

A. ARCHAEOLOGICAL RECONNAISSANCE SURVEY

Archaeological Inventory Survey with Backhoe Trenching near Anahola*

**Kamalomalo'o Ahupua'a, Puna District, Kaua'i Island
TMK: (4) 4-7-004:002**

Carl E. Sholin Thomas S. Dye

February 14, 2013

Abstract

At the request of Planning Solutions, Inc., T. S. Dye & Colleagues, Archaeologists conducted an archaeological inventory survey for a 60 ac. portion of TMK: (4) 4-7-004:002, located near Anahola, in Kamalomalo'o Ahupua'a, Puna District, Kaua'i Island. The Kaua'i Island Utility Cooperative (KIUC) proposes to install a photovoltaic facility, substation, and service center at this location. The inventory survey was undertaken in support of KIUC's request for financial assistance from the Rural Utilities Service (RUS), pursuant to Section 106 of the National Historic Preservation Act of 1966 (NHPA). The area of potential effect (APE) includes includes the area of the proposed photovoltaic facility, and a substation, service center, access roads, and storage yards. Background research indicated that the APE had been a sugarcane field for many years. The archaeological inventory survey consisted of the excavation and sampling of ten test trenches throughout the APE. Four stratigraphic layers were identified during the inventory survey: two were determined to be related to historic-era agriculture, and two were determined to be deposits of natural terrestrial sediments that developed in situ. No traditional Hawaiian cultural materials were identified during the inventory survey; however, features from use of the area as a sugarcane field, including two historic-era raised agricultural ditches, were identified within the APE. The entire APE has been assigned State site 50-30-08-2160 to identify the sugarcane field features. This site is evaluated as significant for its information content. All pertinent information related to site 50-30-08-2160 has been recorded in this document. Therefore, no further work at the site is recommended. It is further recommended that installation of a photovoltaic facility, substation, and service center be determined to have no adverse effect on historic properties.

*Prepared for Planning Solutions, Inc., Ward Plaza, Suite 330, 210 Ward Avenue, Honolulu, Hawai'i 96814.

Contents

1 Introduction	3
1.1 Existing Conditions	4
1.2 Description of the Proposed Undertaking	4
1.3 Report Organization	6
2 Background	7
2.1 Natural Setting	7
2.2 Traditional and Early Historic Land Use	7
2.3 Historic Land Use: Sugarcane	8
2.4 Archaeological Background	9
3 Methods	13
4 Inventory Survey Results	14
4.1 Test Trenches	15
4.1.1 Trench 1	15
4.1.2 Trench 2	16
4.1.3 Trench 3	18
4.1.4 Trench 4	19
4.1.5 Trench 5	20
4.1.6 Trench 6	21
4.1.7 Trench 7	22
4.1.8 Trench 8	22
4.1.9 Trench 9	24
4.1.10 Trench 10	25
4.2 Site 50-30-08-2160	25
5 Summary and Conclusions	29
A Stratigraphic Contexts	31
B Field Catalog	31
Glossary	32
Hawaiian Terms	34
Abbreviations	34
Bibliography	35

Illustrations

1 Map of the area of potential effect	5
---	---

2	Map of the project	6
3	Map of Makee Sugar Co. Fields 13 and 14	10
4	Map of previous archaeological investigations	11
5	Photograph of Context 3 saprolite	14
6	Map of the test trench locations	15
7	Photograph of the Trench 9 profile	16
8	Photograph of the backhoe excavation of Trench 1	16
9	Stratigraphic profiles for Trenches 1-10	17
10	Photograph of the area of Trench 2	18
11	Photograph of the backhoe excavation of Trench 3	19
12	Photograph of Trench 4	20
13	Photograph of the backhoe excavation of Trench 5	21
14	Photograph of the backhoe excavation of Trench 6	22
15	Photograph of the backhoe excavation of Trench 7	23
16	Photograph of the backhoe excavation of Trench 8	23
17	Photograph of Trench 9	24
18	Photograph of Trench 10	25
19	Site 50-30-08-2160 location map	27
20	Photograph of site -2160 Ditch 1 location	27
21	Photograph of site -2160 Ditch 1 dry stone masonry	28
22	Photograph of site -2160 Ditch 1 sluice fittings	28
23	Photograph of site -2160 inscribed date	28
24	Photograph of the site -2160 Ditch 2 location	29
25	Photograph of the site -2160 Ditch 2 channel	29

Tables

1	Sediment descriptions for Trench 1	18
2	Sediment descriptions for Trench 2	19
3	Sediment descriptions for Trench 3	19
4	Sediment descriptions for Trench 4	20
5	Sediment descriptions for Trench 5	21
6	Sediment descriptions for Trench 6	22
7	Sediment descriptions for Trench 7	23
8	Sediment descriptions for Trench 8	24
9	Sediment descriptions for Trench 9	25
10	Sediment descriptions for Trench 10	26

1 Introduction

At the request of Planning Solutions, Inc., T. S. Dye & Colleagues, Archaeologists conducted an inventory survey of a 60 ac. portion of the subject parcel, TMK: (4) 4-7-004:002, located near Anahola, in Kamalomalo’o Ahupua’a, Puna District, Kaua’i Island (fig. 1). The Kaua’i

Island Utility Cooperative is proposing to install a photovoltaic facility, substation, and service center on this property which is owned by the State of Hawai‘i, Department of Hawaiian Homelands. KIUC has applied for financial assistance to facilitate the construction and operation of the project to the USDA Rural Utilities Service (RUS), an agency authorized to provide financial assistance for the development of infrastructure in rural America. In accordance with Section 106 of the NHPA, it is the legal responsibility of RUS to take into account effects to historic properties of its actions. Pursuant to 36 CFR §800.3(a), RUS has determined that the proposed project is an undertaking subject to review under Section 106. In accordance with §800.4(a)(1), and on behalf of RUS, KIUC’s consultant, Planning Solutions, Inc., requested the completion of this inventory survey by T. S. Dye & Colleagues, Archaeologists to identify potentially affected historic properties. The APE for the project is the entire 60 ac. of land on which the proposed photovoltaic facility, substation, and service center will be built. The archaeological inventory survey consisted of the excavation and recording of ten test trenches throughout the APE.

1.1 Existing Conditions

The APE is located west and *mauka*¹ of Hawai‘i State Highway 56, which is also known as Kūhiō Highway. The APE is accessible by a dirt road that intersects Kūhiō Highway. The property is currently utilized as pasture for cattle and horses belonging to local Hawaiian Homestead beneficiaries. An existing barbed wire livestock fence trends northwest to southeast through the APE, bisecting it into east and west halves. Other notable features includes another barbed wire livestock fence that follows a portion of the southern APE, and two raised irrigation ditches that were presumably installed during the period when the APE was used for *sugarcane* cultivation. These recent structural features are visible on current satellite imagery of the APE. At the time of survey, the APE was overgrown with various grasses, shrubs, and introduced trees, including *Christmas berry* and *koa haole*.

1.2 Description of the Proposed Undertaking

The Kaua‘i Island Utilities Cooperative is proposing to construct a photovoltaic facility, substation, and service center on the APE. The proposed photovoltaic facility will use a low profile photovoltaic module installation system in which photovoltaic panels are installed on pipe frames that are anchored by 12 in. diameter concrete piers typically 36–60 in. deep. Power generated by the panels is collected at a series of pull boxes and transmitted to a substation near the highway (fig. 2). The substation would occupy a 2 ac. area adjacent to the highway; it would contain transformers, switches, controls, batteries, and other electrical equipment that would allow KIUC to feed power into the existing electrical power lines along Kūhiō Highway. The 5 ac. service center would contain offices, storage areas, and other facilities that would support KIUC operations in this part of the island.

¹Hawaiian terms are defined in a glossary at the end of this report. See page 34.

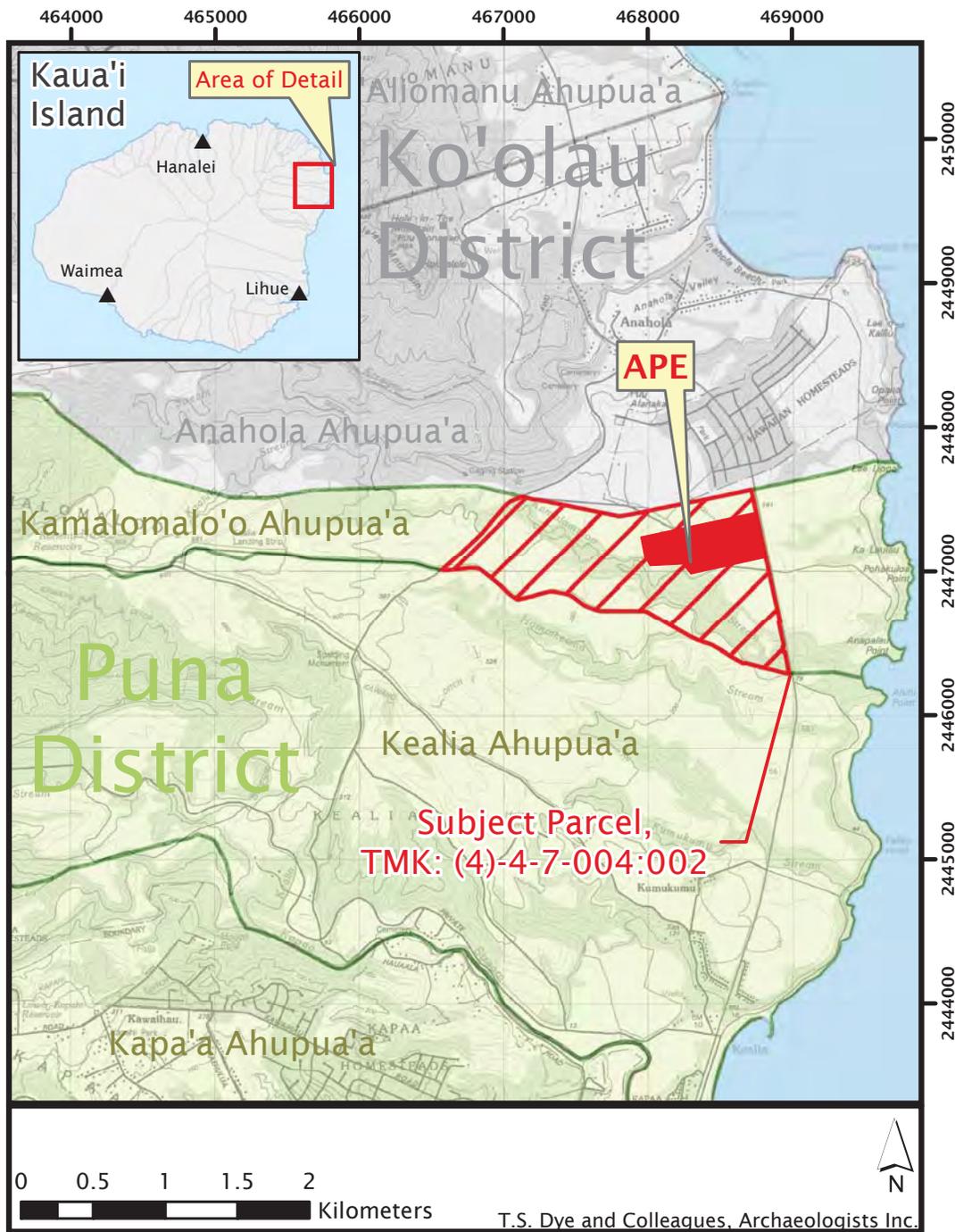


Figure 1: Map of the APE in relation to the subject parcel and the surrounding *ahupua'a*.

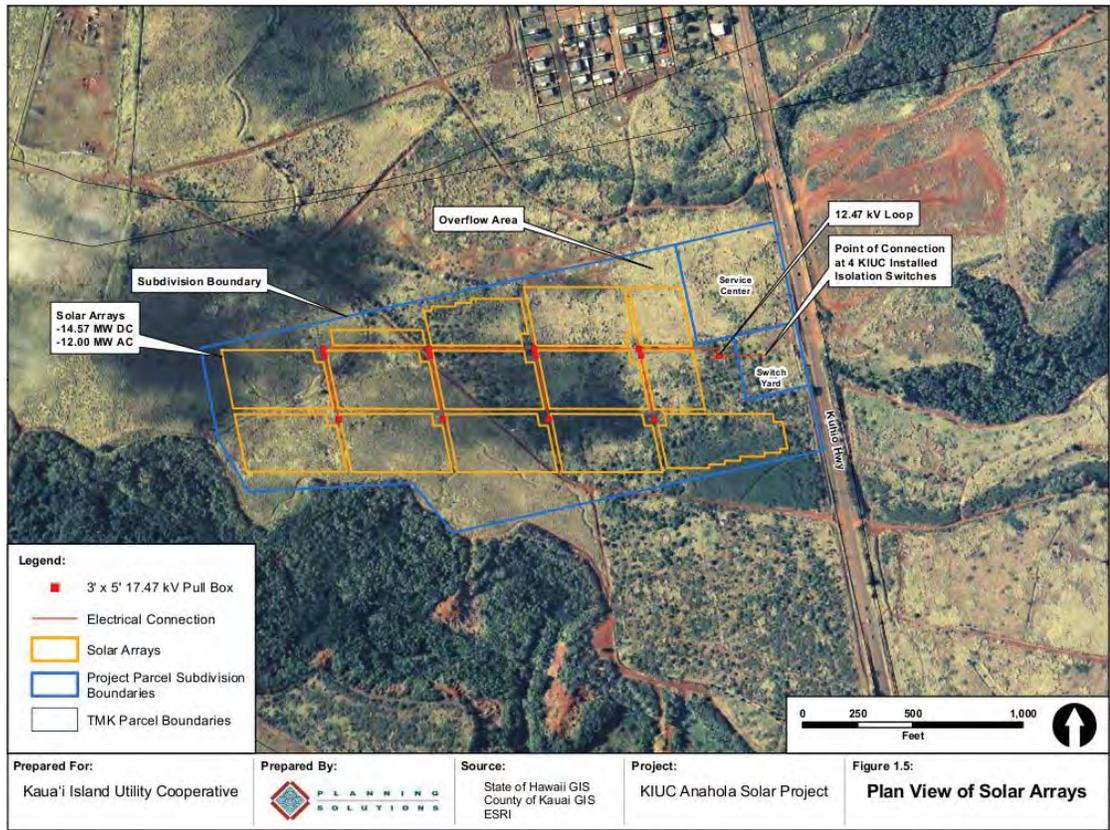


Figure 2: Map of the proposed project on aerial imagery. Image courtesy of Planning Solutions, Inc.

1.3 Report Organization

The remainder of the report is organized into four sections. Section 2 provides an overview of the APE with a focus on land use history. Section 3 describes the field and laboratory methods used during the course of this *project*. Section 4 describes the field observations, including detailed descriptions of all excavations. Finally, Section 5 summarizes the results of the inventory survey with backhoe trenching, evaluates the *significance* of site 50-30-08-2160, and makes recommendations on (i) the need for further work, and (ii) a determination of the effect of the proposed project on historic properties.

The report is supported by Appendix A, which lists the archaeological contexts identified during the excavations, and Appendix B, which catalogs the materials collected during the inventory survey and transported to the laboratory for identification and description. In addition, glossaries are provided for technical terms, Hawaiian words, and abbreviations. Technical terms that appear in the glossary are italicized where they first appear in the text.

2 Background

This section presents background information that was used to predict the kinds and distributions of historic properties that may be present at the APE. The information also provides context for understanding and evaluating the significance of historic properties. Documents and materials at the State Historic Preservation Division (SHPD) library, the SHPD geographic information system database, the survey office of the State of Hawai'i Department of Accounting and General Services, the Hawai'i State Library, and the library of T. S. Dye & Colleagues, Archaeologists, as well as information provided by Planning Solutions, Inc., were reviewed. Section 2.1 summarizes the natural environment of the APE with specific emphasis on the underlying bedrock and soil deposits. Sections 2.2 and 2.3 summarize the uses of the APE and surrounding lands based on oral traditions and historic documents. Section 2.4 summarizes the findings of archaeological work that has been conducted near the APE.

2.1 Natural Setting

The APE lies at an elevation of ca. 180–360 ft. above sea level. The bedrock deposit at the APE area is classified as Kōloa volcanic *'a'ā* and lesser *pāhoehoe* lava flow (QTKol) [11]. This series is composed of porphyritic and aphyric basanite in which the mineral *olivine* is the only large *phenocryst*. This rock group is relatively young for the island of Kaua'i, having formed between 1.7–3.85 million years ago during late-stage rejuvenation eruptions [1].

The soil underlying the APE is Lihue silty *clay*, 0 to 8 percent slopes (LhB). This series is described as deep, well-drained soils that formed in material weathered from basic igneous rock and influenced by tropospheric dust.² The APE area receives 40–60 in. of rainfall annually [5].

2.2 Traditional and Early Historic Land Use

The APE is located in the *ahupua'a* of Kamalomalo'o in the district of Puna on the northeast coast of Kaua'i Island (see fig. 1). The names of Ko'olau and Puna Districts are likely to be relatively recent; portions of these two districts are also discussed as belonging to Kawaihau District [10]. Kamalomalo'o is translated as “the dry loincloth.” It is said to be named thus because of an ancient practice:

In olden days, when an *ali'i* came ashore from a canoe voyage or surfing, his bodyguards threw their spears at him. It was a mark of chiefly strength that he could dodge or catch every spear. After this, he was ceremoniously given a dry *malo* (a piece of tapa . . . , the principal clothing for men). [13]

Kalomalo'o Ahupua'a is just south of Anahola Ahupua'a, and is the northernmost *ahupua'a* in Puna District. Anahola is named “after a *mo'o*, a lizard *kupua* that appeared on land as a man and in the sea as a merman” [13].

A *heiau* that once existed in Kamalomalo'o is described thus:

²USDA Web Soil Survey, <http://websoilsurvey.nrcs.usda.gov>.

Māhu-nā-pu‘u-one, “vapor that rises from the sand dunes,” was a *heiau* where humans were sacrificed. It was built in the late 1600s by Kawelomahamahi‘a to celebrate the birth of his twin grandsons who were owners of the dreaded *kapu moe* (prostration taboo). [13:87]

Handy and Handy [6:423] provide the following descriptions of Anahola, Kamalomalo‘o, and Keālia.

The last *ahupua‘a* on this, the *ko‘olau* (east and northeast) coast, is Anahola. Here is the largest river in Ko‘olau District. There are old abandoned terraces along its banks far upstream. There are old *lo‘i* from two to four miles inland along Anahola River and its tributary Ka‘alua Stream, and below their point of juncture there are many *lo‘i* on flats along the river banks as it meanders through its wide gulch. The delta is three-fourths mile wide, and this was all terraced. . .

Two small *ahupua‘a*, Kamalomalo‘o (Dry Kamalo) and Kealia are rather dry, with small streams and gulches and only a few *lo‘i* areas. Where Kealia and Kapa‘a Streams join inland there are wide flats that were terraced. Seaward there were formerly many terraced areas. There are clumps of coconut and mango trees where formerly were *kuleana* with their *lo‘i*. Inland there were a number of small streams which doubtless once had small *lo‘i* developments.

Numerous Land Commission Awards (LCA) were granted during the *Māhele* in the neighboring *ahupua‘a* of Anahola, which for the most part are clustered around the Anahola River and near the coast. There were no claims in Kamalomalo‘o.

2.3 Historic Land Use: Sugarcane

Several factors contributed to the growth of the sugarcane industry in Hawai‘i. First, the steamships travelling between the United States of America and the Hawaiian Kingdom provided rapid transportation. Second, the *Māhele* of 1848 allowed foreigners to purchase and own land. Third, the American Civil War had increased demand for sugar. Lastly, the Reciprocity Treaty of 1875 allowed Hawaiian sugar to be sold in the US free of taxes. These things combined created a big buzz around sugar and the money to be made from it.

Kaua‘i is known affectionately as the Garden Isle. This name is owed to the abundant rainfall that the island receives, which keeps it lush and green. The Wai‘ale‘ale Mountain Range reaches an elevation of 5,080 ft. and has a mean annual rainfall of 476 in.³ *Wai‘ale‘ale* is translated as “rippling water” or “overflowing water” [10]. The runoff provides plentiful water for irrigation, making Kaua‘i an attractive place for sugarcane cultivation.

³In recent years, however, Mount Wai‘ale‘ale’s running 30-year average annual rainfall total has been decreasing almost steadily, from 406 inches in 1997 to just below 384 inches in 2010. For more information, see the National Oceanic and Atmospheric Administration’s National Weather Service website, <http://www.weather.gov/>.

The history of commercial sugarcane agriculture on Kaua'i began in 1835 with the establishment of Koloa Plantation in southern Kaua'i. Koloa Plantation is known as Hawai'i's first sugar plantation [14:76]. In east Kaua'i, Lihue Plantation, founded in 1849 and the second-oldest sugar plantation in Hawai'i, transformed much of the land into sugarcane fields and created the water irrigation system that supported those fields [14:68]. The ditch system was so effective that "[b]y 1931, some 79 percent of the 6712 acres of Lihue Plantation's cane land was irrigated by gravity flow [and] average water production was 82 mgd [million gallons per day]" [14:73]. Also, a system of railroad tracks helped transport the cane to the mill. On a tax map dated November 1936, railroad tracks are shown running through the subject parcel. These are probably associated with the sugar industry.

The APE is shown within Fields 13 and 14 on a 1926 field map of Makee Sugar Company (fig. 3). Capt. James Makee founded Makee Sugar Co. in 1877. Makee founded the company with several others, including King Kalākaua, who owned a quarter interest. Lihue Plantation Co. absorbed Makee Sugar Co. in 1933.

By the time Lihue Plantation acquired Makee, it had 7200 acres in cane with another 2200 acres planted by independent planters, primarily homesteaders. It had a well-developed water collection and delivery system, too, which delivered an average of some 30 mgd [million gallons per day] and included Anahola, Kaneha and Kapaa ditches. [14:73]

Lihue Plantation Co. eventually became part of Amfac, and Amfac Sugar Kauai remained in operation until 2000. At some point in the relatively recent past the APE fell out of use for commercial sugar. It is currently being used for pasture lands.

2.4 Archaeological Background

There are no known archaeological studies for the subject parcel. However, studies have been conducted of nearby areas, in Kumukumu and Keālia, just south of Kamalomalo'o. Sugarcane cultivation is known to have occurred in these areas as well.

In 2006, Scientific Consultant Services, Inc. (SCS) conducted an archaeological inventory survey of a 2,008 ac. parcel located in Kumukumu and Keālia Ahupua'a, which are the two *ahupua'a* south of Kamalomalo'o. The parcel is located at a distance from the coast similar to that of the APE, and thus it contains similar environments. The SCS project was divided into four phases (fig. 4).⁴

Phase II The Phase II portion totaled 670 ac. and consisted of a portion lying in Kumukumu and another portion lying in Keālia. Thirty new sites were identified in this phase. There was a total of 82 features: 27 associated with the plantation era, 3 *pre-contact* features associated with native Hawaiian habitation and/or agriculture, 5 pre-contact features with use continuing into the historic period, and 47 associated with the historic period. All 30 of the plantation era and pre-contact sites have been

⁴Reports for Phases II through IV were found at the SHPD library in Kapolei. However, a Phase I report could not be located.

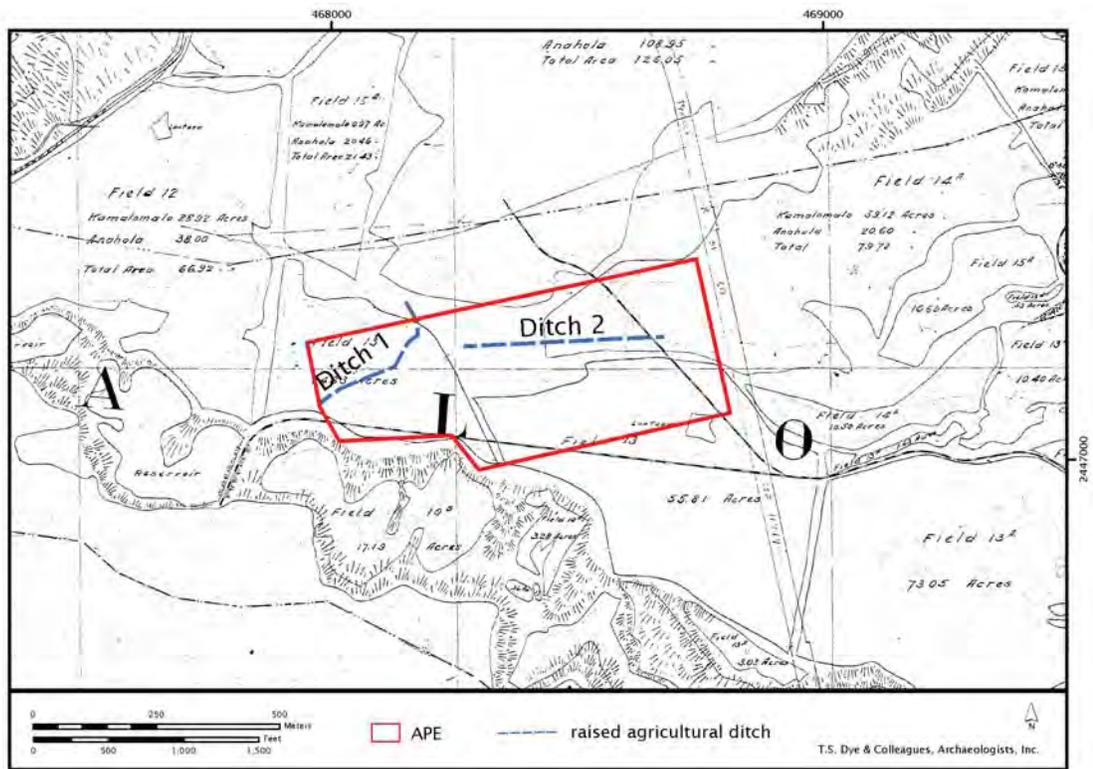


Figure 3: Map of Makee Sugar Co. Fields 13 and 14 on a portion of Registered Map 2282, “Anahola-Kamalomalo, Kauai,” 1904. The map shows the same field numbers as a 1926 field map of Makee Sugar Company. Note the railroad tracks shown coming in from the east and forking, with one track running from the southeast corner of the APE going northwest, and the other track running through the southwestern portion of the APE. The symbols for the raised irrigation ditches don’t line up precisely with their representation on the old map; this is due to the inherent problems of geo-registering old maps.

assessed as significant under Criterion D. Two of these sites, sites 50-30-08-3959 and 3960, are also significant under Criterion E because of the identification of human remains at the sites.⁵ A feature of site 50-30-08-7027, a railroad bridge with earthen berm, is recommended for preservation because it represents a uniquely constructed sugar plantation *stone* and mortar railroad bridge. Data recovery is

⁵This previous archaeological work was performed under the authority of Section 6E of the Hawai‘i Administrative Rules (§13-275-6) which states that historic properties assessed as significant under Criterion E have an important value to the native Hawaiian people or to another ethnic group of the State due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group’s history and cultural identity.

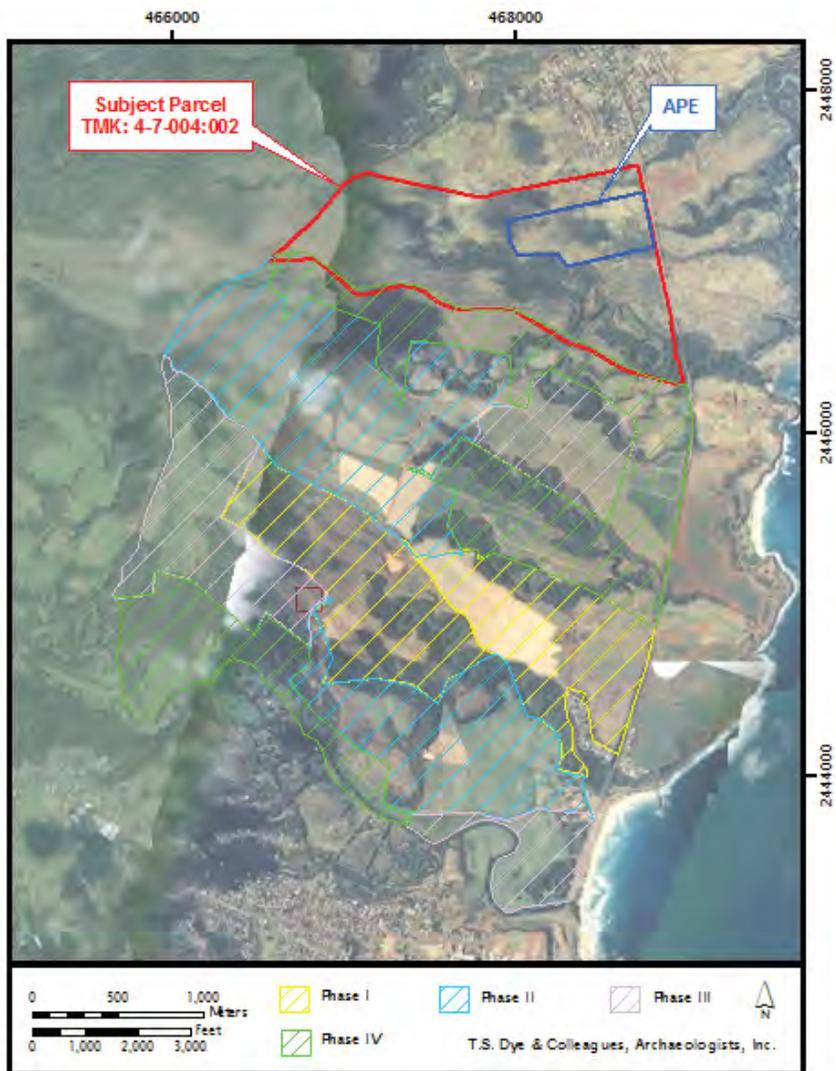


Figure 4: Areas of previous archaeological inventory surveys conducted by Scientific Consultant Services, Inc. in Kumukumu and Keālia [2-4]. The 2,008 ac. parcel was divided into four phases.

recommended for site 50-30-08-3959, a pre-contact/historic habitation site. Also, it is recommended that a burial treatment plan be written for sites 3959 and 3960. All other sites require no further work [2].

Phase III The Phase III portion covered 386 ac., which consisted of one section in Kumukumu and two sections in Keālia. Nineteen new sites were identified with a total of 93 features. Thirteen features are associated with the plantation era; 2 features are interpreted as historic; 63 are associated with the historic and/or

plantation era; 11 are historic/plantation era in origin and have continued use in modern times; 4 appear to be part of a burial site associated with traditional Hawaiian habitation and/or agriculture. All 19 sites are assessed as significant under Criterion D. Sites 50-30-08-7028 and 7040 are also significant under Criterion E because human remains were identified at those sites. Site 50-30-08-7043, the Spalding Monument—a memorial for the former Makee Sugar Company owner, Col. Zephaniah Swift Spalding—is also significant under Criterion B. Preservation and data recovery is recommended for site 50-30-08-7028, an historic cemetery. Sites 50-30-08-7040 and 7043 are recommended for preservation. All other sites require no further work [4].

Phase IV The Phase IV portion consisted of 562 ac., with a section in Kumukumu that neighbors the project parcel, lying just south of it, and a second section in the southern portion of Keālia. Thirty-seven new sites were identified, composed of a total of 66 features. Thirty-six features are associated with the plantation era; 22 are associated with the historic era; 5 are interpreted as historic and/or plantation era features; 11 are of the historic/plantation era and have continued use in modern times; 2 are pre-contact and/or historic, associated with traditional Hawaiian habitation and/or agriculture. All of the sites are significant under Criterion D. Site 50-30-08-1120, feature 2, an historic *petroglyph*, and site 50-30-08-1136, a traditional petroglyph, are recommended for preservation. All other sites require no further work [3].

The nearest documented burial was discovered at Donkey Beach, which lies about 1.2 mi. southeast of the APE. A burial there was inadvertently exposed in 1992 [8]. The orientation of the bones indicated it was a primary burial. Because the burial was vulnerable to beach erosion, it was excavated and brought to the Office of Hawaiian Affairs (OHA) Kaua'i branch.

In 1999, an archaeological inventory survey was conducted by Perzinski et al. [9] of a 300 ac. parcel in Keālia, which lies just southeast of the subject parcel. Three sites were identified. Site 50-30-08-789 is a complex of plantation-era features. Site 50-30-08-790 is a complex of World War II-era features. Site 50-30-08-1899 consists of burials at the south end of Donkey Beach which are likely prehistoric and/or early historic native Hawaiian in origin. All three sites were assessed as significant under Criterion D. Site 1899 is also significant under Criterion E because of the presence of burials. No further work is recommended for sites 789 and 790. Site 1899 is recommended to be preserved in place. As was anticipated, a majority of the features were remnants of the plantation era because use of the area for commercial sugarcane cultivation had significant impact on the land. There were no feature remnants that predate plantation-era use. The burials at Donkey Beach, however, potentially predate the plantation era.

In 1983, the Hawaii State DLNR commissioned a survey of all of the significant agricultural ditches in the state [14]. This survey distinguished between water collection ditches, which served to divert water from their source, and water distribution ditches, which distributed the diverted water to local agricultural fields. The water collection ditches were the more substantial, since they involved complicated feats of civil engineering. The closest collection ditches, Anahola, Kaneha, and Kapa'a ditches, were all associated with Makee Sugar Company which was later acquired by Lihue Plantation. These ditches are

likely to have been constructed at some time between 1880–1900. The closest collection ditch to the APE was Anahola ditch, which was located approximately 0.4 km west of the APE.

3 Methods

The backhoe test trenching for the archaeological inventory survey was conducted by archaeologists Thomas S. Dye and Carl E. Sholin on February 1–3, 2012. Additional photograph recording of the raised agricultural ditch features of site 50–30–08–2160 was conducted by Sholin and Nathan Divito on February 7, 2013. The archaeological inventory survey consisted of the backhoe excavation and systematic description of ten test trenches placed throughout the APE to determine if subsurface historic properties were present. All archaeological field recording, sampling, and laboratory methods described below are standard operating procedures of T. S. Dye & Colleagues, Archaeologists designed to report the observational basis of statements made in the report.

An effort was made to position the test trenches throughout the APE in order to have a broad coverage of the APE. In some portions of the APE dense vegetation, the livestock fences, and the raised agricultural ditches limited access. There is no reason to expect that subsurface historic properties are spatially associated with these modern conditions. Thus, it is unlikely that these limitations affected the outcome of the investigation. The position of each of the trenches was recorded using differentially corrected GPS; ninety-five percent of the recorded positions were accurate to a meter's resolution. A log of GPS point files was kept in the archaeologists' field notebook and approximate locations were additionally recorded on a paper map of the APE.

All trenches were excavated by backhoe. Backhoe trenches were 4.2–7 m in length, 0.7–1.15 m in width, and 125–240 cm below ground surface in depth. The maximum depth of a trench was determined by the identification of what soil scientists term the *C horizon*. The *C horizon* is the region of a soil profile in which the local bedrock material deteriorates into its mineral components. In this investigation, the *C horizon* is referred to as *Context 3*. *Context 3* was identified by examining the soil *peds* to see if they retained the texture of the parent rock instead of the texture of unconsolidated sediment (fig. 5). Excavation to this depth ensured that no buried ground surfaces would be present below the base of excavation.

Stratigraphic information was recorded using the method described by Harris [7]. Layers of material were assigned a *unit of stratification number*, referred to here as a context. An inventory of all recorded stratigraphic contexts was recorded in the archaeologists' field notebook and is presented in Appendix A. Representative profiles were recorded for exposures in all trenches. Recorded profiles reference the contexts that were exposed, and describe these deposits with the standardized terminology used by the US Soil Conservation Service [12].

Digital photographs were recorded for all trenches. The archaeologists recorded images of the trench location in relation to the horizon and Kalalea Mountain. Detail photographs of the trench exposures were also collected. A photograph log was kept in the archae-



Figure 5: Detail photograph of deteriorating bedrock from Context 3, showing mineral phenocrysts and vesicles in groundmass. This piece is from Trench 8. It is likely to have been a piece of the Kōloa series basanite, and the remaining mineral phenocrysts are likely to have once been olivine. The tip of a mechanical pencil is included for scale.

ologists' field notebook; it contained descriptions of each image including location and orientation. Several of these field images are presented in this report; the remainder of the photographs are archived at the facilities of T. S. Dye & Colleagues, Archaeologists.

Soil samples were collected for all exposed stratigraphic contexts in each trench. Sediment samples were placed in plastic bags for transport to the laboratory. Each bag was identified with a unique number. A bag list with provenience information, including trench and context, was recorded in the archaeologists' field notebook. This bag list would ensure that all collections could be unambiguously identified. This bag list is presented in Appendix B.

Stratigraphic profiles, photographs, and the APE maps were analyzed in the laboratory to develop a depositional *chronology* for the APE. The general patterns of deposition were synthesized into a relative chronological model consisting of three *phases* of deposition at the APE. This model is discussed in detail in section 5. The phases are: 1) naturally deposited and *in situ* weathered material; 2) historic plow zone material; and 3) modern surface material.

All identified stratigraphic contexts were classified according to this model. Phase 1 was characterized as all material that was naturally deposited or weathered in situ from the parent material and showed no signs of human alteration of the deposit. Phase 2 was characterized as mineral soil that had been reworked by the plowshare during historic sugarcane agriculture, or moved into place by heavy machinery during sugarcane field preparation. Phase 3 was characterized as surface material consisting of plowed material that has been further reworked by livestock, modern vehicles, and vegetation. The phases are identified in stratigraphic profiles and included in Appendix A.

4 Inventory Survey Results

This section reports the results of the inventory survey. It includes descriptions of the individual test trenches and the historic-era raised agricultural ditches identified

at the surface. These ditches and the associated agricultural fields are assigned to site 50-30-08-2160.

4.1 Test Trenches

Ten test trenches were excavated throughout the APE (fig. 6). Trenches 1-3 and 5-10 revealed similar profiles consisting of three typical strata. Phase 3, Context 1 surface material overlay Phase 2 agricultural mineral soil (fig. 7). Following the procedure outlined by Harris [7], the Phase 2 agricultural mineral soil in each trench was assigned to a separate context. Contexts 2, 4, 5, 6, 8, 9, 10, 11, 12, and 13 were assigned to Phase 2 deposits. The Phase 2 deposits overlay the Phase 1, Context 3 layer of deteriorating bedrock. Only Trench 4 diverged from the normal depositional pattern; here Phase 3, Context 1 surface material overlay Phase 2, Context 6 agricultural mineral soil, which overlay a Phase 1, Context 7 *paleosol*. All test trenches are described in detail below.

4.1.1 Trench 1

Trench 1 was located in the northeast portion of the APE, near a yellow gate that provides access from Kūhiō Highway (see figs. 6, 8). It was 4.2 m long, oriented east-west, 0.70 m

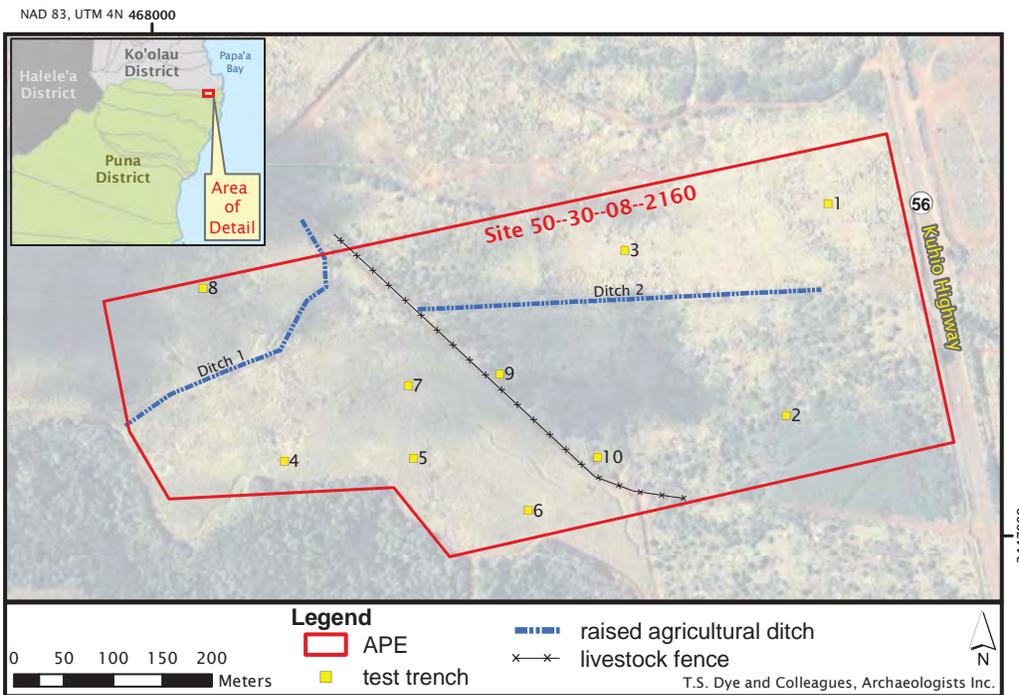


Figure 6: Map of the test trench locations in relation to the APE and the raised agricultural ditches. Features are overlaid on an aerial image accessed via ESRI World Imagery.



Figure 7: Photograph of the typical profile at Trench 9, looking southeast, showing Context 1 surface material overlying Context 12 mineral soil which grades into Context 3 decaying bedrock. The scale is in ten centimeter increments.

wide, and reached a maximum depth of 136 cm below ground surface. Phase 3, Context 1 dark reddish brown surface material was present 0-35 cm below ground surface (see fig. 9; table 1). Context 1 overlay Phase 2, Context 2 dark reddish brown agricultural mineral soil which was present 35-127 cm below ground surface. Context 2 overlay Phase 1, Context 3 black deteriorating volcanic bedrock which was present 127-136 cm below ground surface, the base of excavation. No cultural materials were identified at Trench 1.



Figure 8: Photograph of the backhoe excavation of Trench 1, looking northwest. Kalalea Mountain is in the background.

