

EXHIBIT C

Agricultural Land Assessment
for
Hā‘upu Land Company LLC
Hā‘upu, Kaua‘i

November 2012

Prepared for: Hā‘upu Land Company LLC
3-1850 Kaumuali‘i Highway
Līhu‘e, HI 96766

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Introduction/Purpose

To support a Petition for Declaratory Order to Designate 'Important Agricultural Lands' ('IAL'), an Agricultural Lands Assessment was prepared for lands owned by Hā'upu Land Company LLC on Kaua'i.

HRS § 205-44(c) provides the standards and criteria to identify IAL. HRS § 205-44(a) provides that lands identified as IAL need not meet every standard and criteria listed in HRS § 205-44(c); rather, lands meeting any of the criteria in HRS § 205-44(c) shall be given initial consideration, provided that the designation of IAL shall be made by weighing the standards and criteria with each other to meet the constitutionally mandated purposes in article XI, section 3, of the Hawaii Constitution and the objectives and policies for IAL in section 205-42 and 205-43. The standards and criteria of section 205-44(c) are as follows:

- 1) *Land currently used for agricultural production;*
- 2) *Land with soil qualities and growing conditions that support agricultural production of food, fiber, or fuel-and energy-producing crops;*
- 3) *Land identified under agricultural productivity rating systems, such as the agricultural lands of importance to the State of Hawaii (ALISH) system adopted by the board of agriculture on January 28, 1977;*
- 4) *Land types associated with traditional native Hawaiian agricultural uses, such as taro cultivation, or unique agricultural crops and uses, such as coffee, vineyards, aquaculture, and energy production;*
- 5) *Land with sufficient quantities of water to support viable agricultural production;*
- 6) *Land whose designation as important agricultural lands is consistent with general, development and community plans of the county;*
- 7) *Land that contributes to maintaining a critical land mass important to agricultural operation productivity;*
- 8) *Land with or near support infrastructure conducive to agricultural productivity, such as transportation to markets, water or power.*

Located north of Kōloa Town, approximately 760 acres of Hā'upu Land Company LLC lands are proposed to be designated IAL. The proposed IAL includes Waitā Reservoir and the lands adjacent to reservoir. The following assessment provides an overview of the various characteristics of the proposed Hā'upu IAL. The attached exhibits (Figure 1 through Figure 8) illustrate and quantify the land characteristics.

Agricultural History of Hā'upu Lands

Hā'upu Lands are in the Ahupua'a's of Weliweli and Pa'a. This area is historically an agriculturally significant place as it was one of the first places in the State where sugar was grown commercially.

As early as 1820, Chinese immigrants farmed sugarcane in small mills across the Kaua'i Island which included mills in the Kōloa area. These mills ran for roughly a dozen years,

up until 1832. These agricultural operations produced raw sugar and molasses that were consumed locally but they were not operated on a commercial scale.

In 1835, Ladd and Company attempted to commercially produce sugarcane in Kōloa. They obtained a 50 year lease signed by Kamehameha III and the Governor of Kaua'i. This lease was the first of its kind in Hawai'i and the first formal recognition of the right of someone other than a chief to control land¹. Kōloa Plantation was established in 1841 and has the significant distinction of being the first sugar plantation in the State of Hawai'i.

After 10 years of struggling, Ladd and Company's commercial agricultural venture failed but Kōloa Plantation survived under new owners Robert Wood and a brother-in-law of one of the original owners.

Sugar production in the area continued from the mid-1800's. In 1869 there was a major drought so that Kōloa Plantation dug a water lead to save their cane. It is believed that this is the infancy of the Wilcox Ditch. The Wilcox Ditch was later extended in 1885 resulting in nearly 200 acres of irrigated fields. Again in 1893, the ditch was extended to irrigate another 400 acres. The ditch eventually reached approximately 5 miles long with a capacity of 8 million gallons per day and the average daily flow is half of that.

Constrained by lack of surface and ground water sources, Kōloa Plantation concentrated on developing water storage. Between 1903 and 1906, Waitā Reservoir was created. It is the largest man made reservoir in the State. The water source for this reservoir was supplied through the Wilcox Ditch. Its initial storage capacity was 1.47 billion gallons of water. In 1908 the reservoir dam and spillway was raised increasing the capacity to 2.1 billion gallons.

In 1913 Kōloa Mill was completed.

The Wilcox Ditch was proved inadequate to keep Waitā Reservoir supplied. In 1914, an agreement was reached between Kōloa Sugar Company, Līhu'e Plantation, and George Norton Wilcox (Grove Farm) whereby Līhu'e Plantation would build the Wai'ahi-Ku'ia Aqueduct also known as Kōloa Ditch. In 1915 the Wai'ahi-Ku'ia Aqueduct or Kōloa Ditch was constructed. The ditch system was approximately 5 miles long and used a combination of tunnels, flumes, and ditches. This system brought water from the Wai'ahi and Ku'ia areas into the Wilcox Ditch and then to Waitā Reservoir. The capacity of the system was projected to be 100 million gallons per day, but ended up around 65 million gallons per day.

In 1926, Līhu'e Plantation enlarged the capacity of the Wai'ahi-Ku'ia Aqueduct (Kōloa Ditch) to 90 million gallons per day to better capture floodwaters.

In 1931, Waitā Reservoir dam and spillway was raised an additional 3 feet and increased its capacity to 2.3 billion gallons of water.

¹ Donohugh, Donald. The Story of Kōloa: A Kaua'i Plantation Town. Honolulu: Mutual Publishing, 2001. Pg. 87, 88, 98, 185

In 1948, Grove Farm Company, Inc. purchased Kōloa Plantation.

