

NEIL ABERCROMBIE  
GOVERNOR OF HAWAII



WILLIAM J. AILA, JR.  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

PAUL J. CONRY  
INTERIM FIRST DEPUTY

WILLIAM M. TAM  
DEPUTY DIRECTOR - WATER

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



RECEIVED

OCT -3 P3:54

OCT 23 2012

OFFICE OF ENVIRONMENTAL  
QUALITY CONTROL

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

OFFICE OF CONSERVATION AND COASTAL LANDS  
POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

REF: OCCL: AJR

RULE AMENDMENT: KA-10-01

Suspense Date: 21 Days from Stamped Date

**MEMORANDUM**

FILE COPY

OCT - 1 2012

**To:** Mr. Gary Hooser, Director  
*Office of Environmental Quality Control*

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

**Subject:** **Draft Environmental Assessment (DEA) for Rule Amendment KA-10-01 for the Lāwa‘i Kai Special Subzone Master Plan and Management Plan**  
TMKs: at (4) 2-6-002: 001, 004, 005, 006, 007, 008, 009 and submerged lands  
Lāwa‘i Kai, Kōloa, Island of Kaua‘i, Hawaii

The Department of Land and Natural Resources has reviewed the Draft Environmental Assessment (DEA) for the subject Rule Amendment **KA-10-01**, and anticipates a Finding of No Significant Impact (FONSI) determination. Please publish notice of availability for this project in the October 23, 2012 issue of the Environmental Notice. We have enclosed one (1) DEA hard copy, one (1) DEA electronic copy (pdf), and one (1) electronic copy of the OEQC Bulletin Publication Form.

Should you wish to provide comments regarding this project please respond by the suspense date noted above. If no response is received by the suspense date, we will assume there are no comments. Please contact Alex J. Roy of our Office of Conservation and Coastal Lands staff at (808) 587-0316 should you have any questions.

**Enclosures:** *One (1) CD-R w/ DEA, OEQC Bulletin form*  
*One (1) DEA hard copy*  
*One (1) hard copy of OEQC Bulletin form*

**Applicant Action EA  
Chapter 343, HRS  
Publication Form**

**Project Name:** Draft Environmental Assessment: Lāwaʻi Kai Special Subzone Master Plan and Management Plan

**Island:** Kauai

**District:** Kōloa

**TMK:** (4) 2-6-002: 001, 004, 005, 006, 007, 008, 009, and the Lāwaʻi Kai Beach and the Lāwaʻi Kai Bay (no TMKs).

**Applicant:** National Tropical Botanical Garden, 3530 Papalina Road, Kalāheo, HI 96741  
Contact: Chipper Wichman, CEO, (808) 332-7324

**Approving Agency:** State of Hawaiʻi, Department of Land and Natural Resources, Office of Conservation and Coastal Lands, 1151 Punchbowl St., Rm. 131, Honolulu, HI 96813, Contact: Alex Roy, (808) 587-0316

**Consultant:** NKN Project Planning, 4849 Iiwi Road, Kapaʻa, HI 96746, Contact: Nadine Nakamura, (808) 635-1507

**Status:** 30-day comment period

**Summary:**

The Draft Environmental Assessment provides information regarding the National Tropical Botanical Garden (“NTBG”) and Allerton Garden’s Petition to Amend Hawaiʻi Administrative Rule 13-5 to create the Lāwaʻi Kai Special Subzone.

The Allerton Garden and Lāwaʻi Kai Estuary, Stream, and Beach are currently in the State of Hawaiʻi, Department of Land and Natural Resources Conservation District: Limited Subzone. The Lāwaʻi Kai Bay submerged lands are designated as Conservation District: Resource Subzone. The project proposes to redesignate the Allerton Garden, estuary, stream, beach and bay as the Conservation District: Lāwaʻi Kai Special Subzone.

The applicants are proposing to continue using the privately-owned portions of the proposed Lāwaʻi Kai Special Subzone as a botanical garden dedicated to conservation, research and education, and to continue using the publicly-owned portions of the proposed Special Subzone for conservation with managed public recreational use.

The limitations of the current Conservation District subzones (Limited and Resource), and the inability to efficiently link the active long-term management of the land with the estuary, stream, beach, and bay have motivated the NTBG to develop this holistic ahupuaʻa-based Plan.

# **Lāwa‘i Kai Special Subzone Master Plan and Management Plan**

## **Draft Environmental Assessment**

Submitted Pursuant to Hawai‘i Revised Statutes  
Chapter 343

---

Applicant:

National Tropical Botanical Garden for Allerton Garden  
Chipper Wichman, Director and Chief Executive Officer  
3530 Papalina Road  
Kalāheo, HI 96741

Approving Agency:

State of Hawai‘i  
Department of Land and Natural Resources  
Office of Conservation and Coastal Lands  
1151 Punchbowl  
Honolulu, HI 96813

Prepared by:

NKN Project Planning  
4849 Iiwi Road  
Kapa‘a, HI 96754

August 2012

Project:	Lāwa‘i Kai Special Subzone Master Plan and Management Plan
Applicant:	National Tropical Botanical Garden for Allerton Garden Chipper Wichman, Director and Chief Executive Officer 3530 Papalina Road Kalāheo, HI 96741 (808) 332-7324
Owner:	Allerton Gardens Trust c/o 3530 Papalina Road Kalāheo, HI 96741
Accepting Agency:	State of Hawai‘i, Department of Land and Natural Resources Office of Conservation and Coastal Lands 1151 Punchbowl Street Honolulu, HI 96813 Attn: Alex Roy (808) 587-0316
Location:	<i>Moku of Kōloa, Ahupua‘a of Lāwa‘i on Kaua‘i’s south shore.</i>
Tax Map Keys:	<b>Tax Map Keys:</b> <ul style="list-style-type: none"> <li>• (4) 2-6-002:001</li> <li>• (4) 2-6-002:004</li> <li>• (4) 2-6-002:005</li> <li>• (4) 2-6-002:006</li> <li>• (4) 2-6-002:007</li> <li>• (4) 2-6-002:008</li> <li>• (4) 2-6-002:009</li>   <li>• Lāwa‘i Kai Beach</li> <li>• Lāwa‘i Kai Bay</li> </ul>
Proposed Action:	Approval of the Lāwa‘i Kai Master Plan and Management Plan for uses within the Lāwa‘i Kai Special Subzone
Land, Beach and Bay Area:	Land: 87.51 acres Beach: 2 acres (approximately, including stream area) Bay: 20 acres (approximately, submerged lands)
Present Uses:	National Tropical Botanical Garden’s Allerton Garden Lower Lāwa‘i Kai Stream Lāwa‘i Kai Beach Lāwa‘i Kai Bay
State Land Use District:	<u>Current:</u> Conservation District: Limited Subzone (land and beach) and Resource Subzone (submerged lands in bay) <u>Proposed:</u> Conservation District: Special Subzone
Kaua‘i General Plan:	Open
Zoning:	Not zoned by the County of Kauai
Permits Required:	Conservation District Use Permit
Anticipated Determination:	<b>Finding of No Significant Impact (FONSI)</b>

## Table of Contents

<b>SECTION 1.0 INTRODUCTION</b> .....	1
1.1 Project Overview .....	1
1.2 Petition to Amend Hawai‘i Administrative Rule 13-5 .....	1
1.3 Lāwa‘i Kai Special Subzone Master Plan and Management Plan (“Plan”) .....	1
<b>SECTION 2.0 PROJECT DESCRIPTION</b> .....	2
2.1 Location and Tax Map Keys .....	2
2.2 Proposed Action .....	3
2.3 Environmental Review Trigger .....	5
2.4 Land Use Classification and Zoning .....	5
2.5 Permits Required and Approvals .....	6
2.6 Project Schedule & Approximate Cost .....	6
<b>SECTION 3.0 TECHNICAL CHARACTERISTICS AND PUBLIC SERVICES</b> .....	6
3.1 Fire, Police and Medical Services .....	6
3.2 Circulation and Vehicular Access .....	7
3.3 Public Access to Lāwa‘i Kai Beach and Bay .....	7
3.4 Solid Waste .....	8
3.5 Water .....	9
3.6 Wastewater Treatment .....	9
3.7 Utilities: Electrical, Telephone, and Cable .....	9
<b>SECTION 4.0 SOCIO-ECONOMIC CHARACTERISTICS</b> .....	9
4.1 Demographic Data .....	9
4.2 Economy .....	10
4.3 Historic, Cultural and Archaeological Resources .....	10
4.4 Environmental Justice .....	12
<b>SECTION 5.0 ENVIRONMENTAL CHARACTERISTICS</b> .....	12
5.1 Biological Resources .....	12
5.2 Botanical Resources .....	14
5.3 Climate. Rainfall and Wind .....	15
5.4 Hazards: Hurricanes, Tsunamis, Flooding .....	15
5.5 Hydrological Characteristics .....	15
5.6 Soils .....	15
5.7 Scenic and Visual Resources .....	16

<b>5.8</b>	<b>Topography and Slope</b> .....	17
<b>5.9</b>	<b>Watershed and Estuary</b> .....	17
<b>SECTION 6.0</b>	<b>AFFECTED ENVIRONMENT, POTENTIAL IMPACTS, &amp; MITIGATION MEASURES</b> .....	18
<b>6.1</b>	<b>Historic and Cultural</b> .....	19
<b>6.2</b>	<b>Archaeological Resources</b> .....	20
<b>6.3</b>	<b>Landscape Resources</b> .....	21
<b>6.4</b>	<b>Technical Characteristics, Infrastructure, and Public Services</b> .....	22
<b>6.5</b>	<b>Estuary and Stream</b> .....	22
<b>6.6</b>	<b>Coastal and Marine Resources</b> .....	23
<b>6.7</b>	<b>Recreation and Commercial Uses of Beach and Bay</b> .....	24
<b>SECTION 7.0</b>	<b>ALTERNATIVES TO THE PROPOSED ACTION</b> .....	25
<b>SECTION 8.0</b>	<b>SIGNIFICANCE DETERMINATION</b> .....	26
<b>SECTION 9.0</b>	<b>CONSULTED PARTIES</b> .....	29
<b>SECTION 10.0</b>	<b>REFERENCES</b> .....	30
<b>SECTION 11.0</b>	<b>EXHIBITS</b> .....	33
<b>SECTION 12.0</b>	<b>APPENDICES</b> .....	45

## SECTION 1.0 INTRODUCTION

### 1.1 Project Overview

This Draft Environmental Assessment provides information related to (1) the National Tropical Botanical Garden's Petition to Amend Hawai'i Administrative Rule 13-5 (HAR)<sup>1</sup> to create the Lāwa'i Kai Special Subzone; and (2) the Lāwa'i Kai Special Subzone Master Plan and Management Plan.

### 1.2 Petition to Amend Hawai'i Administrative Rule 13-5

The Petition to Amend HAR 13-5 proposes to create the new *Lāwa'i Kai Special Subzone* was submitted to the State of Hawai'i, Department of Land and Natural Resources' ("DLNR"), Board of Land and Natural Resources ("BLNR"). The area proposed in the Lāwa'i Kai Special Subzone includes the land in the National Tropical Botanical Garden's ("NTBG") Allerton Garden ("Garden")<sup>2</sup>, the lower reaches of Lāwa'i Kai Stream<sup>3</sup>, and the Lāwa'i Kai Beach<sup>4</sup> and Bay<sup>5</sup> which are under the jurisdiction of the State of Hawai'i. The fastlands<sup>6</sup> of the petitioned area are within the *Conservation District: Limited Subzone*. The submerged land of Lāwa'i Kai Bay lie within the *Resource Subzone* of the *Conservation District*.

The Petition for the proposed rule amendment was submitted to the BLNR on October 30, 2009, and was on their September 23, 2011 meeting agenda. The BLNR then voted to send the proposal out to public hearing. The DLNR held a public hearing on the Petition proposing the Chapter 13-5, HAR amendment to redesignate a portion of Conservation District lands in the Limited subzone and the Submerged Lands in the Resource subzone into the Lāwa'i Kai Special Subzone. The public hearing held in Kōloa, Kaua'i on May 24, 2012.

### 1.3 Lāwa'i Kai Special Subzone Master Plan and Management Plan ("Plan")

In addition to the Petition for the creation of the Lāwa'i Kai Special Subzone described above, the NTBG proposes that the BLNR, approve the *ahupua'a*-based land management plan to protect the important natural, cultural and historical resources of the area which will be created by the Lāwa'i Kai Special Subzone. A

---

<sup>1</sup> A copy of the Petition is included in **Appendix A**.

<sup>2</sup> NTBG includes the McBryde Garden and the Allerton Garden Trust (AGT) properties. Allerton Garden is under the management of NTBG.

<sup>3</sup> The Lāwa'i Kai Beach area also includes the lower reaches of the Lāwa'i Kai Stream for purposes of this Environmental Assessment.

<sup>4</sup> The area was named Lāwa'i Kai as there is another location named Lāwa'i Beach, to define the lower portion of Lāwa'i Valley, and to not confuse the project area with the Lāwa'i Beach area to the east of the Valley.

<sup>5</sup> Submerged Lands *makai* of TMK: (4) 2-6-002:001.

<sup>6</sup> In the September 14, 2011 staff report to the BLNR on the proposed amendment, the term "fastlands" was used to describe those lands in the petitioned area of the Limited subzone of the Conservation District.

detailed description of this management plan can be found in the August 2012 Lāwa‘i Kai Special Subzone Master Plan & Management Plan document (“Plan”). The Plan includes the following specific areas:

- Historic Resources
- Landscape Resources
- Infrastructure
- Archaeological Resources
- Lāwa‘i Kai Estuary and Stream
- Coastal and Marine Resources
- Recreation and Commercial

The project does not propose any new development or land use changes, however it does propose that all of the existing non-conforming uses become permitted uses in the new Lāwa‘i Kai Special Subzone.