4.1.2 Trench 2

Trench 2 was located in the southeast portion of the APE near Kūhiō Highway, southwest of Trench 1 and a raised agricultural ditch (see figs. 6, 10). Trench 2 was 4.2 m long, oriented east-west, 0.7 m wide, and reached a maximum depth of 150 cm below ground surface. Phase 3, Context 1 dark reddish brown surface material was present 0-51 cm below ground surface (fig. 9; table 2). Context 1 overlay Phase 2, Context 4 dark reddish brown agricultural mineral soil which was present 51-127 cm below ground surface. Context 4 overlay Phase 1, Context 3 reddish brown deteriorating volcanic bedrock which

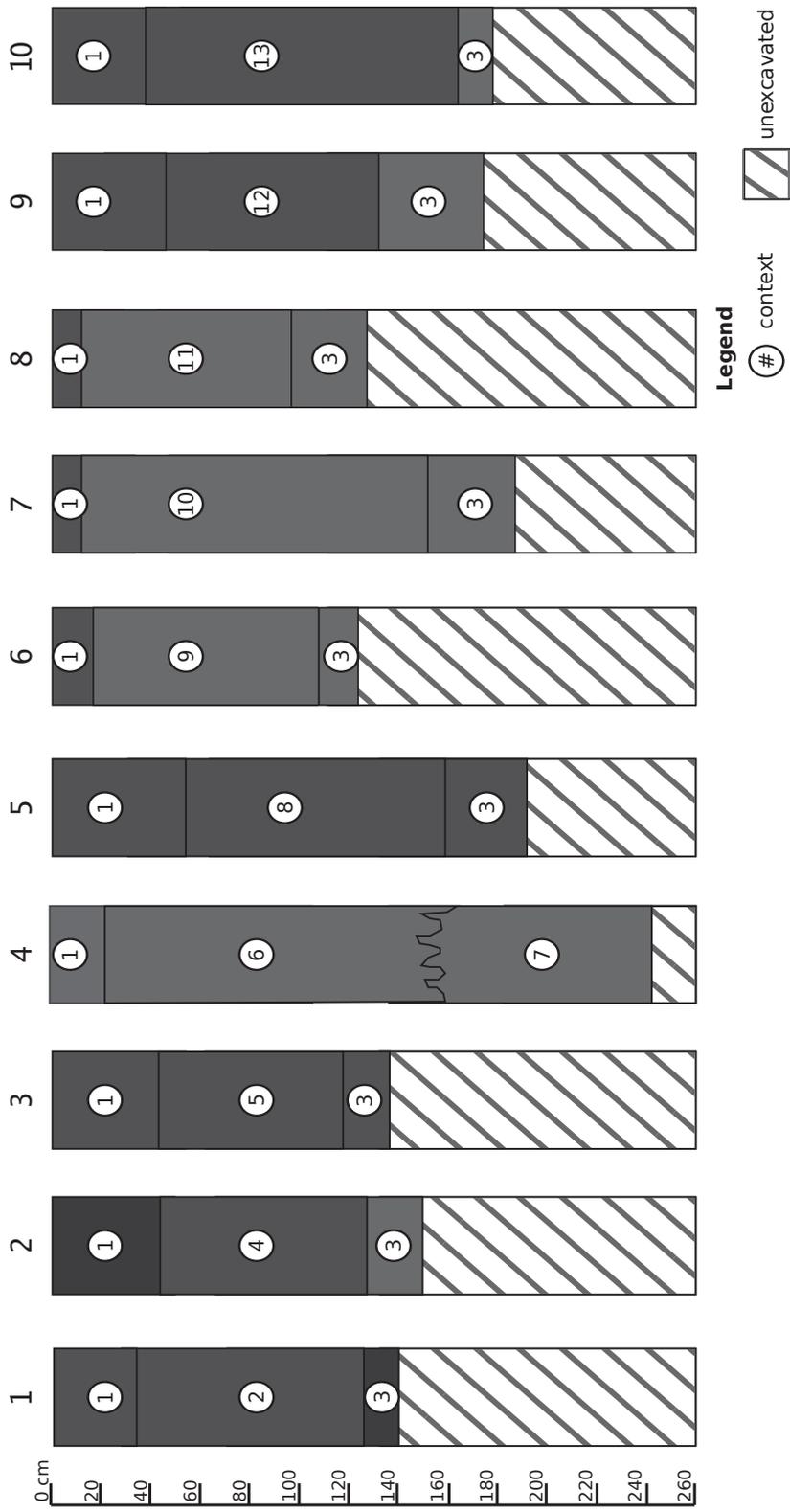


Figure 9: Representative stratigraphic profile drawings for Trenches 1–10. The trench numbers are above each profile drawing.

Table 1: Sediment descriptions for Trench 1

Context	Phase	Depth*	Description	Interpretation
1	3	0-35	Dark reddish brown (5YR 3/3) terrestrial silty clay loam; very sticky, moderately plastic; diffuse, smooth lower boundary	Secondary deposition process
2	2	35-127	Dark reddish brown (5YR 3/3) terrestrial clay loam; very sticky, moderately plastic; diffuse, smooth lower boundary	Secondary deposition process
3	1	127-136+	Black (5YR 2.5/1) terrestrial clay loam; very sticky, moderately plastic; base of excavation	Natural deposition process

*Depth in cm below surface.

was present 127-150 cm below ground surface, the base of the excavation. No cultural materials were identified at Trench 2.



Figure 10: Photograph of the area in which Trench 2 was excavated, looking northwest. Kalalea Mountain is in the background.

4.1.3 Trench 3

Trench 3 was located in the north-central portion of the APE, north of a raised agricultural ditch (see figs. 6, 11). Trench 3 was 4.9 m long, oriented north-south, 0.7 m wide, and reached a maximum depth of 138 cm below ground surface. Phase 3, Context 1 dark reddish brown surface material was present 0-54 cm below ground surface. Context 1 overlay Phase 2, Context 5 dark reddish brown agricultural mineral soil, which was present 54-119 cm below ground surface. Context 5 overlay Phase 1, Context 3 dark reddish brown deteriorating volcanic bedrock which was present 119-138 cm below ground surface (see fig. 9; table 3). No cultural materials were identified at Trench 3.

Table 2: Sediment descriptions for Trench 2

Context	Phase	Depth*	Description	Interpretation
1	3	0-51	Dark reddish brown (5YR 2.5/2) terrestrial silty clay loam; very sticky, moderately plastic; diffuse, smooth lower boundary	Secondary deposition process
4	2	51-127	Dark reddish brown (5YR 3/3) terrestrial clay loam; very sticky, moderately plastic; diffuse, smooth lower boundary	Secondary deposition process
3	1	127-150+	Reddish brown (5YR 4/4) terrestrial clay loam; very sticky, moderately plastic; base of excavation	Natural deposition process

*Depth in cm below surface.



Figure 11: Photograph of the backhoe excavation of Trench 3, looking northwest. Kalalea Mountain is in the background.

Table 3: Sediment descriptions for Trench 3

Context	Phase	Depth*	Description	Interpretation
1	3	0-54	Dark reddish brown (5YR 3/2) terrestrial silty clay loam; very sticky, moderately plastic; diffuse, smooth lower boundary	Secondary deposition process
5	2	54-119	Dark reddish brown (5YR 3/3) terrestrial clay loam; very sticky, moderately plastic; diffuse, smooth lower boundary	Secondary deposition process
3	1	119-138+	Dark reddish brown (5YR 3/3) terrestrial clay loam; very sticky, moderately plastic; base of excavation	Natural deposition process

*Depth in cm below surface.

4.1.4 Trench 4

Trench 4 was the southwesternmost test trench excavated, located near the tree line that defined a portion of the southern boundary of the APE (see figs. 6, 12). It was located near

a slope that led into an adjacent stream drainage south of the APE. Trench 4 was 4.9 m long, oriented east-west, 0.7 m wide, and reached a maximum depth of 240 cm below ground surface. Phase 3, Context 1 dark reddish brown surface material was present 0–23 cm below ground surface (see fig. 9; table 4). Context 1 overlay Phase 2, Context 6 agricultural mineral soil containing several small to medium volcanic boulders which was present 23–162 cm below ground surface. Context 6 overlay a Phase 1, Context 7 brown paleosol with few to common rootlets. No cultural materials were identified at Trench 4.



Figure 12: Photograph of Trench 4, looking north-west. Kalalea Mountain is framed below the boom arm of the backhoe.

Table 4: Sediment descriptions for Trench 4

Context	Phase	Depth*	Description	Interpretation
1	3	0-23	Dark reddish brown (5YR 2.5/2) terrestrial silty clay loam; very sticky, moderately plastic; diffuse, smooth lower boundary	Secondary deposition process
6	2	23-162	Reddish brown (5YR 4/4) terrestrial clay loam; very sticky, moderately plastic; diffuse, irregular lower boundary	Fill material deposition event
7	1	162-240+	Brown (7.5YR 4/3) terrestrial clay loam; very sticky, moderately plastic; base of excavation	Natural deposition process

*Depth in cm below surface.

4.1.5 Trench 5

Trench 5 was located in the southwest portion of the APE, east of Trench 4 and near the tree line which defines the southern boundary of the APE (see figs. 6, 13). Trench 5 was 5.2 m long, oriented east-west, 0.7 m wide, and reached a maximum depth of 190 cm below ground surface. Phase 3, Context 1 dark reddish brown surface material was present 0–33 cm below ground surface (see fig. 9; table 5). Context 1 overlay Phase 2, Context 8

dark reddish brown agricultural mineral soil which was present 33–158 cm below ground surface. Context 8 overlay Phase 1, Context 3 dark reddish brown deteriorating volcanic bedrock. No cultural materials were identified at Trench 5.



Figure 13: Photograph of the backhoe excavation of Trench 5, looking northwest. Kalalea Mountain is in the background.

Table 5: Sediment descriptions for Trench 5

Context	Phase	Depth*	Description	Interpretation
1	3	0–33	Dark reddish brown (5YR 3/2) terrestrial silty clay loam; very sticky, moderately plastic; diffuse, smooth lower boundary	Secondary deposition process
8	2	33–158	Dark reddish brown (5YR 3/3) terrestrial clay loam; very sticky, moderately plastic; diffuse, smooth lower boundary	Secondary deposition process
3	1	158–190+	Dark reddish brown (5YR 3/3) terrestrial clay loam; very sticky, moderately plastic; base of excavation	Natural deposition process

*Depth in cm below surface.

4.1.6 Trench 6

Trench 6 was located in the south-central portion of the APE, southeast of Trench 5 and southwest of a barbed wire livestock fence (see figs. 6, 14). Trench 6 was 4.9 m long, oriented east–west, 0.7 m wide, and reached a maximum depth of 125 cm below ground surface. Phase 3, Context 1 dark reddish brown surface material was present 0–9 cm below ground surface (see fig. 9; table 6). Context 1 overlay Phase 2, Context 9 reddish brown agricultural mineral soil present 9–110 cm below ground surface. Context 9 overlay Phase 1, Context 3 reddish brown deteriorating volcanic bedrock. No cultural materials were identified at Trench 6.



Figure 14: Photograph of the backhoe excavation of Trench 6, looking northwest. Kalalea Mountain is in the background.

Table 6: Sediment descriptions for Trench 6

Context	Phase	Depth*	Description	Interpretation
1	3	0-9	Dark reddish brown (5YR 3/3) terrestrial silty clay loam; very sticky, moderately plastic; diffuse, smooth lower boundary	Secondary deposition process
9	2	9-110	Reddish brown (5YR 4/3) terrestrial clay loam; very sticky, moderately plastic; diffuse, smooth lower boundary	Secondary deposition process
3	1	110-125+	Reddish brown (5YR 4/4) terrestrial clay loam; very sticky, moderately plastic; base of excavation	Natural deposition process

*Depth in cm below surface.

4.1.7 Trench 7

Trench 7 was located in the central portion of the APE, west of a barbed wire livestock fence and north of Trench 5 (see figs. 6, 15). Trench 7 was 5.6 m long, oriented northwest-southeast, 0.7 m wide, and reached a maximum depth of 185 cm below ground surface. Phase 3, Context 1 dark reddish brown surface material was present 0-34 cm below ground surface (see fig. 9; table 7). Context 1 overlay Phase 2, Context 10 reddish brown agricultural mineral soil, which was present 34-152 cm below ground surface. Context 10 overlay Phase 1, Context 3 brown deteriorating volcanic bedrock, which was present 152-185 cm below ground surface, the base of excavation. No cultural materials were identified at Trench 7.

4.1.8 Trench 8

Trench 8 was the northwesternmost trench, located just south of the northern boundary of the APE, northwest of a raised agricultural ditch (see figs. 6, 16). Trench 8 was 4.9 m long, oriented east-west, 0.7 m wide, and reached a maximum depth of 126 cm below ground surface. Phase 3, Context 1 dark reddish brown surface material was present 0-28 cm below ground surface (see fig. 9; table 8). Context 1 overlay Phase 2, Context



Figure 15: Photograph of the backhoe excavation of Trench 7, looking northwest. Kalalea Mountain is in the background.

Table 7: Sediment descriptions for Trench 7

Context	Phase	Depth*	Description	Interpretation
1	3	0-34	Dark reddish brown (5YR 3/2) terrestrial silty clay loam; very sticky, moderately plastic; diffuse, smooth lower boundary	Secondary deposition process
10	2	34-152	Reddish brown (5YR 4/4) terrestrial clay loam; very sticky, moderately plastic; diffuse, smooth lower boundary	Secondary deposition process
3	1	152-185+	Brown (7.5YR 4/3) terrestrial clay loam; very sticky, moderately plastic; base of excavation	Natural deposition process

*Depth in cm below surface.

11 yellowish red agricultural mineral soil, which was present 28-96 cm below ground surface. Context 11 overlay Phase 1, Context 3 yellowish red deteriorating volcanic bedrock, which was present 96-126 cm below ground surface, the base of excavation. No cultural materials were identified at Trench 8.



Figure 16: Photograph of the backhoe excavation of Trench 8, looking northwest. Kalalea Mountain is in the background.

Table 8: Sediment descriptions for Trench 8

Context	Phase	Depth*	Description	Interpretation
1	3	0-28	Dark reddish brown (5YR 3/3) terrestrial silty clay loam; very sticky, moderately plastic; diffuse, smooth lower boundary	Secondary deposition process
11	2	28-96	Yellowish red (5YR 4/6) terrestrial clay loam; very sticky, moderately plastic; diffuse, smooth lower boundary	Secondary deposition process
3	1	96-126+	Yellowish red (5YR 4/6) terrestrial clay loam; very sticky, moderately plastic; base of excavation	Natural deposition process

*Depth in cm below surface.

4.1.9 Trench 9

Trench 9 was located in the central portion of the APE, south of a raised agricultural ditch, and east of Trench 7 and a barbed wire livestock fence (see figs. 6, 17). Trench 9 was 7 m long, oriented northeast-southwest, 1.5 m wide, and reached a maximum depth of 175 cm below ground surface. Phase 3, Context 1 very dark gray surface material was present 0-45 cm below ground surface (see fig. 9; table 9). Context 1 overlay Phase 2, Context 12 dark reddish brown agricultural mineral soil, which was present 45-132 cm below ground surface. Context 12 overlay Phase 1, Context 3 reddish brown deteriorating volcanic bedrock, which was present 132-175 cm below ground surface, the base of excavation. No cultural materials were identified at Trench 9.



Figure 17: Photograph of Trench 9, looking northwest toward Kalalea Mountain. Trench 9 is in the foreground, and Kalalea Mountain is obscured by *koa haole* and other vegetation in the background.

Table 9: Sediment descriptions for Trench 9

Context	Phase	Depth*	Description	Interpretation
1	3	0-45	Very dark gray (5YR 3/1) terrestrial silty clay loam; very sticky, moderately plastic; diffuse, smooth lower boundary	Secondary deposition process
12	2	45-132	Dark reddish brown (5YR 3/2) terrestrial clay loam; very sticky, moderately plastic; diffuse, smooth lower boundary	Secondary deposition process
3	1	132-175+	Reddish brown (5YR 4/4) terrestrial clay loam; very sticky, moderately plastic; base of excavation	Natural deposition process

*Depth in cm below surface.

4.1.10 Trench 10

Trench 10 was located in the south-central portion of the APE, east of Trench 6 and a barbed wire livestock fence (see figs. 6, 18). Trench 10 was 7 m long, oriented northeast-southwest, 1.15 m wide, and reached a maximum depth of 175 cm below ground surface. Phase 3, Context 1 dark reddish brown surface material was present 0-38 cm below ground surface (see fig. 9; table 10). Context 1 overlay Phase 2, Context 13 dark reddish brown agricultural mineral soil, which was present 38-164 cm below ground surface. Context 13 overlay Phase 1, Context 3 brown deteriorating volcanic bedrock. No cultural materials were identified at Trench 10.



Figure 18: Photograph of the backhoe excavation of Trench 10, looking northwest. The northeast wall of Trench 10 is in the foreground, below the bar scale. Kalalea Mountain is in the background. The scale is in ten centimeter increments.

4.2 Site 50-30-08-2160

Site 50-30-08-2160 was assigned to extant features of the sugarcane field within the APE (fig. 19). This includes the areas of the sugarcane fields and two historic-era raised

Table 10: Sediment descriptions for Trench 10

Context	Phase	Depth*	Description	Interpretation
1	3	0-38	Dark reddish brown (5YR 3/2) terrestrial silty clay loam; very sticky, moderately plastic; diffuse, smooth lower boundary	Secondary deposition process
13	2	38-164	Dark reddish brown (5YR 3/3) terrestrial clay loam; very sticky, moderately plastic; diffuse, smooth lower boundary	Secondary deposition process
3	1	164-179+	Brown (7.5YR 4/4) terrestrial clay loam; very sticky, moderately plastic; base of excavation	Natural deposition process

*Depth in cm below surface.

agricultural ditches that were observed within the APE, Ditch 1 and Ditch 2 (see fig. 6, p. 15). Both of the raised agricultural ditches were distribution ditches, and were marked by earthen linear mound embankments on either side of a canal (see sec. 2.4, p. 9).

Ditch 1 is located west of the livestock fence bisecting the APE. It was irregular; however, it generally trended from northeast to southwest. The ditch was composed of two parallel earthen linear mound embankments, each approximately 1.5 m wide, on either side of a canal which was approximately 1.5–2 m wide by 1.2 m deep (fig. 20). The entire raised ditch assembly was between 5 and 6 m wide, and 330 m long. The feature was covered with medium to large *java plum* trees, which indicate that it had not been in use for several decades. In some discontinuous sections, the linear mound embankments of the canal were lined by dry-laid basalt cobbles stacked one to two courses high (fig. 21). Two sections contained culverts. The northern culvert was constructed of metal pipe encased with basalt cobble and concrete mortar masonry. The southern culvert was constructed of metal pipe and formed basalt gravel and concrete aggregate. Grooved concrete sluice gate fittings were present near each of the culverts. One of these sluice fittings, near the northern culvert, had the date “11/11/66” inscribed in the concrete (figs. 22, 23). All of the concrete and concrete mortar masonry sections are likely to be contemporary. Thus, the integrity of the design of the original irrigation ditch was compromised in the modern era.⁶

Ditch 2 was located east of the livestock fence bisecting the APE. It was straight and trended east to west (figs. 24, 25). The ditch was composed of two parallel earthen linear mounds, with a canal in between. Ditch 2 was less formal than Ditch 1, but it was constructed of approximately the same dimensions: approximately 1 m high linear mound embankments paralleling a 1.5 m wide by 1.5 m deep canal. The entire raised ditch assembly was approximately 5–6 m wide by 400 m long. Ditch 2 was more obscured

⁶Historic properties are defined by HAR Chapter 13-277 as “any building, structure, object, district, area, or site ... including heiau which is over fifty years old.” Within this context, the term *modern* is defined, here, as having occurred less than fifty years ago.

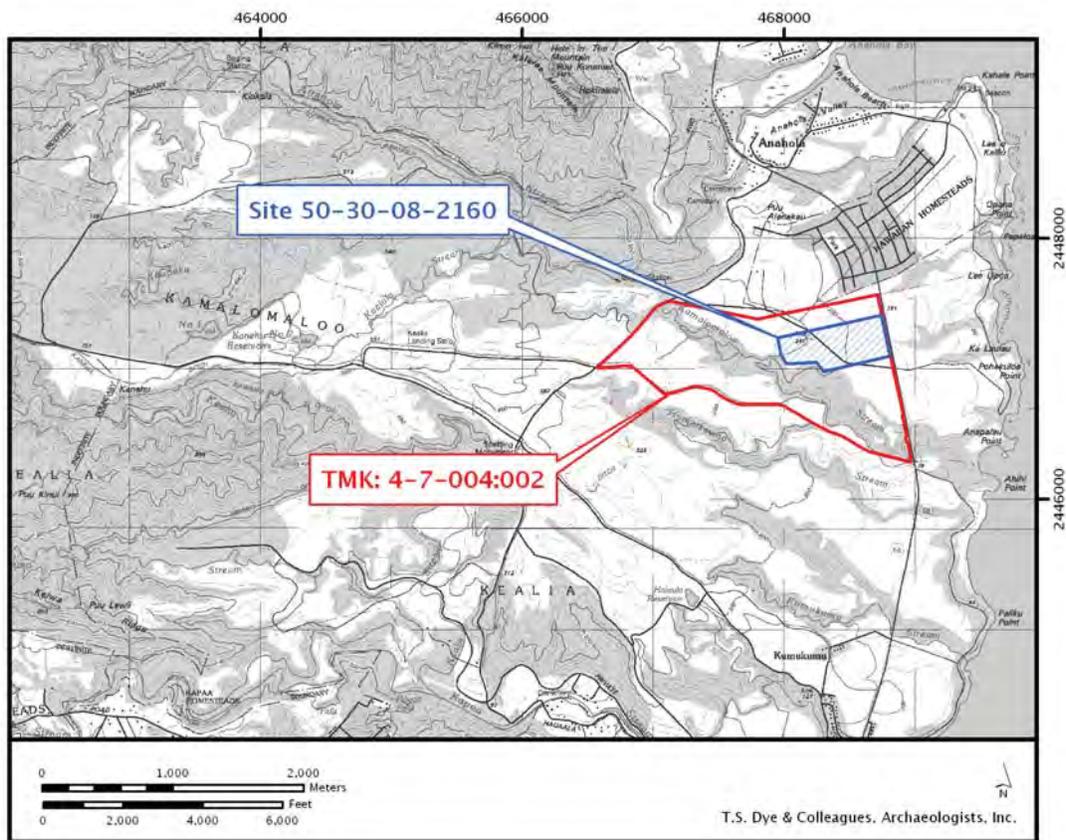


Figure 19: Map of site 50-30-08-2160 in relation to the subject parcel.



Figure 20: Photograph of site 50-30-08-2160, Ditch 1, looking northwest toward Kalalea Mountain. Note the raised linear mound embankments and canal at the center of the frame. The scale is in decimeters.

from view by vegetation, including grass, shrubs, and trees. Plastic irrigation piping was common, buried in the earthen linear mounds. Also, concentrations of basalt cobbles, similar to the dry stacked basalt cobbles observed in Ditch 1, were common outside of Ditch 2. This may indicate that the ditch had been dredged and re-excavated in recent history.



Figure 21: Detail photograph of the site 50-30-08-2160, Ditch 1 canal showing dry stacked basalt cobbles in profile, looking south. The scale is in decimeters.



Figure 22: Detail photograph of the 1966 notched sluice gate fittings in Ditch 1 of site 50-30-08-2160, looking south. Note that the left scale bar marks the inscribed date (fig. 23). The scale is in decimeters.



Figure 23: Detail photograph of the “11/11/66” date inscription on a site 50-30-08-2160, Ditch 1 sluice gate fitting, looking down. Note the grooves at the left of the frame for the sluice gate boards. Figure 22 depicts an expanded view of this sluice gate fitting. The scale is in decimeters.



Figure 24: Photograph of the location of a ditch crossing of site 50-30-80-2160, Ditch 2, looking northwest. Note that the majority of Ditch 2 is obscured by vegetation.



Figure 25: Photograph of the canal of site 50-30-80-2160, Ditch 2, looking east. Note the plastic irrigation pipe lying on the ground surface and extending from the walls of the linear mounds.

No trace of the railroad tracks shown on the 1904 map was found in the field. Given the extent of land alteration during sugarcane cultivation, as revealed by the deeply buried paleosol in Trench 4 (see p. 19), all traces of a former rail line would be removed by subsequent field preparation.

Site 50-30-08-2160 is likely related to site 50-30-08-789, a feature complex of plantation-era infrastructure identified south of the APE [9].

5 Summary and Conclusions

The sugarcane fields and the raised agricultural ditches, which were constructed sometime during the use of the APE for plantation agriculture, are assigned to site 50-30-08-2160. They are likely to be related to site 50-30-08-789, a complex of plantation-era infrastructure *makai* of Hawai'i State Highway 56, located approximately 1.2 km southeast

of the APE. The features of site 50-30-08-2160 are related to historic-era industrial agriculture known to have taken place on the property between the mid-nineteenth and mid-twentieth centuries. The two raised agricultural irrigation ditches of site 50-30-08-2160 are likely to have first been built in this time period. More-recent concrete and concrete mortar components dating to the mid-1960s were also identified, however, which indicates that the integrity of these features have been compromised in the modern era.

Historic maps also show a section of historic-era train track intersecting the subject property (see sec. 2.2). No historic-era train tracks were observed during the inventory survey.

Ten test trenches were excavated throughout the APE. They revealed a profile consisting of Phase 1 natural sediment including deteriorating bedrock and a paleosol, which was overlain by two layers of agricultural soil, Phases 2 and 3. This pattern was consistent throughout the APE. The Phase 1, Context 3 material was identified by peds that retained the texture of the parent material. Context 3 very likely represents deteriorating Kōloa series aphyric basanite (see sec. 2, p. 7). The overlying Phase 2 and Phase 3 material further degraded in situ into Lihue silty clay. This soil was then reworked during historic sugarcane agriculture. It is very likely that had cultural materials been present at the APE, their context would have been substantially altered or destroyed by plowing for historic agriculture. No cultural materials of any kind were observed at any of the test trenches.

Trenches 1-3 and 5-10 all revealed similar profiles consisting of Phase 1 deteriorating bedrock, which was overlain by Phase 2 reworked agricultural mineral soil, which was overlain by Phase 3 surface material. Given the recent history of the APE as agricultural land, this *sequence* met the researchers' expectations.

Trench 4 was the only trench that differed from this typical depositional pattern. Here a Phase 1, Context 7 paleosol was overlain by Phase 2, Context 6 agricultural soil with small to medium *boulder* inclusions. Context 6 was overlain by Context 1 modern surface material. Since the Context 6 material overlaid a paleosol and contained many small to medium boulders, it is likely that Context 6 was fill material. Since Trench 4 is located adjacent to an existing stream drainage, it is likely that during the use of the subject property for historic agriculture, the Context 6 material was pushed from upslope to extend the arable land.

Site 50-30-08-2160 is significant for its information content (Criterion D); however, its features lack integrity. Information regarding these features has been documented in historic maps and the description of the raised agricultural ditches in section 4.2. No further archaeological work for site 50-30-08-2160 is recommended. It is further recommended that the proposed KIUC project, which involves installation of a photovoltaic facility, substation, and service center, be determined to have no adverse effect on site 50-30-08-2160.

A Stratigraphic Contexts

Context	Phase	Unit	Description
1	3	Solar Farm	Ground surface soil at the APE. It overlay Phase 2 material.
2	2	Trench 1	Agricultural mineral soil located beneath Context 1 and above Context 3 in Trench 1.
3	1	Solar Farm	Natural decaying bedrock material located beneath the Phase 2 material.
4	2	Trench 2	Agricultural mineral soil located beneath Context 1 and above Context 3 in Trench 2.
5	2	Trench 3	Agricultural mineral soil located beneath Context 1 and above Context 3 in Trench 3.
6	2	Trench 4	Agricultural mineral soil containing many small to medium boulders located beneath Context 1 and above the Context 7 paleosol in Trench 4.
7	1	Trench 4	Paleosol containing buried organic material located beneath Context 6 and present to the base of excavation in Trench 4.
8	2	Trench 5	Agricultural mineral soil located beneath Context 1 and above Context 3 in Trench 5.
9	2	Trench 6	Agricultural mineral soil located beneath Context 1 and above Context 3 Trench 6.
10	2	Trench 7	Agricultural mineral soil located beneath Context 1 and above Context 3 in Trench 7.
11	2	Trench 8	Agricultural mineral soil located beneath Context 1 and above Context 3 in Trench 8.
12	2	Trench 9	Agricultural mineral soil located beneath Context 1 and above Context 3 in Trench 9.
13	2	Trench 10	Agricultural mineral soil located beneath Context 1 and above Context 3 in Trench 10.

B Field Catalog

Catalog	Site	Unit	Context	Contents
1	50-30-08-2160	Trench 1	1	Sediment
2	50-30-08-2160	Trench 1	2	Sediment
3	50-30-08-2160	Trench 1	3	Sediment
4	50-30-08-2160	Trench 2	1	Sediment
5	50-30-08-2160	Trench 2	4	Sediment
6	50-30-08-2160	Trench 2	3	Sediment
7	50-30-08-2160	Trench 3	1	Sediment
8	50-30-08-2160	Trench 3	5	Sediment
9	50-30-08-2160	Trench 3	3	Sediment
11	50-30-08-2160	Trench 4	1	Sediment
12	50-30-08-2160	Trench 4	6	Sediment
13	50-30-08-2160	Trench 4	7	Sediment
14	50-30-08-2160	Trench 5	1	Sediment

Continued on next page

Continued from previous page

Catalog	Site	Unit	Context	Contents
15	50-30-08-2160	Trench 5	8	Sediment
16	50-30-08-2160	Trench 5	3	Sediment
17	50-30-08-2160	Trench 6	1	Sediment
18	50-30-08-2160	Trench 6	9	Sediment
19	50-30-08-2160	Trench 6	3	Sediment
20	50-30-08-2160	Trench 7	1	Sediment
21	50-30-08-2160	Trench 7	10	Sediment
22	50-30-08-2160	Trench 7	3	Sediment
23	50-30-08-2160	Trench 8	1	Sediment
24	50-30-08-2160	Trench 8	11	Sediment
25	50-30-08-2160	Trench 8	3	Sediment
26	50-30-08-2160	Trench 9	1	Sediment
27	50-30-08-2160	Trench 9	12	Sediment
28	50-30-08-2160	Trench 9	3	Sediment
29	50-30-08-2160	Trench 10	1	Sediment
30	50-30-08-2160	Trench 10	13	Sediment
31	50-30-08-2160	Trench 10	3	Sediment

Glossary

A horizon The surface layer in the soil containing humus, an eluvial layer from which minerals etc. are leached. See also *horizon*.

B horizon The soil layer underlying the *A horizon*, an illuvial horizon into which minerals, etc. from the *A horizon* are washed. See also *horizon*.

boulder Rock fragment 600 mm and greater.

C horizon A distinct layer in the soil underlying the *A* or *B horizons*, or the organic or mineral horizons, consisting of the parent material, i.e., the little altered but weathered bedrock, transported glacial or alluvial material, or an earlier soil, from which the soil is formed. See also *horizon*.

Christmas berry The ornamental tree, *Schinus terebinthifolius*, known for its bright red berry-like fruits.

chronology The assigning of dates to given events, objects or, by inference, to units of stratification.

clay Fine earth particles less than 0.002 mm.

coconut The palm, *Cocos nucifera*.

context A unit of stratification associated with a natural or cultural process or event.

dendroglyph A subcategory of *rock art* where images are carved into the bark of trees.

diffuse A transition between horizons that is 15 cm or greater. See also *horizon*.

fill Any sediment deposited by any agent so as to fill or partly fill a valley, sink, or other depression.

geoglyph A subcategory of *rock art* that consists of an image created when rocks are aligned on the surface of the ground (an additive process); this method is also used with the *intaglio* method to create the image. See also *intaglio*.

geomorph A subcategory of *rock art* that consists of images created by reshaping the

surface of the earth into mounded forms.

horizon A subdivision of soil.

horizontal feature interface Associated with upstanding units of stratification and marks the interfacial levels to which the units have been destroyed.

in situ In the natural or original position.

intaglio A subcategory of rock art where an image is created on the ground by removing rocks and stone (extractive process), leaving the blank area to define the image.

irregular A soil boundary in which the depth of undulation is greater than its width.

java plum A historically introduced tree or shrub of the genus *Eugenia*.

moderately plastic A 4 mm diameter roll of soil will support itself if held on end, but a 2 mm diameter roll of soil will not.

olivine An important rock-forming mineral, also known as chrysolite or peridot.

paleosol A soil of the past, often buried.

ped A natural soil aggregate.

period The largest grouping of the stratification of a site; it is usually composed of several phases.

petroglyph A subcategory of rock art that includes images created by an extractive process on a rock surface by pecking, engraving or incising, abrading, or bruising.

phase A grouping between an individual unit of stratification and a *period*: several units of stratification make up a phase and several phases compose a period.

phenocryst One of the large, conspicuous crystals of the earliest generation in a porphyritic rock.

pictograph A subcategory of rock art that includes images drawn or painted onto the surface of a rock (an additive process).

pre-contact Prior to AD 1778 and the first written records of the Hawaiian Islands made by Captain James Cook and his crew.

project The archaeological investigation, including laboratory analyses and report preparation. See also *undertaking*.

rock art A term used to include petroglyphs, *pictographs*, *geoglyphs*, intaglios, *dendroglyphs*, and *geomorphs*. Hawaiian rock art essentially falls into the categories of petroglyphs (primary type of the rock art) or pictographs.

sequence A succession of events, as opposed to chronology which is the dating of such events. See also chronology.

significance A quality of a historic property that possesses integrity of location, design, setting, materials, workmanship, feeling, and association. The qualities are set out in SHPD administrative rule §13-275-6, *Evaluations of Significance*.

site The fundamental unit of archaeological investigation, a location that exhibits material evidence of past human activity.

smooth A soil boundary which is planar with few or no irregularities.

stone Rock fragment ranging from 250 mm to less than 600 mm.

sugarcane A grass, *Saccharum officinarum*, widely grown in warm regions as a source of sugar. See also *kō*.

undertaking Any action with the potential for an adverse effect on significant historic properties. See also project.

unit of stratification number A number assigned to each natural and man-made layer, upstanding stratum, and vertical and *horizontal feature interface*. Once numbered, each unit will automatically have a set of stratigraphic relationships which must be defined and recorded.

very sticky Soil adheres to both fingers after release of pressure. Soil stretches greatly on separation of fingers.

Hawaiian Terms

'a'ā Basaltic lava flows typified by a rough, jagged, spinose, clinkery surface. See also *pāhoehoe*.

ahupua'a Traditional Hawaiian land division, usually extending from the uplands to the sea.

ali'i Chief, chiefess, officer, ruler, monarch, peer, head man, noble, aristocrat, king, queen, commander.

heiau Traditional Hawaiian place of worship.

'ili A land section, next in importance to *ahupua'a*, and usually a subdivision of an *ahupua'a*.

kō Sugarcane, *Saccharum officinarum*, was introduced to Hawai'i by Polynesian settlers, who cultivated it widely. The stalk was chewed between meals for its sweetness, brought on long journeys to ease hunger, and eaten in times of famine; juice from the stalk was fed to nursing babies, and used as a sweetening agent in medicinal herbal concoctions; the leaves were used as thatching for houses; the leaf midrib was used for plaiting braids that were made into hats; the stem of the flower was used to make darts for a child's game.

koa haole A historically introduced small tree, *Leucaena glauca*.

kuleana Right, title, property, portion, responsibility, jurisdiction, authority, interest, claim, ownership.

kupua Demigod or culture hero, especially a supernatural being possessing several forms.

lo'i A single irrigated taro patch; irrigated terrace, especially for taro.

Māhele The mid-nineteenth century land division responsible for the introduction of fee simple land title in Hawai'i.

makai Seaward.

mauka Inland, upland, toward the mountain.

mo'o 1. Narrow strip of land, smaller than an *'ili*.

2. Lizard, reptile of any kind, dragon, serpent; water spirit.

pāhoehoe Basaltic lava flows typified by smooth, billowy, or ropy surface. See also *'a'ā*.

Abbreviations

APE The geographic area or areas within which an undertaking may cause changes in the character or use of historic properties, if any such properties exist. See also undertaking.

- ARPA** The Archaeological Resources Protection Act of 1979 is federal legislation that was enacted to increase the protection of archaeological sites already provided by the Antiquities Act of 1906 and the National Historic Preservation Act of 1966 (NHPA). It includes increased penalties for destruction of archaeological sites, explicitly prohibits the sale of archaeological resources, and requires federal land managers to create programs for continued research and education. See also NHPA.
- cm** The centimeter, a derived unit of length in the International System of Units, equal to 10^{-2} m. See also m.
- GPS** Global Positioning System, operated by the government of the United States. The term is often used for the unit used to communicate with the GPS.
- km** The kilometer, a derived unit of length in the International System of Units, equal to 10^3 m. See also m.
- LCA** Awards issued by the Board of Commissioners to Quiet Land Titles between 1846 and 1855 to persons who filed claims to land between 1846 and 1848.
- m** The meter, a base unit of length in the International System of Units, equal to the length of the path traveled by light in vacuum during a time interval of $1/299,792,458$ of a second.
- NHPA** The National Historic Preservation Act of 1966 is legislation that was enacted to preserve historic places and archaeological sites in the United States. It is responsible for the creation of the National Register of Historic Places and the National Historic Landmarks Program. It was preceded by the Antiquities Act of 1906 and succeeded by the Archaeological Resources Protection Act of 1979 (ARPA). See also Archaeological Resources Protection Act of 1979 (ARPA).
- SHPD** The State Historic Preservation Division of the Hawai'i Department of Land and Natural Resources, a government agency responsible for implementing the National Historic Preservation Act of 1966, as amended, and Chapter 6E of the Hawai'i Revised Statutes.
- USDA** A federal government agency whose mission is to provide leadership on food, agriculture, natural resources, and related issues based on sound public policy, the best available science, and efficient management. Archaeologists in Hawai'i typically describe sediments according to standards established by the agency.

Bibliography

1. Clague, D. A. and G. Dalrymple (1988). Age and petrology of alkalic postshield and rejuvenated-stage lava from kauai. *Contributions to Minerology and Petrology* 99(2), 202-218.
2. Drennan, T. M. and M. F. Dega (2007a, March). *An Archaeological Inventory Survey Report, Phase II of a Portion of 2,008 Acres in Keālia, Keālia Ahupua'a, Kawaihau District, Island of Kaua'i, Hawai'i [TMK: (4) 4-7-003:002 (por.) and 4-7-004:001 (por.)]* (Revised ed.). Prepared for Plantation Partners Kauai, LLC. Honolulu: Scientific Consulting Services.

3. Drennan, T. M. and M. F. Dega (2007b, June). *An Archaeological Inventory Survey Report, Phase IV of a Portion of 2,008 Acres in Keālia, Keālia Ahupua'a, Kawaihau District, Island of Kaua'i, Hawai'i [TMK: (4) 4-7-003:002 (por.) and 4-7-004:001 (por.)]*. Prepared for Plantation Partners Kauai, LLC. Honolulu: Scientific Consulting Services.
4. Drennan, T. M., G. Tome, S. Cordle, and M. F. Dega (2007, May). *An Archaeological Inventory Survey Report of a 386 Acre Portion of a 2,008 Acre Property (Phase III) in Keālia, Keālia Ahupua'a, Kawaihau District, Island of Kaua'i, Hawai'i [TMK: (4) 4-7-003:002 (por.) and 4-7-004:001 (por.)]* (Revised ed.). Prepared for Plantation Partners Kauai, LLC. Honolulu: Scientific Consulting Services.
5. Giambelluca, T. W. and T. A. Schroeder (1998). Climate. In S. P. Juvik and J. O. Juvik (Eds.), *Atlas of Hawai'i* (Third ed.), pp. 49–59. Honolulu: University of Hawaii Press.
6. Handy, E. S. C. and E. G. Handy (1972). *Native Planters in Old Hawaii: Their Life, Lore, and Environment*. Number 233 in B. P. Bishop Museum Bulletin. Honolulu: Bishop Museum Press. With the collaboration of Mary Kawena Pukui.
7. Harris, E. C. (1989). *Principles of Archaeological Stratigraphy* (Second ed.). London: Academic Press.
8. Komori, E. K. (1993, January 15). Inadvertent exposure of burial on “Donkey Beach” at Homaikawaa, Kaua'i, TMK 4-4-7-004:006, site 50-30-08-1899. On file at State Historic Preservation Division, Kapolei, HI.
9. Perzinski, D., M. J. McDermott, and H. H. Hammatt (2000, April). *Archaeological Inventory Survey and Sub-Surface Testing of the Approximately 300 Acre Keālia Makai Parcel, Ahupua'a of Keālia, Kawaihau District, Kaua'i Island (TMK 4-7-04:6)* (Revised ed.). Prepared for Kealia Plantation Company, LLC. Cultural Surveys Hawaii.
10. Pukui, M. K., S. H. Elbert, and E. T. Mookini (1974). *Place Names of Hawaii*. Honolulu: University of Hawaii Press.
11. Sherrod, D. R., J. M. Sinton, S. E. Watkins, and K. M. Brunt (2007). Geologic Map of the State of Hawai'i, Sheet 3—Island of O'ahu. U.S. Geological Survey.
12. Soil Survey Staff (1995). *Soil Survey Laboratory Information Manual*. Number 45, Version 1.0 in USDA—Natural Resources Conservation Service, Soil Surveys Investigation Report. Lincoln, NE: National Soil Survey Center.
13. Wichman, F. B. (1998). *Kaua'i: Ancient Place-names and Their Stories*. Honolulu: University of Hawaii Press.
14. Wilcox, C. (1996). *Sugar Water: Hawaii's Plantation Ditches*. Honolulu: University of Hawai'i Press.