From 1960 to 1965, the Ku'ia-Waitā Tunnel was constructed. The tunnel is approximately 2 miles long and currently provides up to 250 million gallons per day of water to Waitā Reservoir. The Ku'ia intake can be opened and closed and is utilized as a tool to manage the water level in Waitā Reservoir to this day. When Ku'ia-Waitā Tunnel started operating in 1965, the Wilcox Ditch and the Kōloa Ditch were no longer used to supply water to Waitā Reservoir.

After nearly a century of independent sugar production, Grove Farm ceased sugar cultivation in 1974 and leased its Kōloa Lands, as well as the Kōloa Mill, to McBryde Sugar Company. From 1974 until 1996, McBryde Sugar Company continued the sugar production. In September of 1996, McBryde Sugar Company had their last harvest and the Kōloa Mill closed.

Figure 1: Regional Context

Figure 1 is a regional context map created with the aerial photograph image which covers the lands in Ahupua'a's of Kōloa, Weliweli, Pa'a, and Māhā'ulepū. It illustrates the current water sources and irrigation infrastructure in Hā'upu area. The proposed Hā'upu IAL boundary is illustrated along with the recently approved Māhā'ulepū Farm Company IAL.

Figure 2: Current and Future Agricultural Operations

As described above, the area proposed to be designated IAL has a long history of agricultural usage. When McBryde Sugar Company ceased sugar production and closed the Kōloa Mill in 1996, other opportunities were explored to ensure agricultural utilization of the subject lands. According to Hā'upu Land Company's lease records, ranching took over as the primary use of the lands once sugar production was ceased in the area. Currently the proposed IAL lands adjacent to Waitā Reservoir host six tenants and they are all ranching on the leased lands. Ranching leases were executed with tenants from 1996 to 1998.

In 1998, Kaua'i Freshwater Aquatics leased Waitā Reservoir. In 2000, Kaua'i ATV took over the lease of Waitā Reservoir and continues to utilize it for commercial fishing tours and Kayaking. Besides the entertaining uses, Waitā Reservoir continues to serve the critical role in agricultural operations as well. As described in the agricultural history of Hā'upu Lands, Waitā Reservoir has been used for water storage and distribution for the agricultural operations in the Kōloa-Weliweli-Pa'a-Māhā'ulepū region. Currently, approximately 3,700 acres of agricultural land in that region are irrigated with reservoir water or utilize Waitā Reservoir as a source to water the livestock.

Figure 2 illustrates and lists the current tenants and the uses on the proposed IAL Lands. Also illustrated on Figure 2, approximately 178 acres of the proposed IAL lands are included in an Option Agreement with Hawaii BioEnergy LLC (HBE). HBE is a consortium of some of the largest landowners in the State: Grove Farm Company, Inc.,

Kamehameha Schools, and Maui Land and Pineapple Company, Inc. and other partners include leaders from the venture capital community: Vinod Khosla, Ohana Holdings, and Finistere Ventures. Their mission is to reduce Hawai'i's energy costs, greenhouse gas emissions, and dependence on imported fossil fuels. Their interest in the land is for the purpose of growing biomass, which will be converted into oil or electricity. The growing of biomass to produce energy will perpetuate agriculture and the land's long tradition of providing for Hawai'i's residents.

On October 21, 2011, Hā'upu Land Company LLC signed the lease option agreement (to August 2015) with HBE to lease a portion of IAL lands illustrated. HBE plans to implement the Biomass to Energy project within the next five years. If the HBE option is exercised, the term of the lease is for a total of 30 years.

Figure 3: Agricultural Soils Productivity Ratings

The Detailed Land Classification System and Agricultural Land Productivity Ratings by the Land Study Bureau (LSB), University of Hawai'i are based on a five-class productivity rating system using the letters A, B, C, D, and E, with A representing the class of highest productivity and E the lowest.

As illustrated in Figure 3, approximately 415 acres of the proposed IAL lands are occupied by Waitā Reservoir and not classified under the LSB. Of the non-reservoir lands, about 20.9% are rated B, 0.4% are rated C, 35.3% are rated D, and 43.4% are rated E. Although the soil productivity ratings for the non-reservoir lands are relatively low under this classification system, the proposed IAL lands are essential elements of the active agricultural operation and are currently and have historically been used for agricultural production.

Figure 4: Solar Radiation

Based on the Sunshine Maps prepared in 1985 by the State Department of Business, Economic Development and Tourism, formerly known as the State Department of Planning and Economic Development, Energy Division, over 78% of the proposed IAL lands receive an annual average of 400 calories of solar energy per square centimeter per day and the balance of the lands receive an annual average of 350 calories of solar energy per square centimeter per day. These levels of solar radiation are very beneficial towards supporting diversified agricultural uses.

Figure 5: Agricultural Lands of Importance to the State of Hawaii (ALISH)

The Agricultural Lands of Importance to the State of Hawaii (ALISH) classification system was developed in 1977 by the State Department of Agriculture. The system was primarily, but not exclusively, based on the soil characteristics of lands and existing cultivation. There are three classes of ALISH lands – Prime, Unique, and Other. Waitā Reservoir (approximately 415 acres) takes up more than half of the proposed IAL lands. As shown on the summary table on Figure 5, almost all of Waitā Reservoir is not classified under ALISH classification. For the proposed non-reservoir IAL lands, approximately 75.0% are classified as Prime and Other ALISH: 41.4% Prime ALISH and

33.6% Other ALISH. The balance of the non-reservoir IAL lands are not classified under ALISH classification include essential elements of the active agricultural operation, such as drainage ways, streams, and irrigation ditches.

Figure 6: Agricultural Infrastructure and Water Resources

The Agricultural Infrastructure and Water Resources Map (Figure 6) illustrates the water system that serves the proposed IAL lands. It includes the onsite and off-site water sources and the water transfer and distribution system.