## **SECTION 2.0 PROJECT DESCRIPTION**

### **2.1 Location and Tax Map Keys**

The Garden is located at Lāwa‘i Kai in the *moku* of Kōloa and the *ahupua‘a* of Lāwa‘i on the south shore of Kaua‘i. The area extends along the banks of the Lāwa‘i Kai Stream from the Kapalaoa Range and narrowing where the valley opens onto Lāwa‘i Kai Bay. Along the lower course of the stream, which opens into the Pacific Ocean, the valley is deep and wide, with cliffs framing it along both sides. Lāwa‘i was one of six *ahupua‘a* that roughly form what is now the district of Kōloa on the island of Kaua‘i. The location and project areas are shown in **Exhibits A** and **B** respectively.

To the north of the Garden area is NTBG’s McBryde Garden, to east is Kukui‘ula Development Company Hawaii property, to the south is Lāwa‘i Bay, and to the west is Alexander & Baldwin’s (“A&B”) property which is leased to Kaua‘i Coffee.

There are seven tax map key parcels comprising the Garden area proposed as the Lāwa‘i Kai Special Subzone. The affected tax map key parcels are shown in **Exhibit C** and are listed below.

▪ (4) 2-6-002:001	71.91 acres
▪ (4) 2-6-002:004	1.60 acres
▪ (4) 2-6-002:005	1.88 acres
▪ (4) 2-6-002:006	2.13 acres
▪ (4) 2-6-002:007	.55 acres
▪ (4) 2-6-002:008	1.25 acres
▪ (4) 2-6-002:009	<u>8.19 acres</u>
<b>Total</b>	<b>87.51 acres</b>

In addition, there are the Lāwa‘i Kai Beach<sup>7</sup> and Bay areas that are under the jurisdiction of the State of Hawai‘i.

- Beach 2.0 acres (approximately)
- Bay 20.0 acres (approximately)

Total Special Subzone area **109.51 acres**

## 2.2 Proposed Action

The existing State Land Use District for this area is *Conservation District: Limited Subzone* and *Resource Subzone* as shown in **Exhibit D**. The Petition proposes to redesignate the area and include the beach and bay in the proposed *Conservation District: Lāwa‘i Kai Special Subzone* as shown in **Exhibit E**. This action would amend Hawai‘i Administrative Rules (“HAR”) 13-5 by creating the Lāwa‘i Kai Special Subzone.

Under §13-5-15 of the DLNR’s Administrative Rules, a Special (S) Subzone is an “area possessing unique developmental qualities which complement the natural resources of the area.” There are a multitude of natural, cultural and historic resources within the proposed Lāwa‘i Kai Special Subzone that complement the stream, estuary, beach, and bay.<sup>8</sup>

The applicant is proposing to continue using the privately-owned portions of the proposed Special Subzone as a botanical garden dedicated to conservation, research and education, and to continue using the publicly-owned portions of the proposed Special Subzone for conservation with managed public recreational use.

No new development is planned within the proposed Special Subzone although existing infrastructure will need to be maintained, improved, and replaced during the planning horizon of 20 years. Public access to the Lāwa‘i Kai Beach and Bay areas are described in the Lāwa‘i Kai Special Subzone Master Plan and Management Plan.<sup>9</sup> The Plan recommends maintaining the current level of public use of the beach and bay, and to effectively preserve the natural and cultural resources found in the coastal zone.

The limitations of the current Conservation District subzones (Limited and Resource), and the inability to efficiently link the active long-term management of the land with the stream, beach, and bay have motivated the NTBG to develop this holistic *ahupua‘a*-based Plan. Underpinning this Plan is the first-ever special subzone proposal that includes both private lands and public resource areas (estuary, stream, beach and bay).

---

<sup>7</sup> Includes the lower reaches of the Lāwa‘i Kai Stream.

<sup>8</sup> The unique features and natural resources found in this area are described in the relevant Management Plans.

<sup>9</sup> Chapter 13, Recreation and Commercial Management Plan.

To fully implement the Plan, three separate administrative rule changes are being proposed:

1. Amend Hawai‘i Administrative Rules, Title 13, Department of Land and Natural Resources, Sub-title 10, Land Management, Chapter 221, Unencumbered Public Lands, and add a new subchapter §13- 221 entitled, **Lāwa‘i Kai Unencumbered Public Lands**.
2. Amend Hawai‘i Administrative Rules, Title 13, Department of Land and Natural Resources, Subtitle 11, Ocean Recreation and Coastal Areas, Part 3, Ocean Waters, Navigable Streams and Beaches, Chapter 256, Ocean Recreation Management rules, and amend Subchapter 3, **South Shore Kaua‘i Ocean Recreation Management Area** rules by adding a new subsection to §13-256.<sup>10</sup>
3. In addition, once the DLNR’s Division of Aquatic Resources rules for a **Marine Management Area** (“MMA”) are created, the proposal is to designate the Lāwa‘i Kai Bay area as a MMA.

NTBG is a non-profit charitable organization with limited financial resources. The Applicant wishes to make it clear that this visionary long-term Master Plan and Management Plan contain all of the potential improvements and repairs that could be needed in the planning horizon. However due to the fiscal constraints of the current economy and the need to balance physical repairs and improvements of the infrastructure with actual garden maintenance, there is no commitment that these physical improvements will be made either in the short term or long term. Because of this, the Applicant is requesting that the BLNR waive its standard condition that physical improvements and repairs approved under a Conservation District Use Application (“CDUA”) “start within one year and are completed within three years.”

Instead, should this Special Subzone request and a master Conservation District Use Permit be approved by the BLNR, the applicant would like the flexibility to bring specific proposed improvements contained in the Master Plan and Management Plan to State of Hawai‘i, Office of Conservation and Coastal Lands (“OCCL”) staff for processing as the funding for these improvements becomes available in the future. This same request was approved when the Limahuli Valley Special Subzone on Kaua‘i was created.

If approved, this proposal will give the NTBG and the community the opportunity to implement a unified culturally-based management strategy that will ensure the protection and health of this area for future generations.

---

<sup>10</sup> Under the jurisdiction of the DLNR’s, Division of Boating and Ocean Recreation (DBOR).

### 2.3 Environmental Review Trigger

This Environmental Assessment is triggered by three components of Chapter 343-5, Hawai‘i Revised Statutes (HRS):

1. Use of *state* or county *lands* or use of state or county funds;
2. Use of any land classified as *conservation district*; and
3. Use within a *shoreline area*.

An Environmental Assessment is required for this project as the Lāwa‘i Kai Special Subzone includes the land, estuary, stream, beach, and bay areas of Lāwa‘i Kai. The Master Plan and Management Plan encompass the entire proposed Special Subzone area.

### 2.4 Land Use Classification and Zoning

The existing State Land Use District for this area is *Conservation*. The State Land Use District for surrounding property to the west and north are classified as *Agricultural*, and to the east is *Urban*. These classifications are shown in **Exhibit F**.

The County of Kaua‘i’s General Plan land use designation for the subject area is *Open*. The surrounding properties to the west are *Agriculture*, to the north is *Open*, and to the east are *Open* and *Residential Community*. The County General Plan map is shown in **Exhibit G**.

Since the subject area is in a State Conservation District, the project area is not zoned by the County of Kaua‘i.<sup>11</sup> As shown in **Exhibit H**, the County Zoning Districts for the surrounding properties are *Agriculture* on the west, *Open* to the north, and *Agriculture* and *Open* to the east.

The land portions of the proposed Lāwa‘i Kai Special Subzone are located within the County’s Special Management Area (SMA)<sup>12</sup>, as shown in **Exhibit I**. Since no development is proposed or changes in the density or intensity of use, no SMA permits are needed at this time.<sup>13</sup> Any proposed improvement in excess of \$500,000 could trigger an application for an SMA permit from the County of Kaua‘i. However, routine maintenance and repair work would not be considered a “development” and may be exempt from a SMA permit or require a SMA minor permit only.

---

<sup>11</sup> See **Appendix B**: letter from the County of Kaua‘i, Planning Department.

<sup>12</sup> The SMA area is *mauka* of the shoreline area.

<sup>13</sup> See **Appendix B**: letter from the County of Kaua‘i, Department of Planning.

## 2.5 Permits Required and Approvals

### Conservation District Use Permit

NTBG will submit a Conservation District Use Application requesting that the State of Hawai'i, Board of Land and Natural Resources approve all proposed activities on Allerton Garden lands as detailed in the Plan.

### Other Permits

At this time, no other permits are required. Should future projects require a permit, NTBG will follow the proper process for approval of those permits.

## 2.6 Projected Project Schedule & Approximate Cost

Petition before BLNR for Lāwa‘i Kai Special Subzone (completed)	4 <sup>th</sup> Qtr. 2011
Completion of Final Environmental Assessment	4 <sup>th</sup> Qtr. 2012
BLNR approval of Lāwa‘i Kai Special Subzone	4 <sup>th</sup> Qtr. 2012
Submit Conservation District Use Application	4 <sup>th</sup> Qtr. 2012
Submit amendments to DBOR Rules	1 <sup>st</sup> Qtr. 2013
Submit amendments to Unencumbered Lands Rules	1 <sup>st</sup> Qtr. 2013
Begin Implementation of Plan	1 <sup>st</sup> Qtr. 2013
Submit amendments to Aquatic Resources Rules	To be determined

Since no new development is proposed, the approximate cost of \$50,000 covers consultant fees to facilitate the Conservation District Use Application and the various HAR rule changes.

## SECTION 3.0 TECHNICAL CHARACTERISTICS AND PUBLIC SERVICES

### 3.1 Fire, Police and Medical Services

The Kalāheo and Kōloa Fire Stations serve the subject property and the surrounding parcels. The Kaua‘i Police Department’s main headquarters is located in Līhu‘e. Medical services are available in Kalāheo, and the Kaua‘i Veteran’s Memorial Hospital is located in Waimea.

### 3.2 Circulation and Vehicular Access

The cliffside portions of the historic Allerton driveway that connected Allerton Garden to Lāwa‘i Road were damaged by Hurricane ‘Iniki in 1992, making it impassable by vehicles.

As a result, there is no longer any direct vehicular access to Allerton Garden from a public road. The two existing vehicular access routes that are currently used cross over the adjoining property before gaining access to the lower parts of Allerton Garden.

The first access route starts at the end of Papalina Road in Kalāheo where the NTBG main entrance is located. From here, vehicles are able to drive down into the Lāwa‘i Valley and through the McBryde Garden where internal roads connect directly to Allerton Garden access roads.

The second vehicular access is from NTBG’s Visitors Center on Lāwa‘i Road where guided tours of the Garden originate. NTBG has an agreement with Alexander & Baldwin (“A&B”) and subsidiary Kukui`ula Development Co. Hawai‘i (“KDCH”) to allow tour and service vehicles to cross over their property and gain access to an old railroad easement that runs over the upper cliffside portion of the Allerton Garden property. The railroad easement leads to NTBG’s McBryde Garden where tour vehicles either park and unload visitors or proceed over internal Allerton Garden roads to the Lotus Pond area.

### 3.3 Public Access to Lāwa‘i Kai Beach and Bay

Historically, public access to the Lāwa‘i Kai Beach and Bay has been limited over the past 70 years due to private ownership of the surrounding area, and by the topography of the basaltic cliffs on both the east and west sides of Lāwa‘i Bay.<sup>14</sup> Public access has also been limited due to the Hawaiian cultural practice of respecting the *konoiki* fishing rights of the bay which were the owned by the Allertons and due to the fact that the basalt headlands make access difficult along the rocky coastline.

Over the past 20 years, recreational access to the area has increased. The existing recreational beach uses include sun bathing, beach combing, swimming, boarding activities, pole fishing, throw-net fishing, diving, spear-fishing, kayakers, and other water-based activities. Access to Lāwa‘i Kai Bay via the ocean waters generally originates from vessels departing the nearby Port Allen or Kukuiula boat harbors. Occasionally, recreational kayaks land on the beach, and recreational vessels pass through the bay. A small amount of fishing takes place in the bay and vessels occasionally anchor overnight in the bay.

---

<sup>14</sup> A detailed discussion of the public access to the shoreline area can be found in Chapter 13.0 of the Lāwa‘i Kai Special Subzone, Master Plan & Management Plan for 2013-2033.

Commercial activities at Lāwa‘i Kai take place on both the beach and bay. Commercial boat tours transit, offer sight-seeing cruises, and snorkeling tours in Lāwa`i Bay. These tours are infrequent and irregular, are dependent on weather and ocean conditions, and take place primarily in the winter when conditions are calmest in the bay.

Currently, there is one unpermitted<sup>15</sup> commercial kayak company that enters the waters of Lāwa‘i Kai, and regularly lands on the beach. Unpermitted landings typically occur twice a week, during the September through May season, and involves 10 kayakers at a time.

There are two legal public accesses to Lāwa‘i Kai Beach which traverse the shoreline area on both the western and eastern sides of Lāwa‘i Valley. On the eastern side of the Valley, beach users park their cars along Lāwa‘i Road between Spouting Horn and the Allerton Gate, walk down to an unmaintained, historic shoreline trail, and traverse the challenging rocky coastline which in one location is difficult to traverse.<sup>16</sup> On the western coastline, beach users can walk along the shoreline to access the Lāwa‘i Kai Beach. Steep cliffs, coastal erosion, and breaks along the rocky cliffs make this public access also difficult to traverse.

