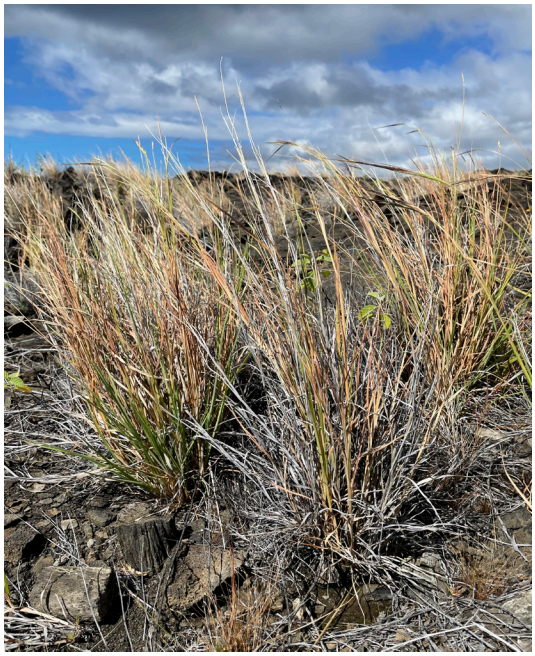
Kahuku Coastal
Resources Management Plan

FINAL

April 2022







(From left to right) Rocky beach area suitable for green sea turtles and monk seals to bask; salt pans; pili grass; anchialine pool; ʻaʻaliʻi; lava channel, petroglyph.

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TOWNSCAPE, INC.
Environmental & Community Planning

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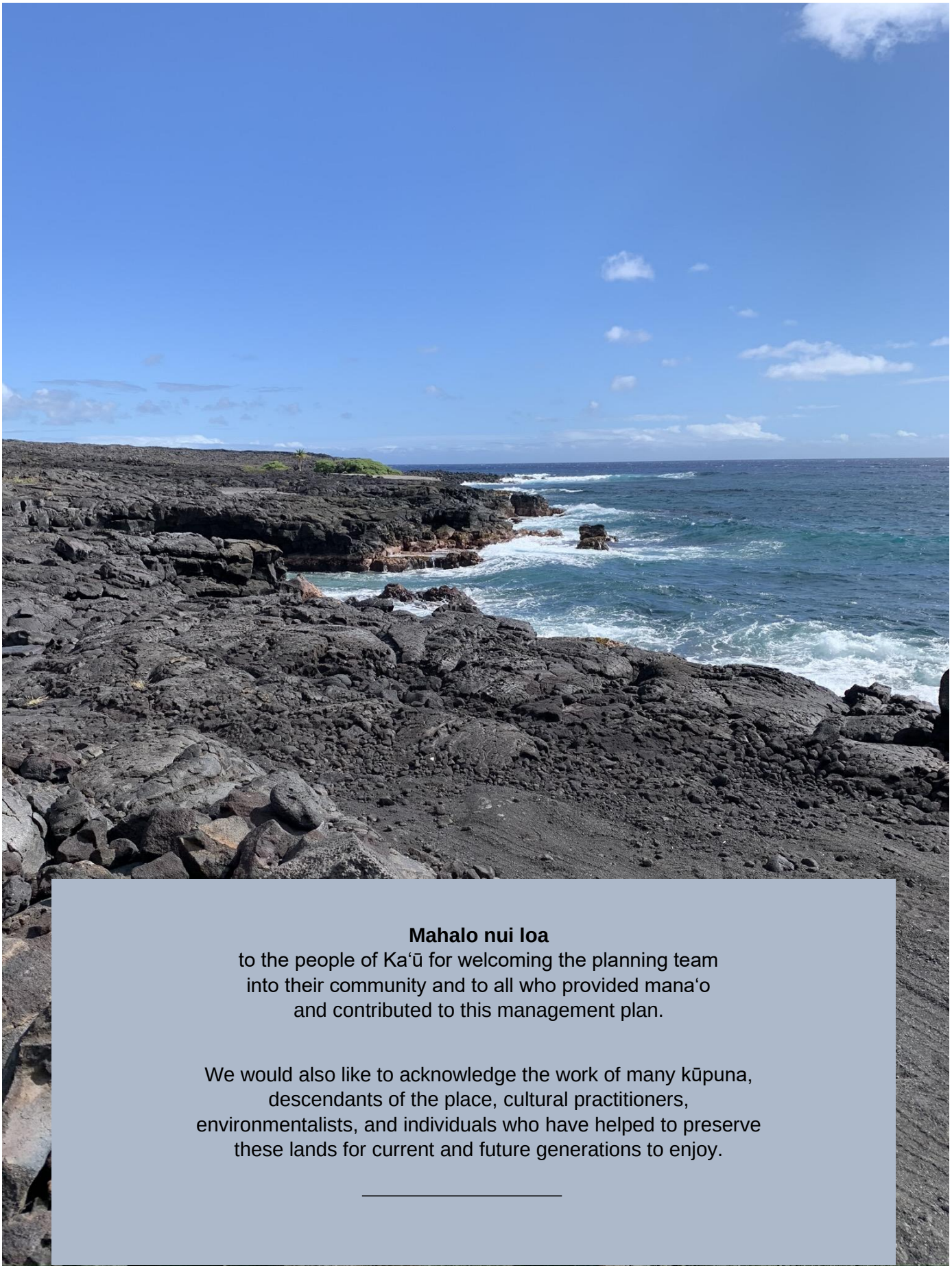

Mahalo nui loa
to the people of Kaʻū for welcoming the planning team
into their community and to all who provided manaʻo
and contributed to this management plan.

We would also like to acknowledge the work of many kūpuna,
descendants of the place, cultural practitioners,
environmentalists, and individuals who have helped to preserve
these lands for current and future generations to enjoy.

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Executive Summary

Kahuku Coastal is a special place with many important qualities for the people of Kaʻū and residents from other regions of the island. This place, also locally referred to as “Road to the Sea”, is located in Kahuku Ahupuaʻa, Kaʻū District, on the island of Hawaiʻi. At Kahuku Coastal, one will find a relatively pristine, unaltered landscape with open space and impressive vistas of the Kaʻū coastline. The sense of peace and tranquility this area provides, accompanied by the rugged and remote location, adds to the natural beauty this place offers. It is one of the few locations where families can still enjoy an undeveloped coastline without the crowds. This area also provides access to resources along the shoreline that local families rely upon for subsistence. The sensitive cultural and natural resources, including habitat for the federally listed endangered hawksbill sea turtle, the threatened green sea turtle, and the endangered Hawaiian monk seal, are naturally protected because the challenging road access limits the number of people who drive down to the coast. The desired outcome for this Kahuku Coastal Plan is to protect the resources so that current and future generations may continue their way of life that makes Kaʻū, Kaʻū, and to perpetuate cultural practices that have been passed down for generations.

Recognizing the intrinsic qualities of this place, the County of Hawaiʻi (County) purchased this 3,127.95-acre coastal parcel, TMK (3) 9-2-001: 075, in 2016 by using monies from the County’s Public Access, Open Space, and Natural Resources Preservation Fund (Preservation Fund) and by leveraging funds from the State Department of Land and Natural Resources (DLNR) Legacy Land Conservation Program (LLCP) and the U.S. Fish & Wildlife (USFWS) Recovery Lands Acquisition (RLA) program.

Kahuku Coastal, along with many other parcels along this coastline, has been subject to major development proposals. Since the 1980s, this area has been proposed for resort development twice. As a result of the County’s acquisition of these lands, Kahuku Coastal will remain as open space in perpetuity. While Kahuku Coastal is now protected from the threat of development, it is important to develop and implement management strategies to ensure that resources are properly cared for *before* human impacts irreversibly compromise the ability of future generations to enjoy this place. Many kūpuna, lineal descendants, cultural practitioners, and environmentalists have fought hard for decades to preserve open space along the Kaʻū coastline, which sustains the unique lifestyle that makes Kaʻū, Kaʻū.