The proposed IAL lands include critical water infrastructure for the entire Pa'a / Māhā'ulepū area with Waitā Reservoir having a capacity of approximately 2.3 billion gallons of water. The reservoir is fed by Ku'ia Stream through the Ku'ia-Waitā Tunnel and Waihohonu Stream. In 1998 an 18-inch gravity flow water line was installed near the exit of the Ku'ia-Waitā Tunnel to service the Weliweli / Pa'a / Māhā'ulepū areas and significantly reduced the need for pumping.

Historically and currently the land area of the proposed IAL is rain fed. The area receives an average of 60 to 75 inches of rain annually. The proposed IAL lands have sufficient quantities of water to support viable agricultural production.

Figure 7: Kaua'i General Plan

The General Plan of the County of Kaua'i is a policy document that is intended to help guide development for the enhancement and improvement of life on Kaua'i. It was last updated in 2000 and provides the County's vision for Kaua'i and establishes the strategies to help achieve that vision.

According to the 2000 General Plan Update and the Kōloa-Po'ipū-Kalaheo Planning District Land Use Map published in this document, almost all of the proposed IAL lands are designated as Agriculture. Waitā Reservoir, while shown as reservoir, is an essential element of the active agricultural operation of this region.

Figure 8: State Land Use District Boundary Map

Referencing the 2011 State Land Use District Boundary prepared by State of Hawai'i Land Use Commission, the proposed IAL lands are illustrated to confirm that all the proposed IAL lands are within the Agricultural District. Where the proposed IAL lands are contiguous to the Conservation District boundary, the proposed IAL boundary follows the Conservation District boundary.

File: Q:\Kauai\Grove Farm IAL\GIS\Project\2012 Haupu IAL\Haupu IAL Report Figures\Aerial Photo.mxd



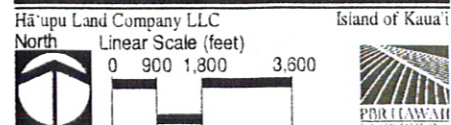
DATE: 11/28/2012



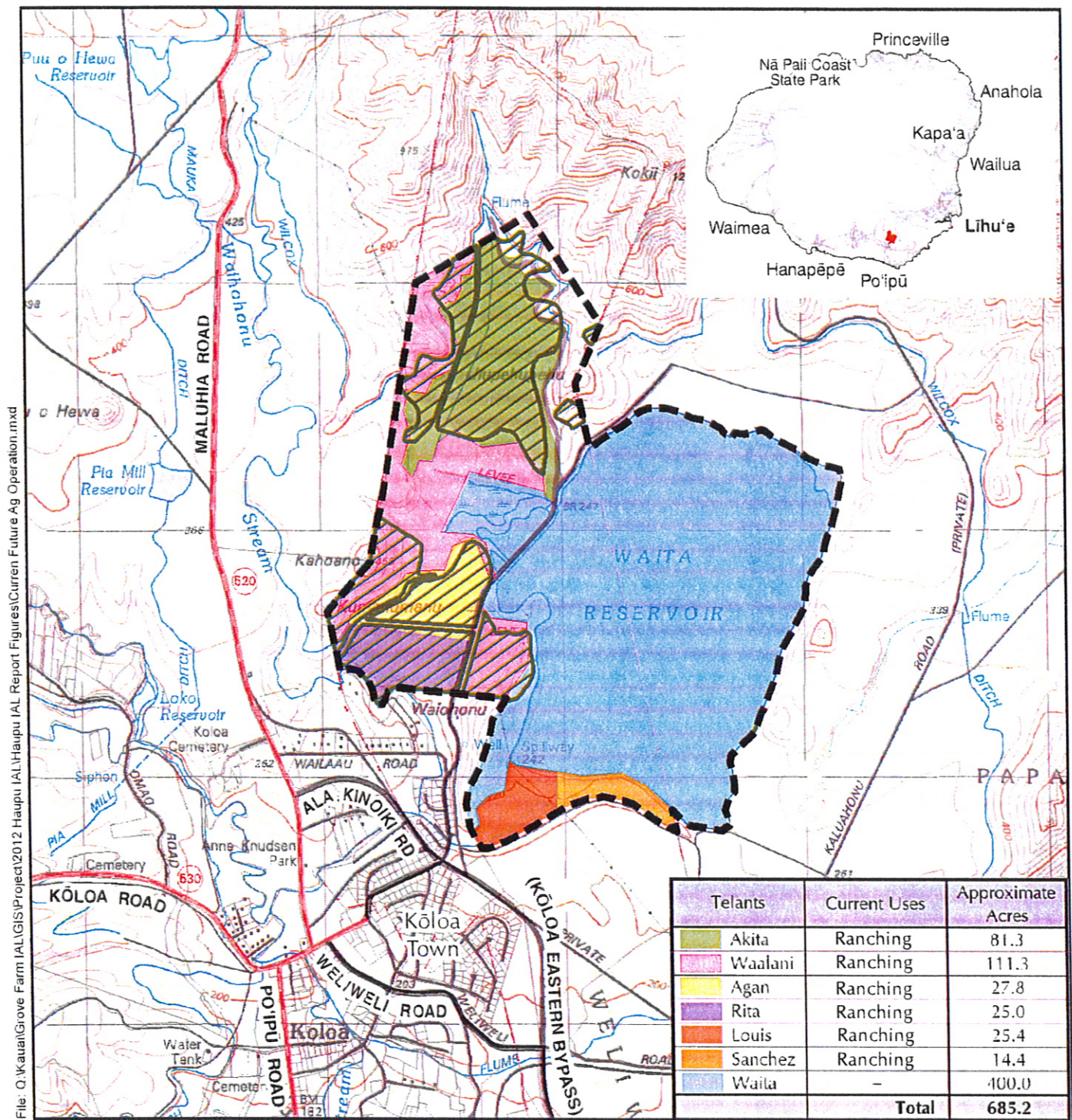
FIGURE 1

Regional Context Map

HĀ'UPU IAL



Source: Grove Farm; ESRI Online World Imagery Basemap; Kauai TMK, 2012 (GIS)
Disclaimer: This graphic has been prepared for general planning purposes only.