B. BIOLOGICAL SURVEY OF THE PROJECT SITE

Biological Surveys Conducted for the Anahola Solar Project, Kawaihau District, Island of Kaua'i, Hawai'i

Prepared by:

Reginald E. David
Rana Biological Consulting, Inc.
P.O. Box 1371
Kailua-Kona, Hawai'i 96745

&

Eric Guinther
AECOS Consultants
45-309 Akimala Pl.
Kāne'ohe, Hawai'i 96744

Prepared for:

Planning Solutions Inc.
210 Ward Street
Suite 330 Ward Plaza
Honolulu, Hawaii 96814-4012

February 6, 2012

Table of Contents

INTRODUCTION AND BACKGROUND	3
GENERAL SITE DESCRIPTION	6
METHODS.....	8
BOTANICAL SURVEY METHODS.....	8
AVIAN SURVEY METHODS	8
MAMMALIAN SURVEY METHODS	9
RESULTS.....	10
BOTANICAL SURVEYS, FLORA	10
BOTANICAL SURVEYS, VEGETATION.....	10
AVIAN SURVEY RESULTS.....	13
MAMMALIAN SURVEY RESULTS	15
DISCUSSION	16
AVIAN RESOURCES	16
MAMMALIAN RESOURCES.....	17
POTENTIAL IMPACTS TO PROTECTED SPECIES.....	17
FLORA.....	ERROR! BOOKMARK NOT DEFINED.
SEABIRDS	17
HAWAIIAN HOARY BAT.....	17
CRITICAL HABITAT	18
RECOMMENDATIONS	18
GLOSSARY	19
LITERATURE CITED.....	20

Introduction and Background

The Kaua'i Island Utility Cooperative (KIUC), through its subsidiary KIUC Renewable Solutions One LLC (KRS One), is planning to develop, operate, and maintain a 12 MW photovoltaic facility, including a dedicated substation with interconnections to the island-wide electrical grid. The proposed facilities would occupy approximately 55 acres on the *makai* portion of a large, 422-acre parcel (TMK (4) 4-7-004:002) located in Anahola, Kaua'i, Hawai'i (Figure 1). The site, which is owned by the Department of Hawaiian Home Lands (DHHL) was formerly used for sugarcane cultivation but is currently fallow (Figure 2).

The proposed facilities include:

- (1) Fifty-three acres of photovoltaic (PV) panels, inverters, and transformers providing up to 12 megawatts of electrical energy to KIUC's electrical grid.
- (2) An adjacent 2-acre substation, which will be used for control equipment for the solar farm and to boost the power from the 12 kilovolts (kV) delivered by the PV system to the 57/69 kV voltage of KIUC's electrical transmission system.¹
- (3) Short overhead cables linking the substation to the existing KIUC electrical power lines within the Kūhiō Highway right-of-way.

KIUC is also considering the possibility of adding a small service center on an adjacent 5-acre parcel immediately north of the proposed substation. However, because the service center is not functionally related to the photovoltaic/substation project, is on a separate timetable, and would not create cumulative effects, which would substantially alter the analysis of impacts, KIUC has determined that it is both necessary and appropriate to deal with its environmental documentation separately.

This report describes the methods used and the results of the botanical, avian and terrestrial mammalian surveys conducted on the project site as part of the environmental disclosure process associated with the proposed project.

The primary purpose of the surveys was to determine if there are any botanical, avian and terrestrial mammalian species currently listed, or proposed for listing under either federal or State of Hawai'i endangered species statutes within or adjacent to the study area. We were also asked to evaluate the potential impacts that the development of the project might pose to any sensitive or protected native botanical, avian or mammalian species, and to propose appropriate minimization and or mitigative measures that could be implemented to reduce or eliminate any such impacts. The federal and State of Hawai'i listed species status follows species identified in the following referenced documents, (Department of

¹ The project may also include an integral Battery Energy Storage System (BESS) that will provide an electrical buffer between the PV system and KIUC's grid. The batteries would be located within the proposed substation serving the PV facility.

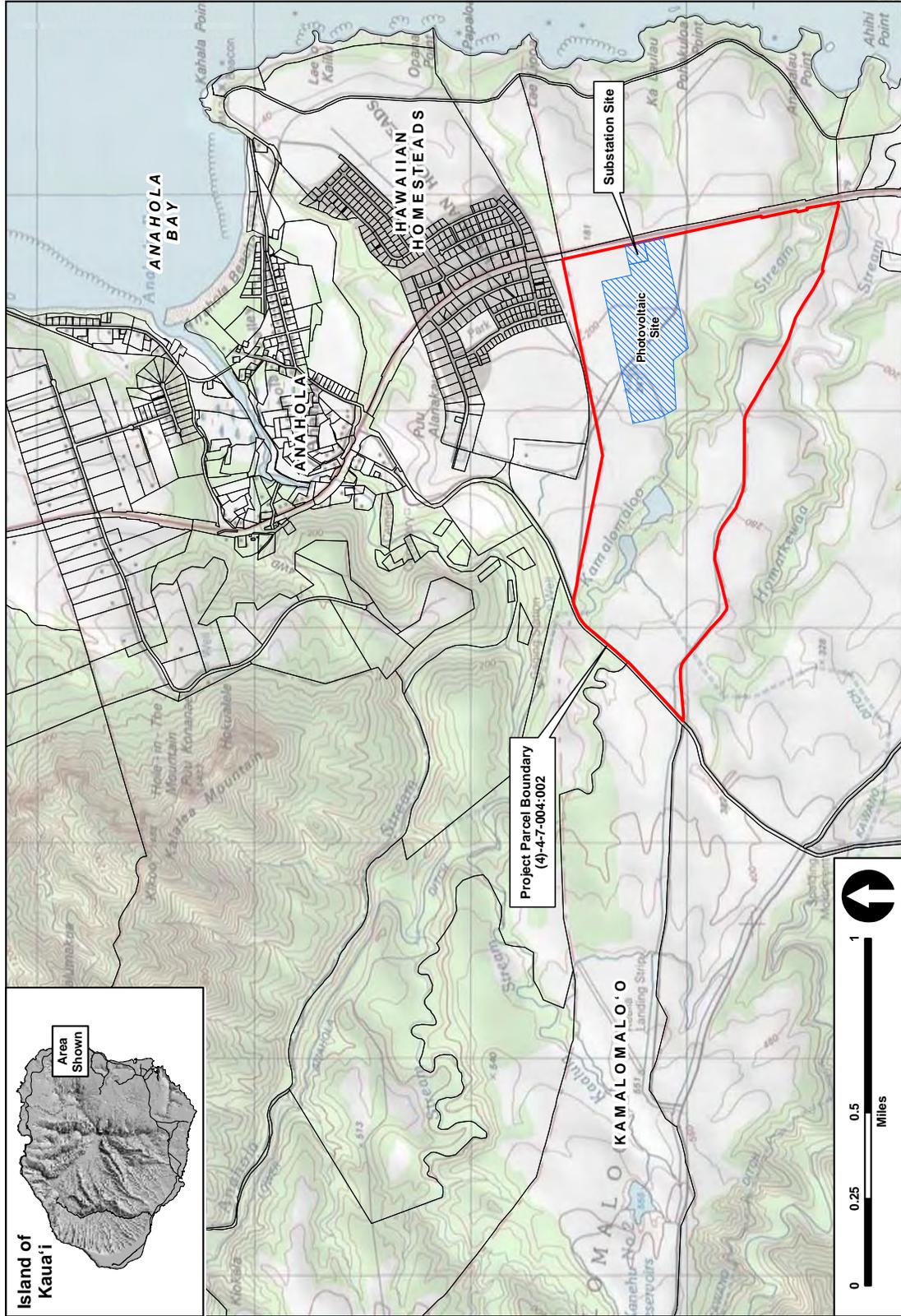
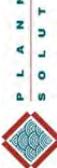


Figure 1: Location Map 2012-01-18.mxd

Figure 1:
Location Map

Project:
Anahola Solar Project

Source:
-State of Hawaii GIS
-County of Kauai GIS
-ESRI

Prepared By:


Prepared For:
Kauai Island Utility Cooperative

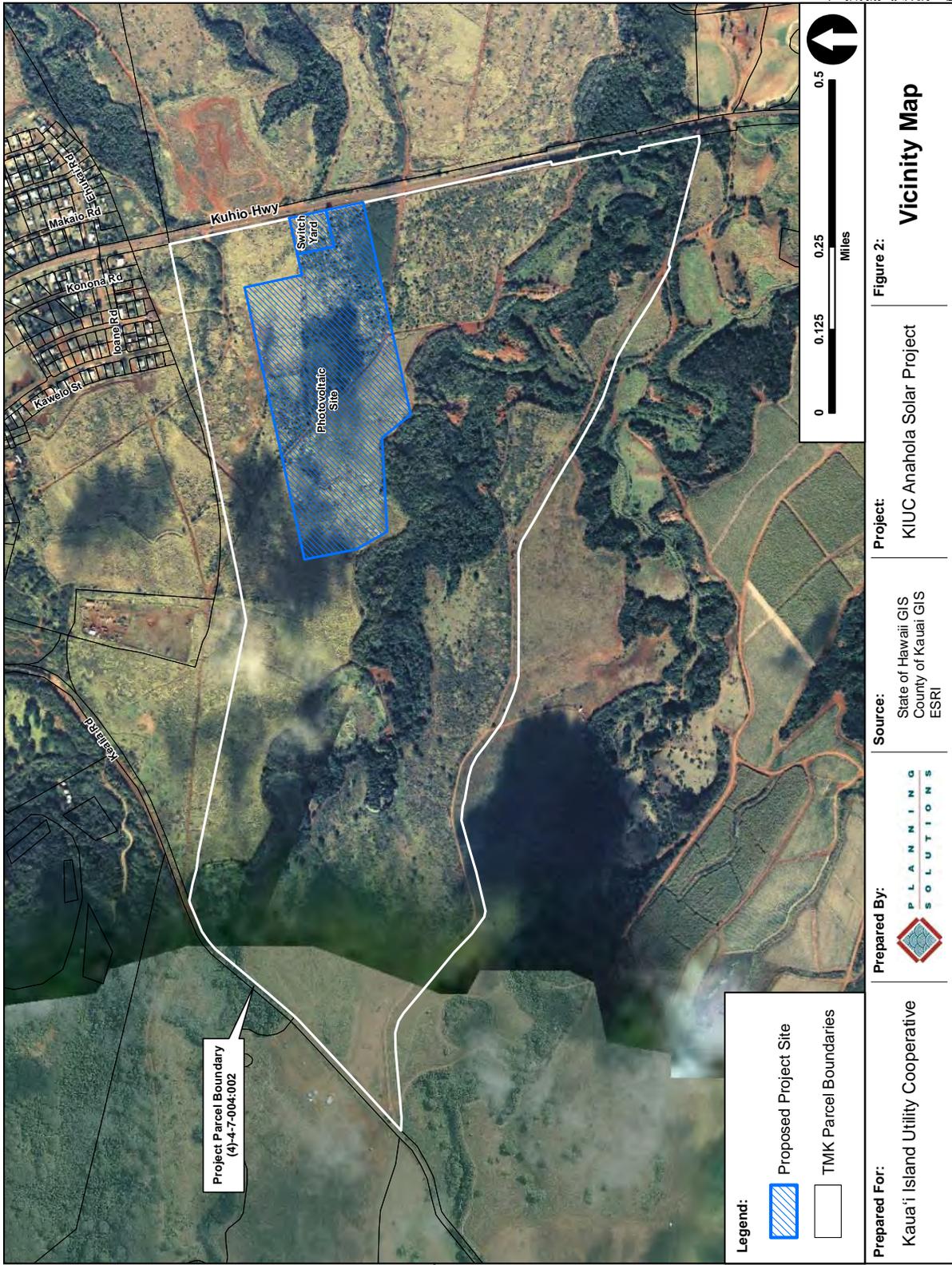


Figure 2 Vicinity Map 2012-01-18.mxd

Land and Natural Resources (DLNR) 1998, U. S. Fish & Wildlife Service (USFWS) 2005a, 2005b, 2011). Fieldwork was conducted on January 16, 2012.

Hawaiian and scientific names are italicized in the text. A glossary of technical terms and acronyms used in the document, which may be unfamiliar to the reader, are included at the end of the narrative text.

General Site Description

The proposed facilities will occupy approximately 55 acres of land within a larger 422-acre parcel. The project site is bound to the east by Kūhiō Highway and to the north, west and south by undeveloped pasturelands (Figure 2). The site has numerous primitive roads within it; some are passable by 4 x 4 vehicles while many others are not. The vegetation is dominated by Guinea grass (*Panicum maximum*) with varying amounts of Christmas berry (*Schinus terebinthifolius*), and (in places) dense patches of lantana (*Lantana camara*), with individual Java plum (*Syzygium cuminii*) trees dotted across the landscape (Figures 3 and 4).



Figure 3 – Typical Guinea grass/Christmas berry shrub vegetation looking northwest with Anahola Mountains in the background



Figure 4 – typical Guinea grass vegetation looking east – utility poles are fronting Kūhiō Highway

The riparian forest vegetation that defines the course of Kamalomalo'o Stream is outside of the project site (Figure 1 and 2).

Methods

Plant names mostly follow *Manual of the Flowering Plants of Hawai'i* (Wagner et al., 1990, 1999) for native and naturalized flowering plants, and *A Tropical Garden Flora* (Staples and Herbst, 2005) for crop and ornamental plants. Some plant species names have been updated following more recently published literature. The avian phylogenetic order and nomenclature used in this report follows the *AOU Check-List of North American Birds* (American Ornithologists' Union, 1998), and the 42nd through the 52nd supplements to the Check-List (American Ornithologists' Union, 2000; Banks et al., 2002, 2003, 2004, 2005, 2006, 2007, 2008; Chesser et al., 2009, 2010, 2011). Mammalian species scientific names follow (Tomich, 1986). Place names follow (Pukui et al., 1974).

Botanical Survey Methods

The botanical survey was conducted using a pedestrian (walking) transect methodology to cover the project area. Guided by a real-time, GPS tracking record (using a Trimble GeoXT), the botanist attempted to cover all the different parts of the site and to visit all areas representing various vegetation types and environments supporting plants. As the walking survey progressed, a list of all higher plants (ferns, conifers, and flowering plants) encountered was recorded in field notes, along with a sense of the relative abundance of each species overall or within a vegetation type.

This approach is superior to using more rigorous quantitative transects when the primary purpose is to both characterize the flora and discover the presence of rare species, listed species, or native species having resource value. In essence, by recording all plants encountered, the resulting flora (plant species) listing provides information useful to characterize the nature of botanical resources present, including species that now or perhaps in the future may be of interest or concern from a variety of perspectives, such as native plant protection, future state or federal listing as threatened or endangered, occurrence of invasive species, etc. Although completeness of the listing is partly dependent upon the actual proportion of the survey area covered by the survey transects, it is neither reasonable nor necessary to traverse 100 percent of the area. Utilizing ever-changing view planes and the fact that species occur in populations of individuals that form a repeating mosaic within environment types enables the botanist to direct the survey track into all areas of the site that hold promise of yielding species not encountered earlier in a survey; and this process is repeated until no new species are being added to the field notes. Thus, very rare species represented by one or just a few individuals in an area as large as the project lands could be missed, but certainly the vast majority of species present will be "discovered" by the approach used.

Avian Survey Methods

A total of 8 avian point count stations were sited equidistant from each other, along two transects running parallel to each other from the top of the site to its eastern boundary. Six-minute point counts were made at each of the count stations. Each station was counted

once. Field observations were made with the aid of Leica 8 X 42 binoculars and by listening for vocalizations. Point counts were concentrated during the early morning hours, the peak of daily bird activity. Time not spent counting was used to search the remainder of the project site for species and habitats that were not detected during count sessions.

Mammalian Survey Methods

With the exception of the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), or 'ōpe'ape'a as it is known locally, all terrestrial mammals currently found on the Island of Kaua'i are alien species, and most are ubiquitous. The survey for terrestrial mammalian species was limited to visual and auditory detection, coupled with visual observation of scat, tracks, and other animal sign. No trapping program or heterodyne bat detection survey methods were used during the course of this survey. A running tally was kept of all terrestrial vertebrate mammalian species detected within the project area during time spent within the project site.

Results

Botanical Surveys, Flora

The term “flora” is the diversity of plant species living in a survey area. A plant checklist (Table 1) was compiled from our field observations, with entries arranged alphabetically under plant family names (standard practice). Included in the list are scientific name, common name, and status (whether native or non-native) for each species observed during the survey. Table 1 is subdivided into Table 1a listing all non-native plant species (naturalized or ornamental plants) followed by Table 1b listing all native and early Polynesian introductions (indigenous, endemic, or Polynesian plants). Since the plants in Table 1b are likely to be of greatest interest or concern (for example, state or federal listed species would only appear in Table 1b), splitting the table in this manner facilitates focusing on those species. Qualitative estimates of plant abundance were recorded for each species encountered in the survey on January 16. Abundance values are coded in the table as explained in the legend to Table 1.

A total of 67 species of vascular plants was identified from the survey area; of these only three are native species. The diversity recorded is low, although in keeping with abandoned sugar cane lands that have been allowed to go fallow and then converted to pasturage. Of the total number of species recorded, 64 or 95.5 percent are naturalized or ornamental species. Two of three native species recorded - yellow wood sorrel (*Oxalis corniculata*), and *pōpolo* (*Solanum americanum*) - are Polynesian introductions and the third, *‘uhaloa* (*Waltheria indica*) is an indigenous species. All three of these species are common on the Island of Kaua‘i, although all were rare or occasional on this site (Table 1).

Botanical Surveys, Vegetation

“Vegetation” refers to the type of plants that dominate an area. On this site pasturelands are the dominant vegetation type. The dominant grass is Guinea grass (Figures 3 and 4), which in areas not subjected to recent grazing, has grown to a couple of meters (6 or more feet) in height and is nearly impenetrable. In these situations, the grass tends to be monospecific (only Guinea grass is present-out competing all other plant species). In the lower parts of the site, dense shrub growth of Christmas berry and lantana form a mosaic within areas of tall Guinea grass.

Table 1. Flora for KIUC Solar Energy Site, Anahola, Kaua'i

1a. Non-native (ornamentals and naturalized) plants

Family Species	Common name	Status	Abund.	Note
ACANTHACEAE				
<i>Thunbergia fragrans</i> Roxb.	sweet clock vine	Nat	O	
AMARANTHACEAE				
<i>Amaranthus spinosus</i> L.	spiny amaranth	Nat	R	
ANACARDIACEAE				
<i>Schinus terebinthifolius</i> Raddi	Christmas berry	Nat	A	
ARALIACEAE				
<i>Schefflera actinophylla</i> (Endl.) Harms	octopus tree, umbrella tree	Nat	R	
ASTERACEAE (COMPOSITAE)				
<i>Ageratum conyzoides</i> L.	<i>maile hohono</i>	Nat	R3	
<i>Calyptocarpus vialis</i> Less.	---	Nat	R1	
<i>Conyza</i> sp.	horseweed	Nat	O2	
<i>Cyanthillium cinereum</i> (L.) H. Rob.	little ironweed	Nat	R	
<i>Emilia fosbergii</i> Nicolson	Flora's paintbrush	Nat	U2	
<i>Parthenium hysterophorus</i> L.	false ragweed	Nat	U3	
<i>Pluchea carolinensis</i> (Jacq.) G. Don	sourbush	Nat	O	
<i>Verbesina encelioides</i> (Cav.) Benth. & Hook.	golden crown-beard	Nat	U	
BIGNONIACEAE				
<i>Spathodea campanulata</i> P. Beauv.	African tulip tree	Nat	U	
BRASSICACEAE				
<i>Lepidium virginicum</i> L.	pepperwort	Nat	U2	
CONVOLVULACEAE				
<i>Ipomoea obscura</i> (L.) Ker-Gawl.	---	Nat	U	
<i>Ipomoea triloba</i> L.	field bindweed	Nat	R	
EUPHORBIACEAE				
<i>Euphorbia hypericifolia</i> L.	graceful spurge	Nat	R	
<i>Phyllanthus debilis</i> Klein ex Willd.	niuri	Nat	R1	
<i>Ricinus communis</i> L.	castor bean	Nat	R1	
FABACEAE				
<i>Canavalia cathartica</i> Thours	<i>maunaloa</i>	Nat	U1	<1>
<i>Chamaecrista nictitans</i> (L.) Moench	partridge pea, <i>lauki</i>	Nat	A	
<i>Crotalaria assamica</i>		Nat	C	
<i>Crotalaria incana</i> L.	fuzzy rattlepod	Nat	U	
<i>Crotalaria pallida</i> Aiton	smooth rattlepod	Nat	C1	
<i>Desmanthus pernambucanus</i> (L.) Thellung	virgate mimosa	Nat	R	
<i>Desmodium incanum</i> DC	Spanish clover	Nat	U	
<i>Desmodium triflorum</i> (L.) DC	---	Nat	R	
<i>Indigofera hendecaphylla</i> Jacq.	prostrate indigo	Nat	R1	
<i>Indigofera suffruticosa</i> Mill.	indigo	Nat	O1	
<i>Leucaena leucocephala</i> (Lam.) deWit	<i>koa haole</i>	Nat	O1	
<i>Mimosa pudica</i> L.	sensitive plant	Nat	A	
<i>Neonotonia wightii</i> (Wight & Arnott) Lackey	glycine vine	Nat	U2	
<i>Senna occidentalis</i> (L.) Link	coffee senna	Nat	R	<1>

Table 1 (continued.)

Family Species	Common name	Status	Abund.	Note
MALVACEAE				
<i>Malvastrum coromandelianum</i> (L.) Garcke	false mallow	Nat	R1	
<i>Sida acuta</i> N. L. Burm.	---	Nat	U	
<i>Sida ciliaris</i> L.	---	Nat	R	
<i>Sida rhombifolia</i> L.	---	Nat	U	
<i>Sida spinosa</i> L.	prickly sida	Nat	R2	
MYRTACEAE				
<i>Psidium guajava</i> L.	common guava	Nat	U	
<i>Syzygium cumini</i> (L.) Skeels	Java plum	Nat	C	
NYCTAGINACEAE				
<i>Bougainvillea glabra</i> Choisy	bougainvillea	Orn	R	
PAPAVERACEAE				
<i>Argemone mexicana</i> L.	Mexican poppy	Nat	R	<1>
PASSIFLORACEAE				
<i>Passiflora laurifolia</i> L.	yellow grandilla	Nat	R	
POLYGALACEAE				
<i>Polygala paniculata</i> L.	bubblegum plant	Nat	O2	
PORTULACACEAE				
<i>Portulaca oleracea</i> L.	pig weed	Nat	R	
RUBIACEAE				
<i>Hedyotis corymbosa</i> (L.) Lam.	---	Nat	R	
<i>Spermacoce assurgens</i> Ruiz & Pav.	buttonweed	Nat	R	
VERBENACEAE				
<i>Citharexylum caudatum</i> L.	fiddlewood	Nat	U	
<i>Lantana camara</i> L.	lantana	Nat	A	
<i>Stachytarpheta australis</i> Mold.	---	Nat	R	<1>
<i>Stachytarpheta cayennensis</i> (Rich.) Vahl	---	Nat	C	
<i>Stachytarpheta jamaicensis</i> (L.) Vahl	Jamaican vervain	Nat	R1	
<i>Verbena litoralis</i> Kunth	ōwī	Nat	A	
MONOCOTYLEDONES				
CYPERACEAE				
<i>Cyperus rotundus</i> L.	nut grass	Nat	R1	
POACEAE (GRAMINEAE)				
<i>Axonopus fissifolius</i> (Raddi) Kuhlman	nrw-lvd carpet grass	Nat	R1	
<i>Bothriochloa pertusa</i> (L.) A. Camus	pitted beardgrass	Nat	O3	
<i>Brachiaria subquadripata</i> (Trin.) Hitchc.	---	Nat	R	
<i>Chloris barbata</i> (L.) Sw.	swollen fingergrass	Nat	U2	
<i>Chrysopogon acicularis</i> (Retz.) Trin.	golden beardgrass	Nat	R1	
<i>Cynodon dactylon</i> (L.) Pers.	Bermuda grass	Nat	U2	
<i>Digiteria insularis</i> (L.) Mez ex Ekman	sourgrass	Nat	O3	
<i>Eleusine indica</i> (L.) Gaertn.	wiregrass	Nat	O	
<i>Melinis repens</i> (Willd.) Zizka	Natal redtop	Nat	O3	
<i>Panicum maximum</i> Jacq.	Guinea grass	Nat	AA	

Table 1b. Native (and early Polynesian introduced) Plants

Family Species	Common name	Status	Abund.	Note
FLOWERING PLANTS DICOTYLEDONE				
OXALIDACEAE				
<i>Oxalis corniculata</i> L.	yellow wood sorrel, 'ihi'ai	Pol	R	
STERCULIACEAE				
<i>Waltheria indica</i> L.	'uhaloa	Ind	O	
SOLANACEAE				
<i>Solanum americanum</i> Mill.	pōpolo	Pol	R	

Legend to Table 1:

Status = distributional status

Ind = indigenous; native to Hawai'i, but not unique to the Hawaiian Islands.

Nat = naturalized, exotic, plant introduced to the Hawaiian Islands since the arrival of Cook Expedition in 1778, and well-established outside of cultivation

Orn = Ornamental, not known to be established in the wild without human assistance

Abundance = occurrence ratings for plants on property in January 2012

R - Rare - only one or two plants seen.

U - Uncommon - several to a dozen plants observed.

O - Occasional - found regularly, but not abundant anywhere.

C - Common - considered an important part of the vegetation and observed numerous times.

A - Abundant - found in large numbers; may be locally dominant.

AA - Abundant - very abundant and dominant; defining vegetation type.

Numbers (as in R3) offset occurrence ratings (1 - several plants; 2 - many plants; 3 - abundant in a limited area) in cases where distribution across the survey area may be limited, but individuals seen are more than indicated by the occurrence rating alone.

Notes:

<1> Generally found in disturbed sites and along roads; ruderal weed.

Avian Survey Results

A total of 499 individual birds of 21 species, representing 16 separate families, were recorded during station counts, or as incidental observations while transiting between point count stations (Table 2). Of these 21 species two, Pacific Golden-Plover (*Pluvialis fulva*) and White-tailed Tropicbird (*Phaethon lepturus dorothea*) are native species. The remaining 19 species recorded during point counts or as incidental observations while transiting the site between count stations are considered to be alien to the Hawaiian Islands (Table 2).

Avian diversity and densities were in keeping with the location of the property and the habitat presently on the site. Three species, Nutmeg Mannikin (*Lonchura punctulata*), Zebra Dove (*Geopelia striata*) and Chestnut Munia (*Lonchura atricapilla*) accounted for 60.50 percent of all birds recorded during station counts. The most commonly recorded species was Nutmeg Mannikin, which accounted for slightly more than 28 percent of the total number of individual birds recorded. An average of 62 individual birds was recorded per station count; a number that is quite high for point counts in this area on the Island of Kaua'i.

No avian species currently proposed or listed under either the State of Hawai'i or federal endangered species statutes was detected during the course of this survey, nor would they be expected given the habitat currently present on the site.

Table 4 – Avian Species Detected Anahola Solar Site			
<i>Common Name</i>	<i>Scientific Name</i>	<i>ST</i>	<i>RA</i>
GALLIFORMES			
PHASIANIDAE – Pheasants & Partridges			
Phasianinae – Pheasants & Allies			
Red Junglefowl	<i>Gallus gallus</i>	A	1.50
Kalij Pheasant	<i>Lophura leucomelanos</i>	A	I-1
PHAETHONIFORMES			
PHAETHONTIDAE - Tropicbirds			
White-tailed Tropicbird	<i>Phaethon lepturus dorothea</i>	IB	0.06
PELECANIFORMES			
ARDEIDAE - Herons, Bitterns & Allies			
Cattle Egret	<i>Bubulcus ibis</i>	A	0.17
CHARADRIIFORMES			
CHARADRIIDAE - Lapwings & Plovers			
Charadriinae - Plovers			
Pacific Golden-Plover	<i>Pluvialis fulva</i>	IM	0.60
COLUMBIDAE - Pigeons & Doves			
Spotted Dove	<i>Streptopelia chinensis</i>	A	0.72
Zebra Dove	<i>Geopelia striata</i>	A	3.11
PASSERIFORMES			
CETTIIDAE - Cettia Warblers & Allies			
Japanese Bush-Warbler	<i>Cettia diphone</i>	A	0.50
ZOSTEROPIDAE - White-eyes			
Japanese White-eye	<i>Zosterops japonicus</i>	A	2.33
TIMALIIDAE - Babblers			
Chinese Hwamei	<i>Garrulax canorus</i>	A	0.39

Table 2 (continued.)

<i>Common Name</i>	<i>Scientific Name</i>	<i>ST</i>	<i>RA</i>
	TURDIDAE - Thrushes		
White-rumped Shama	<i>Copsychus malabaricus</i>	A	0.78
	MIMIDAE - Mockingbirds & Thrashers		
Northern Mockingbird	<i>Mimus polyglottos</i>	A	0.06
	STURNIDAE - Starlings		
Common Myna	<i>Acridotheres tristis</i>	A	0.72
	EMBERIZIDAE - Emberizids		
Red-crested Cardinal	<i>Paroaria coronata</i>	A	0.33
	CARDINALIDAE - Cardinals Saltators & Allies		
Northern Cardinal	<i>Cardinalis cardinalis</i>	A	0.33
	ICTERIDAE - Blackbirds		
Western Meadowlark	<i>Sturnella neglecta</i>	A	0.06
	FRINGILLIDAE - Fringilline and Carduleline Finches & Allies		
	Carduelinae - Carduline Finches		
House Finch	<i>Carpodacus mexicanus</i>	A	2.28
	ESTRILDIDAE - Estrildid Finches		
	Estrildinae - Estrildine Finches		
Red Avadavat	<i>Amandava amandava</i>	A	0.56
Nutmeg Mannikin	<i>Lonchura punctulata</i>	A	11.17
Chestnut Munia	<i>Lonchura atricapilla</i>	A	2.50
Java Sparrow	<i>Padda oryzivora</i>	A	0.11

Key to Table 2

ST Status

A Alien - Introduced to the Hawaiian Islands by humans

IB Indigenous Breeding - Native naturally occurring in Hawaii, but not restricted to the Hawaiian Islands

IM Indigenous Migrant - Native migratory species, does not breed in Hawai'i

RA Relative Abundance - Number of birds detected divided by the number of count stations (8)

I- Incidental Observation - Recorded while transiting between count stations followed by the number seen

Mammalian Survey Results

We recorded three terrestrial mammalian species while on the site. Three horses (*Equus c. caballus*) were encountered all of them tethered to stakes. One pig (*Sus s. scrofa*) was seen in the upper reaches of the site, and several dogs (*Canis f. familiaris*), were heard barking from areas adjacent to the site. Additionally, scat, tracks and sign of horse, dog, and pig were encountered at several locations within the study site.

Discussion

Botanical Resources

The percentage of indigenous and early Polynesian plants at 4.5 percent is remarkably low for a lowland site on the Island of Kaua'i. These findings illustrate the highly disturbed and depauperate nature of the native vegetation present on this site.

Avian Resources

The findings of the avian survey are consistent with the location of the property, and the habitat present on the site. Two of the species recorded, White-tailed Tropicbird and Pacific Golden-Plover are indigenous species. White-tailed Tropicbirds are an indigenous breeding seabird species which nest in cliff faces on the Island of Kaua'i. The single White-tailed Tropicbird recorded was seen flying high over the site. There is no suitable habitat on the site that could be utilized by this species. The plover is an indigenous migratory shorebird species which nests in the high Arctic during the late spring and summer months, returning to Hawai'i and the Tropical Pacific to spend the fall and winter months each year. They usually leave Hawai'i for their trip back to the Arctic in late April or the very early part of May each year. The lone plover recorded was seen loafing in an area of short grass close to a tethered horse – one of the few locations on the site that currently has habitat that could be used by this species. The remaining avian species detected during this survey are all considered to be alien to the Hawaiian Islands (Table 2).

Although not detected during this survey, the endangered Hawaiian Petrel (*Pterodroma sandwichensis*), and the threatened endemic sub-species of the Newell's Shearwater (*Puffinus auricularis newelli*) have been recorded over-flying the project site between April and the end of November each year (David, 1995; Morgan *et al.*, 2003, 2004; David and Planning Solutions 2008). Additionally, the Save Our Shearwaters Program has recovered both species from the general project area on an annual basis over the past three decades (Morgan *et al.*, 2003, 2004; David and Planning Solutions, 2008; Save our Shearwater Program, 2012).

The petrel is listed as endangered, and the shearwater as threatened under both Federal and State of Hawai'i endangered species statutes. The primary cause of mortality in both Hawaiian Petrels and Newell's Shearwaters is thought to be predation by alien mammalian species at the nesting colonies (USFWS 1983, Simons and Hodges 1998, Ainley *et al.*, 2001). Collision with man-made structures is considered to be the second most significant cause of mortality of these seabird species in Hawai'i. Nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. When disoriented, seabirds can collide with manmade structures, and if they are not killed outright, the dazed or injured birds are easy targets of opportunity for feral mammals (Hadley 1961; Telfer 1979; Sincock 1981; Reed *et al.*, 1985; Telfer *et al.*, 1987; Cooper and Day, 1998; Podolsky *et al.* 1998; Ainley *et al.*, 2001; Hue *et al.*, 2001; Day *et al.*

2003). There are no nesting colonies nor appropriate nesting habitat for either of these listed seabird species within the current study site.

Mammalian Resources

The findings of the mammalian survey are consistent with the location of the property and the habitat currently present on the site. We did not record Hawaiian hoary bats overflying the site. Hawaiian hoary bats are widely distributed in the lowland areas on the Island of Kaua'i, and have been documented in and around almost all areas that still have some dense vegetation (Tomich, 1986; USFWS 1998, David, 2011).

Although no rodents were detected during the course of this survey, it is virtually certain one or more of the four established alien muridae found on Kaua'i, roof rat (*Rattus r. rattus*), Norway rat (*Rattus norvegicus*), European house mouse (*Mus musculus domesticus*) and possibly Polynesian rats (*Rattus exulans hawaiiensis*) use various resources found within the general project area. All of these introduced rodents are deleterious to native ecosystems and the native faunal species dependant on them.

Potential Impacts to Protected Species

Seabirds

The principal potential impact that construction and operation of the Anahola solar project poses to protected seabirds is the increased threat that birds will be downed after becoming disoriented by lights associated with the project during the nesting season. The two main ways that outdoor lighting could pose a threat to these nocturnally flying seabirds is if, 1) during construction it is deemed expedient, or necessary to conduct nighttime construction activities, and 2) following build-out, the potential operation of streetlights and exterior safety and security lighting.

Hawaiian hoary bat

The principal potential impact that the development of the Anahola solar project poses to bats is during the clearing and grubbing phases of construction as vegetation is removed. The removal of vegetation within the project site may temporarily displace individual bats, which may use the vegetation as a roosting location. As bats use multiple roosts within their home territories, the potential disturbance resulting from the removal of the vegetation is likely to be minimal. During the pupping season, females carrying their pups may be less able to rapidly vacate a roost site as the vegetation is cleared. Additionally, adult female bats sometimes leave their pups in the roost tree while they forage. Very small pups may be unable to flee a tree that is being felled. Potential adverse effects from such disturbance can be avoided or minimized by not clearing woody vegetation taller than 4.6 meters (15-feet), between June 15 and September 15, the period in which bats are potentially at risk from vegetation clearing. With that said, there is very little suitable bat roosting habitat present within the site. The densest areas of Christmas berry and the ornamental fruit trees dotted about the site represent the only habitat present that might be used by roosting bats.

Critical Habitat

There is no federally delineated Critical Habitat for any species present on or adjacent to the project area. Thus the development and operation of the proposed project will not result in impacts to federally designated Critical Habitat. There is no equivalent statute under State law.

Recommendations

1. All exterior lights installed in conjunction with the proposed project should be shielded to reduce the potential for interactions of nocturnally flying seabirds with external lights and man-made structures (Reed *et al.*, 1985; Telfer *et al.*, 1987). Any lighting fixtures that meet the “Dark Skies” guidelines are appropriate.
2. It is recommended that woody vegetation taller than 4.6 meters (15-feet), not be cleared between June 1 and September 15, the period in which bats are potentially at risk from vegetation clearing.

Glossary

Alien – Introduced to Hawai‘i by humans
Commensal – Animals that share human food and lodgings, such as rats, mice cats and dogs.
Crepuscular – Twilight hours
Endangered – Listed and protected under the Endangered Species Act of 1973, as amended (ESA) as an endangered species
Endemic – Native to the Hawaiian Islands and unique to Hawai‘i
Indigenous – Native to the Hawaiian Islands, but also found elsewhere naturally
Mauka – Upslope, towards the mountains
Muridae – Rodents, including rats, mice and voles, one of the most diverse family of mammals
Naturalized – A plant or animal that has become established in an area that it is not indigenous to
Nocturnal – Night-time, after dark
‘Ōpe‘ape‘a – Endemic endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*)
Pelagic – An animal that spends its life at sea – in this case seabirds that only return to land to nest and rear their young
Phylogenetic – The evolutionary order that organisms are arranged by
Ruderal – Disturbed, rocky, rubbishy areas, such as old agricultural fields and rock piles
Sign – Biological term referring to tracks, scat, rubbing, odor, marks, nests, and other signs created by animals by which their presence may be detected
Taxa – a taxonomic group of any rank, such as a species, family, or class
Threatened – Listed and protected under the ESA as a threatened species.

DHHL – Department of Hawaiian Home Lands
DLNR – Hawai‘i State Department of Land & Natural Resources
DOFAW – Division of Forestry and Wildlife
ESA – Endangered Species Act of 1973, as amended
GPS – Global Positioning System, an accurate worldwide navigational and surveying facility based on the reception of signals from an array of orbiting satellites.
KRS One - KIUC Renewable Solutions One LLC
MSL – Mean sea level
MW – Megawatt
MWh – Megawatt hours
TMK – Tax Map Key
USFWS – United State Fish & Wildlife Service
UTM – Universal Transverse Mercator System, a standardized mapping coordinate system that uses grids to identify the specific location of any feature on the surface of the planet

Literature Cited

- Ainley, D. G, R. Podolsky, L. Deforest, G. Spencer, and N. Nur. 2001. The Status and Population Trends of the Newell's Shearwater on Kaua'i: Insights from Modeling, in: Scott, J. M, S. Conant, and C. Van Riper III (editors) *Evolution, Ecology, Conservation, and Management of Hawaiian Birds: A Vanishing Avifauna*. Studies in Avian Biology No. 22: Cooper's Ornithological Society, Allen Press, Lawrence, Kansas. (Pg. 108-123).
- American Ornithologist's Union. 1998. *Check-list of North American Birds*. 7th edition. AOU. Washington D.C. 829pp.
- _____. 2000. Forty-second supplement to the American Ornithologist's Union *Check-list of North American Birds*. Auk 117:847-858.
- Banks, R. C., C. Cicero, J. L. Dunn, A. W. Kratter, P. C. Rasmussen, J. V. Remsen, Jr., J. D. Rising, and D. F. Stotz. 2002. Forty-third supplement to the American Ornithologist's Union *Check-list of North American Birds*. Auk 119:897-906.
- _____. 2003 Forty-fourth supplement to the American Ornithologist's Union *Check-list of North American Birds*. Auk 120:923-931.
- _____. 2004 Forty-fifth supplement to the American Ornithologist's Union *Check-list of North American Birds*. Auk 121:985-995.
- _____. 2005 Forty-sixth supplement to the American Ornithologist's Union *Check-list of North American Birds*. Auk 122:1031-1031.
- _____. 2006 Forty-seventh supplement to the American Ornithologist's Union *Check-list of North American Birds*. Auk 123:926-936.
- Banks, R. C., C. R. Terry Chesser, C. Cicero, J. L. Dunn, A. W. Kratter, I. J. Lovette, P. C. Rasmussen, J. V. Remsen, Jr., J. D. Rising, and D. F. Stotz. 2007 Forty-eighth supplement to the American Ornithologist Union *Check-list of North American Birds*. Auk 124:1109-1115.
- Banks, R. C., C. R. Terry Chesser, C. Cicero, J. L. Dunn, A. W. Kratter, I. J. Lovette, P. C. Rasmussen, J. V. Remsen, Jr., J. D. Rising, and D. F. Stotz, and K. Winker. 2008 Forty-ninth supplement to the American Ornithologist Union *Check-list of North American Birds*. Auk 125:758-768.
- Bonaccorso, F. J., C. M. Todd and, A. C. Miles. 2005. Interim Report on Research to Hawaiian Bat Research Consortium for The Hawaiian Hoary Bat, Ope'ape'a, *Lasiurus cinsereus semotus*. 1 September 2004 to 31 August 2005.
- _____. 2007. Interim Report on Research to the Hawaiian Bat Research Consortium for The Hawaiian Hoary Bat, Ope'ape'a, *Lasiurus cinsereus semotus*. April 1, 2007.