In 2020, the County’s Department of Finance, Property Management Division contracted with Townscape, Inc. to prepare a Resources Management Plan for the long-term stewardship of Kahuku Coastal. This management plan fulfills the conditions of the federal Recovery Land Acquisition Grant Agreement No. F12AP01107 with USFWS. Pursuant to the terms of the federal award, Kahuku Coastal shall be managed in perpetuity for the protection of threatened and endangered species’ habitat including the hawksbill turtle, Hawaiian monk seal, green turtle, and 22 other rare, endemic, and indigenous animal species as per the grant proposals submitted by the DLNR Division of Forestry and Wildlife. In addition, pursuant to the terms of the state award, the warranty deed that conveyed fee title for Kahuku Coastal from Sands of South Kona, LLC to the County of Hawaiʻi includes a restriction that “the property shall be managed consistently with the purposes for which the LLCP grant was awarded and Chapter 173A, Hawaiʻi Revised Statues.” The LLCP grant was awarded to protect the Property resource values relating to the coastal area, habitat protection, cultural and historic sites, passive recreational areas, natural areas, and open space and scenic resources.

This management plan describes the cultural heritage and natural resources of Kahuku Coastal; outlines specific management strategies and actions to ensure resources within the County's property are properly cared for, including habitat for native, threatened, and endangered plants and animals; and provides general guidance on the next steps for implementation. Management strategies and actions presented in this plan are based on huakaʻi, field visits, and consultations with stakeholders knowledgeable about the place and with agencies involved in the management of resources specific to Kahuku Coastal. Stakeholders included kūpuna, lineal descendants, neighboring landowners, site users (e.g., cultural practitioners, recreational and subsistence fishers, beachgoers, campers, lava tube researchers, and hikers), community organizations, and government agencies. Three key themes relating to the importance of Kahuku Coastal that emerged from the stakeholder outreach are: 1) Some of the most important qualities of this place are its pristine natural beauty and its rugged, remote location; 2) This site provides access to the shoreline and is one of the few places where families can still spend time together and experience open space and the undeveloped coastline of Kaʻū without the crowds; and 3) This beautiful, untouched area provides food for our families and allows us to perpetuate cultural and educational practices passed down for generations.

Understanding the role that this area contributes to the way of life for the people of Kaʻū and residents from other regions of the island, the following goals for Kahuku Coastal were identified:

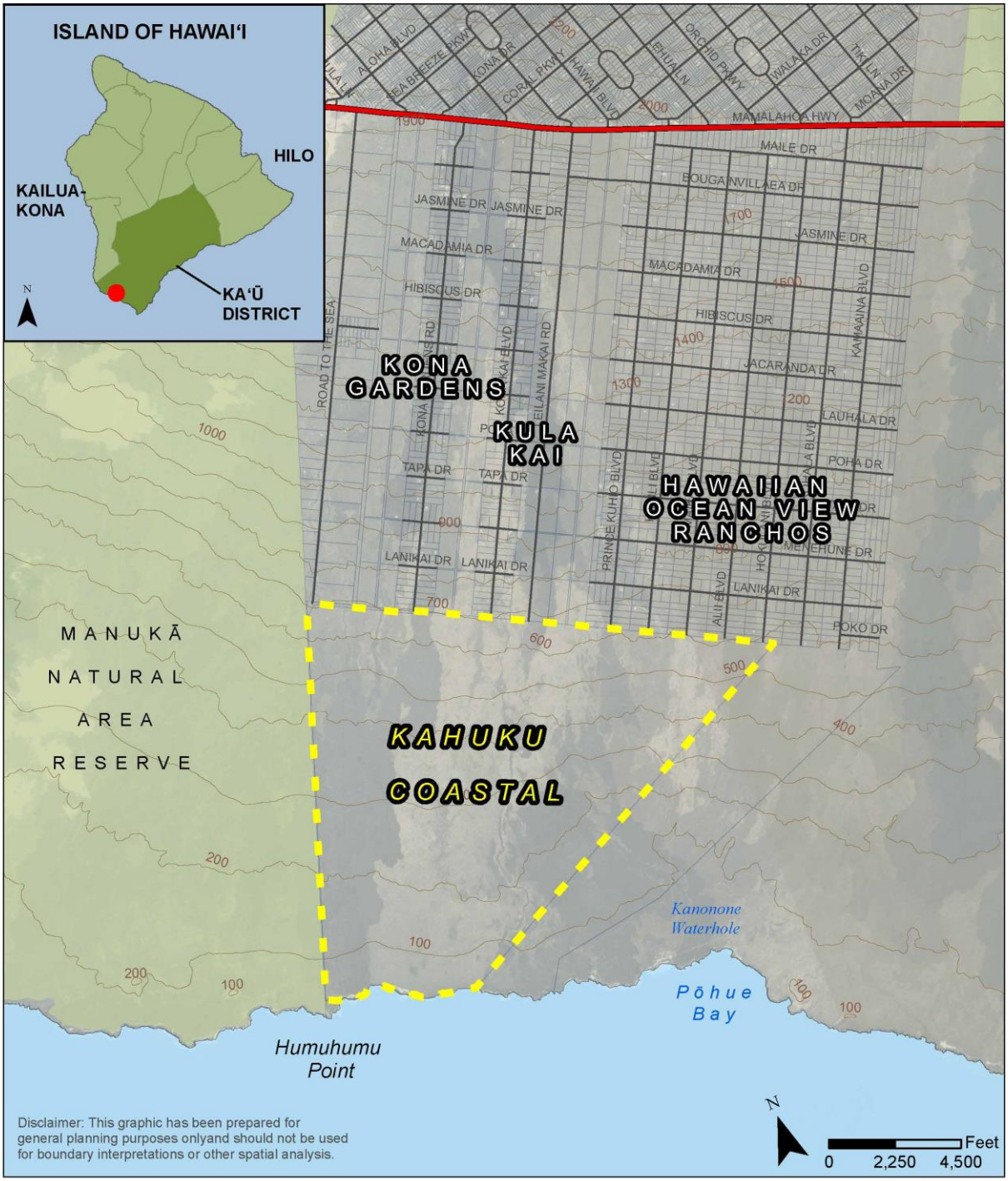
- Goal 1: Preserve and maintain the pristine, natural character of the landscape, open space, and unique lifestyle practices that make Kaʻū, Kaʻū.
- Goal 2: Protect cultural and natural resources, especially considering potential climate change impacts to nearshore and coastal resources.
- Goal 3: Provide opportunities for the people of Kaʻū and residents from other regions of the island to enjoy this area without compromising the integrity of its resources, its high ecological value, and the special qualities unique to this place.
- Goal 4: Enable proper management by increasing public understanding of the cultural and natural significance of this place and the threats that endanger it and by increasing support for the community and their capacity to provide stewardship.

Thirteen management strategies are proposed to act synergistically to improve the overall health of the ecosystem, which in turn has direct and indirect benefits for all native species and resources. These strategies are grouped into the following topic areas: 1) Site Presence and Education; 2) Public Activity and Use Management; 3) Resource Protection; 4) Threatened and Endangered Species Management. For Kahuku Coastal, emphasis should be placed on partnering with lineal descendants, cultural practitioners, and community organizations and individuals from Kaʻū to steward resources. These community partners should include organizations with knowledge in different aspects of the place, especially entities with expertise in managing and protecting habitat for species highlighted in the RLA Grant Agreement (see Table 2). Community involvement is essential to the long-term success of this plan. The County should establish a Memorandum of Understanding (MOU) or Grant Agreement with each non-profit organization involved in a specific component of stewardship for Kahuku Coastal. Community organizations should actively seek funding through the County's Public Access, Open Space, and Natural Resources Preservation Maintenance Fund, which provides funding specifically for public safety maintenance and preservation of lands and easements acquired through the Preservation Fund, to carry out actions outlined in this plan.