DATE: 11/19/2012

LEGEND



Proposed IAL Designation

HBE Lease Lands (Approx. 178 acs.)

FIGURE 2

Current and Future Agricultural Operation

HĀ'UPU IAL

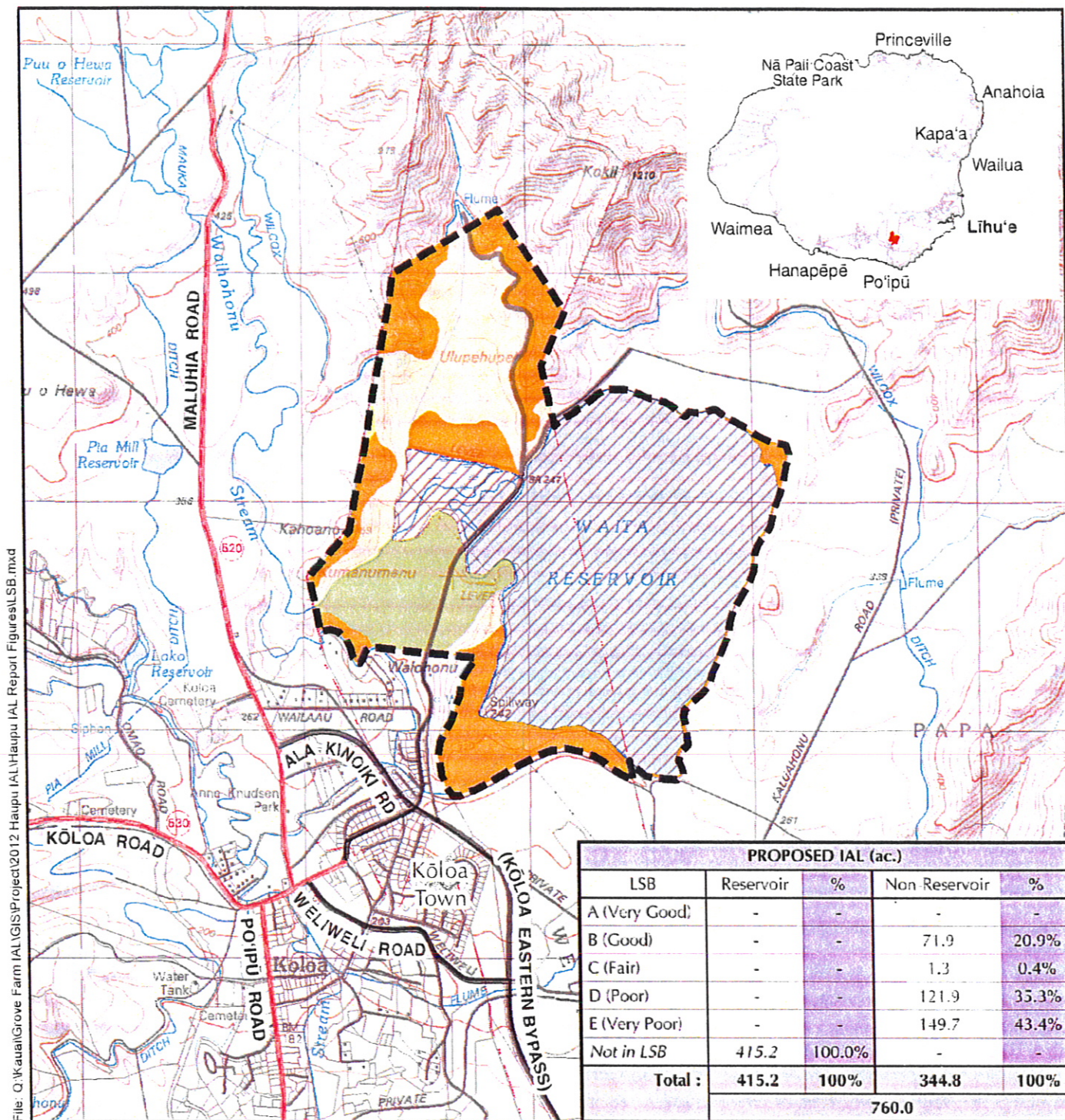
Hā'upu Land Company LLC

Island of Kauai

North Linear Scale (feet)



Source: Grove Farm; U.S. Geological Survey; Kauai TMK, 2012 (GIS)
Disclaimer: This graphic has been prepared for general planning purposes only.