-
- Bonaccorso, F. J., M. Corresen, and C. Pinzari 2009. Interim Report on Research to Hawaiian Bat Research Consortium for The Hawaiian Hoary Bat, Ope'ape'a, *Lasiurus cinereus semotus*. February 4, 2009.
- _____. 2011. Interim Report on Research to Hawaiian Bat Research Consortium for The Hawaiian Hoary Bat, Ope'ape'a, *Lasiurus cinereus semotus*. June 23, 2011.
- Chesser, R. T., R. C. Banks, F. K. Barker, C. Cicero, J. L. Dunn, A. W. Kratter, I. J. Lovette, P. C. Rasmussen, J. V. Remsen, Jr., J. D. Rising, and D. F. Stotz, and K. Winker. 2009. Fiftieth supplement to the American Ornithologist Union *Check-list of North American Birds*. Auk 126:1-10.
- _____. 2010. Fifty-first supplement to the American Ornithologist Union *Check-list of North American Birds*. Auk 127:726-744.
- _____. 2011. Fifty-second supplement to the American Ornithologist Union *Check-list of North American Birds*. Auk 128: 600-613.
- Cooper, B. A and R. H. Day. 1994. Kauai endangered seabird study. Volume 1: Interactions of Dark-rumped Petrels and Newell's Shearwaters with utility structures on Kauai, Hawaii: Final Report, TR-105847-V1, Electric Power Research Institute, Palo Alto, California.
- Cooper, B. A and R. H. Day. 1998. Summer Behavior and Mortality of Dark-rumped Petrels and Newells' Shearwaters at Power Lines on Kauai. *Colonial Waterbirds*, 21 (1): 11-19.
- Day, R. H., B. Cooper, and T. C. Telfer. 2003. Decline of Townsend's (Newell's Shearwaters (*Puffinus auricularis newelli*) on Kauai, Hawaii. *The Auk* 120: 669-679.
- David, R. E. 2011. Unpublished field notes – Kaua'i 1980 - 2011.
- David, R. E., R. H. Day, and B. A. Cooper 2002. Results of Newell's Shearwater Surveys at the Kaluahonu, Moalepe and Anahola Memorial Colonies, Island of Kaua'i, Hawai'i, July 2002. Prepared for Planning Solutions, Inc., and Kaua'i Electric.
- David, R. E., and Planning Solutions 2008. 2007 Save Our Shearwaters Program End of Year Report: Prepared for: Kaua'i Island Utility Cooperative & The Hawai'i Department of Land and Natural Resources, Division of Forestry and Wildlife.
- Department of Land and Natural Resources (DLNR). 1998. Indigenous Wildlife, Endangered And Threatened Wildlife And Plants, And Introduced Wild Birds. Department of Land and Natural Resources. State of Hawaii. Administrative Rule §13-134-1 through §13-134-10, dated March 02, 1998.
- Hadley, T. H. 1961. Shearwater calamity on Kauai. *Elepaio* 21:60.
- Hawai'i Department of Land and Natural Resources (HDLNR). 1998. Indigenous Wildlife, Endangered and Threatened Wildlife and Plants, and Introduced Wild Birds. State of Hawai'i. Administrative Rule §13-134-1 through §13-134-10.

-
- Hue, D., C. Glidden, J. Lippert, L. Schnell, J. MacIvor and J. Meisler. 2001. Habitat Use and Limiting Factors in a Population of Hawaiian Dark-rumped Petrels on Mauna Loa, Hawai'i. , in: : Scott, J. M, S. Conant, and C. Van Riper III (editors) *Evolution, Ecology, Conservation, and Management of Hawaiian Birds: A Vanishing Avifauna*. Studies in Avian Biology No. 22. Cooper's Ornithological Society, Allen Press, Lawrence, Kansas (Pg. 234-242).
- Morgan, C., P. White, and R. E. David. 2003. Habitat Conservation Plan: Kaua'i Island Utility Cooperative: Working Paper No. 2 - Data Analysis: Interpreting the Save Our Shearwaters Bird Recovery Database (1979-2002) for Habitat Conservation Planning. Prepared for: Kaua'i Island Utility Cooperative.
- _____. 2004 Habitat Conservation Plan: Kaua'i Island Utility Cooperative: Data Report and Analysis: Save Our Shearwaters Bird Program 2003 Update. Prepared for: Kaua'i Island Utility Cooperative.
- Podolsky, R., D.G. Ainley, G. Spencer, L. de Forest, and N. Nur. 1998. "Mortality of Newell's Shearwaters Caused by Collisions with Urban Structures on Kaua'i". *Colonial Waterbirds* 21:20-34.
- Pukui, M. K., S. H. Elbert, and E. T. Mookini 1976. *Place Names of Hawaii*. University of Hawaii Press. Honolulu, Hawai'i. 289 pp.
- Reed, J. R., J. L. Sincock, and J. P. Hailman 1985. Light Attraction in Endangered Procellariiform Birds: Reduction by Shielding Upward Radiation. *Auk* 102: 377-383.
- Save our Shearwaters 2012. Unpublished SOS data 1979 - 2011.
- Simons, T. R., and C. N. Hodges. 1998. Dark-rumped Petrel (*Pterodroma phaeopygia*). In A. Poole and F. Gill (editors). *The Birds of North America*, No. 345. The Academy of Natural Sciences, Philadelphia, PA. and the American Ornithologists Union, Washington, D.C.
- Sincock, J. L. 1981. Saving the Newell's Shearwater. Pages 76-78 in *Proceedings of the Hawaii Forestry and Wildlife Conference*, 2-4 October 1980. Department of Land and Natural Resources, State of Hawaii, Honolulu.
- Staples, G. W. and D. R. Herbst. 2005. *A Tropical Garden Flora. Plants Cultivated in the Hawaiian Islands and other Tropical Places*. Bishop Museum, Honolulu. 908 pp.
- Telfer, T. C. 1979. Successful Newell's Shearwater Salvage on Kauai. *'Elepaio* 39:71
- Telfer, T. C., J. L. Sincock, G. V. Byrd, and J. R. Reed. 1987. Attraction of Hawaiian seabirds to lights: Conservation efforts and effects of moon phase. *Wildlife Society Bulletin* 15:406-413.
- Tomich, P.Q. 1986. *Mammals in Hawaii*. Bishop Museum Press. Honolulu, Hawaii. 37 pp.

U.S. Fish & Wildlife Service (USFWS) 1983. Hawaiian Dark-Rumped Petrel & Newell's Manx Shearwater Recovery Plan. USFWS, Portland, Oregon. February 1983.

_____. Recovery Plan for the Hawaiian Hoary Bat. U.S. Fish & Wildlife Service, Portland, Oregon.

_____. 2005a. Endangered and Threatened Wildlife and Plants. 50CFR 17:11 and 17:12 (Tuesday, November 1, 2005).

_____. 2005b. 50 CFR 17. Endangered and Threatened Wildlife and Plants. Review of Species That Are Candidates or Proposed for Listing as Endangered or Threatened; Annual Notice of Findings on Resubmitted Petition; Annual Description of Progress on Listing Actions. Federal Register, 70 No. 90 (Wednesday, April 11, 2005): 24870-24934.

_____. 2008. Part II. Department of the Interior. Fish and Wildlife Service. 50 CFR 17. Endangered and Threatened Wildlife and Plants; Review of Native Species That Are Candidates or Proposed for Listing as Endangered or Threatened: Annual Notice of Findings on Resubmitted Petitions: Annual Description of Progress on Listing Actions. Proposed Rule. *Federal Register*, 73 (238; December 10, 2008): 75175-75244.

_____. 2011. USFWS Threatened and Endangered Species System (TESS), online at http://ecos.fws.gov/tess_public/StartTESS.do Last accessed on January 20, 2012.

Wagner, W.L., D.R Herbst, and S.H. Sohmer. 1990. *Manual of the Flowering Plants of Hawai'i*. University of Hawaii Press, Honolulu, Hawaii 1854 pp.

Wagner, W.L. and D.R. Herbst. 1999. *Supplement to the Manual of the Flowering Plants of Hawai'i*, pp. 1855-1918. In: Wagner, W.L., D.R. Herbst, and S.H. Sohmer, *Manual of the flowering plants of Hawai'i. Revised edition*. 2 vols. University of Hawaii Press and Bishop Museum Press, Honolulu.

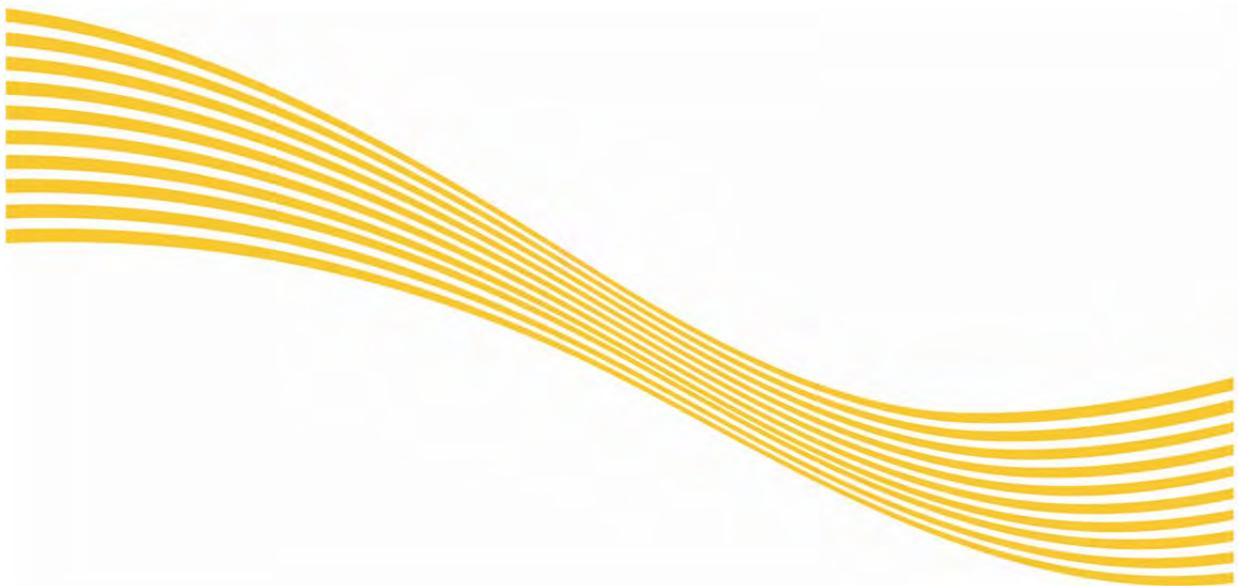
C. VEGETATION MANAGEMENT PLAN

Vegetation Management Plan

KIUC Anahola 12MW Solar Power Plant

REC PROJECT # 401C-000ANAH

December 5, 2012



Confidentiality Statement: This document contains proprietary and competitively sensitive information intended solely for the recipient's study and response. The information in this document is provided in confidence by REC Solar, Inc. Any disclosure, copying, distribution, or any other use, other than the use for which this information was requested and provided is prohibited unless further authorized in writing.

Table of Contents

1.0	Introduction	2
2.0	Primary Goals and Objectives of the VMP	2
3.0	Existing Site Conditions	2
3.1	Existing Vegetation	3
4.0	Identification of Target and Non-target Vegetation	4
5.0	Summary of new site conditions	4
5.1	Effect of Solar Array on Plant Growth	4
6.0	Establishing New Plant Species	4
6.1	New plant species water needs	5
7.0	Vegetation Management	6
7.1	Vegetation Management Control Methods	6
7.1.1	Mechanical Control Methods	6
7.1.2	Herbicidal Controls	8
8.0	Vegetation Management Plan Phasing.....	9



1.0 Introduction

The purpose of this Vegetation Management Plan (VMP) is to outline several methods of controlling the vegetation within the 53 acre, 12MW fixed tilt ground mounted solar farm for Kaua'i Island Utility Cooperative. Vegetation management is necessary to implement construction of the proposed solar facilities and to control vegetation from shading or interfering with solar equipment and general site maintenance procedures.

There are a variety of conditions on the solar project site such as maintenance roadways, access aisles, drainage facilities, inverter station structures, fence lines, and partially shaded areas directly beneath the solar arrays. Because of the variety of site conditions there will be an integrated approach to eradicating unwanted vegetation and controlling desirable vegetation. The goal of the VMP is to control dense woody vegetation, vines, tall grasses and noxious invasive vegetation around solar arrays, structures, access roads, and in any location that may reduce solar access to subject solar panels.

2.0 Primary Goals and Objectives of the VMP

The primary goal of this VMP is to outline the standard operating procedures for vegetation management operations on the 53 acre ground mounted solar farm. Its purpose is to document the owner's practices and standard procedures which are designed to control undesirable vegetation on the site while minimizing the risk of undesirable effects on human health and the environment. It also provides guidance for the technicians contracted by the owner to physically accomplish the VMP.

The following items are objectives that must be taken into consideration as part of the primary goal of the Vegetation Management Plan:

- To ensure full solar access to solar array
- To ensure full access to solar equipment for maintenance and repair purposes
- To minimize on site erosion and sediment transport
- To reduce airborne dust particles
- To increase water infiltration
- To minimize the frequency of maintenance cycles (vegetation management)
- To minimize the need for herbicidal control measures

3.0 Existing Site Conditions

Location:

The proposed solar project is located in Anahola, in the district of Kawaihau on the island of Kaua'i. The property is bounded on the north, west, and south by undeveloped agricultural lands and to the east by Kūhio Highway.

Climate:

Anahola has a mild year-round climate as cool trade winds from the northeast prevail throughout the year with occasional Kona winds originating from the southwest direction.



Temperatures at the site range from 60 to 85 degrees annually and the average annual rainfall is approximately 48 inches. See the chart below for monthly rainfall averages.

Annual Average Total Precipitation (in.)											
Period of Record : 10/1/1949 to 10/31/2000											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6.23	4.42	5.08	4.79	3.26	1.55	2.46	2.39	2.03	4.52	5.64	6.32
Average Annual Total:											48.7

Source: Western Regional Climate Center, wrcc@dri.edu

3.1 Existing Vegetation

The site was formerly used for the cultivation of sugar cane and is currently primarily vegetated with introduced species and is open pasture. During a site visit the following inventory of plants were found either on or near the project site:

***African tulip tree**
Spathodea campanulata
 Growth Habit: Tree
 Height: up to 40ft.
 Growth Rate: Rapid

***Guinea Grass**
Panicum maximum
 Growth Habit: Grass
 Height: 3-12ft.
 Growth Rate: Rapid

Kikuyu grass
Cenchrus clandestinus
 Growth Habit: Grass
 Height: 3-5"
 Growth Rate: Med.

California grass
Urochloa mutica
 Growth Habit: Grass
 Height: up to 3ft.
 Growth Rate: Rapid

***Haole Koa**
Leucaena leucocephala
 Growth Habit: Small Tree
 Height: 6-12ft.
 Growth Rate: Med to Fast

St. Augustine grass
Stenotaphrum secundatum
 Growth Habit: Grass
 Height: 6-12"
 Growth Rate: Med. to Fast

***Cane grass**
Cenchrus purpureus
 Growth Habit: Grass
 Height:
 Growth Rate: Rapid

Hilo grass
Paspalum conjugatum
 Growth Habit: Grass
 Height: 12-18"
 Growth Rate: Med. to Fast

***Lantana**
Lantana Camara
 Growth Habit: Shrub
 Height: 3-4ft.
 Growth Rate: Med. to Fast

***Christmas berry**
Schinus terebinthifolius
 Growth Habit: Tree
 Height: 15-20ft.
 Growth Rate: med. to fast

***Java plum**
Syzygium cumini
 Growth Habit: Tree
 Height: 20-30ft.
 Growth Rate: Med. to Fast

Wide-leaved carpet grass
Axonopus compressus
 Growth Habit: Grass
 Height: 6-12"
 Growth Rate: Med. to Fast

***Target Vegetation:** Vegetation to be controlled or removed



4.0 Identification of Target and Non-target Vegetation

Target Vegetation:

Vegetation that interferes with solar access, maintenance and emergency repairs must be removed or controlled to prevent it from reestablishing itself sufficiently to interfere with site operations. These species include any of the tree or shrub species as well as grass species that exceed 18". Examples include, but are not limited to African Tulip, Christmas Berry, Guinea Grass, Haole Koa, Java Plum and Lantana. Other vegetation that may cause adverse effects to the efficient operation of the solar array is climbing vines and should be eradicated. These species may include but are not limited to Cat's-claw Vine, Wood Rose Vine and the Trumpet Vine.

Non-target Vegetation:

Vegetation that is generally encouraged includes herbaceous growth that matures at less than 18" in height, unless it is categorized as a climbing vine, and accepts periodic mowing. Examples include, but are not limited to Bermuda Grass, Rye Grass, Hilo Grass, Kikuyu grass, St. Augustine Grass, and Wide-leaved carpet grass.

5.0 Summary of new site conditions

Approximately 43% (approx. 23 acres) of the site will be shaded under solar panel arrays and be primarily void of vegetation, 20% (approx. 11 acres) of the site will be between the solar panel arrays (rows) and be vegetated with non-target species and introduced grass species, and 37% (approx. 19 acres) of the site will be exposed to full sun (2% gravel road and 35% vegetated border and storm water retention basins) and with the exception of the gravel road will be vegetated with non-target species and introduced low growing grasses to compete with other vegetation that currently exists on the site that is allowed to remain. In general the proposed graded areas and constructed storm water detention basins will receive a hydroseed treatment. Hydroseeding (or hydraulic mulch seeding, hydro-mulching) is a planting process which utilizes a slurry of seed and mulch. The slurry is transported in a tank, either truck- or trailer-mounted and sprayed over prepared ground. As the VMP is implemented, the reoccurrence of target species will become less prevalent, and non-target species will dominate the site.

5.1 Effect of Solar Array on Plant Growth

Shaded areas under the arrays will impact vegetation on the site due to reduced moisture and sunlight. Although there will be increased shading and dryer soil conditions directly beneath the panel arrays, vegetation can become established if not properly controlled. During precipitation events drip lines between the panels in the arrays will allow water to reach the area under the panel arrays. This moist soil condition can allow vegetation to become established along these drip lines and over time will reach maturity if not properly controlled.

6.0 Establishing New Plant Species

New plant species outside the limits of grading will consist primarily of naturally occurring vegetation (non-target species plus target-species such as Guinea Grass that contributes toward soil stabilization and can be controlled by mowing), and introduced low growing grasses. Areas that are within the limits of grading will consist of low growing drought tolerant grasses that assist in the reduction of airborne dust and soil erosion. These species will be planted utilizing a hydroseeding process and include, but are not limited to Ryegrass and Bermuda Grass. Initially the Ryegrass will establish itself and assist in reducing airborne dust



and soil erosion while allowing the Bermuda Grass to fill in. Once established, the Bermuda Grass will provide long term soil stabilization and accept a regular maintenance program.

6.1 New plant species water needs

Newly introduced grass species will require a temporary irrigation system in order to become fully established. Germination of the grass seed can take from 7-14 days and requires increased water as shown in the table below. To fully establish and stabilize new grasses requires continued watering and, depending on the weather, this continued watering can be required for an additional 3-6 months after the grass seeds have germinated. After permanent grasses are established, no further watering is needed. The chart below shows a maximum daily water usage from a temporary sprinkler system that would be needed to establish introduced grasses.

Construction Phase	Seeded Acreage	Stage of Development	
		Germinate	Stabilize
Phase 1	8.5	80,325	26,775
Phase 2	8.5	80,325	26,775
Phase 3	3	28,350	9,450

To supply the temporary water needed to establish new grass species on the project site two water sources will be available for use. The primary water source will be an onsite well that will be permitted and drilled inside the project boundaries. The onsite well will provide sufficient water needed for 100% of the irrigation needs. The well will be similar to other typical local wells of approximately 400 feet deep. The well pumping system will employ a typical 20hp three phase electrical motor supplied from electric service onsite. The well will be drilled, cased, pump tested and permitted to meet local Kauai County Well Construction standards. The sole use of the well will be to provide water to irrigate and establish plants and grasses on the project site.

Water from the well will be used to supply temporary irrigation sprinklers set up in the newly seeded areas. Temporary sprinkler systems will be installed in newly seeded areas and remain in place during the germination and stabilize time periods to establish new grasses. Once the new grasses are established the temporary sprinkler systems will be removed. The onsite well will remain in place and used on an as needed basis only for irrigation in the future.

A backup water source at an existing KIUC power station with sufficient extra capacity has also been identified to support water needs if needed. The backup water source is surface water from the Kapaia Reservoir. There is a 16" buried pipe from the reservoir to the KIUC Kapaia Power Station. The plant currently draws 0.3 MGD from the pipe for its operations. There is adequate space to load a water truck next to the pipeline so that trucks could fill up throughout the day. The distance between the power station and the proposed solar farm is 13 miles, one way. This source would only be used as a backup only.

In order to reduce water needs onsite the use of a temporary biodegradable erosion control tackifier product may be applied to limited areas prior to establishing permanent grasses. Small newly graded areas on the site that do not have vehicle traffic present are areas that will be considered for the application of erosion control tackifier. The tackifier product is applied to the ground similar to a hydroseeding process and is used to aid in protecting the ground from short term erosion.



Tackifier applications can last from 1-3 months and provide sufficient stabilization of the soil to reduce water needs for the establishment of temporary grasses such as rye grass. Biodegradable tackifier products can be removed with water applied to that area. The amount of water savings is dependent on the amount of area suitable to the use of a tackifier product.

7.0 Vegetation Management

Vegetation Management involves caring for and/or controlling vegetation that grow within the project boundaries. The ultimate goal is to eliminate tall growing grasses, woody trees and shrubs and other noxious weed species such as climbing vines and allowing desirable vegetation to remain. If managed properly, non-target vegetation can become self-sustaining over time and require less maintenance. When combined with other control measures, herbicide use can be minimized or eliminated over time. Vegetation Management tools include:

- Mowing and string trimming
- Hand removal of target species in difficult to access areas
- Mulch cover
- Weed barrier fabric
- Selectively using herbicides
- Re-vegetation with low growing plant species

7.1 Vegetation Management Control Methods

Mechanical and herbicidal controls work together to support the establishment and viability of naturally occurring and introduced low growing vegetation. A combination of hand cutting, mowing, string trimming, selective pruning, selective foliar treatment, low volume basal treatments, mulching, weed barrier fabric, stump removal and cut stump treatments will be the primary methods of vegetation control. Treatment methods used will vary depending on the target species composition and density, site access, and topography.

Timing all herbicide applications and avoiding fixed schedules is important to maximize control while minimizing herbicide use. The advantage of a flexible VMP program is the ability to apply the appropriate mechanical and herbicidal control methods to meet the given site conditions. Selective herbicide application treatment methods effectively remove vegetation that would otherwise compete and dominate the non-target species. In addition to mechanical and herbicidal control methods, applying a weed barrier fabric or a thick layer of course grade mulch in the area underneath the solar arrays can deter vegetation from becoming established for a period of time after which a new application will be required. Weed barrier fabric or mulch can prevent vegetation from becoming established by thoroughly covering the soil and depriving weed seeds of the light they need to germinate, and preventing them from rooting directly into the soil. The effective longevity of the weed barrier fabric or mulch depends on the parent material from which the mulch is derived as well as the exposure to moisture and sunlight.

7.1.1 Mechanical Control Methods

Mowing



- Mowing is the mechanical cutting of vegetation using sickle, flail or rotary cutting equipment and may be used at any time of the year except during heavy rainfall periods
- Selection of specific equipment is based on terrain, target vegetation size and equipment availability. Commercial grade mowers commonly used in the industry will be suitable for vegetation management on this site.
- Mowing may be restricted by steep slopes, target vegetation size, soil moisture content and weather conditions
- Once the Target Vegetation is removed or controlled, mowing will be the primary mode of vegetation control (approx. 29 acres) with the exception of target vegetation that exceeds the ability of the equipment to operate and difficult to access areas such as under solar panel arrays, detention basins, and steep slopes

String Trimming

- String trimming consists of using a powered hand held device that uses a flexible monofilament line instead of a blade for cutting grass and other non-woody vegetation. This will be primarily used in difficult to access areas such as underneath the panel arrays, near and around the panel mounting anchors and steep slopes.

Hand Cutting

- Hand cutting is used in situations where mowing is not practical and includes the mechanical cutting of target species using chain saws, brush saws, loppers, hand pruners, machetes, or other hand operated pruning devices.
- Hand cutting may be conducted at any time of the year
- Target species are to be physically removed (including roots) or cut as close as possible to the ground

Mulch

- These practices involve the application of barrier materials to form a temporary, protective soil cover, and can be implemented as a pre-made decomposable fabric or applied as a loose material.
- Mulch produced from the debris generated in cutting operations (slash) and will be disposed of by chipping or mulching machinery and scattered uniformly over the site at depths not exceeding 6" in depth. Slash will not to be placed in areas targeted for hydroseed treatment.
- Mulch bark chips, shredded bark and other green waste by products of the tree maintenance industry are commonly used as mulches. Typical effective life-cycle of a quality mulch layer to suppress weeds is from 1-3 years after which time it will need to be re-applied. They may be applied by hand or with a mulch blower. The mulch should be free of mold, dirt, sawdust and not be in a state of decomposition.
- The proposed civil plan includes grubbing each phase area of the project site and the grubbed material will remain on site as mulch. This material will remain in place as it is cut and will serve as the first application of mulch under the solar panels. It is estimated that enough grubbed material will be available to provide a uniform 4" layer of mulch under the arrays.
- Future applications of mulch should include a uniform 4" layer under the solar arrays. Approximately 12,000 cubic yards of mulch will be required for this operation.



Weed Barrier Fabric

- Weed barrier fabric is a geotextile fabric usually made from synthetic materials such as polypropylene which have added UV resistant properties. The fabric is a semi-permanent barrier which suppresses weed growth and shields the bare soil surface from erosion.
- Application of a rolled weed barrier is anticipated to only be needed between the steel foundation posts under the arrays. The front and back edges of the solar arrays will not need a weed barrier as mechanical mowing and string trimming will be employed in these areas.
- Weed barrier fabric is typically manufactured in 300 foot long rolls and custom widths. The fabric that may be used for this project could have an 8 foot width to match the spacing between the steel posts. Approximately 80,000 linear feet of weed barrier fabric is estimated to be needed for this control method.
- The barrier fabric is installed beneath the arrays by rolling out the material and staking it to the ground at regular intervals. In addition, an herbicidal pre-emergent can be applied to the soil before the weed barrier is applied to prevent weeds from germinating under the barrier.
- Typical weed barrier fabric life-cycles range from 3-7 years based on the manufacturers specifications after which time sections that degrade will need to be re-applied. These ratings are based on the product being in direct sunlight for the duration of its use. Because the weed barrier for this project will be under the solar arrays and not in direct sunlight it is estimated that the weed barrier will last closer to 10 years.

7.1.2 Herbicidal Controls

Herbicide applications include foliar basal and cut stump surface treatments. Herbicides are applied as mixtures consisting of herbicide formulation(s), adjuvants, carriers and additives. The selection of and timing of herbicide applications, materials, and mixture rates are to follow the manufacturer's recommendations and local regulations. The following are the more common criteria for the classification of herbicides.

Pre-emergent herbicides are applied to the soil to prevent the germination and growth of seedling plants usually as applied through soil uptake. Typically these herbicides have no foliar activity, though some are effective on existing vegetation. These herbicides can be classified as "soil active."

Post-emergent herbicides are applied to existing vegetation. Uptake to the plant is through the foliage, including through the stem. With a few exceptions, post-emergent herbicides have little or no viable soil activity. These herbicides can be classified as "foliar active."

Individual herbicides have different levels of effectiveness on target vegetation species and under different conditions. No herbicide is equally effective on all target species and certain herbicides are more effective on certain target species than others. The applicator shall follow manufacturer guidelines, all regulatory rules that apply, and utilize best management practices for the use of herbicides on site.

Specifically for the Anahola Solar Project, a combined use of pre-emergent and post-emergent herbicides could be used. A pre-emergent could be applied to the ground beneath the solar arrays before the mulch or weed barrier is applied. Post-emergent herbicides may be used on an as needed basis to control localized weed growth around the steel posts.



8.0 Vegetation Management Plan Phasing

The VMP will be executed in three primary phases explained below. The project site consists of three primary areas with grubbing and grading areas less 10 acres each. Each project area will go thru the VMP Phase 1 separately as explained below. Prior to moving on to the next project area, the current area going through the VMP Phase 1 process outlined below will meet established soil erosion stabilization standards.

Once the entire site is finished with construction, VMP Phases 2&3 outlined below will be followed for the entire project site.

PHASE I (CONSTRUCTION)

- Removing and Chipping large woody Target Species over 1" in diameter
- Removing Target Species stumps and basal clumps
- Scattering chips uniformly over site a depth no greater than 4". Areas which have been graded for the access paths will be hydroseeded and will not be mulched.
- Application of herbicide to remaining target species as required (foliar basal and stump treatment)
- Areas under the arrays will be treated with the final solution of a weed barrier fabric or mulch.
- Install both temporary and permanent vegetative grasses to prevent dust emission and silt runoff
- Install temporary sprinkler system concurrently with plantings. The estimated water usage of this temporary sprinkler system will depend on the stage of development of the planting and the construction phase. See section 7 for details on sprinkler system water usage.

PHASE II (POST-CONSTRUCTION)

- Mow site on a monthly basis or as required to maintain vegetation a height no greater than 18"
- Apply herbicide to Target Species as required
- Uniformly lay out weed barrier fabric or spread course grade mulch under panel arrays at a thickness of 4" to suppress weed germination.

PHASE III (ONGOING MAINTENANCE)

- A monthly vegetation management plan will be established throughout the life of the plant to control vegetation. A combination of mowing, hand cutting, string trimming, and herbicides will be used to control vegetation.
 - > Establish a mowing program that considers local weather patterns and growing seasons to maintain grass height below 12-18 inches.
 - > Perform regular hand and string trimmer maintenance in difficult to access areas



- > Use of herbicides on an as needed basis only to control target vegetation occurring in difficult to access areas and spot treatment of reoccurring woody tree and shrub species.
- For areas with weed barrier fabric: Perform an annual inspection of the weed barrier fabric for damage to the fabric and weed growth on top of or through breaks in the fabric. Any weeds shall be removed and any breeches in the fabric shall be patched.
- For areas with mulch: inspect the mulch layer quarterly and immediately after any significant wind and rain event for proper specified depth. Maintain a four inch thick layer of course grade mulch in order to deter establishment of vegetation.



D. AGENCY CONSULTATION



January 19, 2012

Ms. Cynthia Stiles, Assistant State Soil Scientist
 USDA-NRCS Pacific Islands Area
 300 Ala Moana Blvd. Room 4-118
 Honolulu, HI 96850-0050 USA

Subject: USDA Form AD-1006 Farmland Conversion Impact Rating for Anahola Solar Project on Behalf of the Rural Utility Service

Dear Ms. Stiles:

Thank you for speaking with me this morning about the submission process for Form AD-1006. As we discussed, I am sending you a partially complete draft of the form. To provide background, Kaua'i Island Utility Cooperative (KIUC), Kaua'i's electrical utility provider, is preparing an Environmental Report (ER) for submission to the Rural Utility Service (RUS). Planning Solutions, Inc. is assisting KIUC in preparing the ER for submission to the RUS. The ER is in support of a proposed 55-acre photovoltaic electrical generation facility and substation in Anahola, Kaua'i, Hawai'i, and the RUS will use it as the basis of an Environmental Assessment which it will prepare.

The proposed Anahola Solar Project will involve the conversion of agricultural lands to non-farmland use, and will use federal funds. According to the U.S. Department of Agriculture, Soil Conservation Service and the College of Tropical Agriculture at University of Hawai'i's Agricultural Lands of Importance to the State of Hawai'i maps, the site is located on "Prime" agricultural lands. Because of this, and pursuant to the requirements of the Farm Policy Protection Act, we have prepared a Farmland Conversion Impact Rating (AD-1006) document and support materials for review and input by the NRCS.

We are also including a GIS shapefile of the Anahola Service Center project footprint to assist in your analysis.

If you have any questions, or would like any additional information, please contact me at (808) 550-4483.

Sincerely,

 Makena White
 Planning Solutions, Inc.

Attachments:

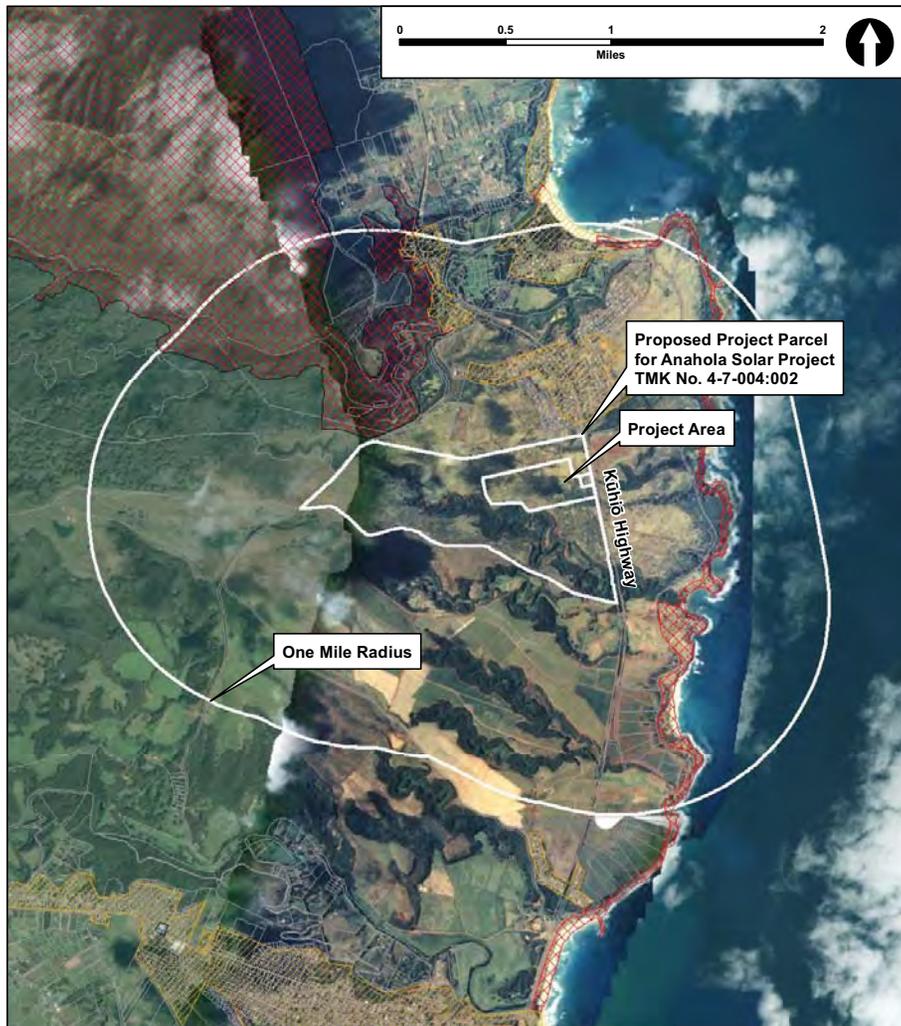
- (1) Form AD-1006
- (2) Map of Land Use Within One Mile of Solar Project
- (3) Shapefile of Anahola Solar Project Footprint

cc: Steve Rymsha, KIUC (electronic only)
 Brad Rockwell, KIUC (electronic only)

**U.S. Department of Agriculture
 FARMLAND CONVERSION IMPACT RATING**

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request 1/31/12			
Name Of Project Anahola Solar Project		Federal Agency Involved Rural Utility Service			
Proposed Land Use Electrical Utility		County And State County of Kauai, State of Hawaii			
PART II (To be completed by NRCS)		Date Request Received By NRCS 1/18/12			
Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply -- do not complete additional parts of this form).		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Acres Irrigated 19595	Average Farm Size 203
Major Crop(s) Not farmed	Farmable Land In Govt. Jurisdiction Acres: 98000 % 28	Amount Of Farmland As Defined in FPPA Acres: 92000 % 26		Date Land Evaluation Returned By NRCS 2/16/12	
Name Of Land Evaluation System Used State of HI, LESA		Name Of Local Site Assessment System None			
PART III (To be completed by Federal Agency)		Alternative Site Rating			
		Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly		55.0			
B. Total Acres To Be Converted Indirectly		0.0			
C. Total Acres In Site		55.0	0.0	0.0	0.0
PART IV (To be completed by NRCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland					
B. Total Acres Statewide And Local Important Farmland		55.0			
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted		0.0			
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value		34.5			
PART V (To be completed by NRCS) Land Evaluation Criterion					
Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)		91	0	0	0
PART VI (To be completed by Federal Agency)					
Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))		Maximum Points			
1. Area In Nonurban Use		15	14		
2. Perimeter In Nonurban Use		10	10		
3. Percent Of Site Being Farmed		20	0		
4. Protection Provided By State And Local Government		20	20		
5. Distance From Urban Builtup Area		15	0		
6. Distance To Urban Support Services		15	10		
7. Size Of Present Farm Unit Compared To Average		10	0		
8. Creation Of Nonfarmable Farmland		10	0		
9. Availability Of Farm Support Services		5	2		
10. On-Farm Investments		20	0		
11. Effects Of Conversion On Farm Support Services		10	0		
12. Compatibility With Existing Agricultural Use		10	0		
TOTAL SITE ASSESSMENT POINTS		160	56	0	0
PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)		100	91	0	0
Total Site Assessment (From Part VI above or a local site assessment)		160	56	0	0
TOTAL POINTS (Total of above 2 lines)		260	147	0	0
Site Selected: Site A		Date Of Selection 2/17/12		Was A Local Site Assessment Used? Yes <input type="checkbox"/> No <input type="checkbox"/>	

Reason For Selection: Please see attached document providing criteria for each site assessment score.



Prepared For: Kaua'i Island Utility Cooperative	Legend: [No Fill] Agriculture District (No Fill) [Red Cross-Hatch] Conservation District [Yellow Diagonal Lines] Urban District [Thin White Line] TMK Parcel Boundaries	Figure: Land Use Within One Mile of Solar Project Anahola Solar Project
Prepared By: PLANNING SOLUTIONS		
Source: -State of Hawaii GIS -ESRI		

Justification of AD-1006 Part IV Scoring for Anahola Solar Project (Photovoltaic Electrical Generation)

The following provides an explanation of the scoring applied to each of the Site Assessment Criteria, pursuant to 7 CFR §658.5(b).

1. Area in Nonurban Use

A review of the State of Hawai'i GIS State Land Use Districts shapefile, aerial photography of the site, and multiple site visits indicate that approximately 85 percent of the surrounding area within one mile of the proposed project site is currently in non-urban use. This is consistent with the largely Agricultural and Conservation zoning of that land. – **14 points**

2. Perimeter in Nonurban Use

There is no urban usage along the perimeter of the proposed project. There is a road adjacent to one edge of the project site but the usage across the road is nonurban and thus does not qualify as an urban use. – **10 points**

3. Percent of Site Being Farmed

No portion of the project site has been farmed in any of the last ten years. – **0 points**

4. Protection Provided By State and Local Government

An examination of the State of Hawai'i GIS land use shapefile indicates that the site is entirely within the State Agricultural land use district (see Criterion 8C of the Site Assessment Scoring Guide). KIUC's consultation with the County of Kaua'i Planning Department indicates the site is zoned for agriculture (see Criterion 4 of the Site Assessment Scoring Guide). – **20 points**

5. Distance from Urban Built-up Area

The nearest built-up urban area is Anahola Village, the nearest point of which is approximately 750 feet away from the project site. – **0 points**

6. Distance to Urban Support Services

There is no electrical, sewer, or water service on the project site but some exist within half a mile. An examination of Figure 3-1 in the County of Kaua'i, Department of Water, *Water Plan 2020* document indicates that the nearest municipal water service is in Anahola Village, the closest portion of which is approximately 750 feet away. The nearest electrical utility facilities are KIUC's power lines that run along Kūhiō Highway, directly east of the project site. The nearest sewer facilities are in Wailua-Kapa'a approximately 3 miles away. – **10 points**

7. Size of Present Farm Unit Compared to Average

The proposed project is 55 acres in size, as compared with the USDA's estimated average farm size in Kaua'i County of 203 acres. This represents a project size of less than 50% of the average. – **0 points**

8. Creation of Non-farmable Farmland

The total area of the project parcel is 422 acres; 55 acres will be used for the proposed project, leaving a remaining 367 acres. Of those 367 acres, none will be rendered non-farmable by interrupting land patterns of use or access. – **0 points**

9. Availability of Farm Support Services

The site does not have any farm support services present and has been out of agricultural use for at least a decade. Some farm support services, such as a farmer's market, are available in the nearby community of Anahola. – **2 points**

10. On-Farm Investments

The site has no substantial or well-maintained on farm investments such as barns or other forms of storage structures, terraces, orchards, drainage, or irrigation facilities. – **0 points**

11. Effects of Conversion on Farm Support Services

Because there has been no agricultural use of this land for at least 10 years, the conversion of this land to alternative energy production will not cause any reduction in the demand for farm support services in the region. – **0 points**

12. Compatibility with Existing Agricultural Use

The type and intensity of use proposed for the Anahola Solar Project would not be incompatible with agriculture and it not likely to contribute to the eventual conversion of the surrounding farmland to nonagricultural uses. – **0 points**

X-IronPort-Anti-Spam-Result:
AvEAAp5ZRu9BN1gMkGdsb2JhbABBA4JRscABAQEBCQKngwUjgXMBAGEEhtcAgEIEQOBAQsdBwldExQJCAEBBMBig0HqF1+AQGBC5QFJFIBBAEB
X-SpamScore: -14
X-BigFish: VPS-14:zzbb2dI9371c85f1454f01M98dK11f6Nz1202hzz8275bh8275dzh2dh2a8h66h839h8e2h8e3hbe9k34h
X-Forefront-Antispam-Report: CIP:199.135.140.16;KIP:(null);UIP:(null);IPV:NLI;H:mail.usda.gov;RD:none;EFVD:NLI
From: 'Stiles, Cynthia - NRCS, Honolulu, HI' <cynthia.stiles@hi.usda.gov>
To: Makena White <makena@psi-hi.com>
Subject: RE: NRCS completed form AD-1006
Thread-Topic: NRCS completed form AD-1006
Thread-Index: AcztBL6KZlV7KALCSqmj9s8z9dmszgAzM/0AAPVNWtA=
Date: Wed, 22 Feb 2012 21:22:57 +0000
Accept-Language: en-US
X-MS-Has-Attach: yes
X-MS-TNEF-Correlator:
x-originating-ip: [199.158.27.26]
X-OriginatorOrg: hi.usda.gov
X-Nonspam: None
X-Brightmail-Tracker: AAAAAQAAAIk=

Hello Makena – I am so sorry to have been out of town when you called. I just got back into the office (and through my reams of e-mails) just today. The form and justifications look fine to me. We merely record-keep on this information and the completion of the form shows that your company is performing 'due diligence' on behalf of the project.