Table 1. Summary of Regulatory and Land Use Information

Tax Map Key		**(3) 9-2-001: 075**
Land Area		3,127.95 acres
Elevation		Sea level to approximately 700 feet.
Regulatory	State Land Use Designation	Agriculture (20%) Conservation (80%)
	County General Plan Land Use Pattern Allocation Guide (LUPAG) Map Designation	Open; Conservation Recreation; Conservation (proposed in the August 2019 draft of the 2040 General Plan).
	County Zoning Designation	Open
	Shoreline Management Area	The coastline is within the Special Management Area and the West Hawai‘i Regional Fishery Management Area.
Hazards	Flood Zone	None
	Sea Level Rise	The shoreline may be impacted with 3.2 feet of sea level rise, by or before the year 2100.
	Lava Hazard Zone	Zone 2 (with 1 being the highest and 9 the lowest)
	Tsunami Evacuation Zone	None
Infrastructure	County Water	None
	County Sewer	None
	Electric/Communication	Electric and telephone service available from Māmalahoa Highway
	Access	The County’s legal access from Māmalahoa Highway is on the southern side of Hawaiian Ocean View Ranchos subdivision. Consultations indicated that three roads from Māmalahoa Highway have been utilized to access the roadway along the western boundary of the Kahuku Coastal parcel. These roads include Road to the Sea, an unnamed road to the south of Road to the Sea, and Kona Gardens Road. All three roads are privately-owned. Road to the Sea and the unnamed road to the south of Road to the Sea are unpaved and require the use of a four-wheel drive vehicle to maneuver the steep ledges, cracks and potholes. Kona Gardens Road is a paved road located within the Kona Gardens subdivision, which requires gate access. Use of these privately-owned roads by the general public to access Kahuku Coastal is discouraged by the County.
Resources	Historic and Cultural Sites	Archaeological Reconnaissance Survey (2020) identified 1,555 features, including trails, lava tubes, habitation complexes, temporary habitation, and petroglyphs.
	Average Annual Rainfall	24 to 27 inches
	Soil Classification	(rLV) ‘A‘ā Lava flows, 2 to 20 percent slopes (rLW) Pāhoehoe Lava flows, 2 to 20 percent slopes
	Flora and Fauna	No Threatened and Endangered (T&E) plant species were found on the Property. Native plant species consist of lama (*Diospyros sandwicensis*), a‘ali‘i (*Dodonaea viscosa*), ‘iwa‘iwa (*Doryopteris decora*), mau‘u ‘aki‘aki (*Fimbristylis cymosa*), pili (*Heteropogon contortus*), ‘ōhi‘a (*Metrosideros polymorpha*), ‘aki‘aki (*Sporobolus virginicus*), and ‘uhaloa (*Waltheria indica*). Based on the Biological Inventory submitted in the DOFAW grant application and referenced in the RLA Grant Agreement, the Property provides habitat for at least four federally listed species: • Endangered hawksbill sea turtle (*Eretmochelys imbricata)* • Threatened green sea turtle (*Chelonia mydas*) • Endangered Hawaiian monk seal (*Neomonachus schauinslandi*) • Endangered Anchialine pool shrimp (*Procaris hawaiana*) Note that the presence of the anchialine pool shrimp (*Procaris hawaiana*) was not verified as part of this management plan process, but was listed in the Biological Inventory submitted in the DOFAW grant application and referenced in the RLA Grant Agreement. A subsequent survey completed by Terry & Hart (2020) confirmed that Kahuku Coastal also provides habitat for the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*).

Figure 1. Project Location



1 Introduction

Kahuku Coastal, TMK (3) 9-2-001: 075, is a 3,127.95-acre coastal parcel located in Kahuku Ahupuaʻa, Kaʻū District, on the island of Hawaiʻi. Locally referred to as “Road to the Sea,” this relatively pristine, unaltered landscape provides open space and impressive vistas of over a mile of coastline and is special to both the people of Kaʻū and to residents from other parts of the island. There is a sense of peace and tranquility that this place provides, protected by its rugged and remote location. Families have remarked that it is one of the few locations where they can still enjoy the natural beauty of an undeveloped shoreline without crowds. Local families also rely upon Kahuku Coastal to gather coastal resources for subsistence and plants for medicinal purposes. The coastline along Kahuku Coastal provides habitat for native animals, including the federally listed endangered hawksbill sea turtle, the threatened green sea turtle, and the endangered Hawaiian monk seal. Challenging road conditions limit vehicular access to the site and protect the habitat for these sensitive species. The strong current in this area also makes it difficult for the public to enter this area from offshore, thus, further protecting the habitat for these species.

Kahuku Coastal, along with many other parcels along this coastline, has been proposed for major developments over the years, most recently for a resort. Recognizing the unique qualities of these lands, the County of Hawaiʻi (County) purchased the Property in 2016 using the Public Access, Open Space, and Natural Resources Preservation Fund (Preservation Fund) and by leveraging funds from the State Department of Land and Natural Resources (DLNR) Legacy Land Conservation Program (LLCP) and the U.S. Fish & Wildlife (USFWS) Recovery Lands Acquisition (RLA) program. The County’s acquisition of this property ensures that it will remain as open space in perpetuity.

While Kahuku Coastal is now protected from the threat of development, it is important to develop and implement management strategies to ensure that resources are properly cared for *before* human impacts irreversibly compromise the ability of future generations to enjoy this place. The objective of the Kahuku Coastal Resources Management Plan is to work with the kūpuna, lineal descendants, cultural practitioners, naturalists, and neighbors who have fought hard for decades to protect the Kaʻū coastline; to manage its natural and cultural resources; and to perpetuate the local Kaʻū lifestyle and cultural practices that have been passed down for generations. By doing so, this management plan fulfills the conditions of the federal Recovery Land Acquisition Grant Agreement No. F12AP01107 with USFWS.

1.1 Background

As of December 2020, more than 6,760 acres on the island of Hawai‘i have been acquired through the Preservation Fund. Each year the public can nominate properties that are considered worthy of preservation to the Public Access, Open Space, and Natural Resources Commission (Commission). The nine-member Commission[1], established in 2005, reviews and evaluates all suggestions from the community and is responsible for providing an island wide list of prioritized properties for acquisition to the mayor each year. After the mayor provides comments and recommendations, the list is then submitted to the County Council for consideration. Once a property is ranked on the island wide prioritized list, a member of the County Council may submit a resolution to authorize the Director of Finance to proceed with negotiations for acquisition. Refer to the Commission's Annual Reports to the Mayor, available on the County's website, for more information on the list of properties and funding.

The Commission also reviews applicants and recommends recipients of the Stewardship Grants, which are awarded from the Public Access, Open Space, and Natural Resources Preservation Maintenance Fund (Maintenance Fund). The County's Finance Department is responsible for providing staff support to the Commission.

1.1.1 Public Access, Open Space, and Natural Resources Preservation Fund

The Preservation Fund is funded by two percent of the County's annual real property tax revenues. It is administered and managed by the County's Finance Department. Per County Charter Section 10-15, the Preservation Fund provides monies to purchase or acquire lands and easements in the County for public outdoor recreation and education, including:

- Access to beaches and mountains;
- Preservation of historic or culturally important land areas and sites;
- Protection of natural resources, significant habitat or eco-systems, including buffer zones;
- Preservation of forests, beaches, coastal areas, natural beauty and agricultural lands; and
- Protection of watershed lands to preserve water quality and water supply.

[1] The Commission serves an advisory role to the Mayor. The Commission members are appointed by the Mayor and confirmed by the County Council. One member must reside in each County council district. Members serve staggered terms of five years. (Hawai‘i County Code Chapter 2, Article 42, Section 2-215)

Any land acquired with the Preservation Fund shall contain the following restrictive covenant in its recorded deed of conveyance:

> "This land was acquired with moneys from the Public Access, Open Space, and Natural Resources Preservation Fund. It shall be held in perpetuity for the use and enjoyment of the people of Hawai'i County and may not be sold, mortgaged, traded or transferred in any way."

In 2020, Hawai'i County voters approved a charter amendment which allows the Preservation Fund to pay salary, wages, and benefits for staff dedicated to supporting the purposes of the Preservation Fund and Maintenance Fund.