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LEGEND

Land Classification

- B (Good)
- C (Fair)
- D (Poor)
- E (Very Poor)
- Not in LSB (Waitā Reservoir)



Proposed IAL Designation

Source: Grove Farm; U.S. Geological Survey; Land Study Bureau, 1967 (GIS); Kauai TMK, 2012 (GIS)

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

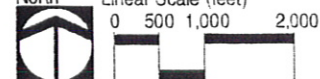
FIGURE 3

Land Study Bureau -
Detailed Land Classification

HĀ'UPU IAL

Hā'upu Land Company LLC

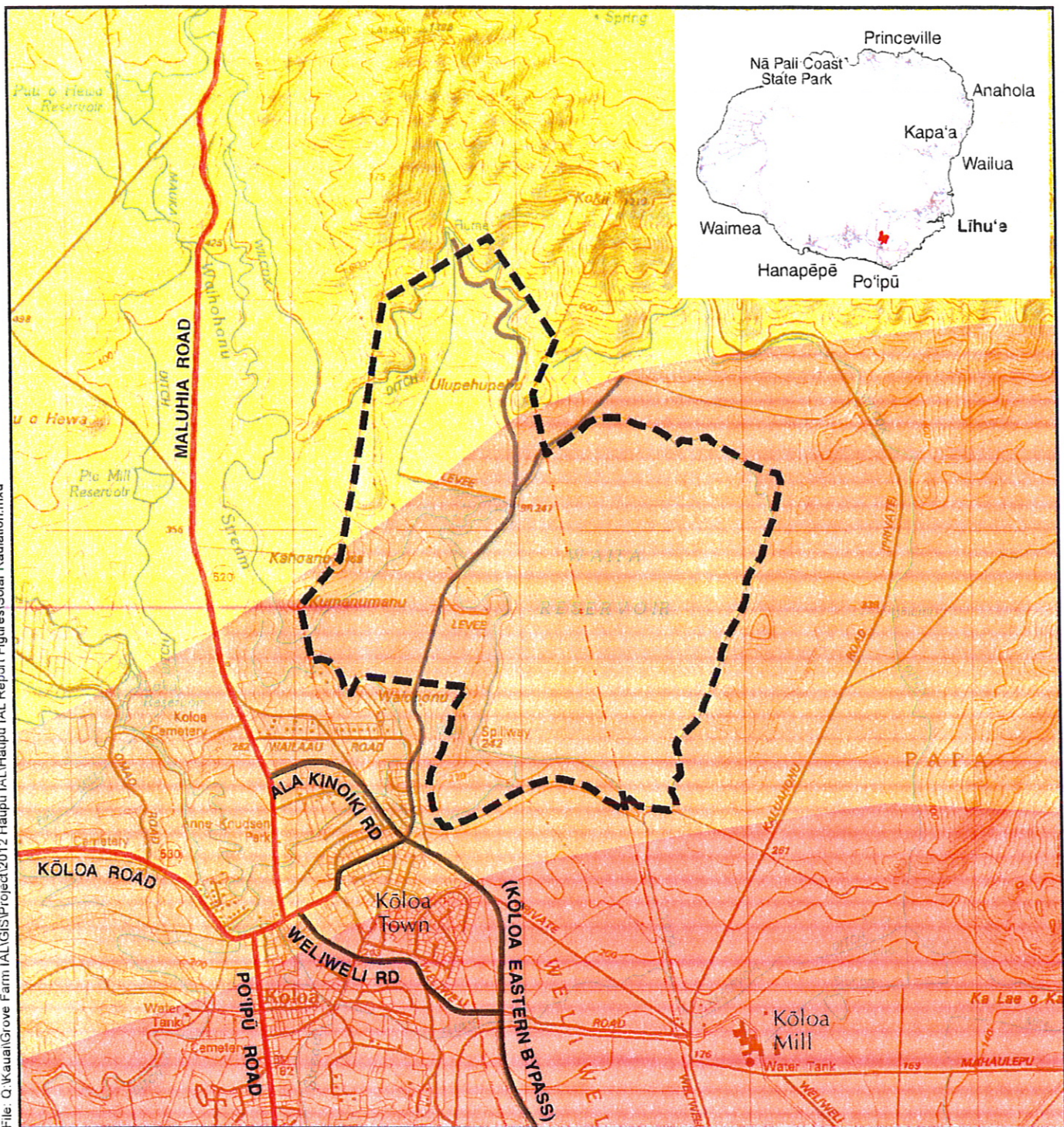
North Linear Scale (feet)



Island of Kauai



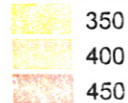
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DATE: 11/19/2012

LEGEND

Solar Radiation
(cal/sq.cm./day)



Proposed IAL Designation

Source: Grove Farm; U.S. Geological Survey; State Department of Planning and Economic Development, Energy Division, 1985 (GIS); Kauai TMK, 2012 (GIS)