The electronic copies are satisfactory for my record-keeping, as I keep all correspondence and files in my computer for later archiving. Cheers, Cindy

Cynthia A. Stiles, Ph.D.
Assistant State Soil Scientist - Pacific Islands Area
300 Ala Moana Blvd, Rm 4-118
Honolulu, HI 96850-0050
(808)541-2600 ext. 129
cynthia.stiles@hi.usda.gov

This electronic message contains information generated by the USDA solely for the intended recipients. Any unauthorized interception of this message or the use or disclosure of the information it contains may violate the law and subject the violator to civil or criminal penalties. If you believe you have received this message in error, please notify the sender and delete the email immediately.

From: Makena White [mailto:makena@psi-hi.com]
Sent: Friday, February 17, 2012 2:09 PM
To: Stiles, Cynthia - NRCS, Honolulu, HI
Cc: Rockwell, Brad W.; Rymsha, Steven; Julia@psi-hi.com; pwhite@psi-hi.com
Subject: Re: NRCS completed form AD-1006

Aloha Cindy,

I am returning to you, as attachments to this email the completed AD-1006 Farmland Conversion Impact Rating form for the Anahola Solar Project and the associated scoring justifications which you requested. Please take a look at these two documents and let me know if you have any questions.

In the past I have conducted submissions to the NRCS via email; if you would prefer hard copy I would be happy to provide them to you. Thank you very much for your time and assistance in preparing these documents.

Mahalo,
Makena White

*Planning Solutions, Inc.
219 Ward Avenue, Suite 330
Honolulu, Hawaii 96814
(808) 550-4538*

At 01:43 PM 2/16/2012, you wrote:

Makena: Here is a digital copy of the AD-1006 with completed NRCS sections (II and IV). I will be sending a hard copy letter out to you with this same form and a cover letter tomorrow. Feel free to proceed with your scoring (Pt VI and VII) with this electronic copy I have provided. Please contact me if you have further questions on the form. Cheers, Cindy

Cynthia A. Stiles, Ph.D.
Assistant State Soil Scientist - Pacific Islands Area
300 Ala Moana Blvd, Rm 4-118
Honolulu, HI 96850-0050
(808)541-2600 ext. 129
cynthia.stiles@hi.usda.gov

This electronic message contains information generated by the USDA solely for the intended recipients. Any unauthorized interception of this message or the use or disclosure of the information it contains may violate the law and subject the violator to civil or criminal penalties. If you believe you have received this message in error, please notify the sender and delete the email immediately.

 smime7.p7s



**P L A N N I N G
S O L U T I O N S**

June 22, 2012

Mr. Loyal Mehrhoff
Field Supervisor
U.S. Fish and Wildlife Service
300 Ala Moana Blvd, Room 3-122
Honolulu, HI 96813

**Subject: Kaaui Island Utilities Cooperative
Anahola Solar Facility & Service Center Project — Anahola, Kaaui, Hawaii**

Dear Mr. Mehrhoff:

The Kaaui Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, which will involve the construction of a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaaui, Hawaii (the Project). RUS may fund the proposed Project, thereby making it an action subject to the National Environmental Policy Act, and all applicable federal environmental law and regulation. In order to fulfill the agencies' responsibilities under the Endangered Species Act, RUS has designated KIUC and its consultant, Planning Solutions, Inc., as its non-Federal representative initiating informal Section 7 consultation pursuant to 50 CFR 402.08 "Designation of a Non-Federal Representative" (see attached June 14, 2012 letter from RUS).

KIUC has proposed the Project to provide clean, renewable, and affordable power to the people of Kaaui, and reduce KIUC's dependence on imported fossil fuels. The proposed Project will be located on 60-acres of Department of Hawaiian Home Lands (DHHL) owned land, within which the photovoltaic facility, substation, service center, access roads, and storage yards will be located. KIUC proposes to construct a low-profile photovoltaic module system; panels would be mounted on pipe frames anchored by concrete piers (12-inch diameter, and 36 to 60 inches deep). Power generated by the panels would be collected at pull boxes and transmitted to a substation near the highway. The substation would occupy a 2-acre area adjacent to the highway; it would contain transformers, switches, controls, batteries, and other electrical equipment that would allow KIUC to feed power into the existing electrical power lines along Kūhiō Highway. The 5-acre service center would contain offices, storage areas, and other facilities that would support KIUC operations in this part of the island.

We respectfully request your review of the enclosed materials including, the biological survey, map of the project area, and the description of the proposed Project (Attachments 2, 3, and 4) within thirty (30) days of your receipt of this correspondence. If you have any questions or wish to further discuss this project, please contact me at (808) 550-4483.

Sincerely,

Perry J. White

Attachments:

- (1) RUS June 14, 2012 Letter
- (2) Map of Project Area
- (3) Description of Proposed Action
- (4) Biological Survey (DVD copy)

cc: Brad Rockwell, KIUC
Emily Orler, USDA RUS

Ward Plaza, Suite 330 • 210 Ward Avenue • Honolulu, Hawaii 96814-4012
Phone: 808 550-4483 • Fax: 808 550-4549 • www.psi-hi.com



United States Department of Agriculture
Rural Development | Rural Utilities Service

June 14, 2012

Mr. Loyal Mehrhoff
Field Supervisor
U.S. Fish and Wildlife Service
300 Ala Moana Blvd, Room 3-122
Honolulu, HI 96813

**Subject: Kaaui Island Utilities Cooperative
Anahola Solar Facility & Service Center Project — Anahola, Kaaui, Hawaii**

Dear Mr. Mehrhoff:

The Kaaui Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, which will involve the construction of a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaaui, Hawaii (the Project). RUS may fund the proposed Project, thereby making it an action subject to the National Environmental Policy Act, and all applicable federal environmental law and regulation. In order to fulfill the agencies responsibilities under the Endangered Species Act, RUS hereby designates KIUC and its consultant, Planning Solutions, Inc., as its non-Federal representative initiating informal Section 7 consultation pursuant to 50 CFR 402.08 "Designation of a Non-Federal Representative".

If you have any questions or wish to further discuss this project, please contact Ms. Emily Orler, RUS Environmental Protection Specialist, at (202) 720-1414 or emily.orler@wdc.usda.gov.

Sincerely,

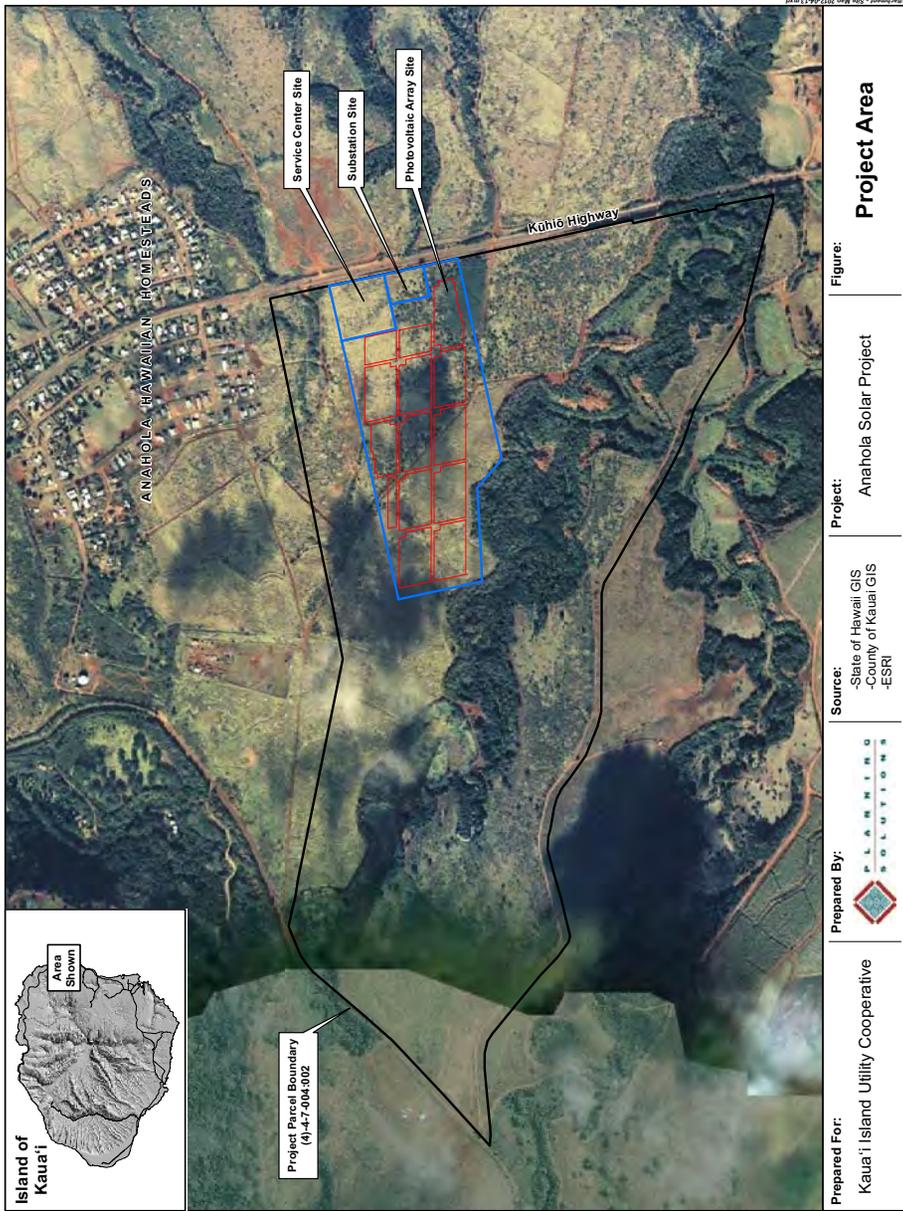
Mark S. Plank
Director, Engineering & Environmental Staff
USDA Rural Development, Utilities Programs

cc: Brad Rockwell, KIUC
Perry White, PSI

1400 Independence Ave, SW • Mail Stop 1571 • Washington, DC 20250-1571
Web: <http://www.usda.gov/rus/water/ees/environ.htm>

Committed to the future of rural communities.

"USDA is an equal opportunity provider, employer and lender."
To file a complaint of discrimination write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, DC 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD).



Attachment 2: Anahola Solar Project - Description of the Proposed Action

Kauai Island Utility Cooperative, through its subsidiary KIUC Renewable Solutions One, LLC (“KRS One”) is planning to develop, operate, and maintain a 12 Megawatt (MW) photovoltaic facility, including a dedicated substation with interconnections to the island-wide electrical grid, and an attached service center. The proposed facilities would occupy 60 acres on the easternmost portion of a large, 422-acre parcel (TMK [4] 4-7-004:002) in Anahola, Kaua’i, Hawai’i (see Attachment 1). The parcel, which is owned by the Department of Hawaiian Home Lands (DHHL), was formerly used for sugarcane cultivation but is currently unused.

The Anahola Solar Project is expected to produce 23,525 megawatt-hours (MWh) of clean, renewable electricity per year. This represents 5.2 percent of KIUC’s total electrical generation in 2010. The project components are:

1. Fifty-three acres of photovoltaic (PV) panels, inverters, and transformers providing up to 12 MW of electrical energy to KIUC’s electrical grid.
2. An adjacent 2-acre substation, which will be used for control equipment for the solar farm and to boost the power from the 12 kilovolts (kV) delivered by the PV system to the 57/69 kV voltage of KIUC’s electrical transmission system.
3. A service center occupying the remaining 5 acres of the 60-acre project area, which will include operational, and maintenance capacity, as well as a community meeting center and customer service office.
4. A network of shore conduits and cables which will link the PV facility to the substation and the substation with the broader KIUC transmission system.



June 25, 2012

Mr. Loyal Mehrhoff
Field Supervisor
U.S. Fish and Wildlife Service
300 Ala Moana Blvd, Room 3-122
Honolulu, HI 96813

**Subject: Kaua'i Island Utilities Cooperative
Anahola Solar Facility & Service Center Project — Anahola, Kaua'i, Hawai'i**

Dear Mr. Mehrhoff:

The Kaua'i Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, which will involve the construction of a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaua'i, Hawai'i (the Project). RUS may fund the proposed Project, thereby making it an action subject to the National Environmental Policy Act, and all applicable federal environmental law and regulation. The project site is owned by the State of Hawai'i Department of Hawaiian Home Lands (DHHL). The Department has leased it to the non-profit Homestead Community Development Corporation (HCDC), which will lease the property to KIUC upon completion of the required environmental documentation.

DHHL and the Rural Utility Service (RUS) are preparing a joint environmental document in accordance with State and Federal Regulations. In the case of DHHL, this involves preparation of an Environmental Assessment (EA) in accordance with the provisions of Chapter 343, Hawai'i Revised Statutes and Title 11, Chapter 200 of the Hawai'i Administrative Rules (HAR §11-200). In the case of the Rural Utilities Service, this means preparing an Environmental Assessment in accordance with the National Environmental Policy Act (NEPA) and its implementing regulations. The two agencies envision a joint document fulfilling both State and Federal requirements, and this consultation is being carried out accordingly. Enclosed is a map of the proposed location of the construction activity (Attachment 1), a description of the work involved (Attachment 2), and the biological survey (Attachment 3).

We respectfully request that you review the enclosed materials and your Wetland Inventory Maps to determine if wetlands will be impacted. I would appreciate it if you would provide a response, including any recommendations you may have to minimize or avoid impacts to wetlands, within thirty (30) days of your receipt of this correspondence. If you have any questions or wish to further discuss this project, please contact me at (808) 550-4483.

Sincerely,

Perry J. White

Attachments:

- (1) Map of Project Area
- (2) Description of Proposed Action
- (3) Biological Survey Report

cc: Emily Orler, RUS
Brad Rockwell, KIUC



June 25, 2012

Mr. George P. Young, P.E., Chief
Regulatory Branch
Department of the Army
U.S. Army Engineer District, Honolulu
Fort Shafter, Hawai'i 96858-5440

**Subject: Kaua'i Island Utilities Cooperative
Anahola Solar Facility & Service Center Project — Anahola, Kaua'i, Hawai'i**

Dear Mr. Young:

The Kaua'i Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, which will involve the construction of a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaua'i, Hawai'i (the Project). RUS may fund the proposed Project, thereby making it an action subject to the National Environmental Policy Act, and all applicable federal environmental law and regulation. The project site is owned by the State of Hawai'i Department of Hawaiian Home Lands (DHHL). The Department has leased it to the non-profit Homestead Community Development Corporation (HCDC), which will lease the property to KIUC upon completion of the required environmental documentation.

DHHL and the Rural Utility Service (RUS) are preparing a joint environmental document in accordance with State and Federal Regulations. In the case of DHHL, this involves preparation of an Environmental Assessment (EA) in accordance with the provisions of Chapter 343, Hawai'i Revised Statutes and Title 11, Chapter 200 of the Hawai'i Administrative Rules (HAR §11-200). In the case of the Rural Utilities Service, this means preparing an Environmental Assessment in accordance with the National Environmental Policy Act (NEPA) and its implementing regulations. The two agencies envision a joint document fulfilling both State and Federal requirements, and this consultation is being carried out accordingly. Enclosed is a map of the proposed location of the construction activity (Attachment 1) and a description of the work involved (Attachment 2).

We respectfully request that you review the enclosed map of the project area and description of the proposed Project. I would appreciate a response within thirty (30) days of your receipt of this correspondence for possible impacts to 100-year floodplains, wetlands, and other important natural resources that occur in the project area. If you have any questions or wish to further discuss this project, please contact me at (808) 550-4483.

Sincerely,

Perry J. White

Attachments:

- (1) Map of Project Area
- (2) Description of Proposed Action

cc: Emily Orler, RUS
Brad Rockwell, KIUC



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, HONOLULU DISTRICT
FORT SHAFTER, HAWAII 96858-5440

REPLY TO
ATTENTION OF:

July 6, 2012

Regulatory Branch

File Number **POH-2012-00178**

Perry J. White
Ward Plaza, Suite 330
210 Ward Avenue
Honolulu, HI 96814-4012

Dear Mr. White:

This responds to your letter dated June 25, 2012 requesting review comments for the proposed Anahola Solar Facility & Service Center Project, Anahola, Island of Kauai, Hawaii. We have assigned this project the reference number **POH-2012-00178**. Please cite this reference number in any future communications with this office regarding this project.

We have completed our review of the submitted documents pursuant to Section 10 of the Rivers and Harbors Act of 1899 (Section 10) and Section 404 of the Clean Water Act (Section 404). Section 10 requires that a Department of the Army (DA) permit be obtained from the U.S. Army Corps of Engineers (Corps) prior to undertaking any construction, dredging, or other activity occurring in, over, or under or affecting navigable waters of the U.S. For tidal waters, the shoreward limit of the Corps jurisdiction extends to the Mean High Water Mark. Section 404 requires that a DA permit be obtained for the discharge (placement) of dredged and/or fill material into waters of the U.S., including wetlands. For tidally influenced waters, in the absence of adjacent wetlands, the shoreward limit of the Corps jurisdiction extends to the High Tide Line, which in Hawai'i may be approximated by reference to the Mean Higher High Water Mark. For non-tidal waters, the lateral limits of the Corps jurisdiction extend to the Ordinary High Water Mark or the approved delineated boundary of any adjacent wetlands.

Based on the information provided, the project site appears to be absent of navigable waters subject to the Corps jurisdiction. Therefore, Section 10 authorization may not be required. However, there is insufficient information provided to determine if the proposed project will involve activities under Section 404. Fill material, permanent or temporary, may include, but is not limited to: rock, dirt, sandbags, silt fences or concrete. To avoid unintentional violation to federal regulation and law, we advise you to contact our office prior to conducting any activity that may result in the discharge or dredged and/or fill material. Section 404 authorization may be required for this action.

When developing the Environmental Assessment, we recommend you conduct a thorough aquatic resource survey describing information regarding any potential water bodies, including wetlands, drainage ditches, gulches, stream, etc., on-site, especially those that may be impacted by the proposed project. The survey should include descriptions of aquatic features proposed for impact, flow duration, and the flow path of each feature into navigable waters. It is the responsibility of the applicant to provide information regarding possible impacts to 100-year

- 2 -

floodplains, wetlands, and other important natural resources that occur within the project area, not the Corps.

We recommend you contact the Corps to determine if any of the proposed work constitutes a "discharge of fill" and submit an application with associated drawings that meet our drawing recommendations found at <http://www.poh.usace.army.mil/EC-R/EC-R.htm>. Click on "Apply for Permit" on the right-hand side, and then click on "Rec - Sect 404 Clean Water Act Drawings." Providing photographs of the parcel would also expedite our review. As a reminder, only the Corps has the authority to determine if any of these features are or are not waters of the U.S. and, potentially subject to regulations. A request for an approved Jurisdictional Determination can be submitted prior to, or concurrently with, an application for the proposed work.

Thank you for giving us the opportunity to review this proposal and providing us with the opportunity to comment. Should you have any questions, please contact Ms. Michelle Lazaro at (808) 835-4307, or through email at Michelle.K.Lazaro@usace.army.mil. You are encouraged to provide comments on your experience with the Honolulu District Regulatory Branch by accessing our web-based customer survey form at <http://per2.nwp.usace.army.mil/survey.html>.

Sincerely,

George P. Young, P.E.
Chief, Regulatory Branch



**PLANNING
SOLUTIONS**

July 17, 2012

Ms. Michelle Lazaro
Regulatory Branch
Department of the Army
U.S. Army Engineer District, Honolulu
Fort Shafter, Hawai'i 96858-5440

**Subject: Army Corps of Engineers Section 404 Consultation:
Anahola Solar Project, Anahola, Kaua'i, Hawai'i (POH-2012-00178)**

Dear Ms. Lazaro:

Thank you for your July 6, 2012 letter concerning Kaua'i Island Utility Cooperative's (KIUC) proposed Anahola Solar Project and for subsequently speaking with us over the telephone. We appreciate the time you spent reviewing our letter and enclosed materials. At your request, we are writing to provide you with additional information confirming that there are no navigable waters of the United States within the project site. It is my understanding that this will allow you to complete your Clean Water Act Section 404 (U.S.C. §1344) review.

As can be seen from the map reproduced in Attachment 1, the project area is approximately 0.5 miles from the nearest shoreline, far from tidally influenced waters. The U.S. Fish and Wildlife Service Wetlands Inventory Map for the project area (see Attachment 2) confirms that there are no wetlands present in or near the site.

No portion of the construction or operation of the proposed facilities will involve discharging, dumping, or depositing any dredged or fill materials into waters of the United States. None of the plans for the proposed project involve any activity which will create any additional runoff from the site during the construction or operation of the project. The project engineers anticipate that construction will require disturbance of more than one acre of land and will, therefore, be seeking a NPDES Construction Permit (NOI-C) for the activities.

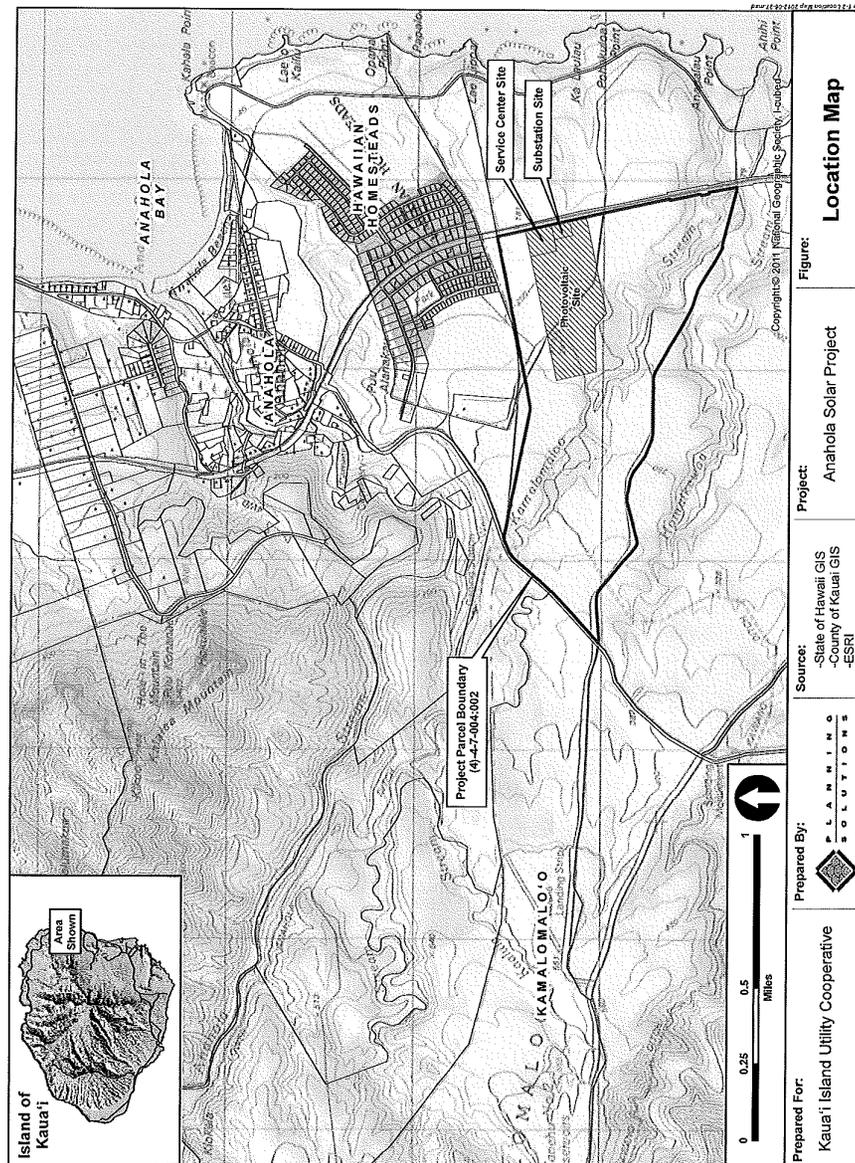
In view of the above, we ask that you review the enclosed information and make a determination that a permit will not be required for the proposed project. If you have any further questions, please call me at (808) 550-4538.

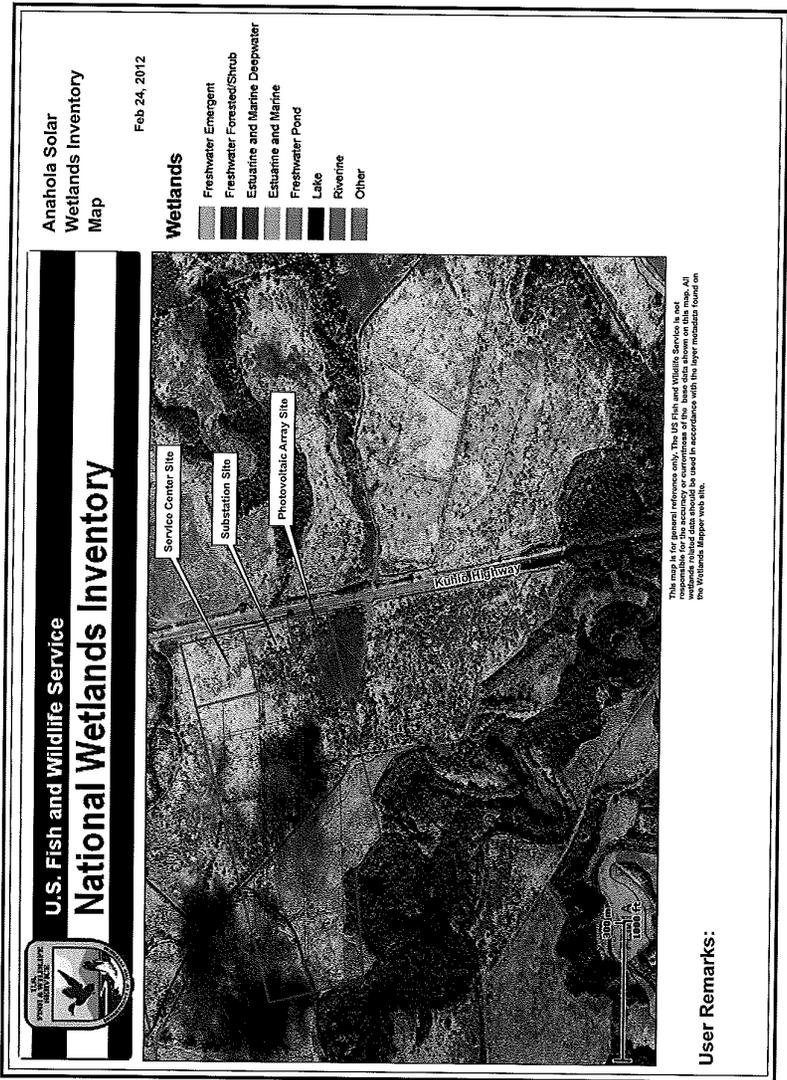
Sincerely,

Perry White

- Attachments: 1. Anahola Solar Project Location Map
2. Anahola Solar Project USFWS Wetlands Inventory Map

cc: Mr. Brad Rockwell, KIUC
Ms. Emily Orler, USDA Rural Utility Service





DEPARTMENT OF THE ARMY
 U.S. ARMY CORPS OF ENGINEERS, HONOLULU DISTRICT
 FORT SHAFTER, HAWAII 96858-5440

REPLY TO
 ATTENTION OF:

July 23, 2012

Regulatory Branch

File Number **POH-2012-00178**

Perry White
 Ward Plaza, Suite 330
 210 Ward Avenue
 Honolulu, HI 96814-4012

NO PERMIT REQUIRED

Dear Mr. White:

This responds to your letter dated July 17, 2012 providing our office with additional details regarding the proposed Anahola Solar Facility & Service Center Project, Anahola, Island of Kauai, Hawaii. We have assigned this project the reference number **POH-2012-00178**. Please cite this reference number in any future communications with this office regarding this project.

We have completed our review of the submitted documents pursuant to Section 10 of the Rivers and Harbors Act of 1899 (Section 10) and Section 404 of the Clean Water Act (Section 404). Section 10 requires that a Department of the Army (DA) permit be obtained from the U.S. Army Corps of Engineers (Corps) prior to undertaking any construction, dredging, or other activity occurring in, over or under, or affecting navigable waters of the U.S. For tidal waters, the shoreward limit of the Corps jurisdiction extends to the Mean High Water Mark. Section 404 requires that a DA permit be obtained for the discharge (placement) of dredged and/or fill material into waters of the U.S., including wetlands. For tidally influenced waters, in the absence of adjacent wetlands, the shoreward limit of the Corps jurisdiction extends to the High Tide Line, which in Hawai'i may be approximated by reference to the Mean Higher High Water Mark. For non-tidal waters, the lateral limits of the Corps jurisdiction extend to the Ordinary High Water Mark or the approved delineated boundary of any adjacent wetlands.

Based on the additional information you have submitted, the project area does not consist of any navigable waters subject to the Corps jurisdiction. Additionally, the proposed solar facilities do not appear to involve the placement and/or discharge of dredged and/or fill material into waters of the U.S.; including wetlands. Therefore, **a DA permit is not required.**

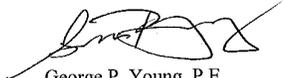
This determination does not relieve you of the responsibility to obtain any other permits, licenses, or approvals that may be required under County, State, or Federal law for your proposed work.

Thank you for giving us the opportunity to review this proposal and providing us with the opportunity to comment. Should you have any questions, please contact Ms. Michelle Lazaro at (808) 835-4307, or through email at Michelle.K.Lazaro@usace.army.mil. You are encouraged to

User Remarks:

provide comments on your experience with the Honolulu District Regulatory Branch by accessing our web-based customer survey form at <http://per2.mvp.usace.army.mil/survey.html>.

Sincerely,

A handwritten signature in black ink, appearing to read "George P. Young". The signature is stylized and written over a light gray rectangular background.

George P. Young, P.E.
Chief, Regulatory Branch



**P L A N N I N G
S O L U T I O N S**

June 25, 2012

Mr. William Aila, Chairperson
Department of Land and Natural Resources
State of Hawai'i
1151 Punchbowl Street
Honolulu, Hawai'i 96813

**Subject: Kaua'i Island Utilities Cooperative
Anahola Solar Facility & Service Center Project — Anahola, Kaua'i, Hawai'i**

Dear Mr. Aila:

The Kaua'i Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, which will involve the construction of a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaua'i, Hawai'i (the Project). RUS may fund the proposed Project, thereby making it an action subject to the National Environmental Policy Act, and all applicable federal environmental law and regulation. The project site is owned by the State of Hawai'i Department of Hawaiian Home Lands (DHHL). The Department has leased it to the non-profit Homestead Community Development Corporation (HCDC), which will lease the property to KIUC upon completion of the required environmental documentation.

DHHL and the Rural Utility Service (RUS) are preparing a joint environmental document in accordance with State and Federal Regulations. In the case of DHHL, this involves preparation of an Environmental Assessment (EA) in accordance with the provisions of Chapter 343, Hawai'i Revised Statutes and Title 11, Chapter 200 of the Hawai'i Administrative Rules (HAR §11-200). In the case of the Rural Utilities Service, this means preparing an Environmental Assessment in accordance with the National Environmental Policy Act (NEPA) and its implementing regulations. The two agencies envision a joint document fulfilling both State and Federal requirements, and this consultation is being carried out accordingly. Enclosed is a map of the proposed location of the construction activity (Attachment 1) and a description of the work involved (Attachment 2).

We respectfully request your review of the enclosed materials for possible project-related impacts to wetlands and other important natural resources. I would appreciate receiving your response within thirty (30) days of your receipt of this correspondence. If you have any questions or wish to further discuss this project, please contact me at (808) 550-4483.

Sincerely,

Perry J. White

Attachments:

- (1) Map of Project Area
- (2) Description of Proposed Action

cc: Emily Orler, RUS
Brad Rockwell, KIUC

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



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

**STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION**

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 2, 2012

MEMORANDUM

TO:

DLNR Agencies:

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division
- Div. of Forestry & Wildlife
- Div. of State Parks
- Commission on Water Resource Management
- Office of Conservation & Coastal Lands
- Land Division - *Kauai* District
- Historic Preservation

FROM:

Russell Y. Tsuji, Land Administrator

SUBJECT:

Kaua'i Island Utilities Cooperative, Anahola Solar Facility & Service Center Project

LOCATION:

Anahola, Kaua'i, Hawai'i

APPLICANT:

Planning Solutions for Department of Hawaiian Home Lands and USDA Rural Utilities Service

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by July 24, 2012.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: *Mavin Mikasa*
Print Name: Mavin Mikasa
Date: July 9, 2012

40142705

JUL 6 2012

DLNR KOLD ROOM

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

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

July 27, 2012

Planning Solutions
Attn: Perry J. White
Ward Plaza, Suite 330
210 Ward Avenue
Honolulu, Hawaii 96814-4012

via email: pwhite@psi-hi.com

Dear Mr. White,

SUBJECT: Kaua'i Island Utilities Cooperative, Anahola Solar Facility & Service Center Project – Anahola, Kaua'i, Hawai'i

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

At this time, enclosed are comments from (1) Land Division – Kauai District; and (2) Engineering Division, on the subject matter. No other comments were received as of our suspense date. Should you have any questions, please feel free to call Supervising Land Agent Steve Molmen at 587-0439. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)



PLANNING
SOLUTIONS

RECEIVED
LAND DIVISION

RECEIVED

June 25, 2012

Mr. William Aila, Chairperson
Department of Land and Natural Resources
State of Hawai'i
1151 Punchbowl Street
Honolulu, Hawai'i 96813

2012 JUN 29 A 10:12 '12 JUN 27 AIO 59

DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII & NATURAL RESOURCES
STATE OF HAWAII

Subject: **Kaua'i Island Utilities Cooperative
Anahola Solar Facility & Service Center Project — Anahola, Kaua'i, Hawai'i**

Dear Mr. Aila:

The Kaua'i Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, which will involve the construction of a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaua'i, Hawai'i (the Project). RUS may fund the proposed Project, thereby making it an action subject to the National Environmental Policy Act, and all applicable federal environmental law and regulation. The project site is owned by the State of Hawai'i Department of Hawaiian Home Lands (DHHL). The Department has leased it to the non-profit Homestead Community Development Corporation (HCDC), which will lease the property to KIUC upon completion of the required environmental documentation.

DHHL and the Rural Utility Service (RUS) are preparing a joint environmental document in accordance with State and Federal Regulations. In the case of DHHL, this involves preparation of an Environmental Assessment (EA) in accordance with the provisions of Chapter 343, Hawai'i Revised Statutes and Title 11, Chapter 200 of the Hawai'i Administrative Rules (HAR §11-200). In the case of the Rural Utilities Service, this means preparing an Environmental Assessment in accordance with the National Environmental Policy Act (NEPA) and its implementing regulations. The two agencies envision a joint document fulfilling both State and Federal requirements, and this consultation is being carried out accordingly. Enclosed is a map of the proposed location of the construction activity (Attachment 1) and a description of the work involved (Attachment 2).

We respectfully request your review of the enclosed materials for possible project-related impacts to wetlands and other important natural resources. I would appreciate receiving your response within thirty (30) days of your receipt of this correspondence. If you have any questions or wish to further discuss this project, please contact me at (808) 550-4483.

pwhite@psi-hi.com

Sincerely,

Perry J. White

Attachments:

- (1) Map of Project Area
- (2) Description of Proposed Action

cc: Emily Orler, RUS
Brad Rockwell, KIUC

72174

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 2, 2012

MEMORANDUM

TO:

DLNR Agencies:

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division
- Div. of Forestry & Wildlife
- Div. of State Parks
- Commission on Water Resource Management
- Office of Conservation & Coastal Lands
- Land Division - Oahu District
- Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
 SUBJECT: Kaua'i Island Utilities Cooperative, Anahola Solar Facility & Service Center Project
 LOCATION: Anahola, Kaua'i, Hawai'i
 APPLICANT: Planning Solutions for Department of Hawaiian Home Lands and USDA Rural Utilities Service

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by July 24, 2012.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: [Signature]
 Print Name: MARVIN MIKASA
 Date: July 9, 2012

07/11/12 10:05

JUL 6 '12

DLNR KDLD RCUJ

RECEIVED
 LAND DIVISION
 2012 JUL 11 A 10:33
 DEPT. OF LAND &
 NATURAL RESOURCES
 STATE OF HAWAII

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 2, 2012

MEMORANDUM

TO:

DLNR Agencies:

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division
- Div. of Forestry & Wildlife
- Div. of State Parks
- Commission on Water Resource Management
- Office of Conservation & Coastal Lands
- Land Division - Oahu District
- Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
 SUBJECT: Kaua'i Island Utilities Cooperative, Anahola Solar Facility & Service Center Project
 LOCATION: Anahola, Kaua'i, Hawai'i
 APPLICANT: Planning Solutions for Department of Hawaiian Home Lands and USDA Rural Utilities Service

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by July 24, 2012.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: [Signature]
 Print Name: CARTY CHNAG, CHIEF ENGINEER
 Date: 7/12/12

02-23 ENGINEERING

RECEIVED
 LAND DIVISION
 2012 JUL 13 P 2:23
 DEPT. OF LAND &
 NATURAL RESOURCES
 STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/SteveMolmen

RE: AnaholaSolarFacility&ServiceCenter

Kauai.121

COMMENTS

- () We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ____.
- (X) **Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone X. The Flood Insurance Program does not have any regulations for developments within Flood Zone X.**
- () Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ____.
- () Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

- () Mr. Mario Siu Li at (808) 768-8098 or Ms. Ardis Shaw-Kim at (808) 768-8296 of the City and County of Honolulu, Department of Planning and Permitting.
- () Mr. Frank DeMarco at (808) 961-8042 of the County of Hawaii, Department of Public Works.
- () Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
- () Mr. Wynne Ushigome at (808) 241-4890 of the County of Kauai, Department of Public Works.

- () The applicant should include water demands and infrastructure required to meet project needs. Please note that projects within State lands requiring water service from the Honolulu Board of Water Supply system will be required to pay a resource development charge, in addition to Water Facilities Charges for transmission and daily storage.

- () The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

- () Additional Comments: _____

- () Other: _____

Should you have any questions, please call Ms. Suzie S. Agraan of the Planning Branch at 587-0258.

Signed: 
CARY S. CHANG, CHIEF ENGINEER
Date: 7/12/12



P L A N N I N G
S O L U T I O N S

June 22, 2012

Mr. Jesse K. Souki, Director
Office of Planning
Department of Business, Economic Development, and Tourism
State of Hawai'i
P.O. Box 2359
Honolulu, Hawai'i 96804

Subject: Draft Environmental Assessment for Anahola Solar Project
Tax Map Keys: (4) 4-7-004:002 — Anahola, Kaua'i, Hawai'i

Dear Mr. Souki:

The Kaua'i Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, which will involve the construction of a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaua'i, Hawai'i (the Project). RUS may fund the proposed Project, thereby making it an action subject to the National Environmental Policy Act, and all applicable federal environmental law and regulation. The project site is owned by the State of Hawai'i Department of Hawaiian Home Lands (DHHL). The Department has leased it to the non-profit Homestead Community Development Corporation (HCDC), which will lease the property to KIUC upon completion of the required environmental documentation.

DHHL and the Rural Utility Service (RUS) are preparing a joint environmental document in accordance with state and federal regulations. In the case of DHHL, this involves preparation of an Environmental Assessment (EA) in accordance with the provisions of Chapter 343, Hawai'i Revised Statutes and Title 11, Chapter 200 of the Hawai'i Administrative Rules (HAR §11-200). In the case of the RUS, this means preparing an Environmental Assessment in accordance with the National Environmental Policy Act (NEPA) and its implementing regulations. The two agencies envision a joint document fulfilling both State and Federal requirements, and this consultation is being carried out accordingly. Enclosed is a map of the proposed location of the construction activity (Attachment 1) and a description of the work involved (Attachment 2).

We respectfully request your review of the enclosed map of the project area and description of the proposed Project within thirty (30) days of your receipt of this correspondence for possible impacts to the Coastal Zone Management Program. If you have any questions or wish to further discuss this project, please contact me at (808) 550-4483.

Sincerely,

Perry J. White

Attachments:

- (1) Map of Project Area
- (2) Description of Proposed Action

cc: Emily Orler, RUS
Brad Rockwell, KIUC

Ward Plaza, Suite 330 • 210 Ward Avenue • Honolulu, Hawaii 96814-4012
Phone: 808 550-4483 • Fax: 808 550-4549 • www.psi-hi.com



**DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM**

OFFICE OF PLANNING

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

NEIL ABERCROMBIE
GOVERNOR
RICHARD C. LIM
DIRECTOR
MARY ALICE EVANS
DEPUTY DIRECTOR
JESSE K. SOUKI
DIRECTOR
OFFICE OF PLANNING

Telephone: (808) 587-2846
Fax: (808) 587-2824

Ref. No. P-13672

July 25, 2012

Mr. Perry J. White
Planning Solutions
Ward Plaza, Suite 310
210 Ward Avenue
Honolulu, Hawaii 96814-4012

Dear Mr. White:

Subject: Anahola Solar Facility and Service Center
TMK: (4) 4-7-004: 002, Anahola, Kauai, Hawaii
Pre-Draft Environmental Assessment

Thank you for the opportunity to provide comments on the Pre-Draft Environmental Assessment for the subject project. It is our understanding that the Kauai Island Utility Cooperative (KIUC) is proposing to develop the Anahola Solar Facility and Service Center on approximately 60 acres of a 422-acre parcel owned by the Department of Hawaiian Home Lands in Anahola, Kauai. The project will include a 12 Megawatt (MW) photovoltaic facility, dedicated substation with interconnection to the island's grid, underground conduits and cables, and an adjacent service center.

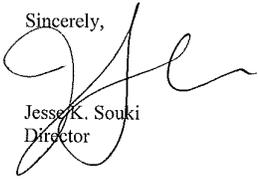
The Office of Planning has reviewed the material provided in your letter dated June 22, 2012, and has the following comments to offer:

1. The entire state is defined to be within the Coastal Zone Management Area (Hawaii Revised Statutes (HRS) Section 205A-1 - definition of "coastal zone management area"). The Draft Environmental Assessment should include a discussion of the proposed project's consistency with the objectives and policies set forth in HRS Section 205A-2.
2. A federal consistency review with our office is not required for this project, as the only Rural Utility Service (RUS) grant program subject to Hawaii CZM federal consistency review is the RUS Water and Waste Disposal Systems for Rural Communities Program.