1.1.2 Public Access, Open Space, and Natural Resources Preservation Maintenance Fund

The Maintenance Fund provides funding for the maintenance of lands and easements acquired through the Preservation Fund. It is made up of 0.25 percent of the County's annual real property tax revenues. The Maintenance Fund ensures that money is dedicated to preserve the land, promote public safety, and maintain healthy stewardship. Monies from the Maintenance Fund may be used solely for public safety maintenance and preservation of lands and easements acquired through the Preservation Fund. County Charter Section 10-16 outlines permitted uses of the Maintenance Fund. Another charter amendment in 2020 transferred the responsibility and administration of the Maintenance Fund from the Department of Parks and Recreation to the Department of Finance.

501(c)3 nonprofits or organizations under the umbrella of a 501(c)3 nonprofit may apply for stewardship grants issued from the Maintenance Fund for uses as outlined in the County Charter.

1.1.3 Kahuku Coastal Acquisition and Grant Agreements

The County acquired the Kahuku Coastal property with monies from the Preservation Fund ($771,979) and by leveraging funds from federal and state sources: $1.214 million from the USFWS Recovery Lands Acquisition (RLA) program and $621,245 from the State DLNR Legacy Land Conservation program. The "Agreement to Subgrant between County of Hawai'i and the State of Hawai'i," dated June 5, 2015 allowed the County to use funds provided to DLNR by USFWS to facilitate the County's acquisition of Kahuku Coastal. The conditions of the subgrant state that the County shall:

- Create a long-term management plan for the property, consisting of an endangered species and habitat protection program that addresses key threats—which include predators, habitat alteration and fragmentation, development pressure, alien species, trash, human waste, climate change, and sea level rise—while providing continued access to the shoreline for fishing, hiking, and recreational opportunities;
- Secure funding for protecting and managing endangered species and their habitat;
- Implement the management plan; and

  Manage, conduct, and oversee the maintenance efforts specified in the Management Plan.

To ensure the long-term protection of these lands, the warranty deed that conveyed the fee title for Kahuku Coastal from Sand of South Kona, LLC to the County includes the following restriction:

> "The Property is acquired in part with funds received from the Endangered Species Act Section 6 Cooperative Endangered Species Conservation Fund (CFDA #15.615) through the Federal Award number F12AP01107 dated September 10, 2012, as amended, between the United States Fish and Wildlife Service and the State of Hawaii, Department of Land and Natural Resources, and is subject to all the terms and conditions of said federal award…The Property shall be managed pursuant to the terms of the award in perpetuity for conservation of listed species including the Hawksbill Turtle, Hawaiian Monk Seal, Green Turtle, and 22 other rare, endemic, and indigenous animal species as per the grant proposals submitted by the Division of Forestry and Wildlife [emphasis added]. This acquisition is for the protection of threatened and endangered species' habitat in perpetuity, and the restrictions herein shall run with the land to all heirs and successors of the Property."

Furthermore, the warranty deed also states that "the property shall be managed consistently with the purposes for which the LLCP grant was awarded and Chapter 173A, Hawai'i Revised Statues." The LLCP grant agreement was awarded to protect the Property's resource values. These resource values are summarized below.

- **Coastal areas, beaches, and ocean access**: The Property has over a mile of coastline and is recognized for its high ecological value. The acquisition of the Property provides a permanent legal public access to the shoreline for this part of Ka'ū.
- **Habitat protection**: The Property provides habitat for Threatened & Endangered (T&E)[2] species, including providing nesting habitat for hawksbill sea turtles (*Eretmochelys imbricata*) and foraging and resting areas for green sea turtles (*Chelonia mydas*) and Hawaiian monk seals (*Neomonachus schauinslandi*). A number of native plant species, including mau'u'aki'aki (*Fimbristylis cymosa*), 'uhaloa (*Waltheria indica*), and pili grass (*Heteropogon contortus*), are also present on the Property.
- **Cultural and historic sites**: More than 1,555 archaeological features have been identified on the Property. These cultural and historic sites include trails, a lava tube system, habitation complexes, temporary habitations, and petroglyphs.
- **Recreational areas**: The Property provides the community with access to the shoreline for fishing and swimming. It also provides access for hiking.
- **Natural areas**: The Property consists of coastal cinder cones and associated sand beaches, anchialine ponds, a series of ground cracks, and lava tube systems. It is located adjacent to the State's Manukā Natural Area Reserve.

[2] Under the Endangered Species Act (ESA), species may be listed as either endangered or threatened. An endangered species is in danger of extinction throughout all or a significant portion of its range, while a threatened species is likely to become endangered within the foreseeable future.

- **Open space and scenic resources:** Vistas of the Property are visible from the surrounding lands as well as a scenic lookout located on Hawai‘i Belt Road. The Property also provides panoramic views of the coastline.

Table 2 provides a list of the animal species per the grant proposal submitted by DOFAW and referenced in the RLA Grant Agreement. Note that this list was not verified as part of this management plan process, but are included per the terms of the grant agreement. Species observed during subsequent surveys (in 2017 and 2020) are also identified below and marked accordingly.

Table 2. Kahuku Coastal Property Biological Inventory from the DOFAW Grant Application

Type	Common Name	Scientific Name	Biological Status[3]	ESA Protected Status[4]	Recovery Plan
Sea Turtle	Hawksbill turtle (honu‘ea)	*Eretmochelys imbricata*	Indigenous	Endangered	Yes
	Green turtle (honu)	*Chelonia mydas*	Indigenous	Threatened	Yes
Mammal	Hawaiian monk seal (‘īlio holo i ka uaua or nā mea hulu)	*Neomonachus schauinslandi*	Endemic	Endangered	Yes
Anchialine Pool Fauna	Atyid shrimp** (‘ōpae ‘ula)	*Halocaridina rubra*	Endemic	--	--
	Anchialine pool shrimp	*Metabetaeus lohena*	Endemic	--	--
	Anchialine pool shrimp	*Palaemonella burnsi*	Endemic	--	--
	Anchialine pool shrimp	*Procaris hawaiana*	Endemic	Endangered	No

[3] Endemic means it is found only in the Hawaiian Islands; whereas, Indigenous is found naturally in Hawai‘i and elsewhere.
[4] Under the Endangered Species Act (ESA), a species is listed under one of two categories, endangered or threatened, depending on its status and the degree of threat it faces. See Section 1.3.1.

Type	Common Name	Scientific Name	Biological Status[5]	ESA Protected Status[6]	Recovery Plan
Migratory Shorebird	Pacific golden plover	*Pluvialis fulva*	Indigenous	--	--
	Ruddy turnstone	*Arenaria interpres*	Indigenous	--	--
	Wandering tattler[++]	*Tringa incanus*	Indigenous	--	--
	Black-crowned night heron	*Nycticorax nycticoras*	Indigenous	--	--
Subterranean Fauna	Small-eyed big-eyed wolf spider	*Lycosa howarthi*	Endemic	--	--
	--	*Lyniphiidae*	Endemic	--	--
	--	*Oonopidae*	Endemic	--	--
	Sow bugs	*Isopoda*	Endemic	--	--
	Cave adapted centipede	*Lithobiidae*	Endemic	--	--
	Cave millipede	*Cambalidae: Nannolele sp.*	Endemic	--	--
	Springtails	*Collembola*	--	--	--
	Silverfish	*Nicoletia*	--	--	--
		Caconemobius (related to *varuis*)	Endemic	--	--
	Blind cave earwig	*Anisolabis howarthi*	Endemic	--	--
	Cave emesine	*Reduviidae*		--	--
	The cave planthopper	*Oliarus polyphemus (or related sp.)*	Endemic	--	--
	Cave and entrance zone moths	*Noctuidae Schrankia sp.*	Endemic	--	--
	Blind flightless flies	*Phoridae Megaselia*	Endemic	--	--

[+] Observed by Terry & Hart (2020)
[++] Observed by Terry & Hart (2020) and listed in the RLA Grant Agreement
* Observed by DAR staff (2017)
** Observed by DAR staff (2017) and listed in the RLA Grant Agreement

[5] Endemic means it is found only in the Hawaiian Islands; whereas, Indigenous is found naturally in Hawai'i and elsewhere.
[6] Under the Endangered Species Act (ESA), a species is listed under one of two categories, endangered or threatened, depending on its status and the degree of threat it faces. See Section 1.3.1.