Currently, there are two areas where illegal access occurs over private property. One illegal access is on the eastern plateau where beach users park their cars along Lāwa`i Road between Spouting Horn and the Allerton Gate, trespass through KDCH and Allerton Garden private properties, and then hike down the unsafe and undermined remnant of the old Allerton driveway. Lands on the western side of the project area are owned by Alexander & Baldwin (A&B) and leased to Kaua‘i Coffee. Fishermen and beach users cross the coffee fields then illegally trespass over Allerton Garden private property as they hike down a cliffside trail and onto the Lāwa‘i Kai Beach. The legal and illegal coastal accesses are shown in **Exhibit K**.

### 3.4 Solid Waste

Currently, the solid waste disposal for the Garden is provided by the Garden Isle Disposal company. The company also picks up any materials to be recycled. The solid waste materials generated from within the project area are minimal. The Garden staff transports the materials to the NTBG headquarters for collection by the County.

---

<sup>15</sup> As required by law, the commercial kayak company does not currently have a permit from the State of Hawaii, Department of Land and Natural Resources, Division of Boating and Ocean Recreation to land on Lāwa‘i Kai Beach.

<sup>16</sup> In the 1960s the Allerton’s made improvements to the rocky trail and planted vegetation but the hurricanes in 1982 and 1992 completely destroyed these improvements and all of the portions of the trail located in the mouth of the bay.

### 3.5 Water

Historically and prior to about 1995, the structures within the Garden used spring water for their potable water needs. When the springs dried up, the structures were then required to rely on the County’s potable water system to meet their needs. The County’s potable water transmission line begins at Papalina Road then crosses through the NTBG’s McBryde Garden property into the Allerton Garden. The McBryde section of the water system is an aging one, and is often subject to leakage and loss of pressure. Delivery of potable water is through a 2-inch pipe, and the water is primarily used for the work shed and the Allerton House and Guest House. Because the County’s water transmission lines are a considerable distance from the Allerton Garden property, NTBG developed a transmission system to bring water to the Garden.

### 3.6 Wastewater Treatment

Within the Garden are the Allerton House, Guest House and tool sheds. The wastewater treatment system for the Allerton House was upgraded to a septic system after Hurricane Iniki in 1992. The Guest House and tool sheds currently have cesspools.

### 3.7 Utilities: Electrical, Telephone, and Cable

The source of electrical and telephone lines for the Allerton House and Guest House are above-ground lines located on Kukui‘ula Development property. The lines drop down from the eastside plateau, over the cliff and along the hillside, to a pole sited behind the Allerton House. When the eastern plateau is developed, there may be changes in the source-location of these utilities. The electrical and telephone lines for the tool sheds located with the Garden grounds are provided by utility lines that service the Pump 6 area, on the *mauka* boundary of the Garden. Internet access is provided by a wireless network system.

## SECTION 4.0 SOCIO-ECONOMIC CHARACTERISTICS

### 4.1 Demographic Data

The 2010 U.S. Census reported that Kaua‘i had a resident population of 67,091. The 2010 population reported for the Lāwa‘i Census Designated Place (“CDP”) was 2,363 persons. For the Kōloa CDP, the population was 2,144. Other relevant data follows:

Number of Housing Units (Lāwa‘i)	959
Number of Housing Units (Kōloa)	814
Per Capita Income (Kaua‘i)	\$35,560

Using the data for Lāwa‘i CDP, the predominant ethnic groups are White (39.9%), Asian (23.2%), Native Hawaiian and Other Pacific Islander (6.6%) and all others (34.3%). For the Kōloa CDP, the predominant ethnic groups are Asian (37.8%), White (20.8%), Hispanic (11.6%), Native Hawaiian and Other Pacific Islander (8.4%), and all others (1.0%).

## 4.2 Economy

The proposed action does not involve any short-term economic impacts to the property. In addition, no long-term economic impacts are anticipated with the exception of the continuing employment of the NTBG staff.

## 4.3 Historic, Cultural and Archaeological Resources

At the present time there are no properties listed on the State or National Register of Historic Places. Within Allerton Garden there are structures and other features over 50 years old that may qualify for placement on the State or National Register of Historic Places. Following the death of her husband King Kamehameha IV, Hawaii’s Queen Emma came to Lāwa‘i Valley in 1870 where she lived for a short while before returning to her official duties in Honolulu. Queen Emma’s Cottage remains in the Garden today.

Visitors to Allerton Garden see the lush vegetation and beautiful garden settings. But a look beneath the surface reveals the many layers of history – the cultural resources and ethnographic landscapes associated with the early Hawaiian habitation of the Valley; the historic vernacular landscapes with traces of plantation life and many its ethnic groups; the Valley’s association with Queen Emma; and the artistry of the historic designed landscape by Robert and John Allerton. This unique place illustrates through its remaining features what may now be identified as a cultural landscape.

Cultural Landscapes<sup>17</sup> are defined as "a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values."

There are four general types of Cultural Landscapes<sup>18</sup>, not mutually exclusive: *historic sites*, *historic designed landscapes*, *historic vernacular landscapes*, and *ethnographic landscapes*. The four landscape types within Allerton Garden evolved over time, and illustrate the interconnected systems of land, water, vegetation and wildlife of the Lāwa‘i Valley. The Lāwa‘i Kai Special Subzone area, including Allerton Garden, and Lāwa‘i beach and bay, is comprised of all

---

<sup>17</sup> U.S. Department of the Interior, National Park Service, Preservation Brief 36.

<sup>18</sup> Also known as Historic Landscape.

four Cultural Landscape types, whose definitions are described in Historic Resources Management Plan, Chapter 7.

An archaeological survey identified six new sites.<sup>19</sup> These sites are in addition to the 13 previously identified sites by Pila Kikuchi and Wendell Bennett.<sup>20</sup> Included in the project area is a pre-contact Hawaiian fishpond. According to Pila Kikuchi in his 1963 archaeological survey,

*“A fishpond located back of the large rock hill at the mouth of Lāwa‘i kai was once very productive. The stone walls are still in very good condition. The limits of the pond however are very vague because of overgrowth of weeds and shrubs. The tidal wave of 1946 swept through the pond and filled it with mud and debris. The mullet raised at this pond were said to be very popular and considered a delicacy.”*

Further siltation of the fishpond occurred in 1992 when Hurricane Iniki deposited additional amounts of debris and sediment in the area.

Act 50 requires state agencies and other developers to assess the effects of proposed land use or shore line developments on the “cultural practices of the community and State” as part of the HRS Chapter 343 environmental review process (2000).

*A Cultural Impact Assessment of Allerton Garden* was prepared by Scientific Consultant Services in February 2008. The Assessment contains archival and documentary research, as well as communication with organizations and individuals having knowledge of the project area, its cultural resources, and its practices and beliefs.

The *Assessment* concluded that, pursuant to Act 50, the exercise of native Hawaiian rights, or any ethnic groups, related to gathering, access or other customary activities will be [positively] affected. Many cultural sites have been identified within the project area and will be preserved by the NTB. Those of native Hawaiian descent will continue to have access to the valley, and NTB will continue to consult with those identified groups.

As described in the Archaeological Resources Management Plan, Chapter 10, there is a need to maintain the legal rights of Land Commission Awardees and lineal descendants and to provide access to the archaeological sites for traditional and cultural uses by lineal descendants. NTB will continue to maintain and preserve the sites at Lāwa‘i Kai.

---

<sup>19</sup> Hoerman and Spear, “An Archaeological Inventory Survey of Lāwa‘i Ahupua‘a” available at [lawaikai.ntbg.org](http://lawaikai.ntbg.org).

<sup>20</sup> See Lāwa‘i Kai Special Subzone, Master Plan and Management Plan for 2013-2033, Historic Resources Management Plan, Chapter 7, and Archaeological Resources Management Plan, Chapter 10, for complete listing of sites.

#### 4.4 Environmental Justice

In January 2007, NTBG invited a diverse group of business, government, and community representatives to participate in the Lāwa‘i Kai Community Advisory Group (LKCAG). The 23-member group met in over 17 facilitated meetings from January 2007 through July 2012. The LKCAG developed a draft vision for Lāwa‘i Kai, reviewed existing studies described above, participated in field and boat trips, and developed draft rules.

In addition to the LKCAG meetings, NTBG met with State and County officials, and community groups to describe and solicit input on the project. The Kōloa Community Association sponsored a meeting on October 20, 2009 which was open to the public, and a field trip to the project site was conducted on October 28, 2009.

On October 30, 2009 NTBG submitted to the DLNR a Petition to Amend HAR 13-5 and create the Lāwa‘i Kai Special Subzone. The Board of Land and Natural Resources approved the public hearing on the Petition on September 23, 2011 and on May 24, 2012 the public hearing was held on Kaua‘i.

## SECTION 5.0 ENVIRONMENTAL CHARACTERISTICS

### 5.1 Biological Resources

The proposed project area encompasses the land area of Allerton Garden, the aquatic resources of Lāwa‘i Stream, the Lāwa‘i Kai coastal zone, and the marine waters of Lāwa‘i Kai.

The biological characteristics include:

- Aquatic Resources: A biological and habitat assessment of the lower Lāwa‘i Kai Stream was conducted in June 2007.<sup>21</sup> Native aquatic species presence in the estuary area was found to be relatively robust. Native *'o'opu* and *'opae* species were consistently present although not at abundance levels comparable to that found in high quality streams.

Of ecological concern was the presence of a large population of the alien cichlid in the estuary and a growing population of the alien grass shrimp, which appeared to be gaining a foothold in lower Lāwa‘i Kai Stream.<sup>22</sup>

- Avian Resources: Endemic, endangered Hawaiian birds, in the vicinity of Lāwa‘i estuary and stream, include: *Anas wyvilliana* (Hawaiian duck), *Fulica americana alai* (Hawaiian coot), and *Gallinula chloropus*

---

<sup>21</sup> Kido, “A Biological and Habitat Assessment of Lower Lāwa‘i Stream” available at lawaikai.ntbg.org.

<sup>22</sup> Further information is found in the Chapter 11, Lāwa‘i Kai Estuary and Stream Management Plan.

*sandvicensis* (Common moorhen). There are no endangered or threatened seabirds that nest in Lāwa‘i Kai.

- Coastal Resources: The Lāwa‘i Kai shoreline area consists of about two acres and is surrounded by a basalt rock perimeter that forms Lāwa‘i Kai Bay. The sandy coastal beach area consists of a white sand beach and small dune system that transition into the lawn fronting the Allerton house. The lower Lāwa‘i Kai Stream meanders through the sandy beach area. As a result of limited access, natural resources have remained relatively intact and pristine.

The coastal area of Lāwa‘i Kai is an identified hauling-out and resting area for the endangered Hawaiian Monk Seal, and a nesting site for threatened green sea turtles.

Green sea turtle nesting and monk seal activity is being monitored in collaboration with researchers from the State’s Department of Land and Natural Resources, Aquatic Resources Division, and National Oceanic and Atmospheric Administration’s Pacific Islands Fisheries Science Center, Marine Turtle Research Program.

A project underway since 2005 has been to restore native vegetation along the Lāwa‘i Kai coastal zone.<sup>23</sup> This restoration project provides natural protection to the coastline in the face of extreme events such as hurricanes and tsunamis, provides a habitat matrix for rare and endangered coastal plants, and preserves one of two nesting sites for the federally threatened *honu*, or green sea turtles. The improved coastal native habitat has provided increasing nesting opportunities for the green sea turtle.

- Marine Resources: Lāwa‘i Kai Bay is approximately 20 acres of mostly sandy bottom with coral reef communities colonizing the basalt rock perimeter. The bay is a high wave energy environment, particularly in summer months, receiving intermittent freshwater and terrestrial sediment/debris input from Lāwa‘i Kai Stream.

A marine resource survey conducted in May 2007 found that the biological community exhibited relatively healthy herbivore populations (both sea urchins and fish).<sup>24</sup> No alien or invasive algae species were observed, and turf algae were dominant. Overall coral abundance was low (typical of high energy environments), and dominated by lobe coral and cauliflower coral. Forty benthic taxa and 90 fish species were found within the survey sites.

---

<sup>23</sup> During 2004-2005, Dr. David Burney, Director of Conservation (and Living Collections) at NTBG, received funding from the U.S. Fish and Wildlife Service for a project to restore native vegetation along the Lāwa‘i Kai beach. All necessary permits were obtained before proceeding.

<sup>24</sup> Friedlander, “Survey of the Marine Resources of Lāwa‘i Bay” available at [lawaikai.ntbg.org](http://lawaikai.ntbg.org).

Fish species diversity was low, owing to the small size of the bay and its limited habitat complexity. *Akule* and *weke 'ula* were the most important fishery resources utilizing the bay. *Uhu* and *opihi* were low in abundance and size reflecting high harvest pressures in the bay.

Natural stressors to the health of Lāwa‘i Kai Bay include high wave energy and periodic stream flooding. The latter is exacerbated by upstream land use, with increased sedimentation, nutrients from fertilizers, and organic debris deposited into the bay. Anthropogenic stressors on the marine ecosystem are fishing activities that lead to over-harvesting, as well as a proliferation of derelict fishing gear in the bay.<sup>25</sup>

## 5.2 Botanical Resources

Over time, and as a result of land use changes and invasive plants, few native Hawaiian plants survived in the lower region of Lāwa‘i Valley except along the coastal beach area and on the inaccessible rocky slopes and cliffs unsuitable for cultivation.

Ecologically Lāwa‘i Kai was once a part of the lowland dry forest and coastal ecosystems. Due to the land use changes over time, the terrestrial ecosystems found on the subject property today are dominated by introduced plant species.

A botanical inventory of the Allerton Garden was conducted in June 2007.<sup>26</sup> The inventory identified approximately 858 different species, varieties, and cultivars of flowering plants and ferns, including cultivated, native, and naturalized weedy species.<sup>27</sup> The survey of the Garden found very few native species, and no threatened or endangered flora.