Mr. Perry J. White
Page 2
July 25, 2012

Thank you for the opportunity to comment on the Pre-Draft Environmental Assessment for the proposed project.

Should you have questions or require clarification, please do not hesitate to contact Leo Asuncion, CZM Program Manager, at 587-2875.

Sincerely,

Jesse K. Souki
Director



**P L A N N I N G
S O L U T I O N S**

June 22, 2012

Mr. Paul J. Conry, Administrator
Division of Forestry and Wildlife
Department of Land & Natural Resources
State of Hawai'i
1151 Punchbowl Street, Room 325
Honolulu, HI 96813

**Subject: Kaua'i Island Utilities Cooperative
Anahola Solar Facility & Service Center Project — Anahola, Kaua'i, Hawai'i**

Dear Mr. Conry:

The Kaua'i Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, which will involve the construction of a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaua'i, Hawai'i (the Project). RUS may fund the proposed Project, thereby making it an action subject to the National Environmental Policy Act, and all applicable federal environmental law and regulation. In order to fulfill the agencies' responsibilities under the Endangered Species Act, RUS has designated KIUC and its consultant, Planning Solutions, Inc., as its non-Federal representative initiating informal Section 7 consultation pursuant to 50 CFR 402.08 "Designation of a Non-Federal Representative".

KIUC has proposed the Project to provide clean, renewable, and affordable power to the people of Kaua'i, and reduce KIUC's dependence on imported fossil fuels. The proposed Project will be located on 60-acres of Department of Hawaiian Home Lands (DHHL) owned land, within which the photovoltaic facility, substation, service center, access roads, and storage yards will be located. KIUC proposes to construct a low-profile photovoltaic module system; panels would be mounted on pipe frames anchored by concrete piers (12-inch diameter, and 36 to 60 inches deep). Power generated by the panels would be collected at pull boxes and transmitted to a substation near the highway. The substation would occupy a 2-acre area adjacent to the highway; it would contain transformers, switches, controls, batteries, and other electrical equipment that would allow KIUC to feed power into the existing electrical power lines along Kūhiō Highway. The 5-acre service center would contain offices, storage areas, and other facilities that would support KIUC operations in this part of the island.

We respectfully request your review of the enclosed materials including, the biological survey, map of the project area, and description of the proposed Project (Attachments 2, 3, and 4) within thirty (30) days of your receipt of this correspondence. If you have any questions or wish to further discuss this project, please contact me at (808) 550-4483.

Sincerely,

Perry J. White

Attachments:

- (1) Map of Project Area
- (2) Description of Proposed Action
- (3) Biological Survey (DVD copy)

cc: Brad Rockwell, KIUC
Emily Orlor, USDA RUS

Ward Plaza, Suite 330 • 210 Ward Avenue • Honolulu, Hawaii 96814-4012
Phone: 808 550-4483 • Fax: 808 550-4549 • www.psi-hi.com

Stiles, Cynthia - NRCS, Honolulu, HI, 08:18 PM 7/12/2012, RE: AD-1006 No. 2 for Ana... Page 1 of 2

X-IronPort-Anti-Spam-Result:
AqkJAFK7/0/YILW1jWdsb2JhbAAuFAOCSpN6oxwBAQEBCQkLCRIJllgAQEBBibWglCAQgRBAEBCxOHGwQTFACAgQTCBqHagGbC4EhCgJ5AQEib2b
X-Forefront-Antispam-Report: CIP:199.135.140.11;KIP:(null);UIP:(null);IPV:NLI;H:mail.usda.gov;RD:none;EFVD:NLI
X-SpamScore: -14
X-BigFish: VPS-14(zzbb2dI98dI9371lc85fh01M148cl11f6Nzz1202hzz8275bh8275dzh2d8h668h839h8e2h8e3hd25f0h107ahbe9l)
From: "Stiles, Cynthia - NRCS, Honolulu, HI" <cynthia.stiles@hi.usda.gov>
To: Makena White <makena@psi-hi.com>
Subject: RE: AD-1006 No. 2 for Anahola Solar Project
Thread-Topic: AD-1006 No. 2 for Anahola Solar Project
Thread-Index: AQHNx8NTGAANOEwg1XEZpM898P7+R65ck0lEwgAABa5GAAG3YMAAzeMDgACw6BA=
Date: Fri, 13 Jul 2012 06:18:36 +0000
Accept-Language: en-US
X-MS-Has-Attach:
X-MS-TNEF-Correlator:
x-originating-ip: [150.120.88.5]
X-OriginatorOrg: hi.usda.gov
X-Nonspam: None
X-Brightmail-Tracker: AAAAAQAAAIk=

Makena - I have reviewed your justification and concur on the scoring you have done on Section VI and the selection of your site. Thanks for making sure I had the proper files to complete the form with you. Thanks also for the thoughtful justification documentation. It makes for a proper archive document should anyone have questions in the future. CAS

Cynthia A. Stiles, Ph.D.
Assistant State Soil Scientist - Pacific Islands Area; SSSA Div 5-5 (Pedology) Chair
300 Ala Moana Blvd, Rm 4-118
Honolulu, HI 96850-0050
(808)541-2600 ext. 129
cynthia.stiles@hi.usda.gov

This electronic message contains information generated by the USDA solely for the intended recipients. Any unauthorized interception of this message or the use or disclosure of the information it contains may violate the law and subject the violator to civil or criminal penalties. If you believe you have received this message in error, please notify the sender and delete the email immediately.

From: Makena White [mailto:makena@psi-hi.com]
Sent: Thursday, July 12, 2012 9:39 AM
To: Stiles, Cynthia - NRCS, Honolulu, HI
Cc: pwhite@psi-hi.com; julia@psi-hi.com
Subject: RE: AD-1006 No. 2 for Anahola Solar Project

Aloha Cindy,

I have completed Sections VI and VII of our AD-1006 and attached it to this email, along with a justification form describing the analysis which went supports the scoring process in Section VI.

Please don't hesitate to call me if you require anything further from our office to complete your analysis. I can be reached by phone at (808) 550-4538.

Mahalo,
Makena White
PSI

At 09:26 PM 7/11/2012, you wrote:

Yes - that's the next step. Thanks and looking forward to getting this completed for you - Cindy

Cynthia A. Stiles, Ph.D.
Assistant State Soil Scientist - Pacific Islands Area; SSSA Div 5-5 (Pedology) Chair
300 Ala Moana Blvd, Rm 4-118
Honolulu, HI 96850-0050
(808)541-2600 ext. 129
cynthia.stiles@hi.usda.gov

This electronic message contains information generated by the USDA solely for the intended recipients. Any unauthorized interception of this message or the use or disclosure of the information it contains may violate the law and subject the violator to civil or criminal penalties. If you believe you have received this message in error, please notify the sender and delete the email immediately.

From: Makena White [mailto:makena@psi-hi.com]
Sent: Wednesday, July 11, 2012 2:53 PM
To: Stiles, Cynthia - NRCS, Honolulu, HI
Subject: RE: AD-1006 No. 2 for Anahola Solar Project

Aloha Cindy,

Thank you very much for turning that around so quickly; I appreciate it. Just to check with you on the next step and make sure my memory serves me; I will fill out Section VI and VII and send it back to you with a justification sheet? Is that correct? If you would confirm that I will get it to you by the end of the week.

Mahalo,
Makena White
PSI

At 02:48 PM 7/11/2012, you wrote:

Hello Makena - Here it is - Cheers and thanks for your patience - Cindy

Printed for Makena White <makena@psi-hi.com>

7/16/2012

Cynthia A. Stiles, Ph.D
 Assistant State Soil Scientist - Pacific Islands Area; SSSA Div S-5 (Pedology) Chair
 300 Ala Moana Blvd, Rm 4-118
 Honolulu, HI 96850-0050
 (808)541-2600 ext. 129
cynthia.stiles@hi.usda.gov

This electronic message contains information generated by the USDA solely for the intended recipients. Any unauthorized interception of this message or the use or disclosure of the information it contains may violate the law and subject the violator to civil or criminal penalties. If you believe you have received this message in error, please notify the sender and delete the email immediately.

From: Makena White [<mailto:makena@psi-hi.com>]
Sent: Wednesday, July 11, 2012 2:15 PM
To: Stiles, Cynthia - NRCS, Honolulu, HI
Subject: RE: AD-1006 No. 2 for Anahola Solar Project

Aloha Cindy,

Attached to this email is the AD-1006 for the additional piece of land we have discussed previously. Please let me know if I can provide you with anything further.

Mahalo,
 Makena White
PSI
 Content-Type: application/pdf;
 name="USDA AD-1006 Farmland Conversion Impact Rating Form 2012-06-27.pdf"
 Content-Description: USDA AD-1006 Farmland Conversion Impact Rating Form
 2012-06-27.pdf
 Content-Disposition: attachment; filename="USDA AD-1006 Farmland Conversion
 Impact Rating Form 2012-06-27.pdf"; size=37774;
 creation-date="Thu, 12 Jul 2012 00:32:51 GMT";
 modification-date="Thu, 12 Jul 2012 00:48:01 GMT"

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request 6/30/12			
Name Of Project Anahola Solar Project		Federal Agency Involved Rural Utility Service			
Proposed Land Use Electrical Utility		County And State County of Kauai, State of Hawaii			
PART II (To be completed by NRCS)		Date Request Received By NRCS 6/30/12			
Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply -- do not complete additional parts of this form).		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Acres Irrigated 19595	Average Farm Size 203
Major Crop(s) Not presently farmed	Farmable Land In Govt. Jurisdiction Acres: 98000 % 28	Amount Of Farmland As Defined in FPPA Acres: 92000 % 26			
Name Of Land Evaluation System Used State of HI LESA	Name Of Local Site Assessment System None	Date Land Evaluation Returned By NRCS 7/10/12			
PART III (To be completed by Federal Agency)		Alternative Site Rating			
		Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly		5.0			
B. Total Acres To Be Converted Indirectly		0.0			
C. Total Acres In Site		5.0	0.0	0.0	0.0
PART IV (To be completed by NRCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland		5.0			
B. Total Acres Statewide And Local Important Farmland		5.0			
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted		0.0			
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value		34.5			
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)		91	0	0	0
PART VI (To be completed by Federal Agency) Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))		Maximum Points			
1. Area In Nonurban Use		15	13		
2. Perimeter In Nonurban Use		10	10		
3. Percent Of Site Being Farmed		20	0		
4. Protection Provided By State And Local Government		20	20		
5. Distance From Urban Builtup Area		15	0		
6. Distance To Urban Support Services		15	10		
7. Size Of Present Farm Unit Compared To Average		10	0		
8. Creation Of Nonfarmable Farmland		10	0		
9. Availability Of Farm Support Services		5	2		
10. On-Farm Investments		10	0		
11. Effects Of Conversion On Farm Support Services		10	0		
12. Compatibility With Existing Agricultural Use		10	0		
TOTAL SITE ASSESSMENT POINTS		160	55	0	0
PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)		100	91	0	0
Total Site Assessment (From Part VI above or a local site assessment)		160	55	0	0
TOTAL POINTS (Total of above 2 lines)		260	146	0	0
Site Selected: Site A	Date Of Selection 7/12/12	Was A Local Site Assessment Used? Yes <input type="checkbox"/> No <input type="checkbox"/>			

Reason For Selection: See attached justification form.

(See Instructions on reverse side)

Form AD-1006 (10-83)

This form was electronically produced by National Production Services Staff

Justification of AD-1006 Part IV Scoring for Anahola Solar Project (Photovoltaic Electrical Generation)

The following provides an explanation of the scoring applied to each of the Site Assessment Criteria, pursuant to 7 CFR §658.5(b).

1. Area in Nonurban Use

A review of the State of Hawai'i GIS State Land Use Districts shapefile, aerial photography of the site, and multiple site visits indicate that approximately 80 percent of the surrounding area within one mile of the proposed project site is currently in non-urban use. This is consistent with the largely Agricultural and Conservation zoning of that land. – **13 points**

2. Perimeter in Nonurban Use

There is no urban usage along the perimeter of the proposed project. There is a road adjacent to one edge of the project site but the usage across the road is nonurban and thus does not qualify as an urban use. – **10 points**

3. Percent of Site Being Farmed

No portion of the project site has been farmed in any of the last ten years. – **0 points**

4. Protection Provided By State and Local Government

An examination of the State of Hawai'i GIS land use shapefile indicates that the site is entirely within the State Agricultural land use district (see Criterion 8C of the Site Assessment Scoring Guide). KIUC's consultation with the County of Kaua'i Planning Department indicates the site is zoned for agriculture (see Criterion 4 of the Site Assessment Scoring Guide). – **20 points**

5. Distance from Urban Built-up Area

The nearest built-up urban area is Anahola Village, the nearest point of which is approximately 750 feet away from the project site. – **0 points**

6. Distance to Urban Support Services

There is no electrical, sewer, or water service on the project site but some exist within half a mile. An examination of Figure 3-1 in the County of Kaua'i, Department of Water, *Water Plan 2020* document indicates that the nearest municipal water service is in Anahola Village, the closest portion of which is approximately 750 feet away. The nearest electrical utility facilities are KIUC's power lines that run along Kūhiō Highway, directly east of the project site. The nearest sewer facilities are in Wailua-Kapa'a approximately 3 miles away. – **10 points**

7. Size of Present Farm Unit Compared to Average

The area under evaluation is 5 acres in size, as compared with the USDA's estimated average farm size in Kaua'i County of 203 acres. This represents a project size of less than 50% of the average. – **0 points**

8. Creation of Non-farmable Farmland

The total area of the project parcel is 422 acres; 5 acres will be used for the proposed service center, leaving a remaining 417 acres. Of those 417 acres, none will be rendered non-farmable by interrupting land patterns of use or access. – **0 points**

9. Availability of Farm Support Services

The site does not have any farm support services present and has been out of agricultural use for at least a decade. Some farm support services, such as a farmer's market, are available in the nearby community of Anahola. – **2 points**

10. On-Farm Investments

The site has no substantial or well-maintained on farm investments such as barns or other forms of storage structures, terraces, orchards, drainage, or irrigation facilities. – **0 points**

11. Effects of Conversion on Farm Support Services

Because there has been no agricultural use of this land for at least 10 years, the conversion of this land to an electrical utility service center will not cause any reduction in the demand for farm support services in the region. – **0 points**

12. Compatibility with Existing Agricultural Use

The type and intensity of use proposed for the Anahola Solar Project would not be incompatible with agriculture and it not likely to contribute to the eventual conversion of the surrounding farmland to nonagricultural uses. – **0 points**

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



**HISTORIC PRESERVATION DIVISION
DEPARTMENT OF LAND AND NATURAL RESOURCES**

601 Kamokila Boulevard, Suite 555
Kapolei, HI 96806

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

ESTHER KIA'AINA
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

Ms. Orler
November 20, 2012
Page 2

SHPD concurs with the determination of eligibility pursuant to 36 CFR 800.4, but does not concur that the AIS documentation completed is adequate to support a finding of no adverse effect to historic properties.

We determine that the AIS report does not meet the requirements specified in the *Secretary of the Interior's Standards for Archeological Documentation* or in the *Hawaii Administrative Rules (HAR)* governing archaeological inventory surveys. We have included an attachment that identifies the issues and concerns that are in need of revision prior to the acceptance of this report pursuant to HAR §13-276-5. To aid in review of the subsequent revision please include a cover letter that specifies the changes made to this document and their page numbers.

Please contact Susan Lebo at (808) 692-8019 or at Susan.A.Lebo@hawaii.gov if you have any questions or concerns regarding this letter.

Aloha,

Theresa K. Donham
Deputy State Historic Preservation Officer
Historic Preservation Division

November 20, 2012

Ms. Emily Orler
U.S. Department of Agriculture
Rural Development/Rural Utilities Service
1400 Independence Ave, SW
Mail Stop 1571
Washington, DC 20250
emily.orler@wdc.usda.gov

LOG NO: 2012.3000
DOC NO: 1211SL20
Archaeology

Dear Ms. Orler:

**SUBJECT: Chapter 6E-8 and National Historic Preservation Act (NHPA) 106 Consultation –
KIUC Anahola Solar Facility and Service Center Project
Kamalomalo'o Ahupua'a, Puna District, Kaua'i Island
TMK: (4) 4-7-004:002**

Thank you for the opportunity to respond to your request for concurrence on the U.S. Department of Agriculture, Rural Utilities Service (RUS) finding of no adverse effect to historic properties and to review the draft reports titled (1) *Archaeological Inventory Survey with Backhoe Trenching near Anahola, in Kamalomalo'o Ahupua'a, Puna District, Kaua'i Island TMK: (4) 4-7-004:002* (Sholin and Dye, May 2012) and (2) *Cultural Impact Assessment Native Hawaiian Traditions, Customary Practices and Perspectives of Kamalomalo'o and Anahola Ahupua'a Moku o Kawaihau, Kaua'i Island Anahola Solar Project* (Native Kaua'i LLC, August 2012). This submittal was received by the Kapolei office of SHPD on October 12, 2012. The Kaua'i Island Utility Cooperative (KIUC) plans to seek financial assistance from the RUS to construct the Anahola Solar Facility & Service Center project in Anahola, Kaua'i. KIUC proposes to construct the 12 MW photovoltaic electric generation facility, substation, service center, access roads, and storage yards on 60 acres of land owned and administered by the State of Hawai'i Department of Hawaiian Home Lands (DHHL). DHHL may issue a lease for the project, which requires preparation of an environmental assessment (EA).

KIUC commissioned T. S. Dye & Colleagues, Archaeologists, Inc. (T.S. Dye) to conduct an archaeological inventory survey (AIS) of the 60-acre area of potential effect (APE) in accordance with Section 106 of the NHPA and 36 CFR §800.3(a). The AIS involved background research, a 100% pedestrian survey, and excavation of ten backhoe trenches. The survey identified two surface historic properties consisting of historic-era raised agricultural irrigation ditches (SIHP 50-30-08-2160). No subsurface or traditional Hawaiian historic properties were found. The AIS report recommends Site 2160 as eligible for inclusion on the National Register of Historic Places under Criterion D for its informational content. In addition, it states that all pertinent information related to Site 2160 has been recorded and recommends no further work.

RUS also commissioned Native Hawaii, LLC to conduct a cultural impact assessment (CIA) pursuant to Hawai'i Revised Statutes (HRS) Chapter §13-343, which mandates consideration of a proposed project's effects on traditional practices and beliefs. The CIA, which included background research and interviews with members of the Native Hawaiian community, did not identify any ongoing Native Hawaiian cultural resources or practices within the project area.

Based on these findings, RUS requests concurrence for a determination of eligibility and a finding of effect, pursuant to 36 CFR §800.4 for Site 2160. In addition, RUS determined that because all pertinent information has been recorded for Site 2160 and no further work is recommended, the project will have no adverse effect to historic properties.

Attachment

Comments and Questions: *Archaeological Inventory Survey with Backhoe Trenching near Anahola, in Kamalomalo'o Ahupua'a, Puna District, Kaua'i Island TMK: (4) 4-7-004:002* (Sholin and Dye, May 2012).

- (1) Figure 3 requires revising to show the location w/label of the ditch and mention in the figure caption.
- (2) Figure 6 requires revising to show the locations of the two raised agricultural ditches (Site 2160) labeled in Legend and figure caption but not visible in report copy submitted to SHPD.
- (3) Description of Site 2160 requires revising to include details about the construction materials, construction methods, plantation association, age, and integrity. For example, is the stone-lined canal interior made with basalt? limestone? are the stones cobble or boulder size or both? are the stones natural or dressed? is the construction dry-laid or mortared? is the top of the stone-lined canal flush with the earthen mounds or berms? what are the dimensions (L, W, H) of the stone-lined canal interior? is the entire length of these ditches within the APE? if not, what portion is represented within the APE? how common is this style of irrigation ditches in the ahupua'a? in the district? which plantation are they associated with? what information has been obtained to indicate when they were constructed? what is the integrity of these ditches? of the stone-lined canal interior? are these features connected to other features on the landscape, either inside or outside the APE? and so forth.
- (3) Documentation of Site 2160 needs to include site map and/or plan view, and profiles, as well as detailed photographs. These maps and figures need to provide a permanent record of Site 2160, particularly in light of the potential loss of these features as a result of the proposed undertaking.
- (4) Supportive data need to be presented to support both the effect determination and the mitigation recommendation. Their presence on several historic maps is insufficient documentation, as is the limited description provided in the report. Documentation, as well as the effect determination and mitigation recommendation for Site 2160 need to include historic context (see #2), are these ditches unique? common? how many of this type have been documented? preserved? if none, then what is basis for recommending these NR eligible features not be preserved? If these features are connected to other features on the landscape, even if only outside the APE, what effect will the undertaking have on their larger associations and context? and so forth.
- (5) If Site 2160 will be destroyed/lost due to the undertaking, then archaeological monitoring is recommended to further document construction of the two irrigation features, including subsurface construction data, cross-sections of the ditches. In addition, consideration should be made for recycling the stones for use in rehabilitation and/or restoration projects as a possible mitigation measure (e.g., restoration of stone walls associated with Kūhīo highway widening project).



March 4, 2013

Theresa K. Donham
Deputy State Historic Preservation Officer
Historic Preservation Division
Department of Land and Natural Resources
601 Kamokila Boulevard, Suite 555
Kapolei, HI 96806

RE: KIUC Anahola Solar Facility and Service Center Project
Kamolomalo'o Ahupua'a, Puna District, Kaua'i Island (TMK: (4) 4-7-004:002)
Log No: 2012.3000/Doc No: 1211SL20

Dear Ms. Donham,

The Kaua'i Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaua'i, Hawai'i (the Project). RUS may fund the Project, thereby making it an undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470(f), and its implementing regulations (36 CFR Part 800). KIUC has proposed to construct the Project on land owned and administered by the State of Hawai'i Department of Hawaiian Home Lands (DHHL) in Anahola, Kaua'i. DHHL may issue a lease for the Project, which requires the preparation of an Environmental Assessment (EA) pursuant to Hawai'i Revised Statutes (HRS) § 343-5 and Hawai'i Administrative Rules (HAR) § 11-200-5.

By letter dated October 10, 2012, RUS submitted an archaeological inventory survey (AIS) and a cultural impact assessment (CIA) respectively entitled the *Archaeological Inventory Survey with Backhoe Trenching near Anahola, in Kamalomalo'o Ahupua'a, Puna District, Kaua'i Island TMK: (4) 4-7-004:002* and *Cultural Impact Assessment Native Hawaiian Traditions, Customary Practices and Perspectives of Kamalomalo'o and Anahola Ahupua'a Moku o Kawaihau, Kaua'i Island* to the Hawaii State Historic Preservation Officer (SHPO) for review. The AIS identified two (2) historic-era raised agricultural ditches and areas of sugarcane fields within the Project's Area of Potential Effects (APE), which was defined as the 60-acre parcel that will be leased from DHHL. The AIS recommended Site number 50-30-08-2160 (Site 2160), the ditches and sugarcane areas as potentially eligible for listing on the National Register of Historic Places (NRHP) under Criterion D, but proposed that Site 2160 had been sufficiently documented. No

1400 Independence Ave, SW • Mail Stop 1571 • Washington, DC 20250-1571
Web: <http://www.usda.gov/rus/water/ees/environ.htm>

Committed to the future of rural communities.

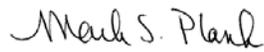
"USDA is an equal opportunity provider, employer and lender."
To file a complaint of discrimination write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, DC 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD).

other cultural materials were identified in the field testing. The CIA did not identify any ongoing Native Hawaiian cultural resources or practices within the project site. Based on an analysis of the reports, RUS elected to treat Site 2160 as eligible for listing on the NRHP for the purposes of Section 106 review, and proposed a finding of no adverse effect to historic properties because all pertinent information for Site 2160 had been recorded.

In the SHPO's November 20, 2012 response, you stated that the AIS failed to provide sufficient information to substantiate the proposed determination of eligibility and finding of the effect. Your letter included proposed edits to the AIS and requested additional information about Site 2160 to better address questions of eligibility and effect. The SHPO raised no concerns regarding the content or recommendations of the CIA. RUS consulted with the SHPO in our effort to better understand and possibly resolve these concerns. As a result of this consultation, RUS required KIUC to edit the AIS and improve the documentation regarding Site 2160. Based on a review of the revised AIS (enclosed), RUS is providing the attached response to the comments and questions posed in the SHPO's November 20, 2012 letter.

Based on an analysis of the revised AIS, RUS proposes a finding of *no historic properties affected* because the ditches which comprise Site 2160 no longer possess sufficient integrity. Please provide your concurrence or objection within thirty (30) days of your receipt of this proposed finding pursuant to 36 CFR § 800.3(c)(4). Please contact Emily Orler, Environmental Protection Specialist, at emily.orler@wdc.usda.gov if you have any questions about the proposed finding of effect.

Sincerely,



Mark S. Plank
Director, Engineering & Environmental Staff
USDA Rural Utilities Service

Enclosure

cc: Brad Rockwell, KIUC
Perry White, Planning Solutions, Inc.

Attachment

Responses to SHPO's Comments and Questions:
Archaeological Inventory Survey with Backhoe Trenching near Anahola, in Kamalomalo'o Ahupua'a, Puna District, Kaua'i Island TMK: (4) 4-7-004:002 (Sholin and Dye, May 2012).

(1) Figure 3 requires revising to show the location w/label of the ditch and mention in the figure caption. **Figure 3 and it's caption are revised to show the locations of the raised agricultural ditches. See Page 10.**

(2) Figure 6 requires revising to show the locations of the two raised agricultural ditches (Site 2160) labeled in Legend and figure caption but not visible in report copy submitted to SHPD. **Figure 6 is revised to show the locations of the raised agricultural ditches. See Page 15.**

(3a) Description of Site 2160 requires revising to include details about the construction materials, construction methods, plantation association, age, and integrity. For example, is the stone-lined canal interior made with basalt? limestone? are the stones cobble or boulder size or both? are the stones natural or dressed? is the construction dry-laid or mortared? is the top of the stone-lined canal flush with the earthen mounds or berms? what are the dimensions (L, W, H) of the stone-lined canal interior? is the entire length of these ditches within the APE? if not, what portion is represented within the APE? how common is this style of irrigation ditches in the ahupua'a? in the district? which plantation are they associated with? what information has been obtained to indicate when they were constructed? what is the integrity of these ditches? of the stone-lined canal interior? are these features connected to other features on the landscape, either inside or outside the APE? and so forth.

The description of the ditches has been supplemented; the revised AIS now documents the ditches' construction materials, dimensions, and historical context. As documented in the revised AIS narrative and supportive photographs, both ditches have been disturbed in modern history and lack integrity. Ditch 1 is approximately 5-6-meters wide and 330-meters long and is constructed of earthen linear mound embankments with discontinuous sections of dry-laid basalt cobbles. Two sections of the ditch also contain culverts; the northern culvert was constructed of metal pipe incased with basalt cobble and concrete mortar masonry, and the southern culvert was constructed of metal pipe and formed basalt gravel and concrete aggregate. The concrete contemporary construction methodology and a dated concrete sluice fitting from 11/11/1966 support that Ditch 1 was compromised in the modern era (less than 50 years ago) and lacks historical integrity. Ditch 2 is also composed of earthen linear mounds and has similar dimensions to Ditch 1(5-6-meters wide and 400-meters long), but was less formal. Basalt cobbles, similar to what had been included in Ditch 1, were found stacked beyond Ditch 2. In addition, plastic irrigation piping buried in the mounds was common throughout Ditch 2. Based on the modern construction techniques (plastic piping) and the assemblages of basalt cobbles, it appears that Ditch 2 has been disturbed (dredged and re-excavated) in recent history and lacks historical integrity. See Pages 26-27.

(3b) Documentation of Site 2160 needs to include site map and/or plan view, and profiles, as well as detailed photographs. These maps and figures need to provide a permanent record of Site 2160, particularly in light of the potential loss of these features as a result of the proposed undertaking.

As stated in response to comments 1 & 2, the mapping included in the report has been updated to demonstrate the locations of the ditches. In addition, five new images have been added to the report that provide a detailed record of the ditches.

(4) Supportive data need to be presented to support both the effect determination and the mitigation recommendation. Their presence on several historic maps is insufficient documentation, as is the limited description provided in the report. Documentation, as well as the effect determination and mitigation

recommendation for Site 2160 need to include historic context (see #2), are these ditches unique? common? how many of this type have been documented? preserved? if none, then what is basis for recommending these NR eligible features not be preserved? If these features are connected to other features on the landscape, even if only outside the APE, what effect will the undertaking have on their larger associations and context? and so forth.

As stated in the response to comment 3, the revised descriptions of the features provided on Pages 26-27 provide additional information about the historical context based on their construction materials and the evidence of modern disturbance. The photographs also provide further evidence beyond the narrative explanation that the features lack integrity. As has been shared by the SHPO during consultation, very little is known at this time about the ditches in the region; therefore, there is limited information from which to compare the uniqueness of these ditches. As described in the text and the photographs of the revised AIS, the ditches within the APE have been significantly disturbed in modern history and lack integrity. For this reason, RUS does not agree with the recommendations about National Register of Historic Places (NRHP) eligibility and finding of effect contained in the revised AIS, believing them to reflect an incorrect application of 36 CFR Part 800. Instead, RUS believes that Site 2160 is not eligible for listing on the NRHP, because of its compromised integrity. RUS believes that Site 2160 lacks the “quality of significance” and sufficient “integrity” that are required for listing on the NRHP, as set forth in 36 CFR Part 60.4. Further, though the features of Site 2160 may provide information about Hawaiian agriculture and modern manipulation of the land, RUS does not believe that the information to be “important to prehistory or history.” RUS believes that the features of Site 2160 have been sufficiently documented on historic mapping and within this report.

(5) If Site 2160 will be destroyed/lost due to the undertaking, then archaeological monitoring is recommended to further document construction of the two irrigation features, including subsurface construction data, cross sections of the ditches. In addition, consideration should be made for recycling the stones for use in rehabilitation and/or restoration projects as a possible mitigation measure (e.g., restoration of stone walls associated with Kūhio highway widening project).

As discussed in the conference call held on Wednesday, January 30th, the site features will in fact be destroyed by the construction of the Project. Further documentation of Site 2160 has been completed through the revision of the AIS; therefore, RUS does not believe that monitoring of the construction would yield any additional information about the features. RUS concurs with the report’s recommendation that no additional archeological work is recommended.

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



**HISTORIC PRESERVATION DIVISION
DEPARTMENT OF LAND AND NATURAL RESOURCES**

601 Kamohila Boulevard, Suite 555
Kapolei, HI 96806

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

ESTHER KLA'AINA
FIRST DEPUTY

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

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

March 25, 2013

Ms. Emily Orler
U.S. Department of Agriculture
Rural Development/Rural Utilities Service
1400 Independence Ave, SW
Mail Stop 1571
Washington, DC 20250
emily.orler@wdc.usda.gov

LOG NO: 2013.2321
DOC NO: 1303SL26
Archaeology

Dear Ms. Orler:

**SUBJECT: Chapter 6E-8 and National Historic Preservation Act (NHPA) 106 Consultation –
KIUC Anahola Solar Facility and Service Center Project
Kamalomalo'o Ahupua'a, Puna District, Kaua'i Island
TMK: (4) 4-7-004:002**

Thank you for the opportunity to respond to your request for concurrence on the U.S. Department of Agriculture, Rural Utilities Service (RUS) finding of no adverse effect to historic properties and to review the revised draft report titled *Archaeological Inventory Survey with Backhoe Trenching near Anahola, in Kamalomalo'o Ahupua'a, Puna District, Kaua'i Island TMK: (4) 4-7-004:002* (Sholin and Dye, February 2013). This submittal was received by the Kapolei office of SHPD on March 4, 2013. The Kaua'i Island Utility Cooperative (KIUC) plans to seek financial assistance from the RUS to construct the Anahola Solar Facility & Service Center project in Anahola, Kaua'i. KIUC proposes to construct the 12 MW photovoltaic electric generation facility, substation, service center, access roads, and storage yards on 60 acres of land owned and administered by the State of Hawai'i Department of Hawaiian Home Lands (DHHL). DHHL may issue a lease for the project, which requires preparation of an environmental assessment (EA) pursuant to Hawai'i Revised Statutes (HRS) §343-5 and Hawai'i Administrative Rules (HAR) §11-200-5.

KIUC commissioned T. S. Dye & Colleagues, Archaeologists, Inc. (T.S. Dye) to conduct an archaeological inventory survey (AIS) of the 60-acre area of potential effect (APE) in accordance with Section 106 of the NHPA and 36 CFR §800.3(a). The AIS involved background research, a 100% pedestrian survey, and excavation of ten backhoe trenches. The survey identified two surface historic properties consisting of historic-era raised agricultural irrigation ditches (SIHP 50-30-08-2160). No subsurface or traditional Hawaiian historic properties were found. The AIS report recommends Site 2160 as eligible for inclusion on the National Register of Historic Places under Criterion D for its informational content. In addition, it states that all pertinent information related to Site 2160 has been recorded and recommends no further work. Based on these findings, RUS requests concurrence for a determination of eligibility and a finding of effect, pursuant to 36 CFR §800.4 for Site 2160. In addition, RUS determined that because all pertinent information has been recorded for Site 2160 and no further work is recommended, the project will have no adverse effect to historic properties.

SHPD concurs with the determination of eligibility pursuant to 36 CFR §800.4. Site 2160 exhibits integrity of location, setting, function, and contributes to research themes associated with Hawai'i's plantation history. Additions or modifications in sluice gates were incorporated in 1966, but did not alter the original function. The site, however, has deteriorated in condition over the past century. SHPD concurs with the assessment that sufficient information has been recorded, with the recommendation of no further work, and the determination that **no historic properties will be adversely affected** by the proposed undertaking.

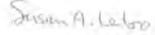
The revised AIS report addresses the concerns and issues identified in our previous correspondence (November 20, 2012; Log No. 2012.3000, Doc. No. 1211SL20). The AIS report now meets the requirements specified in the

Ms. Orler
March 25, 2013
Page 2

Secretary of the Interior's Standards for Archeological Documentation and in HAR §13-276-5 governing archaeological inventory survey reports. The AIS report is accepted by SHPD. Please send one hardcopy of the document, clearly marked FINAL, along with a copy of this review letter and a text-searchable PDF version on CD to the Kapolei SHPD office.

Please contact me at (808) 692-8019 or at Susan.A.Lebo@hawaii.gov if you have any questions or concerns regarding this letter.

Aloha,



Susan A. Lebo, PhD
O'ahu Lead Archaeologist
Historic Preservation Division



United States Department of Agriculture
Rural Development | Rural Utilities Service

October 10, 2012

Ms. Blossom Feiteira
President
Association of Hawaiians for Homestead Lands
1050 Queen Street, Suite 200
Honolulu, HI 96814

Subject: KIUC Anahola Solar Facility & Service Center Project
Tax Map Keys: (4) 4-7-004:002
Anahola, Kaua'i, Hawai'i

Dear Ms. Blossom:

The Kaua'i Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, which will include a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaua'i, Hawai'i (the Project). RUS may fund the Project, thereby making it an undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470(f), and its implementing regulations (36 CFR Part 800), and an action subject to the National Environmental Policy Act (NEPA), 42 U.S.C. Parts 4321-4347, the Council on Environmental Quality's (CEQ) Implementing Procedures, 40 CFR Parts 1500-1508, and RUS Environmental Policies and Procedures, 7 CFR Part 1794. KIUC has proposed to construct the Project on land owned and administered by the State of Hawai'i Department of Hawaiian Home Lands (DHHL) in Anahola, Kaua'i. DHHL may issue a lease for the Project, which requires the preparation of an EA pursuant to Hawai'i Revised Statutes (HRS) § 343-5 and Hawai'i Administrative Rules (HAR) § 11-200-5.

KIUC has proposed the Project to provide clean, renewable, and affordable power to the people of Kaua'i, and reduce KIUC's dependence on imported fossil fuels. The Project will be located on 60-acres of DHHL administered land; RUS has defined this 60-acre area, within which the photovoltaic facility, substation, service center, access roads, and storage yards will be located, as the Area of Potential Effect (APE). KIUC proposes to construct a low profile photovoltaic module installation system; panels would be mounted on pipe frames anchored by concrete piers (12 inch diameter, and 36-60 inches deep). Power generated by the panels would be collected at pull boxes and transmitted to a substation near the highway. The substation would occupy a 2-acre area adjacent to the highway; it would contain transformers, switches, controls, batteries, and other electrical equipment that would allow KIUC to feed power into the existing electrical power lines along Kūhiō Highway. The 5-acre service center would contain offices, storage areas, and other facilities that would support KIUC operations in this part of the island.

KIUC acquired T. S. Dye & Colleagues, Archaeologists, Inc. (T.S. Dye) to complete the cultural resource inventory of the APE, entitled *Archaeological Inventory Survey with Backhoe Trenching near Anahola, in Kamalomalo'o Ahupua'a, Puna District, Kaua'i Island TMK: (4) 4-7-004:002 (May 2012)*. The survey includes preliminary records search and field survey, which consisted of ten (10) test trenches throughout the proposed APE. No traditional Hawaiian cultural materials were encountered during the inventory survey; however,

1400 Independence Ave, SW • Mail Stop 1571 • Washington, DC 20250-1571
Web: <http://www.usda.gov/us/water/ees/enviro.htm>

Committed to the future of rural communities.

*USDA is an equal opportunity provider, employer and lender.
To file a complaint of discrimination write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, DC 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD).

Page 2

October 10, 2012

historic-era features from the former use of the area as a sugarcane field, including two historic-era raised agricultural irrigation ditches were identified. The State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources has assigned state site number 50-30-08-2160 to the APE to identify the sugarcane field features. The survey recommends the site as eligible for inclusion on the National Register of Historic Places under Criterion D for its informational content. All pertinent information related to site 50-30-08-2160 has been recorded, and no further work is recommended. Therefore, based on the findings of the survey, RUS proposes a finding of *no adverse effect to historic properties*.

In addition to an Archaeological Inventory Survey, Native Hawai'i, LLC was commissioned to conduct a Cultural Impact Assessment pursuant to Hawai'i Revised Statutes (HRS) Chapter 13-343, which mandates consideration of a proposed project's effects on traditional Hawaiian practices and beliefs. The survey, entitled *Cultural Impact Assessment Native Hawaiian Traditions, Customary Practices and Perspectives of Kamalomalo'o and Anahola Ahupua'a Moku o Kawaihau, Kaua'i Island*, includes a review of background research and interviews with members of the native Hawaiian community. The CIA did not identify any ongoing native Hawaiian cultural resources or practices located on the project site.

RUS requests your review of the enclosed project materials, determinations of eligibility, and findings of effect. The enclosed materials will also be provided by RUS to the State Historic Preservation Officer and other native Hawaiian organizations (see attached list of NHOs) for comments and recommendations. RUS respectfully requests your review within thirty (30) days of your receipt of this correspondence. Please direct any questions you may have to Emily Orler, RUS Environmental Protection Specialist, at 202-720-1414 or emily.orler@wdc.usda.gov.

Sincerely,


Mark S. Plank
Director
Engineering & Environmental Staff
USDA Rural Utilities Service

Attachments:

- (1) Map of Project Area
- (2) Description of Proposed Action
- (3) Archaeological Inventory Survey for Anahola Solar Project
- (4) Cultural Impact Assessment for Anahola Solar Project
- (5) List of Native Hawaiian Organizations Consulted

cc: Gregg Matsuo, KIUC
Brad Rockwell, KIUC
Perry White, PSI



October 10, 2012

Mr. Austin Nakoa
Chairman
Native Hawaiian Economic Alliance
1050 Queen Street, Suite 200
Honolulu, HI 96814

Subject: KIUC Anahola Solar Facility & Service Center Project
Tax Map Keys: (4) 4-7-004:002
Anahola, Kaua'i, Hawai'i

Dear Mr. Nakoa:

The Kaua'i Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, which will include a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaua'i, Hawai'i (the Project). RUS may fund the Project, thereby making it an undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470(f), and its implementing regulations (36 CFR Part 800), and an action subject to the National Environmental Policy Act (NEPA), 42 U.S.C. Parts 4321-4347, the Council on Environmental Quality's (CEQ) Implementing Procedures, 40 CFR Parts 1500-1508, and RUS Environmental Policies and Procedures, 7 CFR Part 1794. KIUC has proposed to construct the Project on land owned and administered by the State of Hawai'i Department of Hawaiian Home Lands (DHHL) in Anahola, Kaua'i. DHHL may issue a lease for the Project, which requires the preparation of an EA pursuant to Hawai'i Revised Statutes (HRS) § 343-5 and Hawai'i Administrative Rules (HAR) § 11-200-5.

KIUC has proposed the Project to provide clean, renewable, and affordable power to the people of Kaua'i, and reduce KIUC's dependence on imported fossil fuels. The Project will be located on 60-acres of DHHL administered land; RUS has defined this 60-acre area, within which the photovoltaic facility, substation, service center, access roads, and storage yards will be located, as the Area of Potential Effect (APE). KIUC proposes to construct a low profile photovoltaic module installation system; panels would be mounted on pipe frames anchored by concrete piers (12 inch diameter, and 36-60 inches deep). Power generated by the panels would be collected at pull boxes and transmitted to a substation near the highway. The substation would occupy a 2-acre area adjacent to the highway; it would contain transformers, switches, controls, batteries, and other electrical equipment that would allow KIUC to feed power into the existing electrical power lines along Kūhiō Highway. The 5-acre service center would contain offices, storage areas, and other facilities that would support KIUC operations in this part of the island.