In addition to the species listed (in Table 2) from the DOFAW grant application and referenced in the RLA Grant Agreement, observations of *other* native species at Kahuku Coastal are provided below in Table 3.

Table 3. Other Native Species Observed at Kahuku Coastal

Type	Common Name	Scientific Name	Biological Status[7]	ESA Protected Status[8]	Recovery Plan
Mammal	Hawaiian hoary bat[+] (ʻōpeʻapeʻa)	*Lasiurus cinereus semotus*	Endemic	Endangered	Yes
Anchialine Pool Fauna	Hawaiian river shrimp (ʻōpae ʻoehaʻa)*	*Macrobrachium grandimanus*	Indigenous		
	Blackspot sergeant (kūpīpī)*^	*Abudefduf sordidus*	Indigenous		
	Fryer's false moray*	*Xenoconger fryeri*	Indigenous		
Migratory Shorebird	White-tailed tropicbird (koaʻeʻkea)**	*Phaethon lepturus dorotheae*	Indigenous		
Seabird	Black noddy (noio)**	*Anous minutus melanogenys*	Indigenous		
	Great frigatebird (ʻiwa)**	*Fregata minor palmerstoni*	Indigenous		

[+] Observed by Terry & Hart (2020)
* Observed by DAR staff (2017)
** Observed by Community Member
^ Likely placed there by the public.

[7] Endemic means it is found only in the Hawaiian Islands; whereas, Indigenous is found naturally in Hawaiʻi and elsewhere.
[8] Under the Endangered Species Act (ESA), a species is listed under one of two categories, endangered or threatened, depending on its status and the degree of threat it faces. See Section 1.3.1.

1.2 Location

Kahuku Coastal is located makai of Māmalahoa Highway (Highway 11) in Kahuku Ahupuaʻa, Kaʻū District, Hawaiʻi Island. The Property's western boundary borders the 25,550-acre Manukā Natural Area Reserve managed by the State DLNR DOFAW (Figure 1). The northern boundary abuts the Kula Kai, Kona Gardens, and Hawaiian Ocean View Ranchos subdivisions. Bordering the eastern boundary is a 1,115-acre undeveloped parcel that is at present time privately owned.

Kahuku Coastal provides access to several coastal areas utilized by local residents, including a beach with small waterworn cobbles and a deep tide pool on a 5-acre privately-owned parcel near Humuhumu Point (abutting the County's property on the southwestern corner). A popular fishing spot known as "Smoking Rock" is located within the State's Manukā Natural Area Reserve, but is commonly accessed via the County's property. The Natural Area Reserve is also a designated public hunting area.

Situated roughly two miles to the southeast of Kahuku Coastal is Pōhue Bay, a favorite swimming area for residents during calm ocean conditions. The remote, secluded beach also provides important nesting habitat for hawksbill sea turtles. A large rectangular brackish water pond, Kanonone Pond, encircled by coconut and hala trees, is located inland from Pōhue Bay.

View of Kahuku Coastal along the coastline looking towards South Point (from the western boundary)

1.3 Regulatory Requirements

1.3.1 Endangered Species Act

The Endangered Species Act of 1973, administered by the USFWS, regulates activities that may impact federally-listed endangered or threatened plant and animal species, as well as their habitat. An "endangered" species is in danger of extinction throughout all or a significant portion of its range, while a "threatened" species is likely to become endangered within the foreseeable future. The law prohibits any action that causes a "taking" of any threatened or endangered species. A "taking" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct." In the Code of Federal Regulations that implement the ESA, the term "harm" is defined as "an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering."

Based on the Biological Inventory submitted in the DOFAW grant application and referenced in the RLA Grant Agreement, the Property provides habitat for at least four federally listed species:

- Endangered hawksbill sea turtle (*Eretmochelys imbricata*)
- Threatened green sea turtle (*Chelonia mydas*)
- Endangered Hawaiian monk seal (*Neomonachus schauinslandi*)
- Endangered Anchialine pool shrimp (*Procaris hawaiana*)

Note that the presence of the anchialine pool shrimp (*Procaris hawaiana*) was not verified as part of this management plan process but was listed in the Biological Inventory submitted in the DOFAW grant application and referenced in the RLA Grant Agreement. A subsequent survey completed by Terry & Hart (2020) confirmed that Kahuku Coastal also provides habitat for the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*).

1.3.2 State Land Use Districts

The State Land Use Law establishes an overall framework for land use management whereby the lands in the State are classified into one of four land use districts: Urban, Rural, Agriculture, or Conservation. The majority of the Property, from the shoreline to about the 500-foot elevation, is located in the State's Conservation District, while the remaining area abutting the subdivision is designated State Land Use Agriculture (see Figure 2).

Conservation Districts are administered by the State Board of Land and Natural Resources and uses are governed by rules promulgated by the State DLNR. Lands within the Conservation District are further classified into one of the five conservation district "subzones," which includes (from most protective to least): Protective Subzone, Limited Subzone, Resource Subzone, General Subzone, and Special Subzone. Two of the five Conservation Subzones apply to the Conservation Lands at Kahuku Coastal, Resource and General. Permitted land uses and activities within each conservation district subzone are restricted and generally require a Conservation District Use Permit from DLNR.

The "General Subzone" makes up the majority of the Conservation District for Kahuku Coastal. This designation is for the least environmentally sensitive areas in the Conservation District or areas where the conservation uses may not be specifically defined. The land along the entire

coastline of the Property is in the “Resource Subzone.” The objective of the Resource Subzone is to develop, with proper management, areas to ensure sustained use of the natural resources.

1.3.3 County Land Use Pattern Allocation Guide

The Hawai‘i County General Plan (2005) is the County’s comprehensive land use policy for guiding long-range development on the Island of Hawai‘i. It specifies goals, policies, and standards of development for the most desirable land uses on the island and includes the Land Use Pattern Allocation Guide (LUPAG) map which indicates the general location of designated land utilization areas. Kahuku Coastal is designated as “Open” and “Conservation.”

The 2005 General Plan is being updated by the County through the “2040 General Plan” process. The August 2019 draft of the 2040 General Plan proposed LUPAG designations of “Recreation” and “Conservation” for the Property. The “Recreation” designation is applied to “parks and other recreational areas, such as golf courses, historic sites, and shoreline setback areas” and replaces the current 2005 General Plan “Open” designation. The “Conservation” designation is applied to “forest and water reserves, natural and scientific preserves, areas in active management for conservation purposes, areas to be kept in a largely natural state with minimal facilities consistent with open space uses, such as picnic pavilions and comfort stations, and lands within the State Land Use Conservation District.”

1.3.4 County Zoning

The Hawai‘i County Zoning Code specifies permitted uses of lands on the Island of Hawai‘i. The entire Property is classified by the County as “Open (O).” The Open District applies to areas that contribute to the general welfare, the full enjoyment, or the economic well-being of open land type uses, including preservation of valuable scenic vistas, areas of special historical significance, or submerged lands and fishponds. Permitted uses within this district are generally associated with passive recreation, forestry, and preservation of sites of historic, cultural, or natural significance.