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

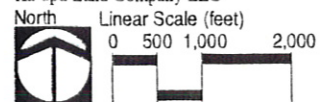
FIGURE 4

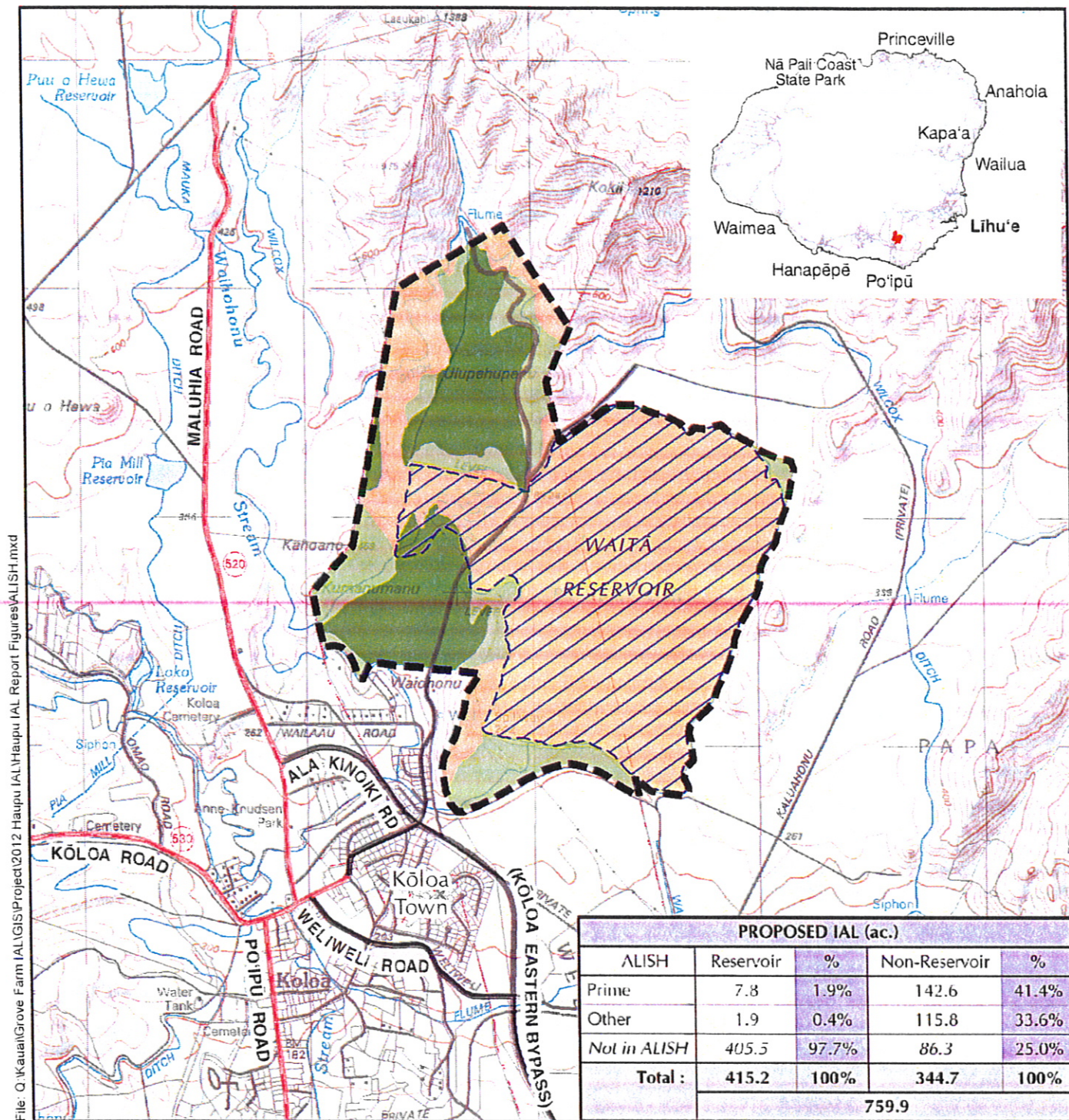
Solar Radiation

HĀ'UPU IAL

Hā'upu Land Company LLC

Island of Kauai





DATE: 11/19/2012

LEGEND

ALISH Types

- Prime ALISH
- Other ALISH
- Not in ALISH



Proposed IAL Designation



Waita Reservoir (approximate)

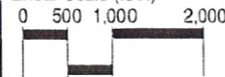
FIGURE 5

Agricultural Lands of Importance to the State of Hawai'i

HĀ'UPU IAL

Hā'upu Land Company LLC

North Linear Scale (feet)