In spite of the fact the area is dominated by introduced plant species, there are still a number of native plants found growing on the cliffs in the project area. These cliff plants include *'akoko*, *a 'alii*, *'ala 'ala wai nui*, *ko 'oko 'olau*, *'uhaloa*, and *'akia*. There are also several native species growing along the coastal areas. These include: *naupaka kahakai*, *pohuehue*, *hunakai*, *pa 'uohi 'iaka*, *'aki 'aki*, and *mohihihi*.

---

<sup>25</sup> Further information can be found in the Coastal and Marine Management Plan, Chapter 12.

<sup>26</sup> Lorence and Flynn, “Botanical Inventory of the Allerton Garden” available at [lawaikai.ntbg.org](http://lawaikai.ntbg.org).

<sup>27</sup> In addition to the species introduced within the historical context of Queen Emma (1848-1886) and the Allertons (1938 – 1986), the Garden holds a great diversity of plants with important conservation, research, and educational potential.

### **5.3 Climate. Rainfall and Wind**

The average rainfall is about 40-50 inches of rain per year according to the *Atlas of Hawai'i*. The closest rain gauge is located in nearby Kalāheo (HI43) which is significantly wetter than Lāwa‘i Kai.

Annual temperatures range from the mid-60s to mid-80s. Winds generally originate from the northeast (trade winds), although between October and April, the area may come under the influence of the southerly or southwesterly Kona storms.

### **5.4 Hazards: Hurricanes, Tsunamis, Flooding**

The project area is subject to hurricane impacts and flooding from Lāwa‘i Kai Stream. Lāwa‘i Kai is one of the areas studied in the Federal Management Agency (FEMA), Flood Insurance Study, County of Kaua'i. The Federal Emergency Management Flood Insurance Rate Map, Panel 15002-0292E (September 16, 2005), shows numerous flood zones, including Zone A, AE, VE, X, and XS. **Exhibit J** indicates the various flood hazard zones within the subject parcel including the descriptions in the applicable zones.

### **5.5 Hydrological Characteristics**

Lāwa‘i Valley is a drainage system for a bowl-shaped geologic feature about 2.4 miles wide below Mt. Kahili inside of which sits the Kanaele Swamp. Lāwa‘i Valley is approximately 8,200 acres in total size with Lāwa‘i Kai Stream descending from its headwaters at about a 1,800 foot elevation to the ocean at Lāwa‘i Kai Bay— a straight line distance of about 5.3 miles. Five unnamed tributaries drain Lāwa‘i's upper watershed joining its main channel by the time the stream reaches about 600 feet.

The perennial Lāwa‘i Kai Stream originates in the Līhu‘e Kōloa Forest Reserve in its headwater reaches, passes through low-density residential subdivisions and agricultural lands in its middle reaches before entering an increasingly incised lowland valley feature 200 feet deep in sections which begins about one mile downstream of its intersection with Kaumuali'i Highway. This incised segment of the stream is surrounded by agricultural lands which are elevated above the stream channel. Lāwa‘i Kai Stream is one of a relatively small group of Hawai'i streams that supports a deep estuarine reach and associated wetland features before entering into the ocean at Lāwa‘i Kai Bay.

### **5.6 Soils**

Due to the topography of the valley, there are many different types of soil in the project area. Small amounts of Jaucas Loamy Fine Sand (JfB) is found in the

central area of the project area on the east side of Lāwa‘i Stream. The soil is single grained, pale brown to a very pale brown in color and sandy in texture and is typically found near old beaches. The expected mean annual rainfall for this soil type is between 10-14 inches.

The soils around the stream mouth and fishpond area are classified as Marsh (MZ) soils. The areas are wet and flood periodically.

Rough Broken Land (rRR) soil is found along the steep valley walls whose gullies serve as drainage channels. Elevations range from 25 to 500 feet for this soil. rRR varies with 20 to over 60 inches in depth over soft, weathered rock. Runoff in the area consists of weathered rocks and/or rock fragments, as well as soil, and is very rapid.

Kaena Clay, Brown Variant (KavC) is also found on the subject property. It is comprised of alluvial deposits from the Lāwa‘i Stream and has a brown surface layer. Kaena Clay has poor drainage with slow to moderately slow permeability.

On the southern end of the project area, at the mouth of the stream and bordering the ocean, are Beach sands (BS) interspersed with areas covered with stones, cobbly coral, and seashells.

The Agricultural Lands of Importance to the State of Hawai‘i (“ALISH”) productivity rating for the project area is unclassified on the ALISH maps. The Land Study Bureau classifications are C and E according to the State Office of Planning.

## **5.7 Scenic and Visual Resources**

The scenic resources of the project area are varied and dramatic. The *mauka* to *makai* scenic resources include lush tropical vegetation with cliffs rising steeply from the valley floor.

Lāwa‘i Kai Stream is the spine of the Allerton Garden where a series of garden rooms and vistas unfold between the streambank and the cliffs that rise behind. The sound of abundant water is everywhere – in the pools, waterfalls, fountains, and cascades.

Lāwa‘i Kai Stream meanders through the Garden, coastal area, and into Lāwa‘i Kai Bay. The absence of human impacts contributes to the natural beauty and relatively pristine scenic and visual qualities of the small beach and bay area.

## 5.8 Topography and Slope

Kaua'i is one of the oldest of the Hawaiian Islands and consists of a single shield volcano built up from the sea floor by thousands of thin flows of basaltic lava. Following the volcanic period, long periods of erosion, waves cutting high sea cliffs, and streams cut deep canyons and valleys.

The topography of the proposed Lāwa'i Kai Special Subzone area includes open meadows, jungle ravines, and rugged cliff faces.

The soils around the stream mouth and fishpond area are classified as Marsh (MZ) soils. The areas are wet and flood periodically.

Rough Broken Land (rRR) soil is found along the steep valley walls whose gullies serve as drainage channels. Elevations range from 25 to 500 feet for this soil. rRR varies with 20 to over 60 inches in depth over soft, weathered rock.

## 5.9 Watershed and Estuary

As mentioned above, the project area is located on the southern portion of Kaua'i, Lāwa'i Valley is a drainage system for an elevated wetland (Kanaele Swamp). The perennial Lāwa'i Kai Stream continues downstream on its way to its deep estuary and Lāwa'i Kai Bay.

This lowland segment of Lāwa'i Kai Stream is surrounded by agricultural lands that are elevated above the stream channel. Irrigation systems, first constructed by McBryde Sugar Company in 1899, rely on groundwater resources that feed Lāwa'i Kai Stream. The long-term effect of these systems of ditches and reservoirs on Lāwa'i Kai Stream hydrology are not known.

The project area encompasses the estuarine area of Lāwa'i Kai Stream within the Allerton Garden.<sup>28</sup> Estuaries are defined by the Department of Health as “deep, characteristically brackish coastal waters in well-defined basins with a continuous or seasonal surface connection to the ocean that allows entry of marine fauna. Estuaries may either be natural, occurring mainly at stream or river mouths; or developed, artificially, or strongly modified from the natural state such as a dredged or revetted stream termini.”<sup>29</sup> A 1978 survey by the Department of the Interior, U.S. Fish and Wildlife Service identified an area of wetlands at Lāwa'i Kai.

The Hawai'i Stream Assessment (HSA) describes estuaries as providing important habitat for terrestrial, marine and aquatic species; their importance to the life cycle of various species may be critical to the life cycle of some species. HSA's

---

<sup>28</sup> See Lāwa'i Kai Special Subzone Master Plan and Management Plan for 2010-2030, Exhibit N.

<sup>29</sup> HAR, Chapter 11-54

ranking for the entire stream is *Moderate*<sup>30</sup> with identified native aquatic species, *'o'opu nakea* and *'o'opu nopili*. The streams overall riparian resources include detrimental plants such as California Grass and *hau*. Using the National Register of Historic Places criteria, HSA describes the cultural resources in the entire stream valley as containing excellent examples of site types and important information, with culturally noteworthy sites. Recreational resources identified in the HSA that are relevant to the project area include fishing, swimming, nature study, and scenic views.

An avifauna survey conducted in February 2009 found only three endemic species of avifauna within the project area along the Lāwa‘i Stream: the *Anas wyvilliana* (Hawaiian duck), *Fulica americana alai* (American coot), and *Gallinula chloropus sandvicensis* (Common moorhen).<sup>31</sup>

*A Biological and Habitat Assessment of Lower Lāwa‘i Stream* was conducted in February 2007 by Michael H. Kido, of the Hawai‘i Stream Research Center, University of Hawai‘i. The study established two stream study sites within the lower Lāwa‘i Kai Stream where a standardized stream assessment methodology was applied. The purpose of the study was to evaluate the “health” or “biological integrity” of the stream as well as the condition of the habitat.

Sites were sampled in March 2005 and August 2006. The survey of two sites sampled at lower Lāwa‘i Kai Stream showed that both the overall habitat condition and biotic integrity were rated as “Poor.” Stream habitat quality in both sites related to the presence of high sediment levels in the stream channel, chronic stream bank instability/erosion, and extreme variability in water levels/flow regimes. Despite the “Poor” habitat, overall biological integrity was determined to range from “Poor-to-Fair”. Native aquatic species presence in this estuarine-influenced reach was found to be relatively robust with all expected native *'o'opu* and *'opae* species consistently present although not at abundance levels comparable to that found in high quality streams.

Of ecological concern was the presence of a large population of alien tilapia in the estuary and a growing population of the alien grass shrimp.

## **SECTION 6.0      AFFECTED ENVIRONMENT, POTENTIAL IMPACTS, & MITIGATION MEASURES**

The Lāwa‘i Kai Management Plans detail the specific goals, issues, objectives and activities/actions in seven areas related to the environment.<sup>32</sup> The below summarizes the affected environment, and potential impacts and mitigation measures.

---

<sup>30</sup> Ranking Categories: Outstanding, Substantial, Moderate, and Limited.

<sup>31</sup> See Landscape Resources Management Plan, Chapter 8.

<sup>32</sup> See History, Landscape, Infrastructure, Archaeology, Lāwa‘i Estuary and Stream, Coastal and Marine, Recreation and Commercial Management Plans, Chapters 6-13.

## 6.1 Historic and Cultural

Hawaiians probably settled in what is now the Allerton Garden more than ten centuries ago. The abundant archaeological sites on the property, and local ethnographic sources, indicate that the area was utilized in a variety of ways. In recent centuries at least, the lower part of the valley was held by persons of high status.

The post-contact period in the Hawaiian Islands began in 1778 with the arrival of Europeans. This period marked the beginning of changes in settlement and land tenure patterns that continued throughout the nineteenth and twentieth centuries. In southern Kaua'i traditional Hawaiian land management systems were replaced by private land ownership.

Post-contact or historical settlement in Lāwa'i Valley is documented in the 1820s when the name of Lāwa'i appears on a map by Hiram Bingham. In 1848 James Young Kanehoa was awarded Mahele Award 43, the *ahupua'a* of Lāwa'i in the *moku* of Kona, and in 1871, his wife and heir, Hikoni, deeded the *ahupua'a* of Lāwa'i to Queen Emma. The oldest building on the property, the Queen Emma Cottage, was built sometime before 1870.

In 1876, Emma leased the *ahupua'a* to Duncan McBryde. After her death in 1886, Mrs. Elizabeth McBryde purchased the *ahupua'a* of Lāwa'i. The *mauka* lands were used to raise cattle, and the lower lands at Lāwa'i Kai were leased to Chinese farmers for rice and taro cultivation. The Chinese built irrigation ditches and water flumes on the west side of the valley and repaired existing Hawaiian ditches to water the rice. They also used the water to maintain the existing Hawaiian fishpond.

In 1899, Alexander McBryde was granted the land of Lāwa'i in the lower valley, together with the *konohiki* fishing rights in the bay. Several years later, when it was decided to plant cane in the area where Mauna Kilohana stood on the eastern rim of the valley, Alexander rescued Queen Emma's cottage. It was lowered over the cliff to the valley floor. He lived in the cottage until a larger bungalow, Hale Pua, was built in 1915.

The beginning of the 1900s marked a dramatic change in settlement and land use in Lāwa'i Valley. Mechanization of the McBryde Plantation, railroad construction, and large irrigation projects transformed the landscape and diverted stream flows.

In 1899 over 1,000 Japanese contract workers arrived and began working for McBryde Plantation. The Japanese immigrants, like the Chinese before them, farmed rice. Three rice mills operated in Lāwa'i Valley during the 1920s but they ceased production in the early 1930s when export from Hawai'i declined sharply. By 1930 there was a decrease in small-scale agriculture and a decline in population for the District.

In 1938 Lāwa‘i Kai was sold to Robert Allerton and his adopted son John Gregg. The McBryde bungalow was torn down and replaced by a house designed by John Gregg. After the Allertons moved into their new home they immediately began designing and laying out the garden.

The cultural resources and ethnographic landscapes associated with the early Hawaiian habitation of the Valley; the historic vernacular landscapes with traces of plantation life and many its ethnic groups; the Valley’s association with Hawai‘i’s Queen Emma; and the artistry of the historic designed landscape, is now identified as a cultural landscape.

### ***Impacts and Mitigation Measures***

Currently, there is not a comprehensive inventory of the historic resources, and due to their age, the historic structures require on-going maintenance and repairs. In addition, the project area is vulnerable to flooding, hurricanes and tsunami.

In order to protect and preserve the historic, cultural and archaeological resources within the Garden, there are a number of proposed activities and/or actions contained within the Historic Resources and the Archaeological Resources Management Plans (Chapters 7 & 10). Highlighted activities include the production of a historic structures report, producing a Preservation Plan, and seeking funding for needed repairs to the historic structures.

