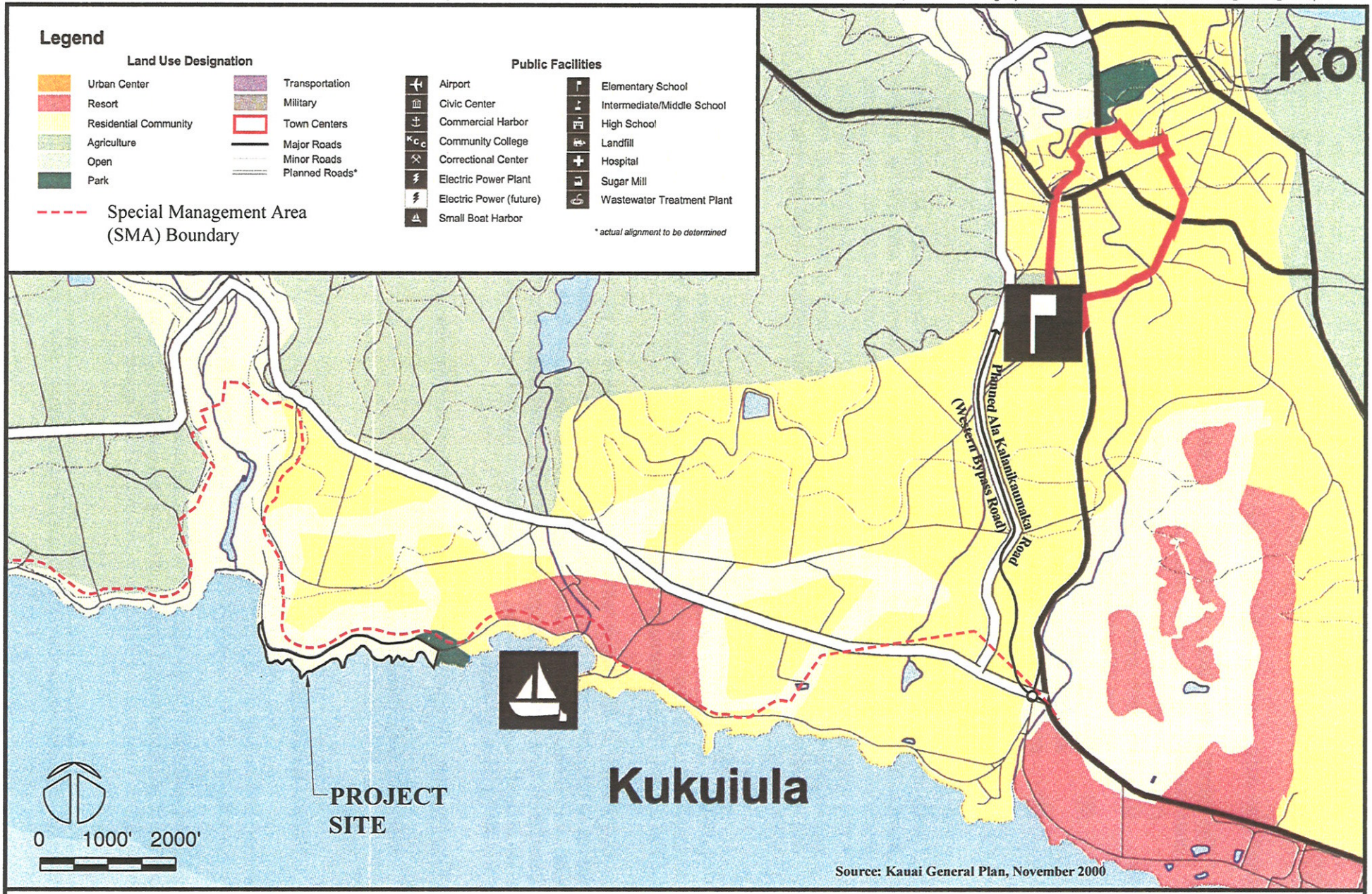
The proposed Project is not anticipated to have any adverse impacts on marine and coastal resources. Potential water quality impacts to the near shore coastal waters during construction of the Project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs, such as silt fencing and rolled fiber filtration tubing to prevent sediment-laden storm water runoff from flowing makai.

Development of the proposed Project improvements will produce no adverse effects from storm runoff to the adjacent coastal waters and adjacent properties. As discussed in Section 3.18.2 Drainage System of this EA, the projected small increase in storm water runoff from the Project Site will be offset by the large reduction of storm water runoff from the adjacent mauka Kukui'ula development due to the planned detention of runoff from that development. Therefore, the overall rate of storm water runoff into the ocean from the Project Site will be less than pre-development levels. Development of the Project improvements, including the re-vegetation areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

4.4 County of Kauai General Plan

The County General Plan provides broad policy statements to guide land use regulations, new developments and facilities, and planning for County facilities and services. Relevant sections of the General Plan and their consistency with the Project are as follows:

General Plan Land Use Map Designation: The Koloa-Poipu-Kalaheo Planning District Land Use Map of the General Plan designates the Project Site as Open as shown in Figure 4-2.



CONSERVATION DISTRICT IMPROVEMENTS
KUKUI'ULA
Koloa, Kauai, Hawaii

Kauai General Plan Land Use Map

Figure 4-2

Prepared for:
Kukui'ula Development Company (Hawaii), LLC

Prepared by:
Wilson Okamoto Corporation

Prepared by:
Wilson Okamoto Corporation

The General Plan policy for the Open designation is as follows (Section 5.3.1 Policy):

(a) The intent of the Open designation is to preserve, maintain or improve the natural characteristics of non-urban land and water areas that:

(1) are of significant value to the public as scenic or recreation resources;

(2) perform essential physical and ecological functions important to the welfare of surrounding lands, waters, and biological resources;

(3) have the potential to create or exacerbate soil erosion or flooding on adjacent lands;

(4) are potentially susceptible to natural hazards such as flood, hurricane, tsunami, coastal erosion, landslide or subsidence; or

(5) form a cultural, historic or archaeological resource of significant public value.