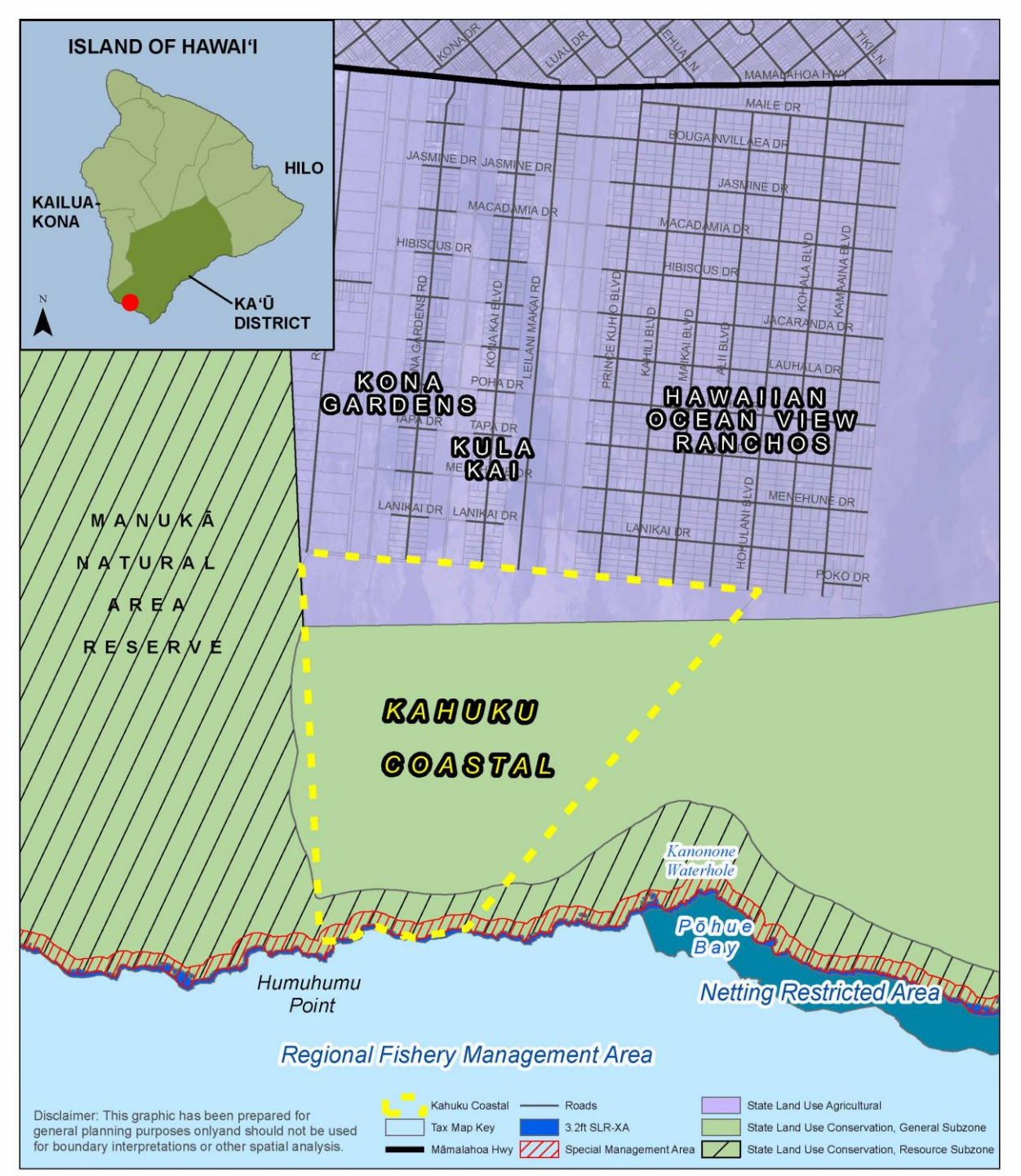
1.3.5 Special Management Area

The “Special Management Area” (SMA) is the most sensitive area of the coastal zone that is placed under special development control to effectively manage, use, protect, and develop areas along the coast. The coastal section of the Property is located within the SMA (see Figure 2). Any uses or activities classified as “development” within the SMA will require either an SMA Minor Permit or an SMA Major Permit, depending on construction costs.

1.3.6 Fishery Management Area

The waters near Kahuku Coastal are within the West Hawai‘i Regional Fishery Management Area, which extends along the west coast of the Island from Ka Lae, Ka‘ū (South Point) to ‘Upolu Point, North Kohala, and from the highwater mark on shore seaward to the limit of the State’s management authority. The State’s administrative rules outline prohibited activities within the Fishery Management Area, including but not limited to the taking of specific aquatic species, SCUBA spearfishing, possession of aquarium collecting gear, and limitations on the taking of specimens for aquariums. Additional restrictions on fish feeding, aquarium fishing, and lay net fishing apply to specific areas within the Fishery Management Area.

Figure 2. Land Use Regulatory Designations Map



When we started having children we instilled in them respect...for your ʻohana...for your kūpuna...for your wahi pana...for your ʻāina and especially for yourself. One of the things we instilled in them was the ʻĀina provides for our ʻohana and to only take what you need....if you leave for the future the ʻĀina will always provide for you....

Kahuku has always been special to our ʻOhana...we cherish our experiences there as an ʻohana...we have many fond memories....through the years we have noticed that resources have become less and less...fish that was once plentiful was scarce.... ʻopihi was no longer plentiful...and it made us sad. Despite the monitoring of people allowed to access the Shoreline of Kahuku, it still depleted its resources....in the event that access to the Kahuku Shoreline is opened...what there is may not be there for future generations.

We do not know how it is like in other places on Hawaiʻi Island or in other ohana BUT for our immediate family...our children and grandchildren, we taught them about not being greedy...about leaving the ʻĀina better than you found it...about respect...from what we see, not a lot of people have that. All we see is people coming to Kahuku and take...fill up their coolers....not thinking about the next person....not respecting the ʻāina...not being thankful for the opportunity to be able to access a beautiful and special place that not too many have the chance to.

If access is open to anybody that wants to go there, the land and the resources will be depleted so much that there will be nothing left. Access to one of the last frontiers in Hawaiʻi, Kaʻū, has shown us that erosion, which happens, is happening faster. Kahuku may see the same fate […] Will we be able to sustain the pristine and special ʻĀina or will it become a wasteland? Will the people who access the ʻĀina and the ocean give back to it?

1.4 Summary of Stakeholder Consultations

This management plan was developed based on huakaʻi, field visits, and consultations with stakeholders knowledgeable about the place and with agencies involved in the management of resources specific to Kahuku Coastal. Stakeholders include kūpuna, lineal descendants, neighboring landowners, site users (e.g., cultural practitioners, recreational and subsistence fishers, beachgoers, lava tube researchers, and hikers), community organizations, and government agencies.

Stakeholder consultations included:

- A number of **one-on-one or small group talk story sessions** via videoconferencing or in-person meetings, engaging with 49 individuals at least once or more during the planning process. Individuals consisted of members with affiliation from at least ten different organizations and included the following government entities:
    - County of Hawaiʻi
        - Parks and Recreation
        - Planning
    - State Department of Land and Natural Resources
        - Aquatic Resources (DAR)
        - Historic Preservation Division (SHPD)
        - Forestry and Wildlife (DOFAW)
    - National Park Service (NPS)
        - Ala Kahakai National Historic Trail
        - Hawaiʻi Island Hawksbill Turtle Recovery Project
    - National Oceanic and Atmospheric Administration (NOAA)
    - U.S. Fish and Wildlife Service (USFWS)

- In addition to the one-on-one or small group talk story sessions**, two "community meetings"** were conducted for this management plan. The first "community meeting" was held to gather input on important resources to protect and preserve, understand major management issues and concerns, and identify ideas for stewardship. The information documented during the talk story sessions and from the online survey were not intended to indicate priorities or commitments but were to better understand what people value about the property and assist in the development of the management plan. The project team also worked with stakeholders during the planning process to identify management strategies and actions.
    - In lieu of a typical in-person general "community meeting" due to public health concerns relating to COVID-19, the first community meeting consisted of the following elements:

- An online survey that was made available for five weeks (from February 20 to March 27, 2021). A total of 128 responses (including two responses submitted via hard copy) were received.
- Four in-person small group Talk Story Sessions held on March 20, 2021 at the Ocean View Community Center. A total of 32 residents participated in the talk story sessions, as each session was at capacity since it was limited to the number of people permitted by State and County regulations during the pandemic. Sessions were conducted at 9:00 am, 10:15 am, 12:00 pm, and 1:15 pm.
- An additional virtual talk story session was offered to stakeholders who had expressed interest in attending one of the in-person sessions but were unable to attend due to capacity limits. Nine residents participated in this virtual talk story session.

- The second "community meeting" was held virtually via the Zoom platform on December 8, 2021 from 6:30 – 8 p.m. to share the draft management plan with stakeholders. Only 16 participants signed-in, but a total of 41 participants joined the meeting online or called in by phone. A recording of the meeting was made available to the public. In addition to reviewing the Draft Plan on the County's website, a hard copy of the Draft Plan was made available at both the Pāhala and Nāʻālehu Public Libraries.