## **6.2 Archaeological Resources**

To date, archaeological surveys have identified 19 sites within the Garden area. The survey included a 100% survey of the Lāwa‘i Kai Valley floor. The valley walls were not surveyed due to the dense vegetative growth; it is anticipated that additional survey work would increase the number of identified sites.

### ***Impacts and Mitigation***

Protection and preservation of the archaeological sites within the Garden is a goal of this proposed action. In addition, there is a need to maintain the legal rights of the Land Commission Awardees and lineal descendants with Mahele Awards. NTBG will continue to provide access to the sites for traditional and cultural uses by these lineal descendants.

There are on-going impacts to the archaeological sites such as vegetative growth on or within sites, erosion, landslides, falling trees, etc. In addition, beach users have defaced cultural sites with graffiti by beach users. The management of human activity on the beach through the adoption of rules could hopefully reduce or eliminate this desecration.

NTBG will continue to maintain and preserve the sites and establish special procedures for their continued care and protection. The establishment of regular

maintenance procedures for the sites, and management of human activity on the beach will facilitate the preservation of the sites. The archaeological sites within the Garden have yielded important cultural information. If funding is available, further research and survey work could continue. As previously mentioned, there is a need to maintain the legal rights of Land Commission Awardees and lineal descendants and to provide access to the archaeological sites for traditional and cultural uses by lineal descendants.

### **6.3 Landscape Resources**

The topography of the proposed Lāwa‘i Kai Special Subzone area includes open meadows, jungle ravines, and rugged cliff faces. With an intermediate amount of rainfall and wide range of habitats, the area is suitable for growing a diverse array of plant life, although soils are generally infertile and eroded as a result of decades of poor farming practices associated with the Plantation Era.

From the late 1930s to the early 1960s<sup>33</sup> the Allertons created a series of garden rooms that unfold between the banks of Lāwa‘i Stream on the west and the cliffs on the east. In creating the layout for the Garden, the Allertons used the basic rules of design – harmony and balance, proportion, rhythm and emphasis. Today, the Garden holds a great diversity of plants with important conservation, research, and educational potential.

#### ***Impacts and Mitigation***

The maintenance program for the Garden will be updated and expanded to coordinate and be consistent with the overall goals of the Garden: education, research and conservation.

Mitigation measures include encouraging the historical methods and specialized techniques of maintaining the garden areas, preserving the historic integrity and plant materials within the Garden, and stabilizing and protecting the topography in areas prone to soil erosion and runoff using Best Management Practices.

Restoration areas featuring plants native to Kaua‘i are located on approximately three acres at Lāwa‘i Kai and in strips and patches along Lāwa‘i Kai Stream. Outside Allerton Garden but contributing to the historical landscape are three additional acres on the cliff above Allerton Garden and McBryde Garden, and along the road leading down from the Administrative entrance through McBryde Garden on the way to Allerton Garden which provide a varied palette of recovering native landscapes. Restoration programs will continue to result in a diversification of native Hawaiian coastal, riparian, and dry forest habitats, which now provide a matrix for conserving a diversity of rare and endangered species and provide a wealth of opportunities for scientific research and educational programs.

---

<sup>33</sup> The late 1950s is the selected period of interpretation for the landscape design.

Methods to control alien animals such as pigs and other ungulates that cause plant and soil disturbance, and chickens that disturb seedlings and other plant materials are detailed in the Landscape Resources Management Plan, Chapter 8.

#### **6.4 Technical Characteristics, Infrastructure, and Public Services**

Infrastructure within the Garden includes internal roads, bridges and walking paths, the potable water system, irrigation systems, Garden water features, rock walls and steps, and the wastewater treatment systems.

##### ***Impacts and Mitigation Measures***

The goal of the Infrastructure Management Plan, Chapter 9, is to stabilize and improve the infrastructure within the historic Garden. At the present time, no major infrastructure projects are underway primarily due to the lack of funding. NTBG's Facilities Department provides employees to carry out routine maintenance on the above listed infrastructure situated within the Garden area, and Best Management Practices will be followed. In addition, NTBG recently completed a Leadership in Energy and Environmental Design ("LEED") project.

Based on funding, some of the future infrastructure projects outlined in the Plan include:

- Examining potable water systems and alternative sources.
- Improving the existing Pump 6 water system.
- Consider methods to separate the irrigation system from the water features system.
- Upgrade tool sheds and Guest House wastewater systems.

#### **6.5 Estuary and Stream**

A detailed description of the watershed area for the Lāwa‘i Kai Estuary and Stream can be found in Section 5.9, Environmental Characteristics, above.<sup>34</sup>

##### ***Impacts and Mitigation Measures***

A majority of the negative impacts on the stream and estuary are initiated by actions *mauka* of the project area. Directly *mauka* from the project area of Allerton Garden is the McBryde Garden, owned and managed by NTBG. This area is being actively managed to reduce non-point source pollution, and NTBG is implementing other landscape practices that affect the Lāwa‘i estuary and stream.

Unfortunately, properties in the watershed outside the boundaries of NTBG continue to have negative impacts on the estuary and stream. Some of these off-

---

<sup>34</sup> See Hydrological Characteristics and Watershed and Estuary above.

site impacts include: stream flow alterations and diversions, realigning and straightening channels, soil disturbances associated with agriculture in the watershed, lack of bank management within the stream corridor, agricultural runoff, removal of riparian vegetation, and the introduction of non-native species. These off-site impacts and current and possible future actions and mitigation measures are detailed in the Lāwa‘i Kai Estuary and Stream Management Plan, Chapter 11.

Within the project area, it is the goal of NTBG to improve the water quality and ecological health of the Lāwa‘i Kai estuary, stream, and coastal waters. NTBG plans to continue a stream and estuary monitoring program and develop baseline data to assist with the development of programs to achieve the above goal, to educate the community, and to seek assistance from other organizations and agencies.

Of ecological concern was the presence of a large population of alien tilapia in the estuary and a growing population of the alien grass shrimp. Mitigation measures include the reduction of any alien aquatic species, and improving the natural habitat in the stream and estuary to allow for the recruitment and return of native species.

## 6.6 Coastal and Marine Resources

In 2008 the Conservation Department at NTBG developed a protocol for monitoring, protecting, researching and documenting the nesting sites of green sea turtles on the beach at Lāwa‘i Kai. The program involves discovering the sites, notifying the proper entities, securing the sites, documenting specifics of each nesting site, observing and monitoring sites, and with the proper authority, uncovering the site after hatching has occurred, and recording the appropriate data. Such data include date eggs are laid, date hatched, date the nests are uncovered, number of shells, unhatched embryos and number of hatchlings still in the nest.

A second program component includes the removal of invasive trees such as ironwoods and alien grasses in the beach area. Their dense root systems make it difficult for turtles to dig nests in the beach sand. NTBG is replacing the invasives with native coastal plants with loose root systems that hold the nest in place while the turtle is digging rather than hindering her efforts. These natives include: *naupaka*, *pa‘uohi‘iaka*, and *pohuehue*.

After a seven-year hiatus, turtles nested again at Lāwa‘i Kai. During the full moon over the weekend of June 2-3, 2007, three female turtles deposited four egg clutches after digging cavities above the high water line.<sup>35</sup> In the 2008 nesting

---

<sup>35</sup> Richard Hanna, NTBG, personal observation, June 2007.

season, five nests were located and monitored, and annual nest monitoring continues.

The Hawaiian monk seal is the only pinniped species endemic to the Hawaiian Islands. They are one of the most endangered marine mammals species in the world. Hawaiian monk seals hauled out on sandy beaches are sensitive to human presence. In the ocean, seals may exhibit inquisitive behavior. On Lāwa‘i Kai Beach and in the Bay, monk seals have been recently been observed. The relatively limited access by the public has apparently made the area a desirable location for the monk seals to haul out and nap, and due to the current level of use, the State has not found it necessary to rope off the area.

Green sea turtle nesting and monk seal activity is being monitored in collaboration with researchers from the State’s Department of Land and Natural Resources, Aquatic Resources Division, and National Oceanic and Atmospheric Administration’s Pacific Islands Fisheries Science Center, Marine Turtle Research Program.

#### ***Impacts and Mitigation Measures***

The land, beach and bay are interconnected elements within the project area, and NTBG has three goals which address this relationship:

1. Restore native coastal ecosystem on Lāwa‘i Kai Beach.
2. Educate the public about the unique resources and ecosystem of Lāwa‘i Kai Beach and Bay.
3. Improve the marine resources of Lāwa‘i Kai Bay.

The impacts to green sea turtles, seabirds and monk seals are detailed in the Coastal & Marine Resources Management Plan, Chapter 12. Some of the mitigation measures considered to address these impacts include: the tracking and monitoring of green sea turtle nesting, habitat and populations, improving and maintaining the nesting habitat for the turtles, ban nighttime lighting on the beach and surrounding areas, reducing/removing feral cat populations, and maintaining the area as a safe haven for monk seals.

### **6.7 Recreation and Commercial Uses of Beach and Bay**

The recreational and commercial uses of the beach and bay are described in Section 3.3 above.

However, with the growing population on Kaua‘i of both residents and visitors, there will be increased pressure to provide more public recreational access to Lāwa‘i Kai Beach and Bay.

### ***Impacts and Mitigation Measures***

A year-long user survey conducted by NTBG shows that the existing level of use is relatively low. There is agreement among members of the Lāwa‘i Kai Citizens Advisory Group that the existing level of use is acceptable and should be continued into the future. There is also agreement that expanding the use of Lāwa‘i Kai Beach and Bay would irrevocably change the character of the area.

As previously discussed, because of the difficult shoreline access and private property ownership of the surrounding area, there has been limited public recreational use of the beach and bay area over the past 70 years. As a result, natural resources have remained a relatively intact and pristine.

With the growing population on Kaua‘i of both residents and visitors, there will be increased pressure to provide more public recreational access to Lāwa‘i Kai Beach and Bay. Since there are very few coastal and marine areas on Kaua‘i that are relatively undisturbed like Lāwa‘i Kai, there is a need to preserve the existing levels of those activities, while preserving and protecting the unique environmental qualities of this special area. No new public access routes are being proposed by this project.

As detailed in the Recreation and Commercial Management Plan, Chapter 13, impacts can be mitigated by the creation of a Lāwa‘i Kai Special Subzone, by amending the Land Division’s Unencumbered Lands rules and the Division of Boating and Ocean Recreation rules.<sup>36</sup>

## **SECTION 7.0 ALTERNATIVES TO THE PROPOSED ACTION**

### **7.1 “No Action” Alternative**

If the “No Action” alternative was selected, it would limit the activities and actions of NTBG to carry out the Master Plan and Management Plan. NTBG would be required to seek a Conservation District Use Permit for many of the individual activities, actions, and programs outlined in the management plans. This would be costly, and delay and limit the ability of NTBG to carry out the vision of the Plan.

### **7.2 “Create a Lāwa‘i Kai Special Subzone excluding the beach and bay” Alternative**

This alternative would exclude the lower stream area, beach and bay from the proposed creation of the Lāwa‘i Kai Special Subzone area, and eliminate the revised Unencumbered Lands and Division of Boating and Ocean Recreation rules from the proposal. The land, beach and bay are interconnected resources.

---

<sup>36</sup> Appendix C and D of the Lāwa‘i Kai Master Plan and Management Plan contains a copy of the proposed Unencumbered Lands rules and proposed DBOR rules.

Segmenting the land from the beach and bay would result in elimination of the holistic *ahupua'a*-based approach proposed by this project.

If the Unencumbered Lands and DBOR rules are not amended, or the area is not designated as a Marine Management Area,<sup>37</sup> the recreational and commercial the use of the public resources will intensify over time. It would then be more difficult to preserve the archaeological, cultural, and marine resources on the coast, beach and bay.

### **7.3 “Create a Lāwa‘i Kai Special Subzone including the Lāwa‘i Stream, and Lāwa‘i Kai Beach and Bay” Alternative**

This alternative would include the lower portion of the Lāwa‘i Kai Stream, and the Lāwa‘i Kai Beach and Bay in the Special Subzone area. The interconnected resources of land, beach and bay would result in a holistic *ahupua'a*-based approach to the management of the area. Adopting new DBOR and Unencumbered Lands rules, and designating the area as a Marine Management Area will promote and increase the preservation of the area’s resources into the future, and support and sustain the implementation of the Plan.

### **7.4 PREFERRED ALTERNATIVE: Create a Lāwa‘i Kai Special Subzone as proposed (7.3 above)**

This alternative is consistent with the Department of Land and Natural Resources hierarchy of resource management priorities which is first, to protect our natural and cultural resources; second to maintain the current level of public recreational access that does not damage those resources; and third, to allow commercial activity only if it does not impact the natural and cultural resources, or the public’s recreational use. As proposed, the creation of the Lāwa‘i Kai Special Subzone upholds these priorities and is consistent with the State of Hawai‘i’s hierarchy of resource management. It also supports and encourages the holistic *ahupua'a*-based approach proposed by details outlined in the Plan.

## **SECTION 8.0 SIGNIFICANCE DETERMINATION**

The impacts of the proposed action have been assessed. The proposed project is not anticipated to cause significant negative impacts to the environment. Therefore, a Finding of No Significant Impact (FONSI) is anticipated. The determination of a FONSI is based on the following:

***1. The proposed action does not involve an irrevocable commitment to loss or destruction of any natural or cultural resources;***

The proposed action will expand the capacity of NTBG to protect, preserve and care for the natural and cultural resources of Lāwa‘i Kai.

---

<sup>37</sup> See Section 2.2, Proposed Action.