(b) Lands designated Open shall include: important landforms such as mountains, coastal bluffs, cinder cones, and stream valleys; native plant and wildlife habitat; areas of predominantly steep slopes (20 percent or greater); beaches and coastal areas susceptible to coastal erosion or hurricane, tsunami, or storm-wave inundation; wetlands and flood plains; important scenic resources; and known natural, historic and archaeological resources. Open shall also include parks, golf courses, and other areas committed to outdoor recreation

(c) Lands designated Open shall remain predominantly free of development involving buildings, paving and other construction. With the exception of kuleanas and other small lots of record, any construction that is permitted shall be clearly incidental to the use and open character of the surrounding land.

The proposed Project is consistent with the Open designation as the passive nature of the improvements is complementary to the open character of the nearby surrounding area and will not include the development of any buildings or structures. The proposed vegetation clearing/removal and re-vegetation improvements within the Project Site will restore and visually enhance the coastal views of the area, and will help to maintain and preserve the scenic public views to and along the shoreline.

General Plan Policies: The proposed Project is consistent with the following applicable policies:

3.3 Historic and Archaeological Resources

3.3.2 Policy

3.3.2.1 Historic and Archaeological Sites

Preserve important archaeological and historic sites and provide: (1) a buffer area between the site and adjacent uses; and (2) public pedestrian access, as appropriate to the site.

The Project improvements will include the preservation of an existing coastal trail complex which consists of a discontinuous historic trail that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site, paralleling the coastline,

and the preservation of two (2) existing rock shelter cave sites located along the coastal cliff within the eastern portion of Area One. The two (2) rock shelter sites were listed on the State Register of Historic Places on September 30, 1988 and remain on the State Register. The preservation of these three (3) sites will be in accordance with a Preservation Plan prepared in December 2004 and approved by the SHPD in March 2005 and the KHPRC in December 2004. Long-term preservation of these three (3) sites will be passive preservation in the form of avoidance and conservation. Further discussion of the coastal trail complex and the two (2) rock shelter cave sites and the preservation of these sites is included in Section 3.10 Historic and Archaeological Resources of this EA.

3.4 Watersheds, Streams and Water Quality

3.4.2 Policy

(b) Site Development. Plan, design and develop sites to:

(3) Promote the use of permeable surfaces for driveways and parking and limit increases of impervious areas;

(4) Limit land disturbance activities such as clearing and grading, and cut and fill to reduce erosion and sediment loss;

(c) Construction Site Erosion and Sediment control

(1) Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction.

(2) Prior to land disturbance, prepare and implement an approved erosion and sediment control plan or similar administrative document that contains erosion and sediment control provisions.

No grading activities will be undertaken in conjunction with the construction of the Project improvements. Minimal ground disturbance will occur to till in soil along the proposed trail alignment to initiate establishment of the turf grass, to install the permanent below-grade irrigation system for the main irrigation line and the turf grass trail, to remove the existing alien (non-native) vegetation and re-vegetate the area, and to install the temporary aboveground irrigation system for the re-vegetated areas.

Potential water quality impacts to the near shore coastal waters during construction of the Project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs.

During construction of the turf grass trail, rolled fiber filtration tubing will be installed adjacent to the makai side of the trail alignment along its entire length to prevent sediment-laden storm water runoff from flowing makai. The rolled fiber filtration tubing will remain in place until the turf grass is established within the trail. The hydro-seeding of the trail to establish the turf grass will also help to control erosion.

During clearing and removal of the existing vegetation and re-vegetation activities within the rocky coastal area makai of Lawai Road and the NTBG tram road, silt fencing will be installed along the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. Rolled fiber filtration tubing will also be installed at regular intervals in the area between the turf grass trail and the makai boundary of the re-vegetated areas to prevent sediment-laden storm water runoff from flowing makai. The silt fence and rolled fiber filtration tubing will remain in place until the new vegetation is established.

Since the proposed resurfacing activities of the NTBG tram road will occur over the existing asphalt-paved surface, there is anticipated to be no increase in the impervious surface area or storm water runoff. In resurfacing the tram road, the contractor will be required to brush clean the existing pavement surface and to control dust through water spraying. Following preparation of the existing pavement surface, a tack layer of asphaltic emulsion will be spread over the surface to promote bonding between the existing and new pavement prior to the new pavement being constructed.

The phasing of the implementation of the Project improvements will also minimize the overall amount of exposed surfaces and ground disturbance at a given time, thereby further reducing the amount of storm water runoff that may occur. A gravel pad and wash down area will be placed at the planned construction entrance to the Project Site to prevent tracking of sediment onto Lawai Road and the NTBG tram road.

Development of the proposed Project improvements will produce no adverse effects from storm runoff to the adjacent coastal waters and adjacent properties. As discussed in Section 3.18.2 Drainage System of this EA, the projected small increase in storm water runoff from the Project Site will be offset by the large reduction of storm water runoff from the adjacent mauka Kukui'ula development due to the planned detention of runoff from that development. Therefore, the overall rate of storm water runoff into the ocean from the Project Site will be less than pre-development levels. Development of the Project improvements, including the re-vegetation areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

The proposed method of fertilization of the new vegetation and turf grass trail within the Project Site, which will be applied by directly injecting biofertilizer into the irrigation water and through the irrigation system, will substantially reduce the amount of fertilizer that would otherwise be required by up to 70 to 90 percent, thereby largely eliminating fertilizer runoff. The proposed application of appropriate herbicides to the cut vegetation stumps at a recommended concentration level with a wipe-on or brush-on technique will minimize the drift overspray that would otherwise occur with a spray-on technique.

With the use of large equipment during construction and long-term maintenance operations of the Project improvements, the contractors will be required to have available on-site granular absorbent materials to be used for immediate clean-up in the event of accidental fuel or hydraulic spills from such equipment. The contractors will also be required to have available on-site containers for the storage of the spent spill response materials, which will then be required to be properly disposed of at an off-site location.