KIUC acquired T. S. Dye & Colleagues, Archaeologists, Inc. (T.S. Dye) to complete the cultural resource inventory of the APE, entitled *Archaeological Inventory Survey with Backhoe Trenching near Anahola, in Kamalomalo'o Ahupua'a, Puna District, Kaua'i Island TMK: (4) 4-7-004:002 (May 2012)*. The survey includes preliminary records search and field survey, which consisted of ten (10) test trenches throughout the proposed APE. No traditional Hawaiian cultural materials were encountered during the inventory survey; however,

1400 Independence Ave, SW • Mail Stop 1571 • Washington, DC 20250-1571
Web: <http://www.usda.gov/rus/water/ees/environ.htm>

Committed to the future of rural communities.

USDA is an equal opportunity provider, employer and lender.
To file a complaint of discrimination write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, DC 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6362 (TDD).

Page 2

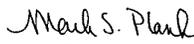
October 10, 2012

historic-era features from the former use of the area as a sugarcane field, including two historic-era raised agricultural irrigation ditches were identified. The State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources has assigned state site number 50-30-08-2160 to the APE to identify the sugarcane field features. The survey recommends the site as eligible for inclusion on the National Register of Historic Places under Criterion D for its informational content. All pertinent information related to site 50-30-08-2160 has been recorded, and no further work is recommended. Therefore, based on the findings of the survey, RUS proposes a finding of *no adverse effect to historic properties*.

In addition to an Archaeological Inventory Survey, Native Hawai'i, LLC was commissioned to conduct a Cultural Impact Assessment pursuant to Hawai'i Revised Statutes (HRS) Chapter 13-343, which mandates consideration of a proposed project's effects on traditional Hawaiian practices and beliefs. The survey, entitled *Cultural Impact Assessment Native Hawaiian Traditions, Customary Practices and Perspectives of Kamalomalo'o and Anahola Ahupua'a Moku o Kawaihau, Kaua'i Island*, includes a review of background research and interviews with members of the native Hawaiian community. The CIA did not identify any ongoing native Hawaiian cultural resources or practices located on the project site.

RUS requests your review of the enclosed project materials, determinations of eligibility, and findings of effect. The enclosed materials will also be provided by RUS to the State Historic Preservation Officer and other native Hawaiian organizations (see attached list of NHOs) for comments and recommendations. RUS respectfully requests your review within thirty (30) days of your receipt of this correspondence. Please direct any questions you may have to Emily Orler, RUS Environmental Protection Specialist, at 202-720-1414 or emily.orler@wdc.usda.gov.

Sincerely,


Mark S. Plank
Director
Engineering & Environmental Staff
USDA Rural Utilities Service

Attachments:

- (1) Map of Project Area
- (2) Description of Proposed Action
- (3) Archaeological Inventory Survey for Anahola Solar Project
- (4) Cultural Impact Assessment for Anahola Solar Project
- (5) List of Native Hawaiian Organizations Consulted

cc: Gregg Matsuo, KIUC
Brad Rockwell, KIUC
Perry White, PSI



October 10, 2012

Ms. Jobie Masagatani
Chair Designate
Department of Hawaiian Homelands
P.O. Box 1879
Honolulu, HI 96805

Subject: KIUC Anahola Solar Facility & Service Center Project
Tax Map Keys: (4) 4-7-004:002
Anahola, Kaua'i, Hawai'i

Dear Ms. Masagatani:

The Kaua'i Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, which will include a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaua'i, Hawai'i (the Project). RUS may fund the Project, thereby making it an undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470(f), and its implementing regulations (36 CFR Part 800), and an action subject to the National Environmental Policy Act (NEPA), 42 U.S.C. Parts 4321-4347, the Council on Environmental Quality's (CEQ) Implementing Procedures, 40 CFR Parts 1500-1508, and RUS Environmental Policies and Procedures, 7 CFR Part 1794. KIUC has proposed to construct the Project on land owned and administered by the State of Hawai'i Department of Hawaiian Home Lands (DHHL) in Anahola, Kaua'i. DHHL may issue a lease for the Project, which requires the preparation of an EA pursuant to Hawai'i Revised Statutes (HRS) § 343-5 and Hawai'i Administrative Rules (HAR) § 11-200-5.

KIUC has proposed the Project to provide clean, renewable, and affordable power to the people of Kaua'i, and reduce KIUC's dependence on imported fossil fuels. The Project will be located on 60-acres of DHHL administered land; RUS has defined this 60-acre area, within which the photovoltaic facility, substation, service center, access roads, and storage yards will be located, as the Area of Potential Effect (APE). KIUC proposes to construct a low profile photovoltaic module installation system; panels would be mounted on pipe frames anchored by concrete piers (12 inch diameter, and 36-60 inches deep). Power generated by the panels would be collected at pull boxes and transmitted to a substation near the highway. The substation would occupy a 2-acre area adjacent to the highway; it would contain transformers, switches, controls, batteries, and other electrical equipment that would allow KIUC to feed power into the existing electrical power lines along Kūhiō Highway. The 5-acre service center would contain offices, storage areas, and other facilities that would support KIUC operations in this part of the island.

KIUC acquired T. S. Dye & Colleagues, Archaeologists, Inc. (T.S. Dye) to complete the cultural resource inventory of the APE, entitled *Archaeological Inventory Survey with Backhoe Trenching near Anahola, in Kamalomalo' o Ahupua'a, Puna District, Kaua'i Island TMK: (4) 4-7-004:002 (May 2012)*. The survey includes preliminary records search and field survey, which consisted of ten (10) test trenches throughout the proposed APE. No traditional Hawaiian cultural materials were encountered during the inventory survey; however,

1400 Independence Ave, SW • Mail Stop 1571 • Washington, DC 20250-1571
Web: <http://www.usda.gov/rus/water/ees/environ.htm>

Committed to the future of rural communities.

*USDA is an equal opportunity provider, employer and lender.
To file a complaint of discrimination write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, DC 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD).

Page 2

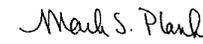
October 10, 2012

historic-era features from the former use of the area as a sugarcane field, including two historic-era raised agricultural irrigation ditches were identified. The State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources has assigned state site number 50-30-08-2160 to the APE to identify the sugarcane field features. The survey recommends the site as eligible for inclusion on the National Register of Historic Places under Criterion D for its informational content. All pertinent information related to site 50-30-08-2160 has been recorded, and no further work is recommended. Therefore, based on the findings of the survey, RUS proposes a finding of *no adverse effect to historic properties*.

In addition to an Archaeological Inventory Survey, Native Hawai'i, LLC was commissioned to conduct a Cultural Impact Assessment pursuant to Hawai'i Revised Statutes (HRS) Chapter 13-343, which mandates consideration of a proposed project's effects on traditional Hawaiian practices and beliefs. The survey, entitled *Cultural Impact Assessment Native Hawaiian Traditions, Customary Practices and Perspectives of Kamalomalo'o and Anahola Ahupua'a Moku o Kawaihau, Kaua'i Island*, includes a review of background research and interviews with members of the native Hawaiian community. The CIA did not identify any ongoing native Hawaiian cultural resources or practices located on the project site.

RUS requests your review of the enclosed project materials, determinations of eligibility, and findings of effect. The enclosed materials will also be provided by RUS to the State Historic Preservation Officer and other native Hawaiian organizations (see attached list of NHOs) for comments and recommendations. RUS respectfully requests your review within thirty (30) days of your receipt of this correspondence. Please direct any questions you may have to Emily Orler, RUS Environmental Protection Specialist, at 202-720-1414 or emily.orler@wdc.usda.gov.

Sincerely,


Mark S. Plank
Director
Engineering & Environmental Staff
USDA Rural Utilities Service

Attachments:

- (1) Map of Project Area
- (2) Description of Proposed Action
- (3) Archaeological Inventory Survey for Anahola Solar Project
- (4) Cultural Impact Assessment for Anahola Solar Project
- (5) List of Native Hawaiian Organizations Consulted

cc: Gregg Matsuo, KIUC
Brad Rockwell, KIUC
Perry White, PSI



United States Department of Agriculture
Rural Development | Rural Utilities Service

October 10, 2012

Mr. Henry Gomes
President
Hawai'i Maoli
P.O. Box 1135
Honolulu, HI 96807

Subject: KIUC Anahola Solar Facility & Service Center Project
Tax Map Keys: (4) 4-7-004:002
Anahola, Kaua'i, Hawai'i

Dear Mr. Gomes:

The Kaua'i Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, which will include a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaua'i, Hawai'i (the Project). RUS may fund the Project, thereby making it an undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470(f), and its implementing regulations (36 CFR Part 800), and an action subject to the National Environmental Policy Act (NEPA), 42 U.S.C. Parts 4321-4347, the Council on Environmental Quality's (CEQ) Implementing Procedures, 40 CFR Parts 1500-1508, and RUS Environmental Policies and Procedures, 7 CFR Part 1794. KIUC has proposed to construct the Project on land owned and administered by the State of Hawai'i Department of Hawaiian Home Lands (DHHL) in Anahola, Kaua'i. DHHL may issue a lease for the Project, which requires the preparation of an EA pursuant to Hawai'i Revised Statutes (HRS) § 343-5 and Hawai'i Administrative Rules (HAR) § 11-200-5.

KIUC has proposed the Project to provide clean, renewable, and affordable power to the people of Kaua'i, and reduce KIUC's dependence on imported fossil fuels. The Project will be located on 60-acres of DHHL administered land; RUS has defined this 60-acre area, within which the photovoltaic facility, substation, service center, access roads, and storage yards will be located, as the Area of Potential Effect (APE). KIUC proposes to construct a low profile photovoltaic module installation system; panels would be mounted on pipe frames anchored by concrete piers (12 inch diameter, and 36-60 inches deep). Power generated by the panels would be collected at pull boxes and transmitted to a substation near the highway. The substation would occupy a 2-acre area adjacent to the highway; it would contain transformers, switches, controls, batteries, and other electrical equipment that would allow KIUC to feed power into the existing electrical power lines along Kūhiō Highway. The 5-acre service center would contain offices, storage areas, and other facilities that would support KIUC operations in this part of the island.

KIUC acquired T. S. Dye & Colleagues, Archaeologists, Inc. (T.S. Dye) to complete the cultural resource inventory of the APE, entitled *Archaeological Inventory Survey with Backhoe Trenching near Anahola, in Kamalomalo'o Ahupua'a, Puna District, Kaua'i Island TMK: (4) 4-7-004:002 (May 2012)*. The survey includes preliminary records search and field survey, which consisted of ten (10) test trenches throughout the proposed APE. No traditional Hawaiian cultural materials were encountered during the inventory survey; however,

1400 Independence Ave, SW • Mail Stop 1571 • Washington, DC 20250-1571
Web: <http://www.usda.gov/us/water/ees/envirom.htm>

Committed to the future of rural communities.

"USDA is an equal opportunity provider, employer and lender."
To file a complaint of discrimination write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, DC 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD).

Page 2

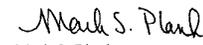
October 10, 2012

historic-era features from the former use of the area as a sugarcane field, including two historic-era raised agricultural irrigation ditches were identified. The State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources has assigned state site number 50-30-08-2160 to the APE to identify the sugarcane field features. The survey recommends the site as eligible for inclusion on the National Register of Historic Places under Criterion D for its informational content. All pertinent information related to site 50-30-08-2160 has been recorded, and no further work is recommended. Therefore, based on the findings of the survey, RUS proposes a finding of *no adverse effect to historic properties*.

In addition to an Archaeological Inventory Survey, Native Hawai'i, LLC was commissioned to conduct a Cultural Impact Assessment pursuant to Hawai'i Revised Statutes (HRS) Chapter 13-343, which mandates consideration of a proposed project's effects on traditional Hawaiian practices and beliefs. The survey, entitled *Cultural Impact Assessment Native Hawaiian Traditions, Customary Practices and Perspectives of Kamalomalo'o and Anahola Ahupua'a Moku o Kawaihau, Kaua'i Island*, includes a review of background research and interviews with members of the native Hawaiian community. The CIA did not identify any ongoing native Hawaiian cultural resources or practices located on the project site.

RUS requests your review of the enclosed project materials, determinations of eligibility, and findings of effect. The enclosed materials will also be provided by RUS to the State Historic Preservation Officer and other native Hawaiian organizations (see attached list of NHOs) for comments and recommendations. RUS respectfully requests your review within thirty (30) days of your receipt of this correspondence. Please direct any questions you may have to Emily Orler, RUS Environmental Protection Specialist, at 202-720-1414 or emily_orler@wdc.usda.gov.

Sincerely,


Mark S. Plank
Director
Engineering & Environmental Staff
USDA Rural Utilities Service

Attachments:

- (1) Map of Project Area
- (2) Description of Proposed Action
- (3) Archaeological Inventory Survey for Anahola Solar Project
- (4) Cultural Impact Assessment for Anahola Solar Project
- (5) List of Native Hawaiian Organizations Consulted

cc: Gregg Matsuo, KIUC
Brad Rockwell, KIUC
Perry White, PSI



United States Department of Agriculture
Rural Development | Rural Utilities Service

October 10, 2012

Hokualele Canoe Club
P.O. Box 169
Anahola, HI 96703

Subject: KIUC Anahola Solar Facility & Service Center Project
Tax Map Keys: (4) 4-7-004:002
Anahola, Kaua'i, Hawai'i

To whom it may concern:

The Kaua'i Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, which will include a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaua'i, Hawai'i (the Project). RUS may fund the Project, thereby making it an undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470(f), and its implementing regulations (36 CFR Part 800), and an action subject to the National Environmental Policy Act (NEPA), 42 U.S.C. Parts 4321-4347, the Council on Environmental Quality's (CEQ) Implementing Procedures, 40 CFR Parts 1500-1508, and RUS Environmental Policies and Procedures, 7 CFR Part 1794. KIUC has proposed to construct the Project on land owned and administered by the State of Hawai'i Department of Hawaiian Home Lands (DHHL) in Anahola, Kaua'i. DHHL may issue a lease for the Project, which requires the preparation of an EA pursuant to Hawai'i Revised Statutes (HRS) § 343-5 and Hawai'i Administrative Rules (HAR) § 11-200-5.

KIUC has proposed the Project to provide clean, renewable, and affordable power to the people of Kaua'i, and reduce KIUC's dependence on imported fossil fuels. The Project will be located on 60-acres of DHHL administered land; RUS has defined this 60-acre area, within which the photovoltaic facility, substation, service center, access roads, and storage yards will be located, as the Area of Potential Effect (APE). KIUC proposes to construct a low profile photovoltaic module installation system; panels would be mounted on pipe frames anchored by concrete piers (12 inch diameter, and 36-60 inches deep). Power generated by the panels would be collected at pull boxes and transmitted to a substation near the highway. The substation would occupy a 2-acre area adjacent to the highway; it would contain transformers, switches, controls, batteries, and other electrical equipment that would allow KIUC to feed power into the existing electrical power lines along Kūhiō Highway. The 5-acre service center would contain offices, storage areas, and other facilities that would support KIUC operations in this part of the island.

KIUC acquired T. S. Dye & Colleagues, Archaeologists, Inc. (T.S. Dye) to complete the cultural resource inventory of the APE, entitled *Archaeological Inventory Survey with Backhoe Trenching near Anahola, in Kamalomalo'o Ahupua'a, Puna District, Kaua'i Island TMK: (4) 4-7-004:002 (May 2012)*. The survey includes preliminary records search and field survey, which consisted of ten (10) test trenches throughout the proposed APE. No traditional Hawaiian cultural materials were encountered during the inventory survey; however, historic-era features from the former use of the area as a sugarcane field, including two historic-era raised agricultural irrigation ditches were identified. The State Historic Preservation Division (SHPD) of the

1400 Independence Ave, SW • Mail Stop 1571 • Washington, DC 20250-1571
Web: <http://www.usda.gov/rus/water/ees/enviro.htm>

Committed to the future of rural communities.

USDA is an equal opportunity provider, employer and lender.
To file a complaint of discrimination write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, DC 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD).

Page 2

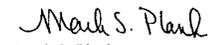
October 10, 2012

historic-era features from the former use of the area as a sugarcane field, including two historic-era raised agricultural irrigation ditches were identified. The State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources has assigned state site number 50-30-08-2160 to the APE to identify the sugarcane field features. The survey recommends the site as eligible for inclusion on the National Register of Historic Places under Criterion D for its informational content. All pertinent information related to site 50-30-08-2160 has been recorded, and no further work is recommended. Therefore, based on the findings of the survey, RUS proposes a finding of *no adverse effect to historic properties*.

In addition to an Archaeological Inventory Survey, Native Hawai'i, LLC was commissioned to conduct a Cultural Impact Assessment pursuant to Hawai'i Revised Statutes (HRS) Chapter 13-343, which mandates consideration of a proposed project's effects on traditional Hawaiian practices and beliefs. The survey, entitled *Cultural Impact Assessment Native Hawaiian Traditions, Customary Practices and Perspectives of Kamalomalo'o and Anahola Ahupua'a Moku o Kawaihau, Kaua'i Island*, includes a review of background research and interviews with members of the native Hawaiian community. The CIA did not identify any ongoing native Hawaiian cultural resources or practices located on the project site.

RUS requests your review of the enclosed project materials, determinations of eligibility, and findings of effect. The enclosed materials will also be provided by RUS to the State Historic Preservation Officer and other native Hawaiian organizations (see attached list of NHOs) for comments and recommendations. RUS respectfully requests your review within thirty (30) days of your receipt of this correspondence. Please direct any questions you may have to Emily Orler, RUS Environmental Protection Specialist, at 202-720-1414 or emily_orler@wdc.usda.gov.

Sincerely,


Mark S. Plank
Director
Engineering & Environmental Staff
USDA Rural Utilities Service

Attachments:

- (1) Map of Project Area
- (2) Description of Proposed Action
- (3) Archaeological Inventory Survey for Anahola Solar Project
- (4) Cultural Impact Assessment for Anahola Solar Project
- (5) List of Native Hawaiian Organizations Consulted

cc: Gregg Matsuo, KIUC
Brad Rockwell, KIUC
Perry White, PSI



United States Department of Agriculture
Rural Development | Rural Utilities Service

October 10, 2012

Dr. Kamana'opono M. Crabbe
Chief Executive Officer
Office of Hawaiian Affairs
711 Kapi'olani Boulevard, Suite 500
Honolulu, HI 96813

Subject: KIUC Anahola Solar Facility & Service Center Project
Tax Map Keys: (4) 4-7-004:002
Anahola, Kaua'i, Hawai'i

Dear Dr. Crabbe:

The Kaua'i Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, which will include a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaua'i, Hawai'i (the Project). RUS may fund the Project, thereby making it an undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470(f), and its implementing regulations (36 CFR Part 800), and an action subject to the National Environmental Policy Act (NEPA), 42 U.S.C. Parts 4321-4347, the Council on Environmental Quality's (CEQ) Implementing Procedures, 40 CFR Parts 1500-1508, and RUS Environmental Policies and Procedures, 7 CFR Part 1794. KIUC has proposed to construct the Project on land owned and administered by the State of Hawai'i Department of Hawaiian Home Lands (DHHL) in Anahola, Kaua'i. DHHL may issue a lease for the Project, which requires the preparation of an EA pursuant to Hawai'i Revised Statutes (HRS) § 343-5 and Hawai'i Administrative Rules (HAR) § 11-200-5.

KIUC has proposed the Project to provide clean, renewable, and affordable power to the people of Kaua'i, and reduce KIUC's dependence on imported fossil fuels. The Project will be located on 60-acres of DHHL administered land; RUS has defined this 60-acre area, within which the photovoltaic facility, substation, service center, access roads, and storage yards will be located, as the Area of Potential Effect (APE). KIUC proposes to construct a low profile photovoltaic module installation system; panels would be mounted on pipe frames anchored by concrete piers (12 inch diameter, and 36-60 inches deep). Power generated by the panels would be collected at pull boxes and transmitted to a substation near the highway. The substation would occupy a 2-acre area adjacent to the highway; it would contain transformers, switches, controls, batteries, and other electrical equipment that would allow KIUC to feed power into the existing electrical power lines along Kūhiō Highway. The 5-acre service center would contain offices, storage areas, and other facilities that would support KIUC operations in this part of the island.

KIUC acquired T. S. Dye & Colleagues, Archaeologists, Inc. (T.S. Dye) to complete the cultural resource inventory of the APE, entitled *Archaeological Inventory Survey with Backhoe Trenching near Anahola, in Kamalomalo'o Ahupua'a, Puna District, Kaua'i Island TMK: (4) 4-7-004:002 (May 2012)*. The survey includes preliminary records search and field survey, which consisted of ten (10) test trenches throughout the proposed APE. No traditional Hawaiian cultural materials were encountered during the inventory survey; however,

1400 Independence Ave, SW • Mail Stop 1571 • Washington, DC 20250-1571
Web: <http://www.usda.gov/rus/water/ees/envirom.htm>

Committed to the future of rural communities.

*USDA is an equal opportunity provider, employer and lender.
To file a complaint of discrimination write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, DC 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6362 (TDD).

Page 2

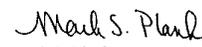
October 10, 2012

historic-era features from the former use of the area as a sugarcane field, including two historic-era raised agricultural irrigation ditches were identified. The State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources has assigned state site number 50-30-08-2160 to the APE to identify the sugarcane field features. The survey recommends the site as eligible for inclusion on the National Register of Historic Places under Criterion D for its informational content. All pertinent information related to site 50-30-08-2160 has been recorded, and no further work is recommended. Therefore, based on the findings of the survey, RUS proposes a finding of *no adverse effect to historic properties*.

In addition to an Archaeological Inventory Survey, Native Hawai'i, LLC was commissioned to conduct a Cultural Impact Assessment pursuant to Hawai'i Revised Statutes (HRS) Chapter 13-343, which mandates consideration of a proposed project's effects on traditional Hawaiian practices and beliefs. The survey, entitled *Cultural Impact Assessment Native Hawaiian Traditions, Customary Practices and Perspectives of Kamalomalo'o and Anahola Ahupua'a Moku o Kawaihau, Kaua'i Island*, includes a review of background research and interviews with members of the native Hawaiian community. The CIA did not identify any ongoing native Hawaiian cultural resources or practices located on the project site.

RUS requests your review of the enclosed project materials, determinations of eligibility, and findings of effect. The enclosed materials will also be provided by RUS to the State Historic Preservation Officer and other native Hawaiian organizations (see attached list of NHOs) for comments and recommendations. RUS respectfully requests your review within thirty (30) days of your receipt of this correspondence. Please direct any questions you may have to Emily Orler, RUS Environmental Protection Specialist, at 202-720-1414 or emily_orler@wdc.usda.gov.

Sincerely,


Mark S. Plank
Director
Engineering & Environmental Staff
USDA Rural Utilities Service

Attachments:

- (1) Map of Project Area
- (2) Description of Proposed Action
- (3) Archaeological Inventory Survey for Anahola Solar Project
- (4) Cultural Impact Assessment for Anahola Solar Project
- (5) List of Native Hawaiian Organizations Consulted

cc: Gregg Matsuo, KIUC
Brad Rockwell, KIUC
Perry White, PSI



October 10, 2012

Mr. Kimo Kaloi
Director
Office of Hawaiian Relations
U.S. Department of the Interior
1849 C Street, NW (MS 3543)
Washington, D.C. 20240

Subject: KIUC Anahola Solar Facility & Service Center Project
Tax Map Keys: (4) 4-7-004:002
Anahola, Kaua'i, Hawai'i

Dear Mr. Kaloi:

The Kaua'i Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, which will include a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaua'i, Hawai'i (the Project). RUS may fund the Project, thereby making it an undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470(f), and its implementing regulations (36 CFR Part 800), and an action subject to the National Environmental Policy Act (NEPA), 42 U.S.C. Parts 4321-4347, the Council on Environmental Quality's (CEQ) Implementing Procedures, 40 CFR Parts 1500-1508, and RUS Environmental Policies and Procedures, 7 CFR Part 1794. KIUC has proposed to construct the Project on land owned and administered by the State of Hawai'i Department of Hawaiian Home Lands (DHHL) in Anahola, Kaua'i. DHHL may issue a lease for the Project, which requires the preparation of an EA pursuant to Hawai'i Revised Statutes (HRS) § 343-5 and Hawai'i Administrative Rules (HAR) § 11-200-5.

KIUC has proposed the Project to provide clean, renewable, and affordable power to the people of Kaua'i, and reduce KIUC's dependence on imported fossil fuels. The Project will be located on 60-acres of DHHL administered land; RUS has defined this 60-acre area, within which the photovoltaic facility, substation, service center, access roads, and storage yards will be located, as the Area of Potential Effect (APE). KIUC proposes to construct a low profile photovoltaic module installation system; panels would be mounted on pipe frames anchored by concrete piers (12 inch diameter, and 36-60 inches deep). Power generated by the panels would be collected at pull boxes and transmitted to a substation near the highway. The substation would occupy a 2-acre area adjacent to the highway; it would contain transformers, switches, controls, batteries, and other electrical equipment that would allow KIUC to feed power into the existing electrical power lines along Kāhīō Highway. The 5-acre service center would contain offices, storage areas, and other facilities that would support KIUC operations in this part of the island.

KIUC acquired T. S. Dye & Colleagues, Archaeologists, Inc. (T.S. Dye) to complete the cultural resource inventory of the APE, entitled *Archaeological Inventory Survey with Backhoe Trenching near Anahola, in Kamalomalo'o Ahupua'a, Puna District, Kaua'i Island TMK: (4) 4-7-004:002 (May 2012)*. The survey includes preliminary records search and field survey, which consisted of ten (10) test trenches throughout the proposed

1400 Independence Ave, SW • Mail Stop 1571 • Washington, DC 20250-1571
Web: <http://www.usda.gov/rus/water/eas/enviro.htm>

Committed to the future of rural communities.

USDA is an equal opportunity provider, employer and lender.
To file a complaint of discrimination write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, DC 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD).

Page 2

October 10, 2012

historic-era features from the former use of the area as a sugarcane field, including two historic-era raised agricultural irrigation ditches were identified. The State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources has assigned state site number 50-30-08-2160 to the APE to identify the sugarcane field features. The survey recommends the site as eligible for inclusion on the National Register of Historic Places under Criterion D for its informational content. All pertinent information related to site 50-30-08-2160 has been recorded, and no further work is recommended. Therefore, based on the findings of the survey, RUS proposes a finding of *no adverse effect to historic properties*.

In addition to an Archaeological Inventory Survey, Native Hawai'i, LLC was commissioned to conduct a Cultural Impact Assessment pursuant to Hawai'i Revised Statutes (HRS) Chapter 13-343, which mandates consideration of a proposed project's effects on traditional Hawaiian practices and beliefs. The survey, entitled *Cultural Impact Assessment Native Hawaiian Traditions, Customary Practices and Perspectives of Kamalomalo'o and Anahola Ahupua'a Moku o Kawahau, Kaua'i Island*, includes a review of background research and interviews with members of the native Hawaiian community. The CIA did not identify any ongoing native Hawaiian cultural resources or practices located on the project site.

RUS requests your review of the enclosed project materials, determinations of eligibility, and findings of effect. The enclosed materials will also be provided by RUS to the State Historic Preservation Officer and other native Hawaiian organizations (see attached list of NHOs) for comments and recommendations. RUS respectfully requests your review within thirty (30) days of your receipt of this correspondence. Please direct any questions you may have to Emily Orler, RUS Environmental Protection Specialist, at 202-720-1414 or emily_orler@wdc.usda.gov.

Sincerely,


Mark S. Plank
Director
Engineering & Environmental Staff
USDA Rural Utilities Service

Attachments:

- (1) Map of Project Area
- (2) Description of Proposed Action
- (3) Archaeological Inventory Survey for Anahola Solar Project
- (4) Cultural Impact Assessment for Anahola Solar Project
- (5) List of Native Hawaiian Organizations Consulted

cc: Gregg Matsuo, KIUC
Brad Rockwell, KIUC
Perry White, PSI



October 10, 2012

Mr. Kamaki Kanahele
Chairman
Sovereign Councils of the Hawaiian Homelands Assembly
P.O. Box 2881
Waianae, HI 96792

Subject: KIUC Anahola Solar Facility & Service Center Project
Tax Map Keys: (4) 4-7-004:002
Anahola, Kaua'i, Hawai'i

Dear Mr. Kanahele:

The Kaua'i Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, which will include a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaua'i, Hawai'i (the Project). RUS may fund the Project, thereby making it an undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470(f), and its implementing regulations (36 CFR Part 800), and an action subject to the National Environmental Policy Act (NEPA), 42 U.S.C. Parts 4321-4347, the Council on Environmental Quality's (CEQ) Implementing Procedures, 40 CFR Parts 1500-1508, and RUS Environmental Policies and Procedures, 7 CFR Part 1794. KIUC has proposed to construct the Project on land owned and administered by the State of Hawai'i Department of Hawaiian Home Lands (DHHL) in Anahola, Kaua'i. DHHL may issue a lease for the Project, which requires the preparation of an EA pursuant to Hawai'i Revised Statutes (HRS) § 343-5 and Hawai'i Administrative Rules (HAR) § 11-200-5.

KIUC has proposed the Project to provide clean, renewable, and affordable power to the people of Kaua'i, and reduce KIUC's dependence on imported fossil fuels. The Project will be located on 60-acres of DHHL administered land; RUS has defined this 60-acre area, within which the photovoltaic facility, substation, service center, access roads, and storage yards will be located, as the Area of Potential Effect (APE). KIUC proposes to construct a low profile photovoltaic module installation system; panels would be mounted on pipe frames anchored by concrete piers (12 inch diameter, and 36-60 inches deep). Power generated by the panels would be collected at pull boxes and transmitted to a substation near the highway. The substation would occupy a 2-acre area adjacent to the highway; it would contain transformers, switches, controls, batteries, and other electrical equipment that would allow KIUC to feed power into the existing electrical power lines along Kūhīō Highway. The 5-acre service center would contain offices, storage areas, and other facilities that would support KIUC operations in this part of the island.

KIUC acquired T. S. Dye & Colleagues, Archaeologists, Inc. (T.S. Dye) to complete the cultural resource inventory of the APE, entitled *Archaeological Inventory Survey with Backhoe Trenching near Anahola, in Kamalomalo'o Ahupua'a, Puna District, Kaua'i Island TMK: (4) 4-7-004:002 (May 2012)*. The survey includes preliminary records search and field survey, which consisted of ten (10) test trenches throughout the proposed APE. No traditional Hawaiian cultural materials were encountered during the inventory survey; however,

1400 Independence Ave, SW • Mail Stop 1571 • Washington, DC 20250-1571
Web: <http://www.usda.gov/rus/water/ees/environ.htm>

Committed to the future of rural communities.

USDA is an equal opportunity provider, employer and lender.
To file a complaint of discrimination write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, DC 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6362 (TDD).

Page 2

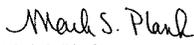
October 10, 2012

historic-era features from the former use of the area as a sugarcane field, including two historic-era raised agricultural irrigation ditches were identified. The State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources has assigned state site number 50-30-08-2160 to the APE to identify the sugarcane field features. The survey recommends the site as eligible for inclusion on the National Register of Historic Places under Criterion D for its informational content. All pertinent information related to site 50-30-08-2160 has been recorded, and no further work is recommended. Therefore, based on the findings of the survey, RUS proposes a finding of *no adverse effect to historic properties*.

In addition to an Archaeological Inventory Survey, Native Hawai'i, LLC was commissioned to conduct a Cultural Impact Assessment pursuant to Hawai'i Revised Statutes (HRS) Chapter 13-343, which mandates consideration of a proposed project's effects on traditional Hawaiian practices and beliefs. The survey, entitled *Cultural Impact Assessment Native Hawaiian Traditions, Customary Practices and Perspectives of Kamalomalo'o and Anahola Ahupua'a Moku o Kawahau, Kaua'i Island*, includes a review of background research and interviews with members of the native Hawaiian community. The CIA did not identify any ongoing native Hawaiian cultural resources or practices located on the project site.

RUS requests your review of the enclosed project materials, determinations of eligibility, and findings of effect. The enclosed materials will also be provided by RUS to the State Historic Preservation Officer and other native Hawaiian organizations (see attached list of NHOs) for comments and recommendations. RUS respectfully requests your review within thirty (30) days of your receipt of this correspondence. Please direct any questions you may have to Emily Orler, RUS Environmental Protection Specialist, at 202-720-1414 or emily.orler@wdc.usda.gov.

Sincerely,


Mark S. Plank
Director
Engineering & Environmental Staff
USDA Rural Utilities Service

Attachments:

- (1) Map of Project Area
- (2) Description of Proposed Action
- (3) Archaeological Inventory Survey for Anahola Solar Project
- (4) Cultural Impact Assessment for Anahola Solar Project
- (5) List of Native Hawaiian Organizations Consulted

cc: Gregg Matsuo, KIUC
Brad Rockwell, KIUC
Perry White, PSI



United States Department of Agriculture
Rural Development | Rural Utilities Service

October 10, 2012

Ms. Kaipo Kincaid
Executive Director
Hui Kāko'o 'Āina Ho'opulapula
767 Kailua Road #212
Kailua, HI 96734

Subject: KIUC Anahola Solar Facility & Service Center Project
Tax Map Keys: (4) 4-7-004:002
Anahola, Kaua'i, Hawai'i

Dear Ms. Kincaid:

The Kaua'i Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, which will include a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaua'i, Hawai'i (the Project). RUS may fund the Project, thereby making it an undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470(f), and its implementing regulations (36 CFR Part 800), and an action subject to the National Environmental Policy Act (NEPA), 42 U.S.C. Parts 4321-4347, the Council on Environmental Quality's (CEQ) Implementing Procedures, 40 CFR Parts 1500-1508, and RUS Environmental Policies and Procedures, 7 CFR Part 1794. KIUC has proposed to construct the Project on land owned and administered by the State of Hawai'i Department of Hawaiian Home Lands (DHHL) in Anahola, Kaua'i. DHHL may issue a lease for the Project, which requires the preparation of an EA pursuant to Hawai'i Revised Statutes (HRS) § 343-5 and Hawai'i Administrative Rules (HAR) § 11-200-5.

KIUC has proposed the Project to provide clean, renewable, and affordable power to the people of Kaua'i, and reduce KIUC's dependence on imported fossil fuels. The Project will be located on 60-acres of DHHL administered land; RUS has defined this 60-acre area, within which the photovoltaic facility, substation, service center, access roads, and storage yards will be located, as the Area of Potential Effect (APE). KIUC proposes to construct a low profile photovoltaic module installation system; panels would be mounted on pipe frames anchored by concrete piers (12 inch diameter, and 36-60 inches deep). Power generated by the panels would be collected at pull boxes and transmitted to a substation near the highway. The substation would occupy a 2-acre area adjacent to the highway; it would contain transformers, switches, controls, batteries, and other electrical equipment that would allow KIUC to feed power into the existing electrical power lines along Kūhiō Highway. The 5-acre service center would contain offices, storage areas, and other facilities that would support KIUC operations in this part of the island.

KIUC acquired T. S. Dye & Colleagues, Archaeologists, Inc. (T.S. Dye) to complete the cultural resource inventory of the APE, entitled *Archaeological Inventory Survey with Backhoe Trenching near Anahola, in Kamalomalo'o Ahupua'a, Puna District, Kaua'i Island TMK: (4) 4-7-004:002 (May 2012)*. The survey includes preliminary records search and field survey, which consisted of ten (10) test trenches throughout the proposed APE. No traditional Hawaiian cultural materials were encountered during the inventory survey; however,

1400 Independence Ave, SW • Mail Stop 1571 • Washington, DC 20250-1571
Web: <http://www.usda.gov/rus/water/eas/environ.htm>

Committed to the future of rural communities.

USDA is an equal opportunity provider, employer and lender.
To file a complaint of discrimination write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, DC 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6362 (TDD).

Page 2

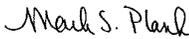
October 10, 2012

historic-era features from the former use of the area as a sugarcane field, including two historic-era raised agricultural irrigation ditches were identified. The State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources has assigned state site number 50-30-08-2160 to the APE to identify the sugarcane field features. The survey recommends the site as eligible for inclusion on the National Register of Historic Places under Criterion D for its informational content. All pertinent information related to site 50-30-08-2160 has been recorded, and no further work is recommended. Therefore, based on the findings of the survey, RUS proposes a finding of *no adverse effect to historic properties*.

In addition to an Archaeological Inventory Survey, Native Hawai'i, LLC was commissioned to conduct a Cultural Impact Assessment pursuant to Hawai'i Revised Statutes (HRS) Chapter 13-343, which mandates consideration of a proposed project's effects on traditional Hawaiian practices and beliefs. The survey, entitled *Cultural Impact Assessment Native Hawaiian Traditions, Customary Practices and Perspectives of Kamalomalo'o and Anahola Ahupua'a Moku o Kawahau, Kaua'i Island*, includes a review of background research and interviews with members of the native Hawaiian community. The CIA did not identify any ongoing native Hawaiian cultural resources or practices located on the project site.

RUS requests your review of the enclosed project materials, determinations of eligibility, and findings of effect. The enclosed materials will also be provided by RUS to the State Historic Preservation Officer and other native Hawaiian organizations (see attached list of NHOs) for comments and recommendations. RUS respectfully requests your review within thirty (30) days of your receipt of this correspondence. Please direct any questions you may have to Emily Orler, RUS Environmental Protection Specialist, at 202-720-1414 or emily.orler@wdc.usda.gov.

Sincerely,


Mark S. Plank
Director
Engineering & Environmental Staff
USDA Rural Utilities Service

Attachments:

- (1) Map of Project Area
- (2) Description of Proposed Action
- (3) Archaeological Inventory Survey for Anahola Solar Project
- (4) Cultural Impact Assessment for Anahola Solar Project
- (5) List of Native Hawaiian Organizations Consulted

cc: Gregg Matsuo, KIUC
Brad Rockwell, KIUC
Perry White, PSI



October 10, 2012

Kanu I Ka Pono New Century Public Charter School
P.O. Box 12
Anahola, HI 96703-0012

Subject: KIUC Anahola Solar Facility & Service Center Project
Tax Map Keys: (4) 4-7-004:002
Anahola, Kaua'i, Hawai'i

To whom it may concern:

The Kaua'i Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, which will include a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaua'i, Hawai'i (the Project). RUS may fund the Project, thereby making it an undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470(f), and its implementing regulations (36 CFR Part 800), and an action subject to the National Environmental Policy Act (NEPA), 42 U.S.C. Parts 4321-4347, the Council on Environmental Quality's (CEQ) Implementing Procedures, 40 CFR Parts 1500-1508, and RUS Environmental Policies and Procedures, 7 CFR Part 1794. KIUC has proposed to construct the Project on land owned and administered by the State of Hawai'i Department of Hawaiian Home Lands (DHHL) in Anahola, Kaua'i. DHHL may issue a lease for the Project, which requires the preparation of an EA pursuant to Hawai'i Revised Statutes (HRS) § 343-5 and Hawai'i Administrative Rules (HAR) § 11-200-5.

KIUC has proposed the Project to provide clean, renewable, and affordable power to the people of Kaua'i, and reduce KIUC's dependence on imported fossil fuels. The Project will be located on 60-acres of DHHL administered land; RUS has defined this 60-acre area, within which the photovoltaic facility, substation, service center, access roads, and storage yards will be located, as the Area of Potential Effect (APE). KIUC proposes to construct a low profile photovoltaic module installation system; panels would be mounted on pipe frames anchored by concrete piers (12 inch diameter, and 36-60 inches deep). Power generated by the panels would be collected at pull boxes and transmitted to a substation near the highway. The substation would occupy a 2-acre area adjacent to the highway; it would contain transformers, switches, controls, batteries, and other electrical equipment that would allow KIUC to feed power into the existing electrical power lines along Kūhiō Highway. The 5-acre service center would contain offices, storage areas, and other facilities that would support KIUC operations in this part of the island.

KIUC acquired T. S. Dye & Colleagues, Archaeologists, Inc. (T.S. Dye) to complete the cultural resource inventory of the APE, entitled *Archaeological Inventory Survey with Backhoe Trenching near Anahola, in Kamalomalo 'o Ahupua'a, Puna District, Kaua'i Island T.M.K.: (4) 4-7-004:002 (May 2012)*. The survey includes preliminary records search and field survey, which consisted of ten (10) test trenches throughout the proposed APE. No traditional Hawaiian cultural materials were encountered during the inventory survey; however, historic-era features from the former use of the area as a sugarcane field, including two historic-era raised agricultural irrigation ditches were identified. The State Historic Preservation Division (SHPD) of the

1400 Independence Ave, SW • Mail Stop 1571 • Washington, DC 20250-1571
Web: <http://www.usda.gov/rus/water/ees/environ.htm>

Committed to the future of rural communities.

USDA is an equal opportunity provider, employer and lender.
To file a complaint of discrimination write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, DC 20250-9410 or call (800) 785-3272 (voice) or (202) 720-6382 (TDD).

Page 2

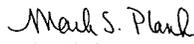
October 10, 2012

historic-era features from the former use of the area as a sugarcane field, including two historic-era raised agricultural irrigation ditches were identified. The State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources has assigned state site number 50-30-08-2160 to the APE to identify the sugarcane field features. The survey recommends the site as eligible for inclusion on the National Register of Historic Places under Criterion D for its informational content. All pertinent information related to site 50-30-08-2160 has been recorded, and no further work is recommended. Therefore, based on the findings of the survey, RUS proposes a finding of *no adverse effect to historic properties*.

In addition to an Archaeological Inventory Survey, Native Hawai'i, LLC was commissioned to conduct a Cultural Impact Assessment pursuant to Hawai'i Revised Statutes (HRS) Chapter 13-343, which mandates consideration of a proposed project's effects on traditional Hawaiian practices and beliefs. The survey, entitled *Cultural Impact Assessment Native Hawaiian Traditions, Customary Practices and Perspectives of Kamalomalo 'o and Anahola Ahupua'a Moku o Kawaihau, Kaua'i Island*, includes a review of background research and interviews with members of the native Hawaiian community. The CIA did not identify any ongoing native Hawaiian cultural resources or practices located on the project site.