2. ***The proposed action will not curtail the range of beneficial uses of the environment;***  
 The proposed action will enhance the range of beneficial uses environment by protecting and preserving historic and archaeological resources, improving water quality and the ecological health of the estuary, stream and coastal waters, protecting native aquatic species, restoring native coastal ecosystems, and managing recreational and commercial activities at Lāwa‘i Kai Beach and Bay.
3. ***The proposed action does not conflict with the State’s long-term goals or guidelines as expressed in Chapter 344, HRS, State Environmental Policy;***  
 This proposed action is consistent with the goals and guidelines of Chapter 344, HRS, in that it encourages the harmony between man and the environment, promotes the efforts which will prevent or eliminate damage to the environment, and enrich the understanding of the ecological systems and natural resources important to the people of Hawai‘i.
4. ***The proposed action does not substantially affect the economic or social welfare of the community or state;***  
 No economic impacts on the community or state are anticipated. The creation of a Lāwa‘i Kai Special Subzone, the approval of the Lāwa‘i Kai Master Plan and Management Plan, and adoption of HAR rules are management tools that will protect the natural and cultural resources of the area.
5. ***The proposed action does not substantially affect public health;***  
 The proposed action will positively affect public health by improving the water quality and ecological health of the stream waters, estuary and bay. No negative impacts are anticipated.
6. ***The proposed action does not involve substantial secondary effects;***  
 No secondary effects from this proposal have been identified or are anticipated from this action.
7. ***The proposed action does not involve substantial degradation of environmental quality;***  
 There is no indication that this proposed action will degrade the environmental quality of the area. In fact, the proposal over time has the potential to improve the ecological health and quality of the natural resources present in the stream, estuary and bay by managing the impacts from land-based activities.
8. ***The proposed action does not cumulatively have a considerable effect on the environment or involve a commitment to larger actions;***  
 The proposed action does not have a negative effect on the environment or commitment to any negative larger actions. The proposal will have positive

cumulative effects on the historic, archaeological, cultural, and natural resources of the area.

**9. *The proposed action does not affect a rare, threatened, or endangered species or its habitat;***

The proposed action will have a positive effect on the threatened green sea turtle, and the endangered monk seal by improving and protecting their habitat.

**10. *The proposed action does not detrimentally affect air or water quality or ambient noise levels;***

There will be no detrimental effects on air or water quality, or on the ambient noise levels with the Garden, beach or bay areas.

**11. *The proposed action does not affect an environmentally sensitive area;***

The proposed redesignation from the Limited subzone and Resource subzone to the Lāwa‘i Kai Special Subzone will positively affect the environmentally sensitive area of Lāwa‘i Kai by managing the resources in accordance with the details outlined in the Management Plans.

**12. *The proposed action does not substantially affect scenic vistas and view planes; and***

The existing scenic vistas and view planes will continue to be maintained and preserved as a result of this proposed action.

**13. *The proposed action does not require substantial energy consumption.***

No substantial energy consumption is anticipated as a result of this proposal.

## **SECTION 9.0      CONSULTED PARTIES**

### Federal Agencies

United States Fish and Wildlife Service

### State of Hawaii

Department of Land and Natural Resources:

- Office of Conservation and Coastal Lands
- State Historic Preservation Division
- Division of Boating and Ocean Recreation

Office of Environmental Quality Control

Department of Agriculture

Department of Business, Economic Development, and Tourism

Department of Business, Economic Development, and Tourism, Office of  
Planning

Department of Health

Office of Hawaiian Affairs

University of Hawai'i Environmental Center

### County of Kauai

Department of Parks and Recreation

Department of Planning

Department of Public Works

Department of Water

### Libraries and Others

Līhu'e Public Library

Kōloa Public Library

Kōloa Community Association

Lāwa'i Community Association

Kukuiolono Community Association

Po'ipu Beach Resort Association

Alexander & Baldwin

Kukui'ula Development Company Hawaii

## SECTION 10.0 REFERENCES

Armstrong, R. Warwick, Editor. *Atlas of Hawai'i*. University of Hawai'i Press. Honolulu, 1983.

Bennett, Wendell Clark. *Archaeology of Kaua'i*. Bernice P. Bishop Museum, Bulletin 30. Honolulu, 1931.

Cubit, Lāwa'i CDP, 2010 Census. Available at: <http://www.cubitplanning.com/city/3407-lawai-cdp-census-2010-population>. Accessed 9-11-11.

Friedlander, Alan M., Cynthia Hunter, Stephanie Kreiger, Oceanic Institute. "A Survey of Marine Resources of Lāwa'i Bay." Unpublished report, May 2007.

Hanna, Richard. National Tropical Botanical Garden. "Avifauna Survey of the Allerton Garden." Unpublished paper, 2009.

Hanna, Richard, National Tropical Botanical Garden, "Restoration of Green Turtle Nesting Area on Lāwa'i Beach and Foraging Habitats in Lāwa'i Bay." Unpublished paper, 2000.

Hanna, Richard, National Tropical Botanical Garden. "Foundations of This Master Plan." Unpublished paper, 2005.

Hanna, Richard, National Tropical Botanical Garden. "History of Lāwa'i Kai." Unpublished paper, 2005.

Hoerman, Rachael B.A. and Robert L. Spear, Ph.D. "An Archaeological Inventory Survey of an Approximately 90 Acre Parcel, Lāwa'i Ahupua'a, Kōloa District, Kaua'i Island Hawai'i." Unpublished report, January 2009.

Kido, Michael H. "A Biological and Habitat Assessment of Lower Lāwa'i Stream, Kaua'i." Unpublished report, February 2007.

Kikuchi, William K. "Archaeological Survey and Excavations on the Island of Kaua'i, Kona District, Hawaiian Islands." Unpublished report, August 1963.

Lorence, David H. Ph.D. and Tim Flynn, National Tropical Botanical Garden. "Botanical Inventory of the Allerton Garden." Unpublished paper, June 2007.

National Park Service, U.S. Department of the Interior, Preservation Brief 36. Available at: <http://www.nps.gov/history/hps/tps/briefs/brief36.htm>. Accessed 2-21-09.

State of Hawai'i, National Flood Insurance Program – Hawai'i. Flood map available at: <http://gis.hawaiiinfip.org/fhat/>. Accessed 6-4-12.

State of Hawai'i, Act 50, SLH 2000 relating to Environmental Impact Statements, Cultural Impact Assessments. Available at: [http://gen.doh.hawaii.gov/Shared%20Documents/Environmental\\_Assessment\\_PrepKit/Cultural\\_Impact\\_Assessments/Act%2050,%20SLH%202000.pdf](http://gen.doh.hawaii.gov/Shared%20Documents/Environmental_Assessment_PrepKit/Cultural_Impact_Assessments/Act%2050,%20SLH%202000.pdf). Accessed 6-7-12.

State of Hawai'i, Office of Planning, Hawai'i Statewide GIS Program. Available at: <http://hawaii.gov/dbedt/gis/>. Accessed 4-4-09.

State of Hawai'i, Office of Planning, Hawai'i Statewide GIS Program. Agricultural Lands of Importance to the State of Hawai'i. Personal Communication with Craig Tasaka on July 16, 2009. Maps available at: [http://hawaii.gov/dbedt/gis/maps/kau\\_alish\\_large.pdf](http://hawaii.gov/dbedt/gis/maps/kau_alish_large.pdf) and Land Study Bureau [http://hawaii.gov/dbedt/gis/maps/kau\\_lsb\\_large.pdf](http://hawaii.gov/dbedt/gis/maps/kau_lsb_large.pdf). Accessed 7-10-09.

U.S. Census, general Kaua'i data for 2009. Available at: <http://quickfacts.census.gov/qfd/states/15/15007.html>. Lāwa'i 2000 census data available at: <http://censtats.census.gov/data/HI/1601544450.pdf>. Accessed 9-11-11. Lāwa'i, Kaua'i Census Tract Map. Available at: [http://www2.census.gov/geo/maps/dc10map/GUBlock/st15\\_hi/place/p1544450\\_lawai/D10BLK\\_P1544450\\_001.pdf](http://www2.census.gov/geo/maps/dc10map/GUBlock/st15_hi/place/p1544450_lawai/D10BLK_P1544450_001.pdf). Accessed 9-11-11. Kōloa census data available at: <http://www.cubitplanning.com/city/3396-koloa-cdp-census-2010-population> Accessed 6-7-12.

U.S. Department of the Interior, National Park Service, U.S. Department of the Interior, Preservation Brief 36. Available at: <http://www.nps.gov/history/hps/tps/briefs/brief36.htm>. Accessed 5-4-09.

U.S. Department of the Interior, National Park Service. "The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes." Available at: [http://www.nps.gov/history/history/online\\_books/hps/contents.htm](http://www.nps.gov/history/history/online_books/hps/contents.htm) Accessed 5-4-09.

U.S. Department of the Interior, National Park Service, "Defining Landscape Terminology." Available at: [http://www.nps.gov/history/hps/hli/landscape\\_guidelines/terminology.htm](http://www.nps.gov/history/hps/hli/landscape_guidelines/terminology.htm) Accessed 5-4-09.

**SECTION 11.0 EXHIBITS (See attached)**

- Exhibit A: Location Map**
- Exhibit B: Project Map**
- Exhibit C: Parcel/Tax Map Keys**
- Exhibit D: Existing Conservation District Limited Subzone & Resource Subzone**
- Exhibit E: Proposed Conservation District Special Subzone**
- Exhibit F: State Land Use District**
- Exhibit G: County General Plan**
- Exhibit H: County Zoning Map**
- Exhibit I: County Special Management Area**
- Exhibit J: Flood Zone Map**
- Exhibit K: Coastal Access Map**

**SECTION 12.0 APPENDICES (See attached)**

- Appendix A: Copy of Petition for Lāwa‘i Kai Special Subzone submitted to the Department of Land and Natural Resources October 30, 2009**
- Appendix B: Letter from County of Kaua‘i, Planning Department, July 12, 2012**