3.6 Native Hawaiian Rights

3.6.1 Policy

Under the State Constitution and the County Charter, the County of Kaua'i is empowered to promote the health, safety and welfare of all inhabitants without discrimination as to ethnic origin. As part of carrying out its responsibilities under the Constitution and the Charter, the County recognizes the rights of native Hawaiians and the laws concerning lands and waters that have been established through the State Constitution, State and Federal laws, and State and Federal court decisions. No County ordinance or rule shall modify or diminish these rights:

- *Traditional and customary rights of Native Hawaiians, such as for access and gathering, provided under the State Constitution and Hawai'i Revised Statutes, as interpreted by the courts (i.e., the PASH case).*

- *Preservation of historic properties and archaeological resources provided under the federal Archaeological Resources Protection Act of 1979; the National Historic Preservation Act of 1966; and the Hawai'i Historic Preservation Act.*

The proposed Project will enhance the recreational uses and gathering practices which currently occur within the Project Site by providing public pedestrian access to the shoreline areas west of Spouting Horn Park. The proposed scenic public pedestrian trail along the makai side of the Lawai Road right-of-way will be developed as part of the Kukui'ula development's comprehensive path and trail system which will be open to the general public. A future trail connection mauka of Lawai Road and the western end of the proposed pedestrian trail will be provided to the adjacent Kukui'ula development.

The Project improvements will include the preservation of an existing coastal trail complex which consists of a discontinuous historic trail that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site, paralleling the coastline, and the preservation of two (2) existing rock shelter cave sites located along the coastal cliff within the eastern portion of Area One. The two (2) rock shelter sites were listed on the State Register of Historic Places on September 30, 1988 and remain on the State Register. The preservation of these three (3) sites will be in accordance with a Preservation Plan prepared in December 2004 and approved by the SHPD in March 2005 and the KHPRC in December 2004. Long-term preservation of these three (3) sites will be passive preservation in the form of avoidance and conservation. Further discussion of the coastal trail complex and the two (2) rock shelter cave sites and the preservation of these sites is included in Section 3.10 Historic and Archaeological Resources of this EA.

4.5 Koloa-Poipu-Kalaheo Development Plan

The County's Koloa-Poipu-Kalaheo Development Plan, adopted by County ordinance in 1983, provides physical, social and economic measures which relate specifically to these communities. There is no land use designation for the Project Site in the Koloa-Poipu-Kalaheo Development Plan.

The proposed Project is consistent with the following goals and objectives of the Koloa-Poipu-Kalaheo Development Plan:

(3) History and Archaeology.
- *(A) Increase the body of knowledge about and the public's understanding of the area's history and archaeology.*
- *(B) Develop a program for its use and preservation.*

The Project improvements will include the preservation of an existing coastal trail complex which consists of a discontinuous historic trail that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site, paralleling the coastline, and the preservation of two (2) existing rock shelter cave sites located along the coastal cliff within the eastern portion of Area One. The two (2) rock shelter sites were listed on the State Register of Historic Places on September 30, 1988 and remain on the State Register. The preservation of these three (3) sites will be in accordance with a Preservation Plan prepared in December 2004 and approved by the SHPD in March 2005 and the KHPRC in December 2004. Long-term preservation of these three (3) sites will be passive preservation in the form of avoidance and conservation. Further discussion of the coastal trail complex and the two (2) rock shelter cave sites and the preservation of these sites is included in Section 3.10 Historic and Archaeological Resources of this EA.

(5) Flooding, Tsunami, Coastal Waters, Beaches.
- *(A) Improve drainage to alleviate flood hazards.*
- *(B) Encourage uses and a development pattern and/or controls which enhance and protect coastal waters and beaches, and encourage construction of structures which do not promote flood and tsunami dangers.*

According to the FIRM prepared by FEMA, the majority of the Project Site mauka of the inland edge of the coastal embankment is located within Zone "X", "Areas determined to be outside the 0.2% annual chance floodplain". A sliver of land adjacent to and makai of this area is designated Zone "X", "Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood." An area within the easternmost portion of the Project Site, makai of the Zone "X" flood zone, is designated Zone "AE", "Special flood hazard areas subject to inundation by the 1% annual chance flood with base flood elevations determined". The base flood elevation for the "AE" zone within this portion of the Project Site is 13 feet above msl. The makai-most portions of the Project Site which are mostly located makai of the coastal embankment are designated Zone "VE", "Special flood hazard areas subject to inundation by the 1% annual chance flood; coastal flood zone with velocity hazard (wave

action); with base flood elevations determined". The base flood elevations for the "VE" zone within this portion of the Project Site are between 12 and 13 feet above msl.

Construction and operation of the proposed Project are not anticipated to result in flooding of the Project Site or lower elevation properties. All proposed Project improvements, except for various areas where selective vegetation removal will occur, are located outside and mauka of the designated flood zones. The proposed selective vegetation removal activities within the designated flood zones will be undertaken in full compliance with the flood plain management requirements of the County. No structures will be built within the Project Site as part of the proposed improvements.

(8) Recreation.

(C) Develop a plan for public access to coastal and mauka areas where private properties block such access.

The proposed Project will enhance the recreational use of the Project area by providing public pedestrian access to the shoreline areas west of Spouting Horn Park. The proposed scenic public pedestrian trail along the makai side of the Lawai Road right-of-way will be developed as part of the Kukui'ula development's comprehensive path and trail system which will be open to the general public. A future trail connection mauka of Lawai Road and the western end of the proposed pedestrian trail will be provided to the adjacent Kukui'ula development.

The Project improvements will include the preservation of the existing historic coastal trail complex that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site.

(9) Visual Resources. Determine visual resource priorities and plan for their preservation and/or development.

The proposed vegetation clearing/removal and re-vegetation improvements within the Project Site will restore and visually enhance the coastal views of the area. With the proposed vegetation clearing and re-vegetation activities, the currently overgrown, alien (non-native) vegetation makai of Lawai Road and the NTBG tram road will be replaced with native, endemic and indigenous species common to the area or Polynesian-introduced which will improve and complement the scenic and natural environment of the area. The proposed re-vegetation of the coastal lands within the Project Site with low-growing native shrubs and groundcover plantings will help to maintain and preserve the scenic public views to and along the coastline. The scenic environment will be further enhanced with the visual greenbelt to be provided by the proposed turf grass pedestrian trail along the makai side of the Lawai Road right-of-way.