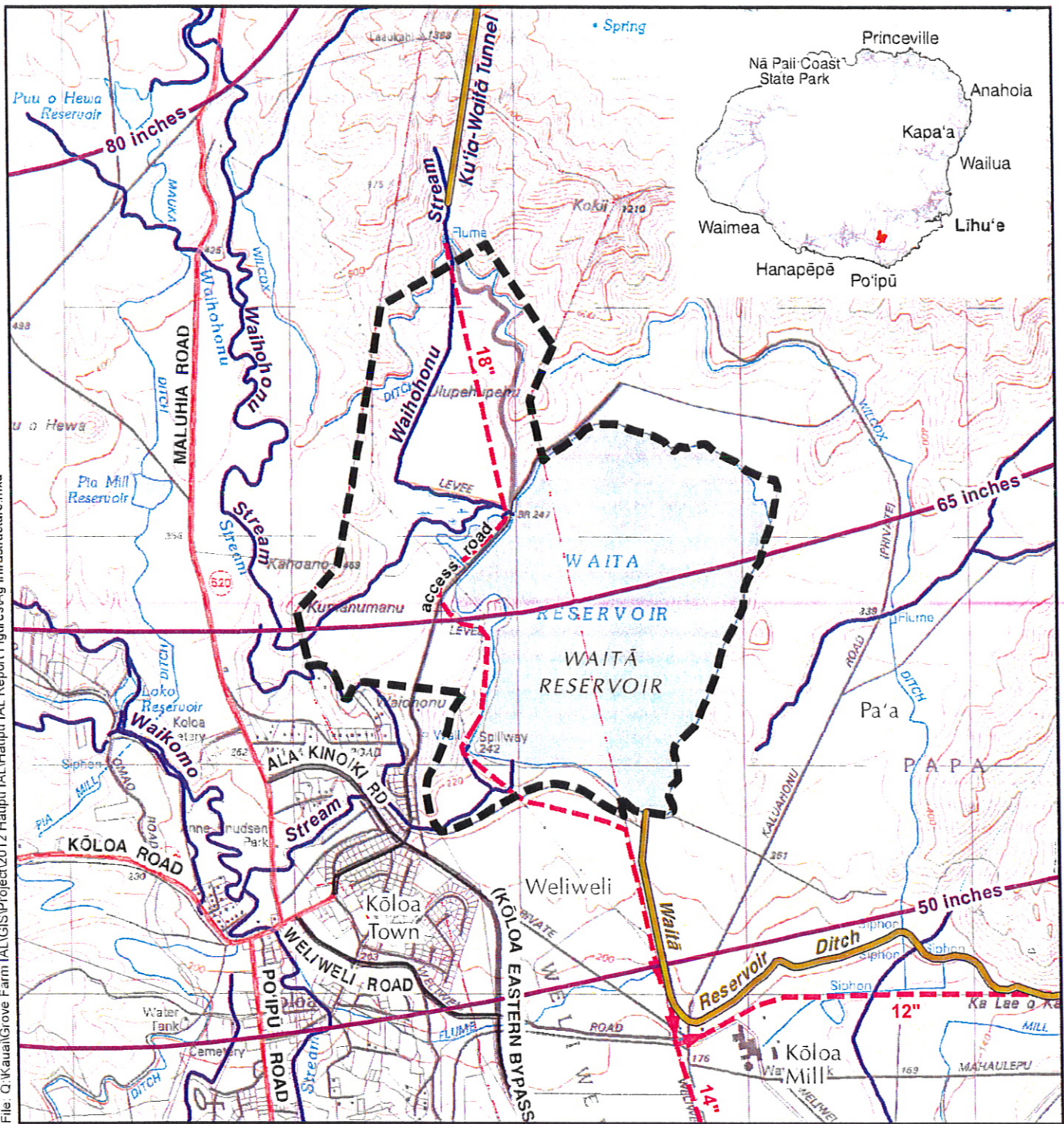
Island of Kauai



Source: Grove Farm; U.S. Geological Survey; State Department of Agriculture, 1977 (GIS); Kauai TMK, 2012 (GIS)

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DATE: 11/20/2012

LEGEND

- ▶ Irrigation Pipelines
- ~ Streams
- ~ Ditches / Siphones / Flumes

- ~ Average Annual Rainfall (inch)
- Proposed IAL Designation

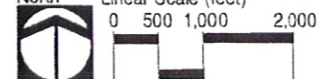
FIGURE 6

Agricultural Infrastructure and Water Resources

HĀ'UPU IAL

Hā'upu Land Company LLC

North Linear Scale (feet)

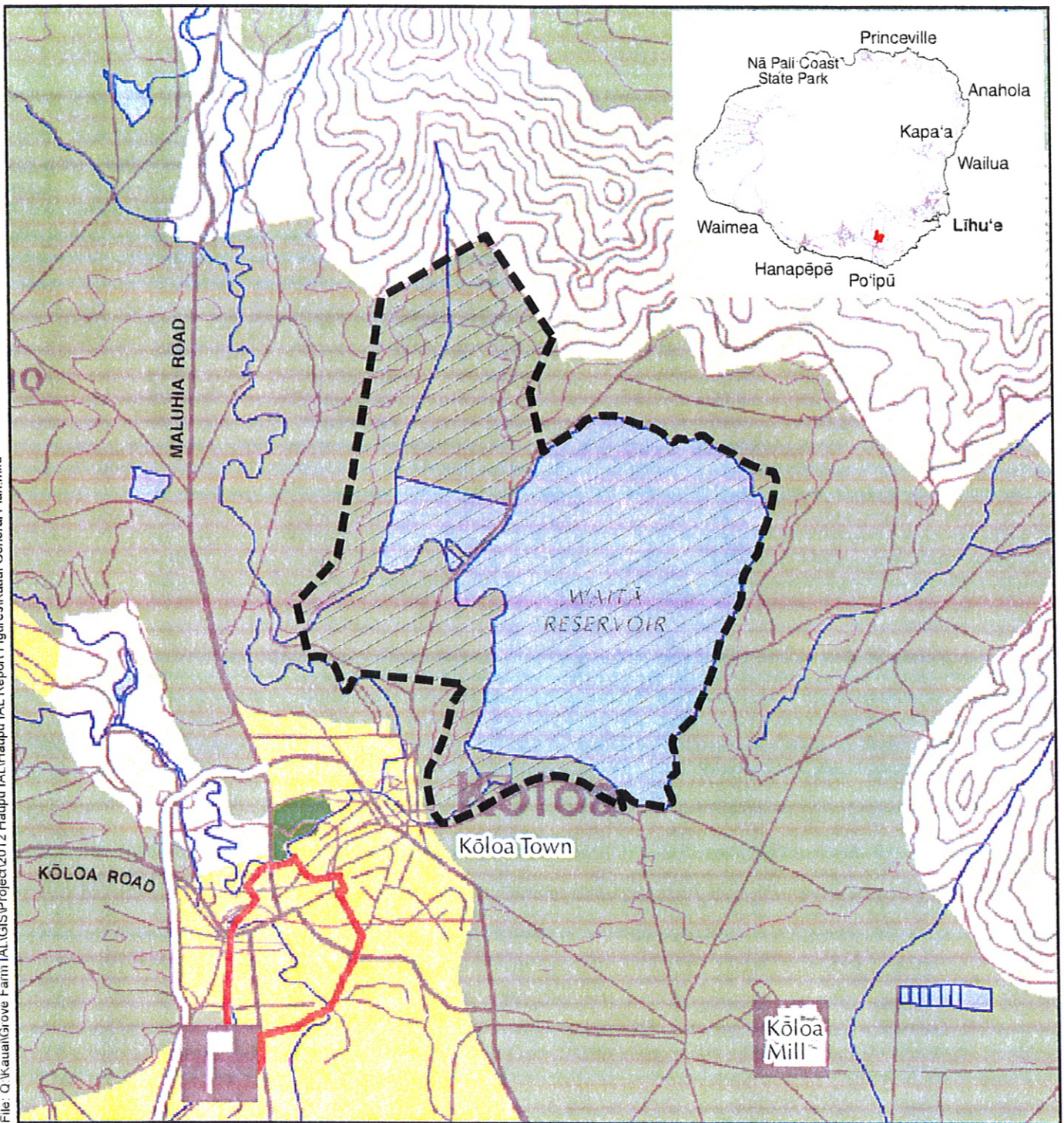


Island of Kauai





Source: Grove Farm; U.S. Geological Survey; National Hydrography Dataset, 2011; Rainfall Atlas of Hawaii, 2011 (GIS); Kauai TMK, 2012 (GIS)
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DATE: 11/19/2012