1.4.1 Stakeholder Values

Three key themes relating to the importance of Kahuku Coastal emerged from the stakeholder outreach. These values are summarized below. Unedited responses from stakeholders are inserted throughout the management plan.

- Some of the most important qualities of this place are its pristine natural beauty and its rugged, remote location.
- This site provides access to the shoreline and is one of the few places where families can still spend time together, and experience open space and the undeveloped coastline of Kaʻū without the crowds.
- This beautiful, untouched area provides food for our families and allows us to perpetuate cultural and educational practices passed down for generations.

"This property is an important place for my family and [me] to find peace, quiet, food, memories, and time well spent with each other outdoors."

(Top) A narrow, black sandy beach sprinkled with olivine; (Bottom) View of the coastline.

"As one of the last remaining Hawai'i coastlines that is untouched by development, the Ka 'ū shoreline should be preserved for generations into the future. My 'ohana resides in Kona, where I was raised, and we travel to Road to the Sea to fish and holoholo. The value of this place is that it is untouched, it is a fishery resource, it is a place for people to experience the land as it was for previous generations. The coastal reefs are relatively unimpacted by human development compared to elsewhere on the island, and may be some of the last remaining reefs left that are available to protect."

"The fishing and natural sounds give us life and peace of mind at this location."

"It is a place that we can enjoy and respect and it feeds our family."

"This is a beautiful natural area that isn't crowded nor filled with tourists; it provides a great space to get out and enjoy the fresh air with friends and family."

Views of the coastline (top to bottom)

1.4.2 Current Uses of Kahuku Coastal

Consultations indicated that the area is utilized primarily by residents. It is one of the few places remaining on the island where residents can maintain a sense of privacy and isolation without the crowds. Many residents shared that they use this area for fishing and shoreline gathering of resources, which many families rely on for subsistence and to supplement store-purchased food. These activities are frequently carried out over the course of several days and require overnight stays as fishing my occur during the day and night hours. Thus, fishing and camping were frequently carried out together. While many residents described fishing in the area, the majority of references were made to fishing at Smoking Rock, located on the adjacent State Manukā Natural Area Reserve (although commonly accessed via the County's property). Another use that was often described by residents is engaging in passive recreation activities, such as enjoying the natural beauty and scenic views of the place, hiking, and picnicking. Other uses of Kahuku Coastal include recreational swimming and sunbathing on the beach, snorkeling, and lava tube exploration. Many of the current uses, particularly related to fishing and camping, were described as family-oriented activities and an important part of the community's lifestyle, especially in teaching the younger generation how to fish and gather for subsistence.

"We spend our 'ohana weekends showing our keiki the importance of life and preserving the land! We share with our kids what the food, the land, and ocean provide for us to eat and live."

Off-roading (with ATVs, UTVs, dirt bikes, and other four-wheel drive vehicles) appears to occur as tire marks can be seen on the pu'u near the coastline. Educational and research uses of the property, including monitoring hawksbill sea turtles nesting and surveying and mapping of the lava tube system, are also conducted.

1.4.3 Access and Hazardous Conditions

Consultations indicated that three roads from Māmalahoa Highway have been utilized to access the Kahuku Coastal parcel. These roads include Road to the Sea, an unnamed road to the south of Road to the Sea, and Kona Gardens Road. All three roads are privately-owned. Use of these privately-owned roads to access Kahuku Coastal by the general public is discouraged. Road to the Sea and the unnamed road to the south of Road to the Sea are unpaved and require the use of a four-wheel drive vehicle to maneuver the steep ledges, cracks and potholes. They can be dangerous to navigate especially during and after heavy rain. Kona Gardens Road is a paved road located within the Kona Gardens subdivision, which requires gate access.

Strong ocean currents can pose a threat to children and those who are not familiar with the area.

"Many dangers in this area will be magnified by making it more accessible like strong surf and wind for unexperienced visitors. The way it is now is that the terrain is a natural gate keeper."

Some residents in nearby subdivisions expressed wanting to improve the roadways (leading to the County's parcel as well as within the property) so that they can access the beach close to their community instead of having to drive at least 30 minutes to an hour to the nearest ocean access. Some residents felt that it was unfair that only people with four-wheel drive vehicles can currently access the area. On the other hand, many residents felt that the road should be kept in its current condition because it acts as a natural barrier to protect the resources and the place. They further explained that any improvements to the road would attract more people to the area, thus negatively impacting the sense of place that makes it unique. It was also viewed as a threat to preserving their way of life. Adjacent landowners on Road to the Sea shared strong concerns about increased traffic on Road to the Sea as more people will likely utilize it to access the County's parcel.

Residents who frequent Kahuku Coastal explained that there are several "rough" spots that only those who currently access the area would know how to maneuver on the challenging terrain. One individual shared that vehicles are often stuck on the road and need assistance. Some residents also raised safety concerns relating to ocean use at Kahuku Coastal. These concerns include the strong current that poses a threat to children and those who are not familiar with the area. Consultations indicated that other beach areas with calm waters may be more suitable for recreational swimming, especially due to the isolation of this place and the distance from emergency services.

There were also some concerns relating to the County's acquisition of the Property, with some residents worrying that the County would install gates and restrict public access. There were also concerns that stewardship of the place would result in a non-profit organization controlling access and use of the Property.

1.4.4 Other Areas of Concern

In addition to the access and safety concerns, consultations identified other areas of concern relating to human activity at Kahuku Coastal, including:

- Trash found throughout the Property;
- Illegal dumping that occurs primarily along the privately-owned roads from the highway to the northern boundary of Kahuku Coastal;
- Sanitary conditions from human waste found on the Property due to improper use of areas as toilets;
- Impacts of dirt bikes, ATVs, UTVs, and other off-road vehicles on resources;
- Depletion of coastal resources and overfishing;
- Inadvertent impacts to archaeological resources;
- Degradation of the coastline and loss of endangered species habitat.

(Top) Gently sloping landscape at Kahuku Coastal; View of the ʻaʻā lava channel (Bottom).

2 Planning Area

2.1 Topography

The topography at Kahuku Coastal is gently sloping, ranging from sea level to approximately 700 feet above mean sea level at its inland boundary. While the slopes are generally gentle, walking across much of the Property is difficult due to the rough terrain created by the ʻaʻā and pāhoehoe lava flows.