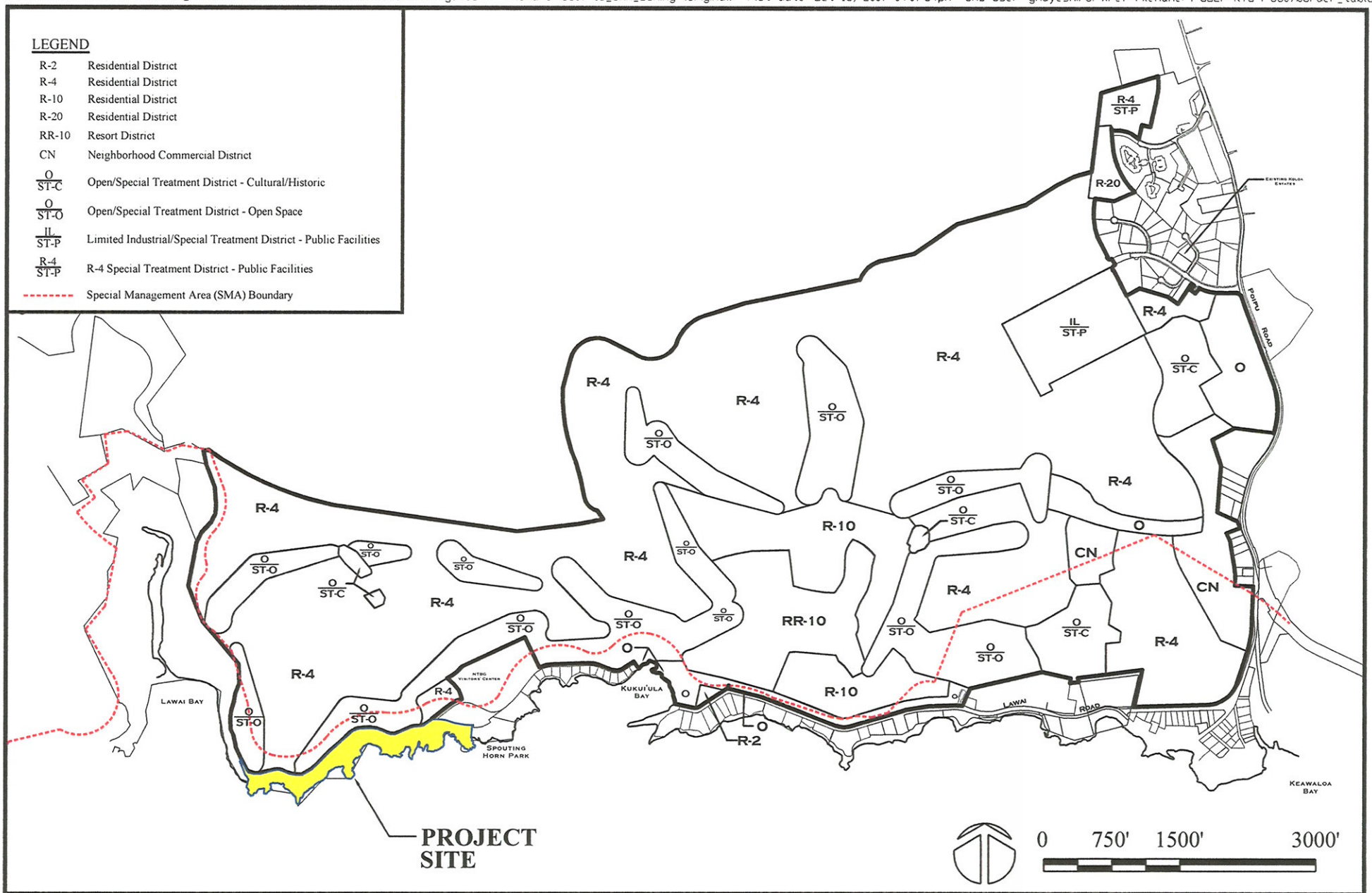
4.6 County Comprehensive Zoning Ordinance

The County's Comprehensive Zoning Ordinance ("CZO") sets forth standards for land development and construction of buildings and other structures in the County. The CZO establishes land use districts and delineates the respective types of permitted uses and the development that can take place in those districts.

Since the Project Site is located within the State Conservation District, there is no County zoning designation for the site. The Project Site is subject to the land use development standards of the State DLNR Administrative Rules, Title 13, Chapter 5, Conservation District. The existing County zoning designations of the areas adjacent to the Project Site are shown in Figure 4-3.

4.7 County Special Management Area

The Project Site is located within the SMA boundary established pursuant to the Hawaii Coastal Zone Management Law, Chapter 205A, HRS as shown in Figure 4-3. A SMA Use Permit application has been prepared for the proposed Project improvements and is being concurrently processed by the County Planning Department.



CONSERVATION DISTRICT IMPROVEMENTS

KUKUI'ULA

Koloa, Kauai, Hawaii

Existing County Zoning and Special Management Area Map

Figure 4-3

Prepared for:

Kukui'ula Development Company (Hawaii), LLC

Prepared by:

Wilson Okamoto Corporation

5. ALTERNATIVES TO THE PROPOSED ACTION

5.1 No Action Alternative

The No Action Alternative is not a viable alternative since the need for the proposed Project improvements is intended to fulfill Condition No. 15. f) of Zoning Ordinance No. PM-2004-370 for the planned resort-residential Kukui'ula development located adjacent to and mauka of the Project Site which requires that the Applicant provide public pedestrian access to the shoreline areas west of Spouting Horn Park owned by the Applicant.