LEGEND

-  Proposed IAL Designation
-  Residential Community
-  Agriculture
-  Open
-  Park
-  Town Centers

Source: Grove Farm; U.S. Geological Survey; County of Kauai, 2000;
Kauai TMK, 2012 (GIS)

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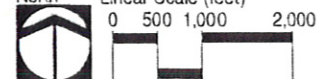
FIGURE 7

Kaua'i General Plan

HĀ'UPU IAL

Hā'upu Land Company LLC

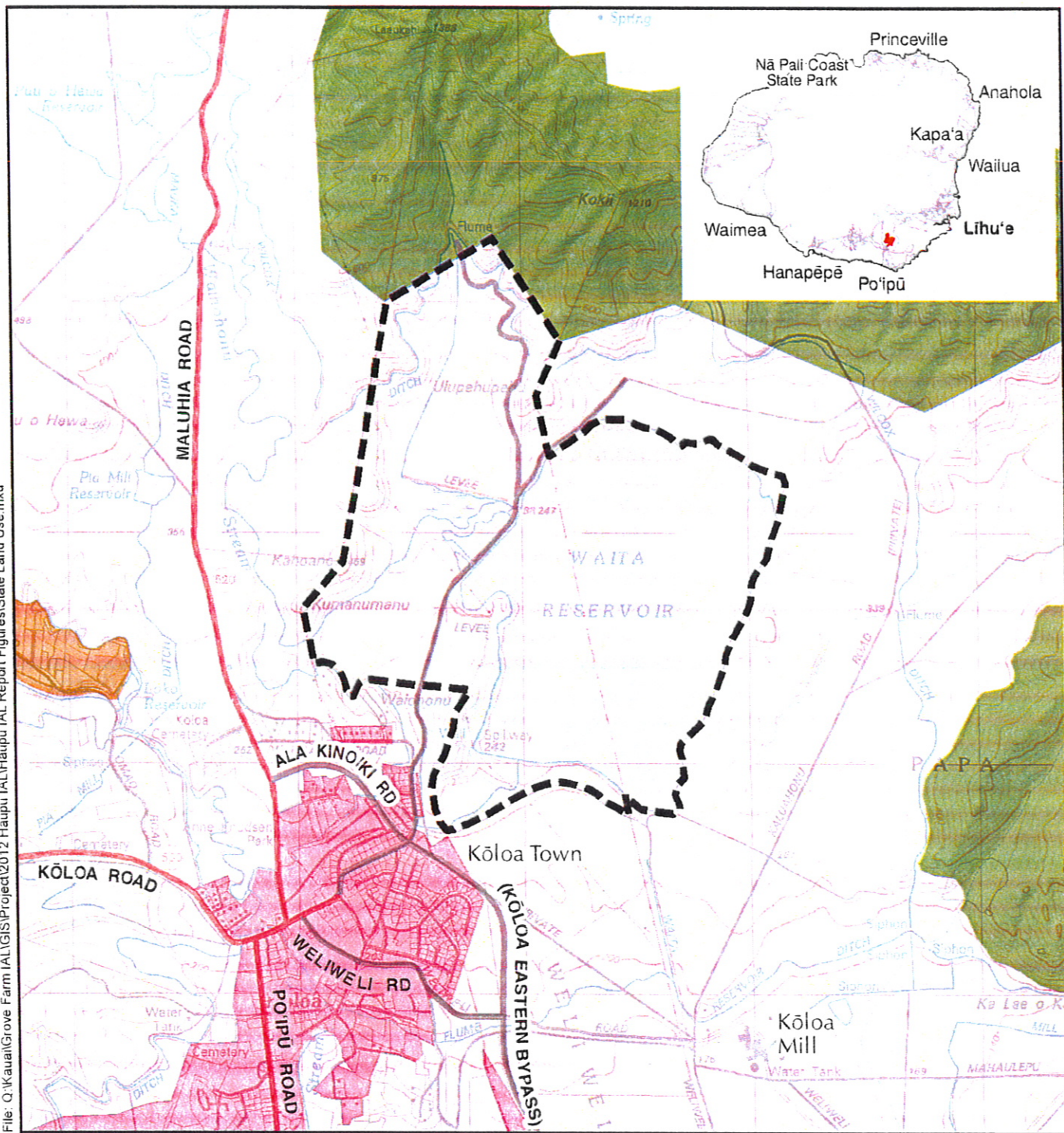
North Linear Scale (feet)



Island of Kaua'i



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DATE: 11/19/2012

LEGEND

- State Land Use Districts
- Agricultural
 - Conservation
 - Rural
 - Urban
- Proposed IAL Designation
-

Source: Grove Farm; U.S. Geological Survey; State Land Use Commission, 2011 (GIS); Kauai TMK, 2012 (GIS)
 Disclaimer: This graphic has been prepared for general planning purposes only.

FIGURE 8

State Land Use Districts

HĀ'UPU IAL

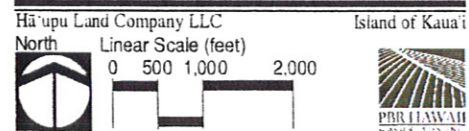


EXHIBIT D

Tax Map Key Description
for
Hā‘upu Land Company LLC
Hā‘upu, Kaua‘i

November 2012