## **EXHIBITS**

---

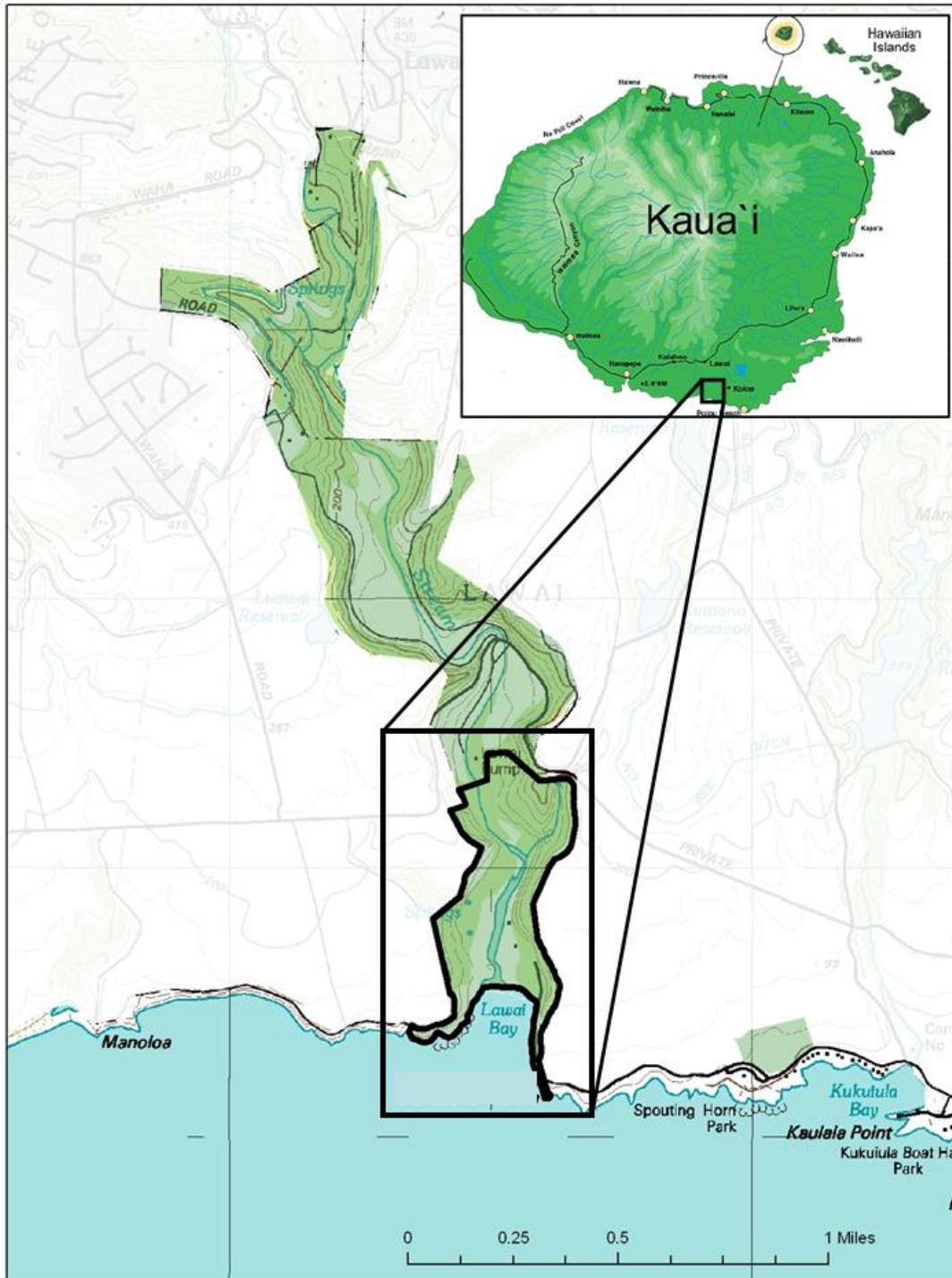


Exhibit A  
LOCATION MAP

**LĀWA'I KAI SPECIAL SUBZONE**  
National Tropical Botanical Garden





Exhibit B  
PROJECT MAP

**LĀWA'I KAI SPECIAL SUBZONE**  
National Tropical Botanical Garden



Exhibit C  
PARCEL MAP

**LĀWA'I KAI SPECIAL SUBZONE**  
National Tropical Botanical Garden

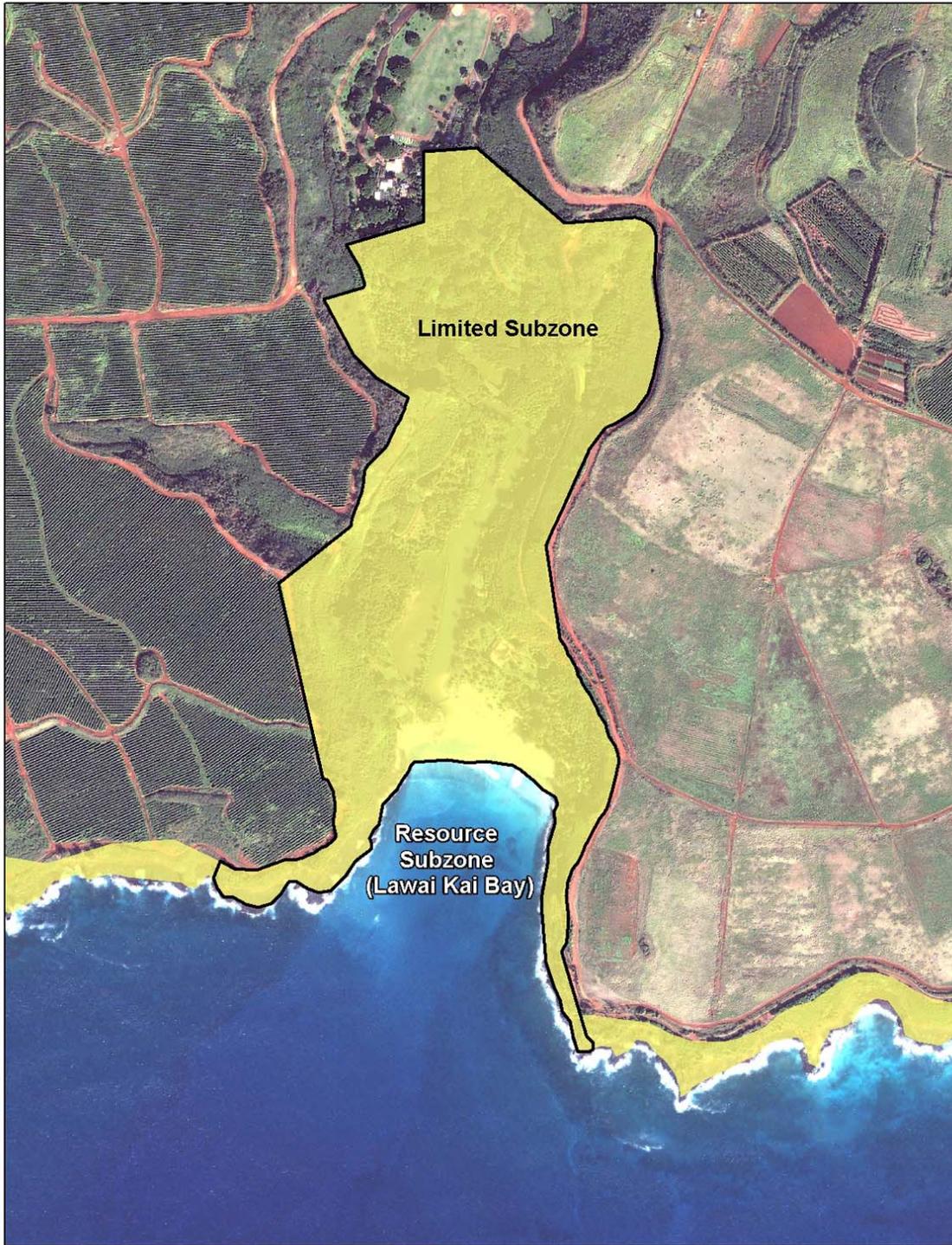


Exhibit D  
EXISTING CONSERVATION DISTRICT SUBZONES

**LĀWA'I KAI SPECIAL SUBZONE**  
National Tropical Botanical Garden



Exhibit E  
PROPOSED CONSERVATION DISTRICT SUBZONE

**LĀWA'Ī KAI SPECIAL SUBZONE**  
National Tropical Botanical Garden



Exhibit F  
STATE LAND USE DISTRICTS

**LĀWA'I KAI SPECIAL SUBZONE**  
National Tropical Botanical Garden



Exhibit G  
 COUNTY GENERAL PLAN MAP

**LĀWA'I KAI SPECIAL SUBZONE**  
 National Tropical Botanical Garden

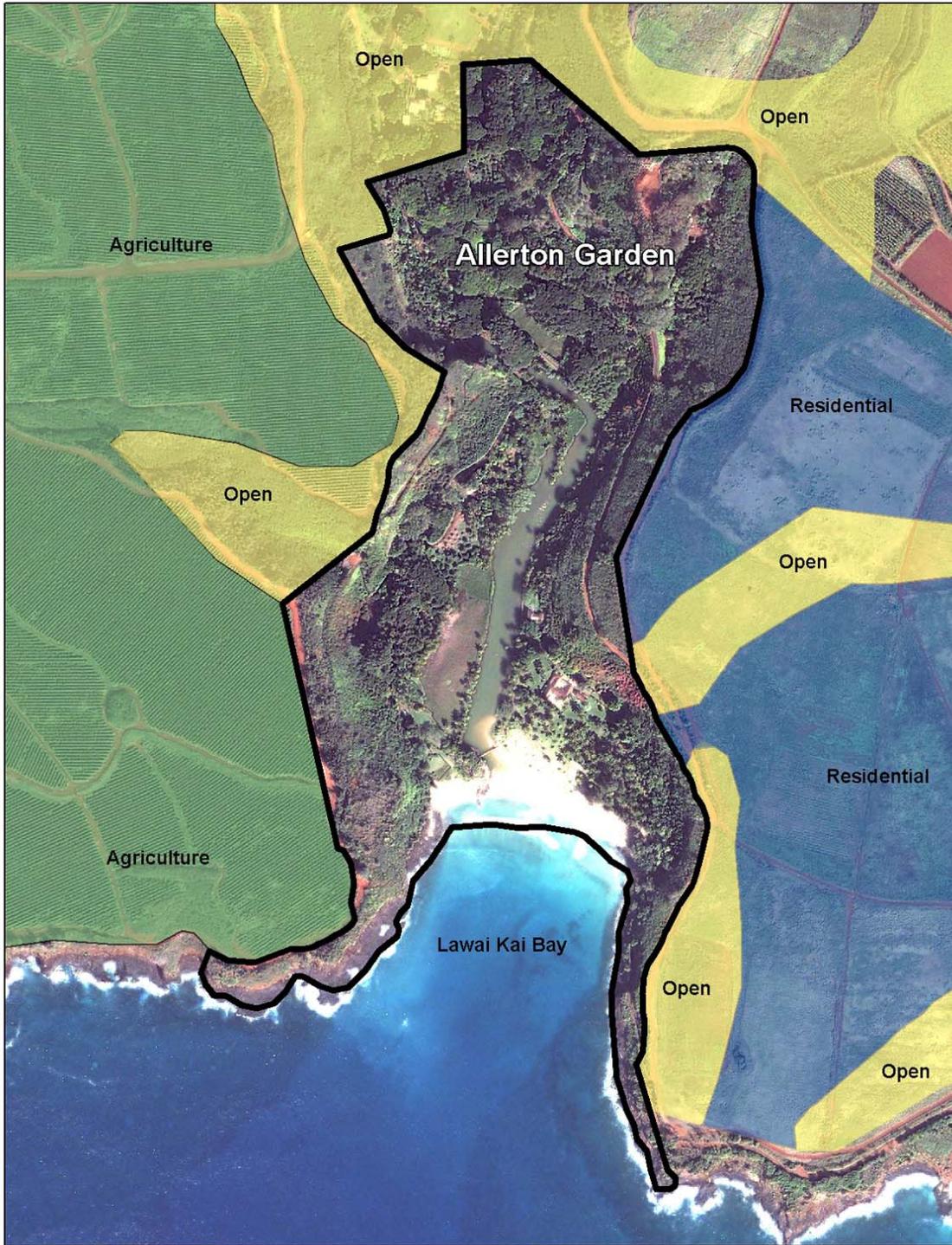


Exhibit H  
COUNTY ZONING MAP

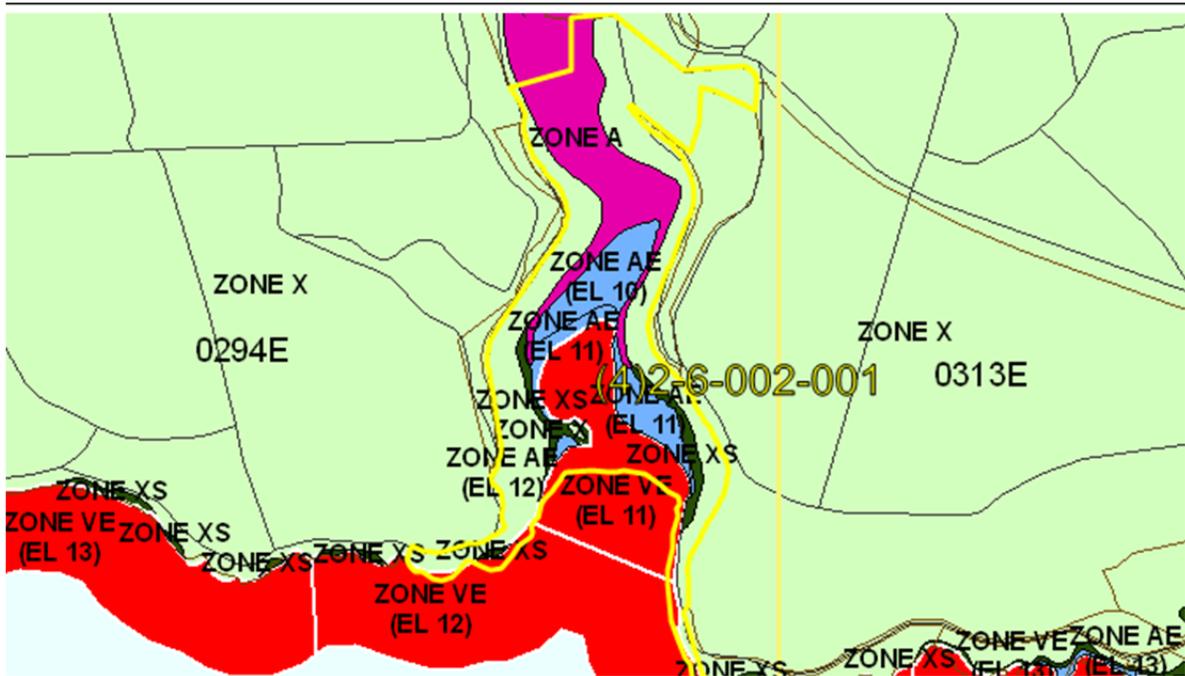
**LĀWA'I KAI SPECIAL SUBZONE**  
National Tropical Botanical Garden



Exhibit I  
SPECIAL MANAGEMENT AREA MAP

**LĀWA'I KAI SPECIAL SUBZONE**  
National Tropical Botanical Garden

NATIONAL FLOOD INSURANCE PROGRAM



<p><b>What flood hazard zones are shown on FEMA's Flood Insurance Rate Map and what do they mean?</b></p> <p><b>Zones VE and V1-V30:</b> Areas along coasts subject to inundation by the 1-percent-annual-chance flood event with additional hazards due to storm-induced velocity wave action. Base Flood Elevations (BFEs) derived from detailed hydraulic analyses are shown within these zones. Mandatory flood insurance purchase requirements apply.</p> <p><b>Zone A:</b> Areas subject to inundation by the 1-percent-annual-chance flood event. Because detailed hydraulic analyses have not been performed, no BFEs or flood depths are shown. Mandatory flood insurance purchase requirements apply.</p> <p><b>Zones AE and A1-A30:</b> Areas subject to inundation by the 1-percent-annual-chance flood event determined by detailed methods. BFEs are shown within these zones. Mandatory flood insurance purchase requirements apply.</p> <p><b>Zone AH:</b> Areas subject to inundation by the 1-percent-annual-chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. BFEs derived from detailed hydraulic analyses are shown in this zone. Mandatory flood insurance purchase requirements apply.</p> <p><b>Zones B, C, and X:</b> Areas identified as areas of moderate or minimal hazard from the principal source of flood in the area. However, buildings in these zones could be flooded by severe, concentrated rainfall coupled with inadequate local drainage systems. Flood insurance is available in participating communities but is not required by regulation in these zones.</p> <p><b>Zone D:</b> Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.</p>	<p align="center"><b>PROPERTY INFORMATION</b></p> <p><b>COUNTY:</b> KAUAI  <b>TMK NO:</b> (4)2-6-002-001  <b>SITE ADDRESS:</b> 4081 LAWAI RD  <b>FEMA FIRM PANEL(S):</b> 1500020294E  <b>PANEL EFFECTIVE DATE(S):</b> SEPTEMBER 16, 2005  <b>FIRM INDEX DATE:</b> SEPTEMBER 16, 2005  <b>LETTER OF MAP CHANGE(S):</b> NONE</p>
	<p><b>PARCEL DATA FROM:</b> MARCH 2008  <b>IMAGERY DATA FROM:</b> MAY 2005</p>
	<p align="center"><b>IMPORTANT PHONE NUMBERS</b></p> <p><u>County NFIP Coordinator</u>                  County of Kauai (808) 241-4873                  Mario Antonio, P.E., CFM</p> <p><u>State NFIP Coordinator</u>                  Carol Tyau-Beam, P.E., CFM (808) 587-0267</p>
	<p><i>Disclaimer: The Department of Land and Natural Resources assumes no responsibility arising from the use of the information contained in this report. Viewers/Users are responsible for verifying the accuracy of the information and agree to indemnify the Department of Land and Natural Resources from any liability, which may arise from its use.</i></p>