Also, in accordance with Condition No. 15. c) of Zoning Ordinance No. PM-2004-370, the Applicant is required to provide a comprehensive pedestrian and biking trail system throughout the Kukui'ula development that will be open to the general public. In accordance with this Condition, the Applicant has developed a Conceptual Path and Trail Plan consisting of a network of pedestrian and biking trail systems within the Kukui'ula development as shown in Figure 2-1. The proposed public pedestrian trail within the Project Site will be developed as part of the Kukui'ula development's comprehensive path and trail system which will be open to the general public. The Applicant will be dedicating easements to the County for all of the pedestrian and biking trails within the Kukui'ula development, including the proposed public pedestrian trail within the Project Site, in accordance with Condition No. 15. c) of Zoning Ordinance No. PM-2004-370.

The No Action Alternative would preclude all short- and long-term beneficial and adverse physical, environmental and socio-economic impacts described in this EA.

5.2 Alternative Location for the Public Pedestrian Trail

The public pedestrian trail within the Project Site was previously proposed to be located further makai of Lawai Road, within the rocky coastline area. The trail was proposed to be a 3- to 4-foot wide coastal trail to be constructed of crushed basalt located mauka of the existing historic coastal trail complex within the Project Site. The public pedestrian trail was proposed to extend a distance of approximately 2,300 lineal feet from the northeastern end of the Project Site at Lawai Road near Spouting Horn Park to the western portion of the site. A total of three (3) overlook areas constructed of lava rock pavers were proposed to be located along the public pedestrian trail. Due to the rocky conditions of the coastline, cut and fill activities and the construction of shallow retaining walls would have been required to provide for a level trail and overlook areas. Due to the potential construction-related coastal impacts associated with these improvements, this public pedestrian trail proposal was precluded.

The use of the existing historic coastal trail (Site 50-30-10-990) located along the inland edge of the coastal embankment within the makai portion of the Project Site for the proposed public pedestrian trail was precluded since long-term passive preservation of the coastal trail is planned in the form of avoidance and conservation. As discussed in Section 3.10 Historic and Archaeological Resources of this EA, the trail complex is historic in age, but likely follows a pre-historic trail corridor. The discontinuous trail consists of a dirt path in places, with other sections constructed of stone. A preservation plan for the coastal trail complex, along with two (2) rock shelter cave sites, was approved by the SHPD by letter dated March 1, 2005 and by the County's KHPRC by memorandum dated December 4, 2004.

6. REQUIRED PERMITS AND APPROVALS

The following is a list of permits and approvals which may be required prior to construction of the proposed Project:

State of Hawaii

Department of Health
- National Pollutant Discharge Elimination System ("NPDES") Permit

Department of Land and Natural Resources Office of Conservation and Coastal Lands
- Conservation District Use Permit

Department of Land and Natural Resources Historic Preservation Division
- Chapter 6E, HRS Historic Preservation

County of Kauai

Planning Department
- Special Management Area Use Permit

Department of Public Works
- Road Permit
- Grubbing Permit

7. ANTICIPATED DETERMINATION

This Draft EA was prepared for review in accordance with the consultation process of Chapter 343, HRS. Based on the significance criteria set forth in Section 11-200-12 of Title 11, Chapter 200, Administrative Rules, State Department of Health, it is anticipated that the proposed Project will not have a significant effect on the environment and that a Finding of No Significant Impact ("FONSI") will be filed with the State Office of Environmental Quality Control (OEQC) following the public consultation period. The reasons supporting this determination are described below according to these significance criteria.

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

The proposed Project will not involve the loss or destruction of any natural or cultural resources. The Project improvements will include the preservation of an existing coastal trail complex which consists of a discontinuous historic trail that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site, paralleling the coastline, and the preservation of two (2) existing rock shelter cave sites located along the coastal cliff within the eastern portion of Area One. The two (2) rock shelter sites were listed on the State Register of Historic Places on September 30, 1988 and remain on the State Register. The preservation of these three (3) sites will be in accordance with a Preservation Plan prepared in December 2004 and approved by the SHPD in March 2005 and the KHPRC in December 2004. Long-term preservation of these three (3) sites will be passive preservation in the form of avoidance and conservation. Further discussion of the coastal trail complex and the two (2) rock shelter cave sites and the preservation of these sites is included in Section 3.10 Historic and Archaeological Resources of this EA.

No botanical species of special interest, or species listed as threatened or endangered were recorded within the Project Site. No existing native plants will be removed within the Project Site as part of the proposed improvements. Removal of the existing alien (non-native) vegetation and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced is anticipated to have a beneficial impact on encouraging the proliferation of native plants presently limited in distribution within and adjacent to the Project Site.

The proposed vegetation clearing/removal and re-vegetation improvements within the Project Site will restore and visually enhance the coastal views of the area. With the proposed vegetation clearing and re-vegetation activities, the currently overgrown, alien (non-native) vegetation makai of Lawai Road and the NTBG tram road will be replaced with native, endemic and indigenous species common to the area or Polynesian-introduced which will improve and complement the scenic and natural environment of the area. The proposed re-vegetation of the coastal lands with low-growing native shrubs and groundcover plantings will help to maintain and preserve the scenic public views to and along the coastline.

The clearing of alien vegetation along the makai side of the Lawai Road right-of-way and the NTBG tram road is not anticipated to have a negative impact on any avian or mammalian species currently protected, or proposed for protection under the Federal Endangered Species Act of 1973, as amended, or under the State of Hawaii endangered species program. Since artificial lighting, including street lights, will not be provided in conjunction with the proposed

Project, there will be no associated impacts on wildlife in the area. The removal of the invasive alien plant species that may currently be covering most of the Wedge-tailed Shearwater colony within the Project Site will greatly enhance the usability of the area for seabird nesting. Removal of the existing cactus, large ironwood trees and dense Guinea grass will also help to facilitate the Wedge-tailed Shearwaters to come and go from their nesting colonies with greater ease and safety.

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

The intention of the proposed Project is to commit the Project Site to the proposed use over the long-term. Beneficial uses of the Project Site and environment would not be curtailed since the Project is an appropriate use for the site in terms of planning and State and County land use designations.