RUS requests your review of the enclosed project materials, determinations of eligibility, and findings of effect. The enclosed materials will also be provided by RUS to the State Historic Preservation Officer and other native Hawaiian organizations (see attached list of NHOs) for comments and recommendations. RUS respectfully requests your review within thirty (30) days of your receipt of this correspondence. Please direct any questions you may have to Emily Orler, RUS Environmental Protection Specialist, at 202-720-1414 or emily.orler@wdc.usda.gov.

Sincerely,


Mark S. Plank
Director
Engineering & Environmental Staff
USDA Rural Utilities Service

Attachments:

- (1) Map of Project Area
- (2) Description of Proposed Action
- (3) Archaeological Inventory Survey for Anahola Solar Project
- (4) Cultural Impact Assessment for Anahola Solar Project
- (5) List of Native Hawaiian Organizations Consulted

cc: Gregg Matsuo, KIUC
Brad Rockwell, KIUC
Perry White, PSI



October 10, 2012

Ms. Liberta Hussey-Albao
President
Queen Deborah Kapule Hawaiian Civic Club
P.O. Box 164
Kapa'a, HI 96746

Subject: KIUC Anahola Solar Facility & Service Center Project
Tax Map Keys: (4) 4-7-004:002
Anahola, Kaua'i, Hawai'i

Dear Ms. Hussey-Albao:

The Kaua'i Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, which will include a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaua'i, Hawai'i (the Project). RUS may fund the Project, thereby making it an undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470(f), and its implementing regulations (36 CFR Part 800), and an action subject to the National Environmental Policy Act (NEPA), 42 U.S.C. Parts 4321-4347, the Council on Environmental Quality's (CEQ) Implementing Procedures, 40 CFR Parts 1500-1508, and RUS Environmental Policies and Procedures, 7 CFR Part 1794. KIUC has proposed to construct the Project on land owned and administered by the State of Hawai'i Department of Hawaiian Home Lands (DHHL) in Anahola, Kaua'i. DHHL may issue a lease for the Project, which requires the preparation of an EA pursuant to Hawai'i Revised Statutes (HRS) § 343-5 and Hawai'i Administrative Rules (HAR) § 11-200-5.

KIUC has proposed the Project to provide clean, renewable, and affordable power to the people of Kaua'i, and reduce KIUC's dependence on imported fossil fuels. The Project will be located on 60-acres of DHHL administered land; RUS has defined this 60-acre area, within which the photovoltaic facility, substation, service center, access roads, and storage yards will be located, as the Area of Potential Effect (APE). KIUC proposes to construct a low profile photovoltaic module installation system; panels would be mounted on pipe frames anchored by concrete piers (12 inch diameter, and 36-60 inches deep). Power generated by the panels would be collected at pull boxes and transmitted to a substation near the highway. The substation would occupy a 2-acre area adjacent to the highway; it would contain transformers, switches, controls, batteries, and other electrical equipment that would allow KIUC to feed power into the existing electrical power lines along Kūhiō Highway. The 5-acre service center would contain offices, storage areas, and other facilities that would support KIUC operations in this part of the island.

KIUC acquired T. S. Dye & Colleagues, Archaeologists, Inc. (T.S. Dye) to complete the cultural resource inventory of the APE, entitled *Archaeological Inventory Survey with Backhoe Trenching near Anahola, in Kamalomalo'o Ahupua'a, Puna District, Kaua'i Island TMK: (4) 4-7-004:002 (May 2012)*. The survey includes preliminary records search and field survey, which consisted of ten (10) test trenches throughout the proposed APE. No traditional Hawaiian cultural materials were encountered during the inventory survey; however,

1400 Independence Ave, SW • Mail Stop 1571 • Washington, DC 20250-1571
Web: <http://www.usda.gov/rus/water/ees/environ.htm>

Committed to the future of rural communities.

"USDA is an equal opportunity provider, employer and lender."
To file a complaint of discrimination write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, DC 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD).

Page 2

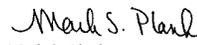
October 10, 2012

historic-era features from the former use of the area as a sugarcane field, including two historic-era raised agricultural irrigation ditches were identified. The State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources has assigned state site number 50-30-08-2160 to the APE to identify the sugarcane field features. The survey recommends the site as eligible for inclusion on the National Register of Historic Places under Criterion D for its informational content. All pertinent information related to site 50-30-08-2160 has been recorded, and no further work is recommended. Therefore, based on the findings of the survey, RUS proposes a finding of *no adverse effect to historic properties*.

In addition to an Archaeological Inventory Survey, Native Hawai'i, LLC was commissioned to conduct a Cultural Impact Assessment pursuant to Hawai'i Revised Statutes (HRS) Chapter 13-343, which mandates consideration of a proposed project's effects on traditional Hawaiian practices and beliefs. The survey, entitled *Cultural Impact Assessment Native Hawaiian Traditions, Customary Practices and Perspectives of Kamalomalo'o and Anahola Ahupua'a Moku o Kawaihau, Kaua'i Island*, includes a review of background research and interviews with members of the native Hawaiian community. The CIA did not identify any ongoing native Hawaiian cultural resources or practices located on the project site.

RUS requests your review of the enclosed project materials, determinations of eligibility, and findings of effect. The enclosed materials will also be provided by RUS to the State Historic Preservation Officer and other native Hawaiian organizations (see attached list of NHOs) for comments and recommendations. RUS respectfully requests your review within thirty (30) days of your receipt of this correspondence. Please direct any questions you may have to Emily Orler, RUS Environmental Protection Specialist, at 202-720-1414 or emily_orler@wdc.usda.gov.

Sincerely,


Mark S. Plank
Director
Engineering & Environmental Staff
USDA Rural Utilities Service

Attachments:

- (1) Map of Project Area
- (2) Description of Proposed Action
- (3) Archaeological Inventory Survey for Anahola Solar Project
- (4) Cultural Impact Assessment for Anahola Solar Project
- (5) List of Native Hawaiian Organizations Consulted

cc: Gregg Matsuo, KIUC
Brad Rockwell, KIUC
Perry White, PSI



October 10, 2012

Ms. Lorraine Rapoza
President
Anahola Hawaiian Homes Association
4523 Ioane Road
Anahola, HI 96703

Subject: KIUC Anahola Solar Facility & Service Center Project
Tax Map Keys: (4) 4-7-004:002
Anahola, Kaua'i, Hawai'i

Dear Ms. Rapoza:

The Kaua'i Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, which will include a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaua'i, Hawai'i (the Project). RUS may fund the Project, thereby making it an undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470(f), and its implementing regulations (36 CFR Part 800), and an action subject to the National Environmental Policy Act (NEPA), 42 U.S.C. Parts 4321-4347, the Council on Environmental Quality's (CEQ) Implementing Procedures, 40 CFR Parts 1500-1508, and RUS Environmental Policies and Procedures, 7 CFR Part 1794. KIUC has proposed to construct the Project on land owned and administered by the State of Hawai'i Department of Hawaiian Home Lands (DHHL) in Anahola, Kaua'i. DHHL may issue a lease for the Project, which requires the preparation of an EA pursuant to Hawai'i Revised Statutes (HRS) § 343-5 and Hawai'i Administrative Rules (HAR) § 11-200-5.

KIUC has proposed the Project to provide clean, renewable, and affordable power to the people of Kaua'i, and reduce KIUC's dependence on imported fossil fuels. The Project will be located on 60-acres of DHHL administered land; RUS has defined this 60-acre area, within which the photovoltaic facility, substation, service center, access roads, and storage yards will be located, as the Area of Potential Effect (APE). KIUC proposes to construct a low profile photovoltaic module installation system; panels would be mounted on pipe frames anchored by concrete piers (12 inch diameter, and 36-60 inches deep). Power generated by the panels would be collected at pull boxes and transmitted to a substation near the highway. The substation would occupy a 2-acre area adjacent to the highway; it would contain transformers, switches, controls, batteries, and other electrical equipment that would allow KIUC to feed power into the existing electrical power lines along Kūhiō Highway. The 5-acre service center would contain offices, storage areas, and other facilities that would support KIUC operations in this part of the island.

KIUC acquired T. S. Dye & Colleagues, Archaeologists, Inc. (T.S. Dye) to complete the cultural resource inventory of the APE, entitled *Archaeological Inventory Survey with Backhoe Trenching near Anahola, in Kamalomalo'o Ahupua'a, Puna District, Kaua'i Island TMK: (4) 4-7-004:002 (May 2012)*. The survey includes preliminary records search and field survey, which consisted of ten (10) test trenches throughout the proposed APE. No traditional Hawaiian cultural materials were encountered during the inventory survey; however,

1400 Independence Ave, SW • Mail Stop 1571 • Washington, DC 20250-1571
Web: <http://www.usda.gov/rus/water/ees/environ.htm>

Committed to the future of rural communities.

USDA is an equal opportunity provider, employer and lender.
To file a complaint of discrimination write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, DC 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD).

Page 2

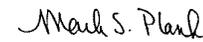
October 10, 2012

historic-era features from the former use of the area as a sugarcane field, including two historic-era raised agricultural irrigation ditches were identified. The State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources has assigned state site number 50-30-08-2160 to the APE to identify the sugarcane field features. The survey recommends the site as eligible for inclusion on the National Register of Historic Places under Criterion D for its informational content. All pertinent information related to site 50-30-08-2160 has been recorded, and no further work is recommended. Therefore, based on the findings of the survey, RUS proposes a finding of *no adverse effect to historic properties*.

In addition to an Archaeological Inventory Survey, Native Hawai'i, LLC was commissioned to conduct a Cultural Impact Assessment pursuant to Hawai'i Revised Statutes (HRS) Chapter 13-343, which mandates consideration of a proposed project's effects on traditional Hawaiian practices and beliefs. The survey, entitled *Cultural Impact Assessment Native Hawaiian Traditions, Customary Practices and Perspectives of Kamalomalo'o and Anahola Ahupua'a Moku o Kawaihau, Kaua'i Island*, includes a review of background research and interviews with members of the native Hawaiian community. The CIA did not identify any ongoing native Hawaiian cultural resources or practices located on the project site.

RUS requests your review of the enclosed project materials, determinations of eligibility, and findings of effect. The enclosed materials will also be provided by RUS to the State Historic Preservation Officer and other native Hawaiian organizations (see attached list of NHOs) for comments and recommendations. RUS respectfully requests your review within thirty (30) days of your receipt of this correspondence. Please direct any questions you may have to Emily Orler, RUS Environmental Protection Specialist, at 202-720-1414 or emily.orer@wdc.usda.gov.

Sincerely,


Mark S. Plank
Director
Engineering & Environmental Staff
USDA Rural Utilities Service

Attachments:

- (1) Map of Project Area
- (2) Description of Proposed Action
- (3) Archaeological Inventory Survey for Anahola Solar Project
- (4) Cultural Impact Assessment for Anahola Solar Project
- (5) List of Native Hawaiian Organizations Consulted

cc: Gregg Matsuo, KIUC
Brad Rockwell, KIUC
Perry White, PSI



United States Department of Agriculture
Rural Development | Rural Utilities Service

October 10, 2012

Ms. Robin Danner
President
Council for Native Hawaiian Advancement
1050 Queen Street, Suite 200
Honolulu, HI 96814

Subject: KIUC Anahola Solar Facility & Service Center Project
Tax Map Keys: (4) 4-7-004:002
Anahola, Kaua'i, Hawai'i

Dear Ms. Danner:

The Kaua'i Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, which will include a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaua'i, Hawai'i (the Project). RUS may fund the Project, thereby making it an undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470(f), and its implementing regulations (36 CFR Part 800), and an action subject to the National Environmental Policy Act (NEPA), 42 U.S.C. Parts 4321-4347, the Council on Environmental Quality's (CEQ) Implementing Procedures, 40 CFR Parts 1500-1508, and RUS Environmental Policies and Procedures, 7 CFR Part 1794. KIUC has proposed to construct the Project on land owned and administered by the State of Hawai'i Department of Hawaiian Home Lands (DHHL) in Anahola, Kaua'i. DHHL may issue a lease for the Project, which requires the preparation of an EA pursuant to Hawai'i Revised Statutes (HRS) § 343-5 and Hawai'i Administrative Rules (HAR) § 11-200-5.

KIUC has proposed the Project to provide clean, renewable, and affordable power to the people of Kaua'i, and reduce KIUC's dependence on imported fossil fuels. The Project will be located on 60-acres of DHHL administered land; RUS has defined this 60-acre area, within which the photovoltaic facility, substation, service center, access roads, and storage yards will be located, as the Area of Potential Effect (APE). KIUC proposes to construct a low profile photovoltaic module installation system; panels would be mounted on pipe frames anchored by concrete piers (12 inch diameter, and 36-60 inches deep). Power generated by the panels would be collected at pull boxes and transmitted to a substation near the highway. The substation would occupy a 2-acre area adjacent to the highway; it would contain transformers, switches, controls, batteries, and other electrical equipment that would allow KIUC to feed power into the existing electrical power lines along Kūhīō Highway. The 5-acre service center would contain offices, storage areas, and other facilities that would support KIUC operations in this part of the island.

KIUC acquired T. S. Dye & Colleagues, Archaeologists, Inc. (T.S. Dye) to complete the cultural resource inventory of the APE, entitled *Archaeological Inventory Survey with Backhoe Trenching near Anahola, in Kamalomalo'o Ahupua'a, Puna District, Kaua'i Island TMK: (4) 4-7-004:002 (May 2012)*. The survey includes preliminary records search and field survey, which consisted of ten (10) test trenches throughout the proposed APE. No traditional Hawaiian cultural materials were encountered during the inventory survey; however,

1400 Independence Ave, SW • Mail Stop 1571 • Washington, DC 20250-1571
Web: <http://www.usda.gov/rus/water/ees/environ.htm>

Committed to the future of rural communities.

USDA is an equal opportunity provider, employer and lender.
To file a complaint of discrimination write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, DC 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6362 (TDD).

Page 2

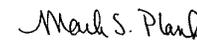
October 10, 2012

historic-era features from the former use of the area as a sugarcane field, including two historic-era raised agricultural irrigation ditches were identified. The State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources has assigned state site number 50-30-08-2160 to the APE to identify the sugarcane field features. The survey recommends the site as eligible for inclusion on the National Register of Historic Places under Criterion D for its informational content. All pertinent information related to site 50-30-08-2160 has been recorded, and no further work is recommended. Therefore, based on the findings of the survey, RUS proposes a finding of *no adverse effect to historic properties*.

In addition to an Archaeological Inventory Survey, Native Hawai'i, LLC was commissioned to conduct a Cultural Impact Assessment pursuant to Hawai'i Revised Statutes (HRS) Chapter 13-343, which mandates consideration of a proposed project's effects on traditional Hawaiian practices and beliefs. The survey, entitled *Cultural Impact Assessment Native Hawaiian Traditions, Customary Practices and Perspectives of Kamalomalo'o and Anahola Ahupua'a Moku o Kawaihau, Kaua'i Island*, includes a review of background research and interviews with members of the native Hawaiian community. The CIA did not identify any ongoing native Hawaiian cultural resources or practices located on the project site.

RUS requests your review of the enclosed project materials, determinations of eligibility, and findings of effect. The enclosed materials will also be provided by RUS to the State Historic Preservation Officer and other native Hawaiian organizations (see attached list of NHOs) for comments and recommendations. RUS respectfully requests your review within thirty (30) days of your receipt of this correspondence. Please direct any questions you may have to Emily Orler, RUS Environmental Protection Specialist, at 202-720-1414 or emily.orler@wdc.usda.gov.

Sincerely,


Mark S. Plank
Director
Engineering & Environmental Staff
USDA Rural Utilities Service

Attachments:

- (1) Map of Project Area
- (2) Description of Proposed Action
- (3) Archaeological Inventory Survey for Anahola Solar Project
- (4) Cultural Impact Assessment for Anahola Solar Project
- (5) List of Native Hawaiian Organizations Consulted

cc: Gregg Matsuo, KIUC
Brad Rockwell, KIUC
Perry White, PSI



United States Department of Agriculture
Rural Development | Rural Utilities Service

October 10, 2012

Mr. Melvin Soong
President
The I Mua Group
422 Iliaina Street
Kailua, HI 96734

Subject: KIUC Anahola Solar Facility & Service Center Project
Tax Map Keys: (4) 4-7-004:002
Anahola, Kaua'i, Hawai'i

Dear Mr. Soong:

The Kaua'i Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, which will include a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaua'i, Hawai'i (the Project). RUS may fund the Project, thereby making it an undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470(f), and its implementing regulations (36 CFR Part 800), and an action subject to the National Environmental Policy Act (NEPA), 42 U.S.C. Parts 4321-4347, the Council on Environmental Quality's (CEQ) Implementing Procedures, 40 CFR Parts 1500-1508, and RUS Environmental Policies and Procedures, 7 CFR Part 1794. KIUC has proposed to construct the Project on land owned and administered by the State of Hawai'i Department of Hawaiian Home Lands (DHHL) in Anahola, Kaua'i. DHHL may issue a lease for the Project, which requires the preparation of an EA pursuant to Hawai'i Revised Statutes (HRS) § 343-5 and Hawai'i Administrative Rules (HAR) § 11-200-5.

KIUC has proposed the Project to provide clean, renewable, and affordable power to the people of Kaua'i, and reduce KIUC's dependence on imported fossil fuels. The Project will be located on 60-acres of DHHL administered land; RUS has defined this 60-acre area, within which the photovoltaic facility, substation, service center, access roads, and storage yards will be located, as the Area of Potential Effect (APE). KIUC proposes to construct a low profile photovoltaic module installation system; panels would be mounted on pipe frames anchored by concrete piers (12 inch diameter, and 36-60 inches deep). Power generated by the panels would be collected at pull boxes and transmitted to a substation near the highway. The substation would occupy a 2-acre area adjacent to the highway; it would contain transformers, switches, controls, batteries, and other electrical equipment that would allow KIUC to feed power into the existing electrical power lines along Kūhīō Highway. The 5-acre service center would contain offices, storage areas, and other facilities that would support KIUC operations in this part of the island.

KIUC acquired T. S. Dye & Colleagues, Archaeologists, Inc. (T.S. Dye) to complete the cultural resource inventory of the APE, entitled *Archaeological Inventory Survey with Backhoe Trenching near Anahola, in Kamalomalo'o Ahupua'a, Puna District, Kaua'i Island TMK: (4) 4-7-004:002 (May 2012)*. The survey includes preliminary records search and field survey, which consisted of ten (10) test trenches throughout the proposed APE. No traditional Hawaiian cultural materials were encountered during the inventory survey; however,

1400 Independence Ave, SW • Mail Stop 1571 • Washington, DC 20250-1571
Web: <http://www.usda.gov/rus/water/ees/environ.htm>

Committed to the future of rural communities.

USDA is an equal opportunity provider, employer and lender.
To file a complaint of discrimination write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, DC 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD).

Page 2

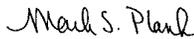
October 10, 2012

historic-era features from the former use of the area as a sugarcane field, including two historic-era raised agricultural irrigation ditches were identified. The State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources has assigned state site number 50-30-08-2160 to the APE to identify the sugarcane field features. The survey recommends the site as eligible for inclusion on the National Register of Historic Places under Criterion D for its informational content. All pertinent information related to site 50-30-08-2160 has been recorded, and no further work is recommended. Therefore, based on the findings of the survey, RUS proposes a finding of *no adverse effect to historic properties*.

In addition to an Archaeological Inventory Survey, Native Hawai'i, LLC was commissioned to conduct a Cultural Impact Assessment pursuant to Hawai'i Revised Statutes (HRS) Chapter 13-343, which mandates consideration of a proposed project's effects on traditional Hawaiian practices and beliefs. The survey, entitled *Cultural Impact Assessment Native Hawaiian Traditions, Customary Practices and Perspectives of Kamalomalo'o and Anahola Ahupua'a Moku o Kawaihau, Kaua'i Island*, includes a review of background research and interviews with members of the native Hawaiian community. The CIA did not identify any ongoing native Hawaiian cultural resources or practices located on the project site.

RUS requests your review of the enclosed project materials, determinations of eligibility, and findings of effect. The enclosed materials will also be provided by RUS to the State Historic Preservation Officer and other native Hawaiian organizations (see attached list of NHOs) for comments and recommendations. RUS respectfully requests your review within thirty (30) days of your receipt of this correspondence. Please direct any questions you may have to Emily Orler, RUS Environmental Protection Specialist, at 202-720-1414 or emily_orler@wdc.usda.gov.

Sincerely,


Mark S. Plank
Director
Engineering & Environmental Staff
USDA Rural Utilities Service

Attachments:

- (1) Map of Project Area
- (2) Description of Proposed Action
- (3) Archaeological Inventory Survey for Anahola Solar Project
- (4) Cultural Impact Assessment for Anahola Solar Project
- (5) List of Native Hawaiian Organizations Consulted

cc: Gregg Matsuo, KIUC
Brad Rockwell, KIUC
Perry White, PSI



October 10, 2012

Mr. Soulee LKO Stroud
President
Association of Hawaiian Civic Clubs
P.O. Box 1135
Honolulu, HI 96807

Subject: KIUC Anahola Solar Facility & Service Center Project
Tax Map Keys: (4) 4-7-004:002
Anahola, Kaua'i, Hawai'i

Dear Mr. Stroud:

The Kaua'i Island Utility Cooperative (KIUC) intends to seek financial assistance from the USDA Rural Utilities Service (RUS) to construct the Anahola Solar Facility & Service Center Project, which will include a 12 MW photovoltaic electric generation facility, a substation, and a service center in Anahola, Kaua'i, Hawai'i (the Project). RUS may fund the Project, thereby making it an undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470(f), and its implementing regulations (36 CFR Part 800), and an action subject to the National Environmental Policy Act (NEPA), 42 U.S.C. Parts 4321-4347, the Council on Environmental Quality's (CEQ) Implementing Procedures, 40 CFR Parts 1500-1508, and RUS Environmental Policies and Procedures, 7 CFR Part 1794. KIUC has proposed to construct the Project on land owned and administered by the State of Hawai'i Department of Hawaiian Home Lands (DHHL) in Anahola, Kaua'i. DHHL may issue a lease for the Project, which requires the preparation of an EA pursuant to Hawai'i Revised Statutes (HRS) § 343-5 and Hawai'i Administrative Rules (HAR) § 11-200-5.

KIUC has proposed the Project to provide clean, renewable, and affordable power to the people of Kaua'i, and reduce KIUC's dependence on imported fossil fuels. The Project will be located on 60-acres of DHHL administered land; RUS has defined this 60-acre area, within which the photovoltaic facility, substation, service center, access roads, and storage yards will be located, as the Area of Potential Effect (APE). KIUC proposes to construct a low profile photovoltaic module installation system; panels would be mounted on pipe frames anchored by concrete piers (12 inch diameter, and 36-60 inches deep). Power generated by the panels would be collected at pull boxes and transmitted to a substation near the highway. The substation would occupy a 2-acre area adjacent to the highway; it would contain transformers, switches, controls, batteries, and other electrical equipment that would allow KIUC to feed power into the existing electrical power lines along Kūhiō Highway. The 5-acre service center would contain offices, storage areas, and other facilities that would support KIUC operations in this part of the island.

KIUC acquired T. S. Dye & Colleagues, Archaeologists, Inc. (T.S. Dye) to complete the cultural resource inventory of the APE, entitled *Archaeological Inventory Survey with Backhoe Trenching near Anahola, in Kamalomalo'o Ahupua'a, Puna District, Kaua'i Island TMK: (4) 4-7-004:002 (May 2012)*. The survey includes preliminary records search and field survey, which consisted of ten (10) test trenches throughout the proposed APE. No traditional Hawaiian cultural materials were encountered during the inventory survey; however,

1400 Independence Ave, SW • Mail Stop 1571 • Washington, DC 20250-1571
Web: <http://www.usda.gov/rus/water/ees/environ.htm>

Committed to the future of rural communities.

USDA is an equal opportunity provider, employer and lender.
To file a complaint of discrimination write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, DC 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD).

Page 2

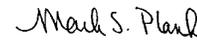
October 10, 2012

historic-era features from the former use of the area as a sugarcane field, including two historic-era raised agricultural irrigation ditches were identified. The State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources has assigned state site number 50-30-08-2160 to the APE to identify the sugarcane field features. The survey recommends the site as eligible for inclusion on the National Register of Historic Places under Criterion D for its informational content. All pertinent information related to site 50-30-08-2160 has been recorded, and no further work is recommended. Therefore, based on the findings of the survey, RUS proposes a finding of *no adverse effect to historic properties*.

In addition to an Archaeological Inventory Survey, Native Hawai'i, LLC was commissioned to conduct a Cultural Impact Assessment pursuant to Hawai'i Revised Statutes (HRS) Chapter 13-343, which mandates consideration of a proposed project's effects on traditional Hawaiian practices and beliefs. The survey, entitled *Cultural Impact Assessment Native Hawaiian Traditions, Customary Practices and Perspectives of Kamalomalo'o and Anahola Ahupua'a Moku o Kavaihau, Kaua'i Island*, includes a review of background research and interviews with members of the native Hawaiian community. The CIA did not identify any ongoing native Hawaiian cultural resources or practices located on the project site.

RUS requests your review of the enclosed project materials, determinations of eligibility, and findings of effect. The enclosed materials will also be provided by RUS to the State Historic Preservation Officer and other native Hawaiian organizations (see attached list of NHOs) for comments and recommendations. RUS respectfully requests your review within thirty (30) days of your receipt of this correspondence. Please direct any questions you may have to Emily Orler, RUS Environmental Protection Specialist, at 202-720-1414 or emily.orler@wdc.usda.gov.

Sincerely,


Mark S. Plank
Director
Engineering & Environmental Staff
USDA Rural Utilities Service

Attachments:

- (1) Map of Project Area
- (2) Description of Proposed Action
- (3) Archaeological Inventory Survey for Anahola Solar Project
- (4) Cultural Impact Assessment for Anahola Solar Project
- (5) List of Native Hawaiian Organizations Consulted

cc: Gregg Matsuo, KIUC
Brad Rockwell, KIUC
Perry White, PSI



January 24, 2013

Dr. Loyal Mehrhoff, Field Supervisor
U.S. Department of the Interior
Pacific Islands Fish and Wildlife Office
300 Ala Moana Blvd., Room 3-122, Box 50088
Honolulu, Hawai'i 96850

**Subject: Kaua'i Island Utilities Cooperative, Anahola Solar Facility & Service Center
Project Section 7 Consultation
Request for Concurrence with "NLAA" Determination
(USFWS Log # 2012/TA/0352)**

Dear Dr. Mehrhoff:

The U.S. Department of Agriculture's (USDA) Rural Utilities Service (RUS) has been asked to provide financial assistance to Kaua'i Island Utility Cooperative (KIUC), through its subsidiary KIUC Renewable Solutions One, LLC to develop, operate, and maintain a 12 Megawatt photovoltaic facility, including a supporting substation with interconnections to the island-wide electrical grid, and an adjacent 5-acre service center.

The USDA is seeking concurrence from the USFWS that the project is "not likely to adversely affect (NLAA)" any listed threatened or endangered species discussed below, or modify any federally designated critical habitat within the project site.

Project Overview

The proposed facilities would occupy 60 acres on the easternmost portion of a large, 422-acre parcel (TMK [4] 4-7-004:002) in Anahola, Kaua'i, Hawai'i (see Figure 1). The parcel, which is owned by the Department of Hawaiian Home Lands (DHHL), was formerly used for sugarcane cultivation but is currently fallow.

The Anahola Solar Project is expected to produce 23,500 megawatt-hours of clean, renewable electricity per year. This represents 5.2 percent of KIUC's total electrical generation in 2010. The project components are:

- Fifty-three acres of photovoltaic (PV) panels, inverters, and transformers providing up to 12 MW of electrical energy to KIUC's electrical grid.
- An adjacent 2-acre substation, which will be used for control equipment for the solar farm and to boost the power from the 12 kilovolts (kV) delivered by the PV system to the 57/69 kV voltage of KIUC's electrical transmission system.
- A service center occupying the remaining 5 acres of the 60-acre project area, which will include operational, and maintenance capacity, as well as a community meeting center and customer service office.
- A network of underground conduits and cables will link the PV facility to the substation.
- Two approximately 45-foot high A-frame supports, each mounted with five interconnection wires (ten total) would link the proposed substation with the existing transmission line on the *mauka* side of the Kūhiō Highway right-of-way, 50 feet away (shown in red in Figure 2). These structures—and the wires coming off them—would be the tallest in the substation; they would

Page 2
Dr. Loyal Mehrhoff
January 24, 2013

each be topped with a lightning protection wire. Other structures and landscaping would be lower, none of them exceeding a height of 25 feet above grade.

Project Consultation History

Representatives of the project submitted a letter and information packet to the Service on June 25, 2012. Included in the packet were maps of the site location, a description of the project, a copy of the biological survey report documenting the findings of the flora and fauna surveys conducted on the site, as well as a letter of agent from the USDA/RUS appointing KIUC and its consultant Planning Solutions, Inc. as its agents in this matter. Following the letter several telephone conversations between the project team and Michelle Bogardus of your office were held, in which the scope of the consultation was discussed, and the likely concerns that the Service would want to see addressed in the consultation were identified.

Potential Impacts to ESA protected Species

Biological surveys conducted on the project sites on January 16, 2012 (Guinther et al, 2012), and a review of pertinent literature and unpublished reports identified the following three listed avian and mammalian species as either likely present on the site, or likely to use resources in the general project area on a seasonal basis, or in the case of the three seabird species, overfly the project sites on a seasonal basis.

<i>Common Name</i>	<i>Scientific Name</i>
Hawaiian Petrel	<i>Pterodroma sandwichensis</i>
Newell's Shearwater	<i>Puffinus auricularis newelli</i>
Band-rumped Storm-Petrel	<i>Oceanodroma castro</i>
Hawaiian hoary bat	<i>Lasiurus cinereus semotis</i>

The principal potential impacts to the seabird species posed by this project revolve around the possibility that exterior lighting, which will be required at the service center, may attract fledgling seabirds on their inaugural fledgling flight from their inland colonies out to the ocean. As a result of that attraction, fledglings may fallout or possibly collide with structures within the general project area.

The principal potential impact that the project poses to Hawaiian hoary bats is during the clearing and grubbing phases of construction as vegetation is removed. The removal of vegetation within the project site may temporarily displace individual bats, which may use the vegetation as a roosting location. As bats use multiple roosts within their home territories, the potential disturbance resulting from the removal of the vegetation is likely to be minimal. During the pupping season, females carrying their pups may be less able to rapidly vacate a roost site as the vegetation is cleared. Additionally, adult female bats sometimes leave their pups in the roost tree while they forage. Very small pups may be unable to flee a tree that is being felled. Potential adverse effects from such disturbance can be avoided or minimized by not clearing woody vegetation taller than 4.6 meters (15-feet), between June 1 through September 15, the period in which bats are potentially at risk from vegetation clearing.

Page 3
Dr. Loyal Mehrhoff
January 24, 2013

Minimization Measures

The project proposes to implement the following minimization measures to ensure that the development and operation of the project does not result in deleterious impacts to the three listed avian and mammalian species identified in the table presented above.

Species Specific Minimization Measures

Hawaiian Petrel, Newell's Shearwater and Band-rumped Storm-Petrel

In designing the facility a concerted effort was made to design the facility so as to have as few aerial lines as possible – the majority of the lines will be undergrounded, thus reducing the risk of seabirds interacting with the facility infrastructure.

All lights that may be installed as part of the solar facility, substation and associated infrastructure will be shielded to reduce the risk that seabirds may be attracted to and then disoriented by the lighting. During the seabird fallout season (September 15 –December 15) all non-essential lights will be turned off, and KIUC will follow all downed seabird search, data recording, and reporting procedures that they currently follow at their other facilities and which are detailed in their existing Incidental Take Permit conditions.

Hawaiian hoary bat

No clearing or grubbing of woody vegetation taller than 4.6 meters (15 feet) high will be allowed during the bat pupping season, which runs from June 1 through September 15.

NLAA Determination

Based on the above information, the U.S. Department of Agriculture's (USDA) Rural Utilities Service (RUS) has determined that the project is not likely to adversely affect, Hawaiian Petrel, Newell's Shearwater, Band-rumped Storm-Petrel or Hawaiian hoary bat. We respectfully seek your concurrence with this determination. If you have any questions, please feel free to contact Makena White or Reginald David at (808) 550-4538 and (808) 329-9141 respectively. Thank you for your assistance.

Sincerely,


Perry J. White

Attachments:

1. Location Map
2. Plan View of Proposed Substation

cc: Emily Orler, RUS (via e-mail w/o enc)
Brad Rockwell, KIUC (via e-mail w/o enc)
Gregg Matsuo, KIUC (via e-mail w/o enc)
Reginald David, Rana Biological Consulting, Inc. (via e-mail w/o enc)



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, Hawaii 96850

In Reply Refer To:
2013-I-0113

FEB 11 2013

Mr. Perry White
Planning Solutions, Inc.
Ward Plaza, Suite 330
210 Ward Avenue
Honolulu, Hawaii 96814

Subject: Informal Consultation for the Kauai Island Utilities Cooperative Anahola Solar Facility and Service Center Project, Kauai

Dear Mr. White:

The U.S. Fish and Wildlife Service (Service) received your letter on January 25, 2012, requesting our concurrence with your determination that the proposed Anahola Solar Facility and Service Center will not adversely affect the federally threatened Newell's shearwater (*Puffinus auricularis newellii*), endangered Hawaiian petrel (*Pterodroma sandwichensis*), and a candidate for listing, the band-rumped storm-petrel (*Oceanodroma castro*), (collectively referred to as Hawaiian seabirds), and the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*). We previously provided comments on this project in a letter dated July 25, 2012 (Service File 2012-TA-0352).

The project is proposed by the Kauai Island Utility Cooperative (KIUC) through its subsidiary KIUC Renewable Solutions One, LLC. KIUC has applied for funding for the proposed project from the U.S. Department of Agriculture (USDA) – Rural Utility Services (RUS). We understand RUS designated KIUC and KIUC's consultant (Planning Solutions, Inc.) as non-federal representatives for this project in a letter dated June 14, 2012.

The 12 megawatt facility, including 53 photovoltaic panels, an adjacent substation, service center, and associated conduits and cables, will be constructed on 60 acres in Anahola [TMK (4) 4-7-004:002]. The facility is anticipated to produce 23,525 megawatt-hours of electricity per year, representing approximately 5.2 percent of KIUC's total electrical generation. Although the majority of the facilities cables and conduits will be installed underground, two sections of cables will be installed above-ground to link the substation with the existing transmission line 50 feet away. These two sections would be approximately 45 feet tall and comprised of five interconnection wires. Both cable sections will run perpendicular to the ocean coastline. This response is in accordance with section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.*).

TAKE PRIDE[®]
IN AMERICA 

Hawaiian seabirds

Seabirds fly at night and are attracted to artificially-lighted areas that can result in disorientation and subsequent fallout due to exhaustion or collision. Seabirds are also susceptible to collision with objects that protrude above the vegetation layer when traversing between the ocean and their mountainous breeding areas, such as utility lines, guy-wires, and communication towers. Additionally, once grounded, they are vulnerable to predators and are often struck by vehicles along roadways. Any increase in the use of nighttime lighting, particularly during each year's peak fallout period (September 15 through December 15), could result in additional seabird injury or mortality.

To minimize potential impacts to Hawaiian seabirds, the following measures are included in the implementation of this project:

- All cables, conduits and transmissions lines will be undergrounded except for two 50 foot sections (as described above) which are necessary to connect the substation to the existing transmission line.
- All facility lights will be shielded to minimize the risk of seabirds becoming disoriented.
- External lighting during the seabird fallout season (September 15 through December 15) will be further minimized by turning off all lights not necessary for safety.
- KIUC will implement standard avoidance, minimization, and monitoring measures, as described in their existing Habitat Conservation Plan at this facility.

Hawaiian hoary bat

The Hawaiian hoary bat is a medium-sized [0.5-0.8 ounces (14-22 grams)], nocturnal, insectivorous bat. The Hawaiian hoary bat is known from the islands of Hawaii, Maui, Oahu, Kauai, and Molokai. Population numbers are not known, but Hawaiian hoary bats are observed regularly on Hawaii, Kauai, and Maui. There is a general lack of historic and current data on this subspecies, and its present status and habitat requirements are not well understood. Bats are most often observed foraging in open areas, near the edges of native forests, or over open water, although this may be due to the ease of detection in these habitats. Hawaiian hoary bats roost solitarily in the foliage of trees. Threats to the Hawaiian hoary bat include habitat destruction (elimination of roosting sites), direct and indirect effects of pesticides, disease and entanglement on barbed wire fences. In addition, clearing woody vegetation could harm non-volant juveniles left in roost tree as the female forages. Potential adverse effects from such disturbance can be avoided by not clearing vegetation greater than 15 feet between June 1 and September 15, the period in which juvenile bats are most vulnerable.

To minimize potential impacts to Hawaiian hoary bats, the following is included in the implementation of this project:

- Woody vegetation suitable for bat roosting will not be cleared between June 1 and September 15.

Based on the above avoidance and minimization measures, the Service concurs with your determination that this proposed project may affect, but is not likely to adversely affect the

Newell's shearwater, Hawaiian petrel, band-rumped storm-petrel and Hawaiian hoary bat. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, we recommend you contact our office so that we may assist you in re-assessing project impacts.

We appreciate your efforts to conserve protected species. If you have questions regarding this consultation, please contact Michelle Bogardus, Consultation and Habitat Conversation Planning Program (phone: 808-792-9400; fax: 808-792-9581).

Sincerely,



Loyal Mehrhoff
Field Supervisor

Cc: Emily Orlor, USDA-RUS
Brad Rockwell, KIUC
Gregg Matsuo, KIUC
Reginald David, Rana Biological Consulting, Inc.

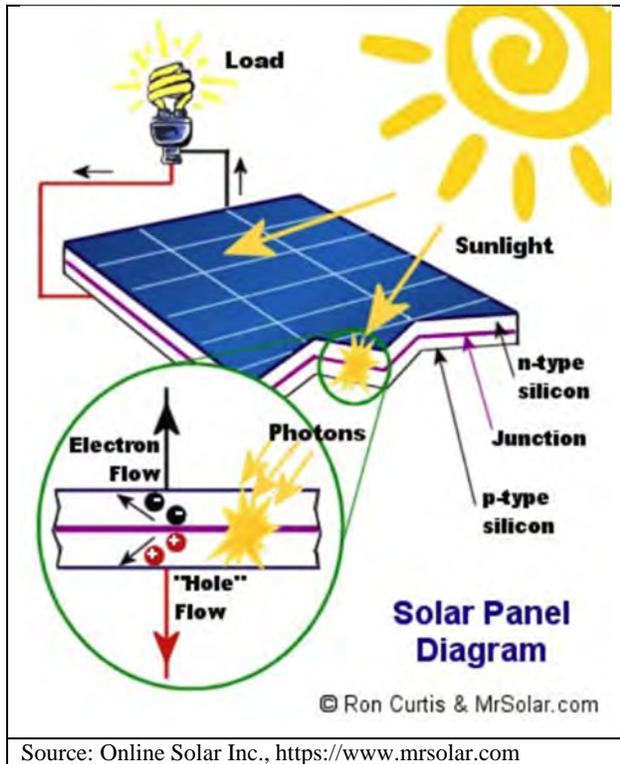
E. SOLAR PHOTOVOLTAIC BASICS

Photovoltaic cells convert a portion of the energy in sunlight into electricity. Typically, photovoltaic cells are made by sandwiching together two thin layers of semiconductor material. The two layers have slightly different chemical compositions that facilitate electron transfer between them. When sunlight energy is absorbed by a solar cell,⁷³ it causes electrons to “escape” from molecules in one layer of material and move to those in the other layer. This creates an electrical field that can be converted into electricity (see Figure 3).

A number of different types of silicon are used in the manufacture of photovoltaic cells and both the type and manufacturing technologies are evolving rapidly. The photovoltaic cells used in the Anahola Solar Project are manufactured from what is known as polycrystalline silicon, which is composed of many smaller silicon grains of varied crystallographic orientation. Polycrystalline silicon is produced from highly pure molten silicon using a casting process. The silicon is heated to a high temperature and cooled under controlled conditions in a mold. It sets as an irregular poly- or multi-crystal form. The square silicon block is then cut into thin (e.g., 0.3 millimeter, or a little more than 0.01 inch) slices. It reflects the least and absorbs the most light. More chemical processes and fixing of the conducting grid and electrical contacts complete the process. Mass-produced polycrystalline photovoltaic cell modules have an efficiency of 11-15%.

The solar cell is the basic manufactured unit of photovoltaic technology, typically ranging from less than one inch to several inches across, and it includes semiconductor material, a substrate, a protective layer, and wiring to conduct electricity. Cells are assembled into modules, and modules are assembled into larger collections of panels and arrays.

⁷³ A solar cell is the manufactured unit of PV technology. It typically ranges from less than one inch to several inches across, and it includes semiconductor material, a substrate, a protective layer, and wiring to conduct electricity. Cells are assembled into modules, and modules are assembled into larger collections of panels and arrays.

Figure: Polycrystalline Panel

Source: Online Solar Inc., <https://www.mrsolar.com>

Individual crystalline silicone (c-Si) solar cells are assembled from thin wafers of silicon that are cut from monocrystalline silicon cylinders (called “rods” or “ingots”) or from blocks of cast multicrystalline silicon. Two wafers are slightly altered (or “doped”) with small amounts of different impurities to facilitate electron transfer, for example phosphorous in one wafer and boron in another. The wafers are sandwiched together between glass or layers of ethyl vinyl acetate and a polymer laminate to protect the cells. Metal grids and contacts conduct the electrical energy produced, and inverters change the direct current (DC) produced by solar cells to the alternating current (AC) used in power.

Photovoltaic cells are combined into modules (typically several square feet), then into panels or arrays. One significant problem for c-Si production is the loss of material in sawing—as much as 50 percent of the highly refined and increasingly expensive silicon is lost in the process.