Exhibit J  
FLOOD ZONE MAP

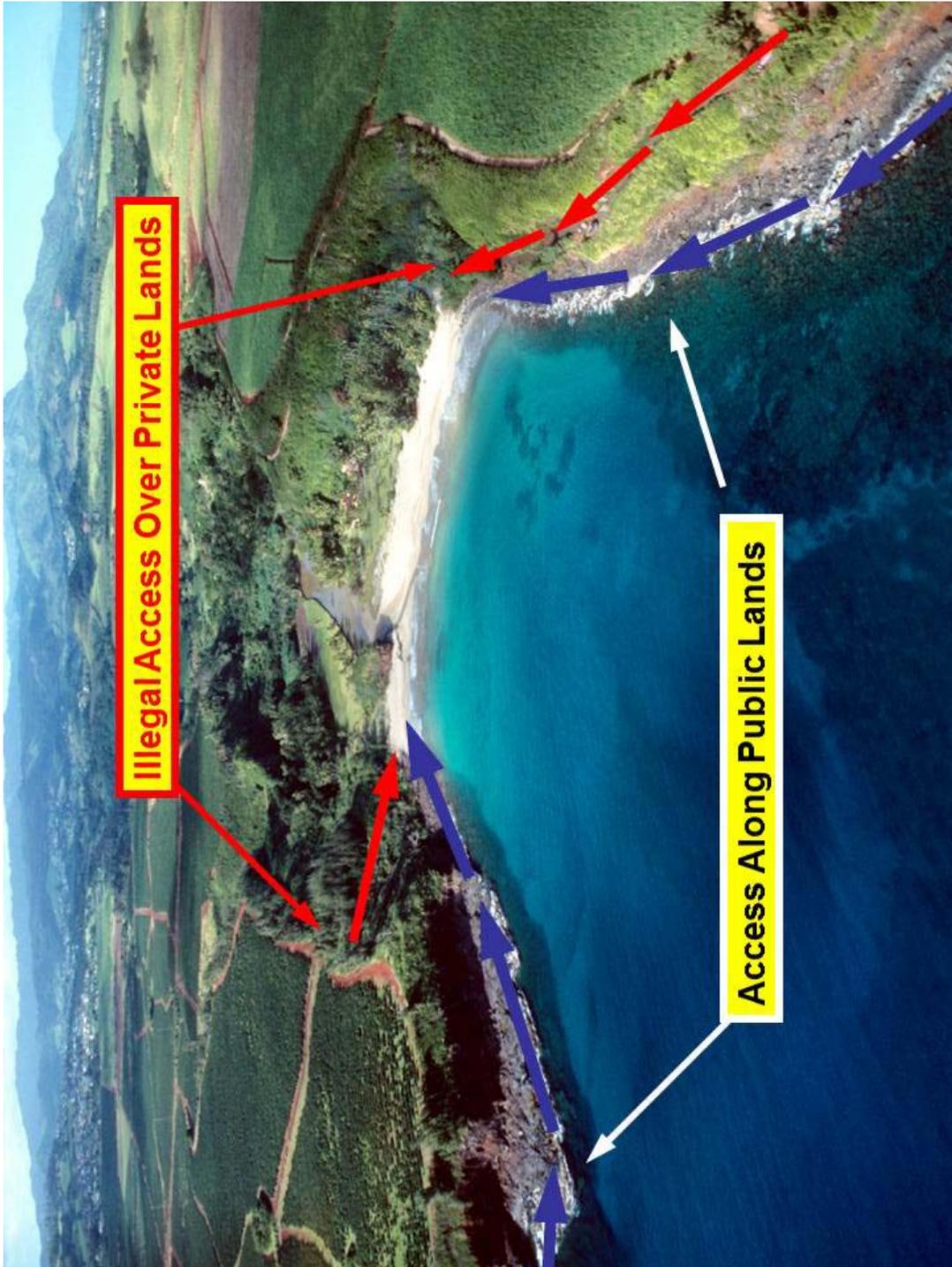


Exhibit K  
 COASTAL ACCESS: LEGAL AND ILLEGAL

**LĀWA'Ī KAI SPECIAL SUBZONE**  
 National Tropical Botanical Garden

*Drugi Environmental Assessment:  
 Lāwa'ī Kai Special Subzone Master Plan and Management Plan*

## **APPENDICES**

---



# NATIONAL TROPICAL BOTANICAL GARDEN

Chartered by Congress to Create a National Resource in Conservation, Research, and Education

## Petition to Amend HAR 13-5 To Create the Lāwaʻi Kai Special Subzone

The National Tropical Botanical Garden (NTBG) is requesting the State of Hawaiʻi, Department of Land and Natural Resources amend Hawaiʻi Administrative Rules, Chapter 13-5 to create a new Special Subzone called the Lāwaʻi Kai Special Subzone.

This petition is a key part of the ahupuaʻa-based Lāwaʻi Kai Special Subzone Master Plan and Management Plan (Master Plan). Copies of the Master Plan are attached and provide background and information to support this petition.

This petition does not propose any new development or land use change however it does propose that all of the existing non-conforming uses become permitted uses of the new special subzone. Should the DLNR approve this petition, an Environmental Assessment (EA) and Conservation District Use Application (CDUA) will be submitted to the DLNR.

Below is a brief summary of the information required under HAR §13-5-16.

**1. Name of applicant.**

National Tropical Botanical Garden

**2. Name of landowner(s).**

Allerton Garden Trust (NTBG is the authorized agent for AGT)

**3. Property description of land being affected by tax map key parcel.**

Tax Map Keys (Allerton Garden)

(4) 2-6-002.001	71.91 acres
(4) 2-6-002.004	1.60 acres
(4) 2-6-002.005	1.88 acres
(4) 2-6-002.006	2.13 acres
(4) 2-6-002.007	.55 acres
(4) 2-6-002.008	1.25 acres
(4) 2-6-002.009	<u>8.19 acres</u>

Total private land 87.51 acres

Lāwaʻi Kai Beach\* 2.0 acres (approximately)

Lāwaʻi Kai Bay\* 20.0 acres (approximately)

Total Lāwaʻi Kai Special Subzone area: **109.51 acres**

\*Note: The shore line areas the bay are under the jurisdiction of the State of Hawaiʻi.

**4. Map of area drawn to scale.**

See attached Exhibit 1.

**5. Background of application, land use commission petition, including a final decision and order.**

Not applicable.

**6. Existing subzone classification or land use zoning designations of subject property and surrounding properties.**

The TMK's listed in Item 3 above are currently designated as *Limited Subzone* within the Conservation District.

**7. Geographic characteristics:**

**a. General topography and slope**

The topography of the area includes open meadows, jungle ravines, and rugged cliff faces. The slopes along the west and east sides of the valley are predominately steep, highly eroded, and mostly inaccessible.

**b. Soils types and productivity rating (ALISH, LE SA)**

The primary soil types are Jaucas Loamy fine Sand, Marsh, Rough Broken Land, Kaena Clay, Brown Variant, and Beach Sands. The ALISH productivity rating is unclassified, and the Land Study Bureau classifications are C and E.

**8. Climatic characteristics (rainfall, wind).**

The average rainfall is about 40-50 inches of rain per year, and the annual temperatures range from the mid-60s to mid-80s. Winds generally originate from the northeast (trade winds), although between October and April, the area may experience Kona storms.

**9. Hydrological characteristics (surface water, groundwater, drainage patterns) and applicable water area classification, if applicable (restricted watershed, groundwater recharge area).**

Lāwa'i Valley is a drainage system of approximately 8,200 acres in total size with Lāwa'i Stream descending from its headwaters to the ocean at Lāwa'i Kai Bay. Five unnamed tributaries drain Lāwa'i's upper watershed joining its main channel by the time the stream reaches about 600 feet. The subject area of this application is the final reach of the Lāwa'i Stream which includes the estuary and stream mouth.

**10. Biological (flora and fauna) characteristics (vegetation, wildlife, specific identified species, or habitat of identified threatened or endangered species).**

**Flora**

Approximately 858 different species, varieties, and cultivars of flowering plants and ferns, including cultivated, native, and naturalized weedy species have been identified within the project area. Although the area is dominated by introduced plant species, there are still a number of native plants found growing on the cliffs in the project area. These cliff plants include 'ōkoko a'āhi, 'āka'āka wai rui, ho'ōko'ōko, 'ūhaka, and 'āka. There are also several native species growing along the coastal areas. These include: mānuka kahakā, pohuehue, hūhūhū, pa'ūhū'ūhū, 'āhi'āhi, and māhūhū.

A botanical survey of the Garden found very few native species, and no threatened or endangered flora.

**Fauna**

- **Coastal** - The coastal area of Lāwa'i Kai is an identified hauling-out and resting area for the endangered Hawaiian Monk Seal, and a nesting site for threatened green sea turtles.
- **Aquatic** - Native 'ōpū and 'ōpū species are found in the estuary and stream areas.
- **Marine** - *ʻŌkole*, *waka* 'ūhū were the most important fishery resources, with low numbers of *ūhū* and *ōpū* also found in the marine/bay area.
- **Birds** - Endemic, endangered Hawaiian birds in the vicinity of Lāwa'i estuary and stream, include: *Anas wyvilliana* (Hawaiian duck), *Fulica americana alai* (Hawaiian coot), and *Gallinula chloropus sandwichensis* (Common moorhen). There are no endangered or threatened seabirds that nest in Lāwa'i Kai.

Detailed resource studies can be found on NTBG's website by going to: <http://lawaikaintbg.org>

**11. List of historic properties in the project area.**

Within the project area, there are no properties listed on the State or National Register of Historic Places. Structures and other features over 50 years old may qualify for placement on the Registers. In addition, 19 archaeological sites have been identified in the area (see Master Plan, Chapter 7, Historic Management Plan).

**12. Scenic or visual resources (significant viewplanes and geological features).**

The scenic resources of the project area are varied and dramatic. The mānuka mānuka scenic resources include lush tropical vegetation with cliffs rising steeply from the valley floor.

Lāwa'i Kai Stream meanders through Allerton Garden, the coastal area, and into Lāwa'i Kai Bay. The absence of human impacts contributes to the natural beauty and relatively pristine scenic and visual qualities of the small beach and bay area.

**Bernard P. Carvalho, Jr.**  
Mayor

**Gary K. Heu**  
Managing Director



**Michael A. Dahilig**  
Director of Planning

**Dee M. Crowell**  
Deputy Director of Planning

**PLANNING DEPARTMENT**  
**County of Kaua'i, State of Hawai'i**

4444 Rice Street  
Kapsile Building, Suite A-473  
Lihue, Hawai'i 96766-1326  
TEL (808) 241-4050 FAX (808) 241-6699

**JUL 12 2012**

Mr. Chipper Wichman, Director and CEO  
National Tropical Botanical Garden  
3530 Papalina Road  
Kaláheo, HI 96741

**RE: Lāwai Kai Special Subzone**  
**Master Plan and Management Plan for 2010-2030 (10/22/09)**  
TMK: 2-6-002: 001, 004, 005, 006, 007, 008, and 009  
Land Area: Approximately 87.51 acres

Dear Mr. Wichman:

This letter is written in response to your request for a review of the above captioned document.

Lāwai Kai is located within the State Land Use Conservation District, and is therefore under the land use jurisdiction of the State Department of Land and Natural Resources (DLNR). The property has no County zoning.

It is however, located in the County's Special Management Area (SMA), whose boundaries closely align with the Conservation District boundaries. The County of Kaua'i's SMA Rules and Regulations were created to provide an additional layer of evaluation of land based activities and structures, "development", at or near to coastline areas.

It is our understanding that you are applying for a special subzone designation in the Conservation District at Lāwai Kai. It is also our understanding that the Master Plan and Management Plan proposes no new projects, or "development".

Therefore, the Planning Department has determined that the Lāwai Kai Special Subzone Master Plan and Management Plan (10/22/09), **does not** trigger any SMA permit requirements.

V:\2013 Master Files\Regulatory\SMA Permits\SMA Correspondence\Letter7-12-12 DC Lawai Kai Special Subzone.docx

**Appendix B**

Mr. Chipper Wichman  
Lāwai Kai Special Subzone  
Master Plan and Management Plan  
11 July 2012  
Page 2 of 2

However, if any proposed “development” activity or structures in the SMA are contemplated in the future, please contact the Planning Department for review and determination.

Please be aware that since the publication of the Master Plan and Management Plan, the County of Kauai has amended the Special Management Area Rules and Regulations (Oct 2011). One of the amendments to the Rules is that the threshold between SMA Minor Permits and SMA Use permits was raised from \$125,000, to \$500,000.

The County also adopted a Shoreline Setback Ordinance, Ord. No. 887, imposing requirements for structures and activities within the shoreline setback area.

Mahalo, for the opportunity to review and comment on your proposal. If you have any questions, please feel free to call Deputy Director Dee Crowell, at (808)241-4050.



MICHAEL A. DAHLIG  
Director of Planning