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 proposed Project is consistent with the State's applicable long-term environmental policies and goals set forth in Chapter 344, HRS. The proposed Project will enhance the recreational use of the Project area by providing public pedestrian access to the shoreline areas west of Spouting Horn Park. Removal of the existing alien (non-native) vegetation and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced is anticipated to have a beneficial impact on encouraging the proliferation of native plants presently limited in distribution within and adjacent to the Project Site. The proposed vegetation clearing/removal and re-vegetation improvements within the Project Site will also restore and visually enhance the coastal views of the area.

The Project improvements will include the preservation of an existing coastal trail complex which consists of a discontinuous historic trail that traverses along the inland edge of the coastal embankment within the central and eastern portions of the Project Site, paralleling the coastline, and the preservation of two (2) existing rock shelter cave sites located along the coastal cliff within the eastern portion of Area One. The two (2) rock shelter sites were listed on the State Register of Historic Places on September 30, 1988 and remain on the State Register. The preservation of these three (3) sites will be in accordance with a Preservation Plan prepared in December 2004 and approved by the SHPD in March 2005 and the KHPRC in December 2004. Long-term preservation of these three (3) sites will be passive preservation in the form of avoidance and conservation. Further discussion of the coastal trail complex and the two (2) rock shelter cave sites and the preservation of these sites is included in Section 3.10 Historic and Archaeological Resources of this EA.

Development of the proposed Project improvements will produce no adverse effects from storm runoff to the adjacent coastal waters and adjacent properties. As discussed in Section 3.18.2 Drainage System of this EA, the projected small increase in storm water runoff from the Project Site will be offset by the large reduction of storm water runoff from the adjacent mauka Kukui'ula development due to the planned detention of runoff from that development. Therefore, the overall rate of storm water runoff into the ocean from the Project Site will be less than pre-development levels. Development of the Project improvements, including the re-vegetation

areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

During initial clearing and removal of the existing alien (non-native) vegetation within the Project Site, the vegetation will be transported to a green waste site within the adjacent Kukui'ula property for composting. During the long-term maintenance operations of the Project improvements, the green waste material accumulated from the vegetated areas will be transported to an off-site location for composting.

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

In the short-term, the Project will confer positive benefits in the local area. Direct economic benefits will result from construction expenditures both through the purchase of material from local suppliers and through the employment of local labor, thereby stimulating that sector of the economy. Indirect economic benefits may include benefits to local retailing businesses resulting from construction activities.

In the long-term, the proposed Project improvements will provide public pedestrian access to the shoreline areas west of Spouting Horn Park and restore and visually enhance the coastal views of the area.

5) Substantially affects public health;

The proposed Project is not anticipated to adversely affect public health. In the long-term, no significant air quality or noise impacts are anticipated from the operation of the proposed Project due to the passive nature of the improvements.

The proposed method of fertilization of the new vegetation and turf grass trail within the Project Site, which will be applied by directly injecting biofertilizer into the irrigation water and through the irrigation system, will substantially reduce the amount of fertilizer that would otherwise be required by up to 70 to 90 percent, thereby largely eliminating fertilizer runoff. The proposed application of appropriate herbicides to the cut vegetation stumps at a recommended concentration level with a wipe-on or brush-on technique will minimize the drift overspray that would otherwise occur with a spray-on technique.

With the use of large equipment during construction and long-term maintenance operations of the Project improvements, the contractors will be required to have available on-site granular absorbent materials to be used for immediate clean-up in the event of accidental fuel or hydraulic spills from such equipment. The contractors will also be required to have available on-site containers for the storage of the spent spill response materials, which will then be required to be properly disposed of at an off-site location.

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

The proposed Project is not anticipated to induce increased population growth or result in adverse effects on public facilities due to the passive nature of the improvements. The

proposed Project improvements will provide public pedestrian access to the shoreline areas west of Spouting Horn Park and restore and visually enhance the coastal views of the area.

7) Involves a substantial degradation of environmental quality;

The proposed Project is not anticipated to involve a substantial degradation of environmental quality. Construction activities associated with the Project are anticipated to result in short-term impacts to noise and air quality in the immediate vicinity of which measures will be implemented to mitigate these impacts.

In the long-term, no significant air quality or noise impacts are anticipated from the operation of the proposed Project due to the passive nature of the improvements.

The proposed Project is not anticipated to have any adverse impacts on marine and coastal resources. Potential water quality impacts to the near shore coastal waters during construction of the Project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs, such as silt fencing and rolled fiber filtration tubing to prevent sediment-laden storm water runoff from flowing makai.

Development of the proposed Project improvements will produce no adverse effects from storm runoff to the adjacent coastal waters and adjacent properties. As discussed in Section 3.18.2 Drainage System of this EA, the projected small increase in storm water runoff from the Project Site will be offset by the large reduction of storm water runoff from the adjacent mauka Kukui'ula development due to the planned detention of runoff from that development. Therefore, the overall rate of storm water runoff into the ocean from the Project Site will be less than pre-development levels. Development of the Project improvements, including the re-vegetation areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

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

The Project itself is not anticipated to have a significant adverse cumulative effect on the environment, nor will it involve a commitment for larger actions. The Project is being developed in conjunction with the larger adjacent Kukui'ula development which, given its resort and second home nature, is not anticipated to have a considerable cumulative effect upon the environment. The proposed Project improvements are intended to fulfill Condition No. 15. f) of Zoning Ordinance No. PM-2004-370 for the Kukui'ula development which requires that the Applicant provide public pedestrian access to the shoreline areas west of Spouting Horn Park owned by the Applicant.

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

No significant impacts on flora are anticipated from the construction and operation of the proposed Project. No species of special interest, or species listed as threatened or endangered were recorded during the botanical survey. Removal of the existing alien (non-native) vegetation within the Project Site will not have an adverse impact on native and indigenous botanical resources within the site. Removal of the existing alien (non-native) vegetation and re-vegetation with native, endemic and indigenous species common to the area or Polynesian-introduced is anticipated to have a beneficial impact on encouraging the proliferation of native plants presently limited in distribution within and adjacent to the Project Site.

No significant impacts on fauna within the Project Site are anticipated from the construction and operation of the proposed Project. The clearing of alien vegetation along the makai side of the Lawai Road right-of-way and the NTBG tram road is not anticipated to have a negative impact on any avian or mammalian species currently protected, or proposed for protection under the Federal Endangered Species Act of 1973, as amended, or under the State of Hawaii endangered species program. Since artificial lighting, including street lights, will not be provided in conjunction with the proposed Project, there will be no associated impacts on wildlife in the area.

The clearing of alien vegetation along the makai side of the Lawai Road right-of-way and the NTBG tram road has the potential to adversely impact the Wedge-tailed Shearwater colony that may be located within the Project Site if care is not taken to limit on-ground disturbance to the months when the birds are not present in their colony. Conversely, the removal of the invasive alien plant species that may currently be covering most of the Wedge-tailed Shearwater colony will greatly enhance the usability of the area for seabird nesting. Removal of the existing cactus, large ironwood trees and dense Guinea grass will also help to facilitate the Wedge-tailed Shearwaters to come and go from their nesting colonies with greater ease and safety.

To ensure that the proposed vegetation clearing within the Project Site does not result in adverse impacts to the resident Wedge-tailed Shearwaters and their nesting colony, the following measures will be implemented:

- The removal of existing vegetation and re-vegetation along the makai side of Lawai Road and the NTBG tram road and the mowing and maintaining of the existing vegetation along the rock wall on the mauka side of Lawai Road will be undertaken so as to not disturb subsurface features such as burrows. The proposed vegetation removal and re-vegetation activities will not be undertaken during the Wedge-tailed Shearwaters breeding season.

- Following removal of the existing vegetation and prior to re-vegetation activities, a qualified biologist will be retained by the Applicant to survey the Project Site to ascertain the location and number of Wedge-tailed Shearwater burrows that may be present.

- Following the on-ground survey by the qualified biologist, a Wedge-tailed Shearwater colony management plan will be prepared which will include methods for maintaining and improving the Wedge-tailed Shearwater nesting habitat that may be present within the Project Site.

The Project Site is not located within any of the Critical Habitat Units designated for the endemic, endangered Kauai cave wolf spider and Kauai cave amphipod by the USFWS final rule published April 9, 2003.

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

Construction activities associated with the proposed Project will create some adverse short-term impacts such as temporary unavoidable noise and air quality impacts in the vicinity of the Project Site. Unavoidable construction noise impacts will be mitigated by complying with the provisions of the State DOH Administrative Rules, Title 11, Chapter 46, Community Noise Control. Potential air quality impacts during construction of the proposed Project will be mitigated by complying with the State DOH Administrative Rules, Title 11, Chapter 60, Air Pollution Control.

In the long-term, no significant air quality or noise impacts are anticipated from the operation of the proposed Project due to the passive nature of the improvements.

No grading activities will be undertaken in conjunction with the construction of the Project improvements. Minimal ground disturbance will occur to till in soil along the proposed trail alignment to initiate establishment of the turf grass, to install the permanent below-grade irrigation system for the main irrigation line and the turf grass trail, to remove the existing alien (non-native) vegetation and re-vegetate the area, and to install the temporary aboveground irrigation system for the re-vegetated areas.

Potential water quality impacts to the near shore coastal waters during construction of the Project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-structural BMPs, such as silt fencing and rolled fiber filtration tubing to prevent sediment-laden storm water runoff from flowing makai.

Development of the proposed Project improvements will produce no adverse effects from storm runoff to the adjacent coastal waters and adjacent properties. As discussed in Section 3.18.2 Drainage System of this EA, the projected small increase in storm water runoff from the Project Site will be offset by the large reduction of storm water runoff from the adjacent mauka Kukui'ula development due to the planned detention of runoff from that development. Therefore, the overall rate of storm water runoff into the ocean from the Project Site will be less than pre-development levels. Development of the Project improvements, including the re-vegetation areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

The proposed method of fertilization of the new vegetation and turf grass trail within the Project Site, which will be applied by directly injecting biofertilizer into the irrigation water and through the irrigation system, will substantially reduce the amount of fertilizer that would otherwise be required by up to 70 to 90 percent, thereby largely eliminating fertilizer runoff. The proposed application of appropriate herbicides to the cut vegetation stumps at a recommended concentration level with a wipe-on or brush-on technique will minimize the drift overspray that would otherwise occur with a spray-on technique.

With the use of large equipment during construction and long-term maintenance operations of the Project improvements, the contractors will be required to have available on-site granular absorbent materials to be used for immediate clean-up in the event of accidental fuel or hydraulic spills from such equipment. The contractors will also be required to have available on-site containers for the storage of the spent spill response materials, which will then be required to be properly disposed of at an off-site location.

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, fresh water, or coastal waters;

According to the FIRM prepared by FEMA, the majority of the Project Site mauka of the inland edge of the coastal embankment is located within Zone "X", "Areas determined to be outside the 0.2% annual chance floodplain". A sliver of land adjacent to and makai of this area is designated Zone "X", "Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood." An area within the easternmost portion of the Project Site, makai of the Zone "X" flood zone, is designated Zone "AE", "Special flood hazard areas subject to inundation by the 1% annual chance flood with base flood elevations determined". The base flood elevation for the "AE" zone within this portion of the Project Site is 13 feet above msl. The makai-most portions of the Project Site which are mostly located makai of the coastal embankment are designated Zone "VE", "Special flood hazard areas subject to inundation by the 1% annual chance flood; coastal flood zone with velocity hazard (wave action); with base flood elevations determined". The base flood elevations for the "VE" zone within this portion of the Project Site are between 12 and 13 feet above msl.

Construction and operation of the proposed Project are not anticipated to result in flooding of the Project Site or lower elevation properties. All proposed Project improvements, except for various areas where selective vegetation removal will occur, are located outside and mauka of the designated flood zones. The proposed selective vegetation removal activities within the designated flood zones will be undertaken in full compliance with the flood plain management requirements of the County. No structures will be built within the Project Site as part of the proposed improvements.

Potential water quality impacts to the near shore coastal waters during construction of the Project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Construction of the Project improvements will also be in compliance with the County's Grubbing Permit. Mitigation measures will be instituted following site-specific assessments, incorporating appropriate structural and/or non-

structural BMPs, such as silt fencing and rolled fiber filtration tubing to prevent sediment-laden storm water runoff from flowing makai.

Development of the proposed Project improvements will produce no adverse effects from storm runoff to the adjacent coastal waters and adjacent properties. As discussed in Section 3.18.2 Drainage System of this EA, the projected small increase in storm water runoff from the Project Site will be offset by the large reduction of storm water runoff from the adjacent mauka Kukui'ula development due to the planned detention of runoff from that development. Therefore, the overall rate of storm water runoff into the ocean from the Project Site will be less than pre-development levels. Development of the Project improvements, including the re-vegetation areas, turf grass trail and new gravel parking areas will contribute to permanent erosion control measures in the long-term.

The proposed method of fertilization of the new vegetation and turf grass trail within the Project Site, which will be applied by directly injecting biofertilizer into the irrigation water and through the irrigation system, will substantially reduce the amount of fertilizer that would otherwise be required by up to 70 to 90 percent, thereby largely eliminating fertilizer runoff. The proposed application of appropriate herbicides to the cut vegetation stumps at a recommended concentration level with a wipe-on or brush-on technique will minimize the drift overspray that would otherwise occur with a spray-on technique.

With the use of large equipment during construction and long-term maintenance operations of the Project improvements, the contractors will be required to have available on-site granular absorbent materials to be used for immediate clean-up in the event of accidental fuel or hydraulic spills from such equipment. The contractors will also be required to have available on-site containers for the storage of the spent spill response materials, which will then be required to be properly disposed of at an off-site location.

12) Substantially affects scenic vistas and viewplanes identified in county or state plans or studies;

There are no scenic vistas or view planes identified by any County or State plans or studies relative to the Project Site. The proposed vegetation clearing/removal and re-vegetation improvements within the Project Site will restore and visually enhance the coastal views of the area. With the proposed vegetation clearing and re-vegetation activities, the currently overgrown, alien (non-native) vegetation makai of Lawai Road and the NTBG tram road will be replaced with native, endemic and indigenous species common to the area or Polynesian-introduced which will improve and complement the scenic and natural environment of the area. The proposed re-vegetation of the coastal lands within the Project Site with low-growing native shrubs and groundcover plantings will help to maintain and preserve the scenic public views to and along the coastline. The scenic environment will be further enhanced with the visual greenbelt to be provided by the proposed turf grass pedestrian trail along the makai side of the Lawai Road right-of-way.

13) Requires substantial energy consumption;

Operation of the proposed Project will not result in an increase in energy consumption demand due to the passive nature of the improvements.

8. REFERENCES

1. County of Kauai, Planning Department. *Kauai General Plan.* November 2000

2. County of Kauai. *Koloa-Poipu-Kalaheo Development Plan.* 1983.

3. Department of Land and Natural Resources (DLNR), Commission on Water Resource Management. *Ground Water Hydrologic Unit Map – Island of Kauai.* 2000.

4. Hawaii State Department of Business, Economic Development and Tourism. *Hawaii Census 2000.*

5. Macdonald, Gordon A., A.T. Abbott and Frank L. Peterson. *Volcanoes in the Sea, The Geology of Hawaii.* Second Edition 1986.

6. R.M. Towill Corporation. *Kukui'ula Planned Community Final Environmental Impact Statement.* Prepared for A&B Properties, Inc. April 1989.

7. Sterns, Harold T. *Geology of the State of Hawaii.* Second Edition 1985.

8. Townscape, Inc. *Kukui'ula Bay Resort Final Supplemental Environmental Impact Statement.* Prepared for Kukui'ula Development Company, Inc. August 1998.

9. United States Department of Agriculture Soil Conservation Service. *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*, August 1972.

10. U.S. Census Bureau. *Census 2000 Summary 100 Percent Data.*

11. Yuen, George, And Associates. *Water Resources Protection Plan: Volumes I and II.* June 1990.

9. CONSULTATION

9.1 Pre-Assessment Consultation

The following agencies and organizations were consulted during the preparation of the Draft EA. Those who formally replied are indicated by an asterisk (*). All written comments and responses are reproduced herein.

Federal
- U.S. Army Corps of Engineers
- U.S. Fish & Wildlife Service
- U.S. National Marine Fisheries Service

State of Hawaii
- Department of Business, Economic Development and Tourism, Office of Planning
- * Department of Business, Economic Development and Tourism, Land Use Commission
- Department of Health, Office of Environmental Quality Control
- Department of Land and Natural Resources
- * Department of Land and Natural Resources, Office of Conservation and Coastal Lands
- * Department of Land and Natural Resources, Division of Forestry and Wildlife, Na Ala Hele
- * Department of Land and Natural Resources, Historic Preservation Division
- * Office of Hawaiian Affairs

County of Kauai
- Planning Department
- Department of Public Works
- Department of Parks and Recreation
- Police Department

Others
- * National Tropical Botanical Garden
- Allerton Gardens Trust in Hawaii
- A&B Hawaii Inc.

9.2 Draft Environmental Assessment Consultation

The following agencies and organizations will be consulted during the public review period of the Draft EA.

Federal
U.S. Army Corps of Engineers
U.S. Fish & Wildlife Service
U.S. National Marine Fisheries Service
U.S. Natural Resources Conservation Service

State of Hawaii
Department of Business, Economic Development, and Tourism
Department of Business, Economic Development, and Tourism, Office of Planning
Department of Business, Economic Development and Tourism, Land Use Commission
Department of Health, Office of Environmental Quality Control
Department of Land and Natural Resources
Department of Land and Natural Resources, Office of Conservation and Coastal Lands
Department of Land and Natural Resources, Division of Forestry and Wildlife, Na Ala Hele
Department of Land and Natural Resources, Historic Preservation Division
Office of Hawaiian Affairs

County of Kauai
Planning Department
Department of Public Works
Department of Parks and Recreation
Police Department
Fire Department

Others
National Tropical Botanical Garden
Allerton Gardens Trust in Hawaii
A&B Hawaii Inc.
Koloa Public/School Library