2.2 Geological and Natural Features

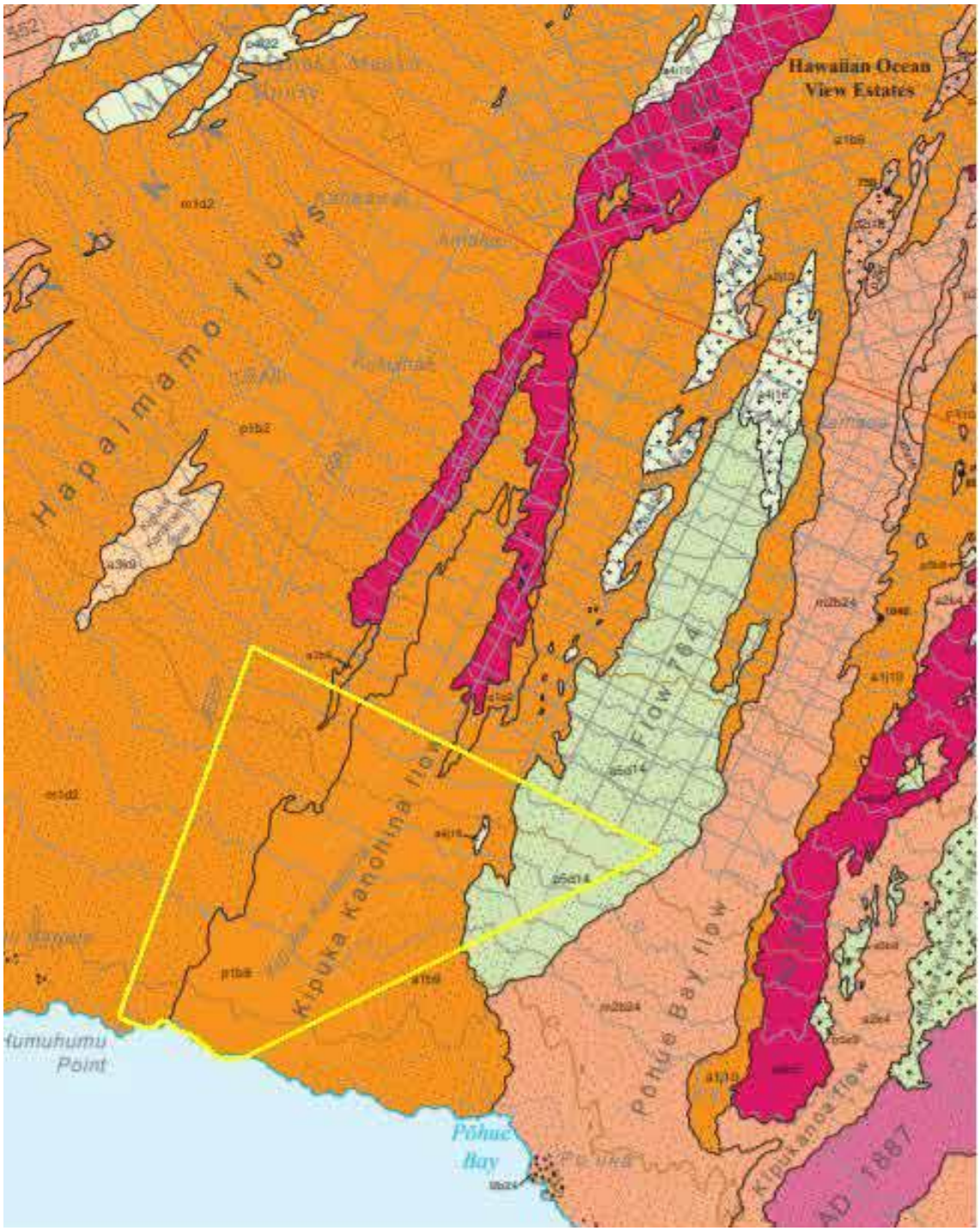
Kahuku Coastal is located on the southwestern slope of Mauna Loa, an active volcano. Mauna Loa is a shield volcano made of Kaʻū Basalt and is the second youngest and the largest volcano on the island, with a summit of 13,681 feet above sea level. From the sea floor to the volcano's summit, the total height of Mauna Loa is about 56,000 feet, making it the largest volcano in the world. While Mauna Loa is active, it has not erupted since 1984, making this the longest period of quiet in recorded history. There are several different lava flows within the Property: Hapaimamo Flows, the Kīpuka Kanohina Flow, Flow 654, and Flow 764 (Trusdell and Lockwood, 2020). Historic lava flows from the 1887 and 1907 eruptions of Mauna Loa are present to the east and north of Kahuku Coastal, but do not enter the Property. The western lobe of the 1907 eruption is the closest of the historic lava flows, which stopped flowing to the ocean approximately 500 meters inland of Kahuku Coastal's northern boundary (Clark & Brandt, 2020).

The lava flows generally increase in age from the western side of the Property to the northeastern corner. The youngest lava flows on the Property consist of the Hapaimamo Flows, which cover 880 acres on the western side. These flows occurred between A.D. 1843 and 1,000 years before present (A.D. 950). A recent radiocarbon study shows that this lava flow likely occurred sometime around the turn of the 18th century A.D., during the latter period of Hawaiian prehistory. The next youngest flow is the Kīpuka Kanohina Flow, which also occurred between A.D. 1843 and 1,000 years before present (A.D. 950). Recent radiocarbon testing indicates that this lava flow likely covered this area around the 12th or 13th century A.D. The Kīpuka Kanohina Flow covers the largest acreage within the parcel, approximately 1,805 acres in the central section of the Property. Flow 654 and Flow 764 are assigned to the 3,000 to 4,000 years before the present (BP) and 4,000 years to 5,000 years BP age groups, respectively. Flow 654 covers roughly 10 acres where the Kīpuka Kanohina Flow transitions from pāhoehoe to ʻaʻā, while Flow 764 covers about 433 acres in the northeastern corner of the parcel.

Littoral cones, formed from the interaction of lava with ocean water, can be found along the coast on both the eastern and western ends of the Property. The westernmost littoral cone on the Property provides a cindery hill with a narrow, black sandy beach sprinkled with olivine at its base. Other coastal features at Kahuku Coastal include low, wave-washed lava flats with small waterworn cobbles, coral and sand; and steep lava cliffs which provide small cavities for seabirds to rest or even nest in. The lower lava flats contain a series of transverse fissures which intersect basal ground water, creating long, narrow, deep and shady anchialine ponds. The resources within the anchialine ponds are discussed in further detail later in this report.

Lava tube skylights, lava tube openings, and several lava channels are also present at Kahuku Coastal, including a lava channel that runs across the entire length of the property from mauka to makai. According to the Cave Conservancy of Hawaiʻi (CCH), the Property includes a section

of the second longest lava tube system in the world with over 15.5 miles of continuous lava tube passages. According to Maly and Maly (2004), most of the potable water in this region was likely collected from lava tubes.



A section of the Geologic Map of the Southern Flank of Mauna Loa Volcano (Trusdell and Lockwood, 2020) showing the location of the Kahuku Coastal property (in yellow).

2.3 Soils

The soils at Kahuku Coastal are either very shallow or non-existent because most of the Property is covered by lava flows. The U.S Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) classified the soils into two types: ʻaʻā lava flows (rLV) and pāhoehoe lava flows (rLW). The ʻaʻā lava flows cover approximately 70 percent of Kahuku Coastal, while the pāhoehoe lava flows cover the remaining 30 percent.

The ʻaʻā lava flows are characterized by "rough, broken, sharp pieces of lava piled in tumbled heaps." This lava flow is mostly barren, with scattered plants and small vegetated areas. Unlike the ʻaʻā lava flow, the pāhoehoe lava flow has a relatively smooth surface. Again, there is no soil covering on this type of lava flow and it is mostly bare of vegetation. More vegetated areas, although still sparse, are found in the upper elevations of the pāhoehoe lava flow (just below the subdivisions). The pāhoehoe lava flows generally run through the center of the Property from the upper elevations to the coast.

2.4 Environmental Hazards

2.4.1 Climate Change

Over time, changes in the climate are anticipated. According to the National Climate Assessment Report (2018), climate change will consist of rising carbon dioxide in the atmosphere, rising air and sea temperatures, rising sea levels and upper-ocean heat content, changing ocean chemistry and increasing ocean acidity, changing rainfall patterns, decreasing base flow in streams, changing wind and wave patterns, changing extremes, and changing habitats and species distribution.

In Hawaiʻi, the effects of global climate change have already been observed, with air temperature increasing by 0.76 degrees Fahrenheit over the last century and a general downward trend in rainfall. Sea surface temperatures and ocean pH (an indicator of acidity) have also increased. Annual rainfall in the vicinity of Kahuku Coastal has decreased from about 2 to 6 percent per decade between 1920 to 2012 (USGCRP, 2018).

Increasing temperatures and decreasing rainfall will lead to an increased frequency of droughts. The frequency of wildfires is also expected to increase as low rainfall creates dry vegetation that increases fuel loads, further contributing to the degradation of native ecosystems. Fountain grass, an invasive weed that is prone to fires, has been increasing its footprint on the Kahuku Coastal property. The presence of fountain grass in combination with climate change-induced dry conditions could contribute to increasing wildfire threats to the adjacent subdivision and Natural Area Reserve.

Climate change is also expected to cause more severe rainfall events, which will increase runoff to the nearshore waters. Higher sea-surface temperatures and ocean acidification, both impacts of climate change, will have detrimental effects on aquatic and marine ecosystems, including deterioration of coral reefs. Rising sea levels will inundate areas near shorelines, thus having a direct impact on beach habitat for sea turtles and monk seals and for public use. The coastal areas of Kahuku Coastal are within the 3.2-feet sea level rise exposure area (SLR-XA).

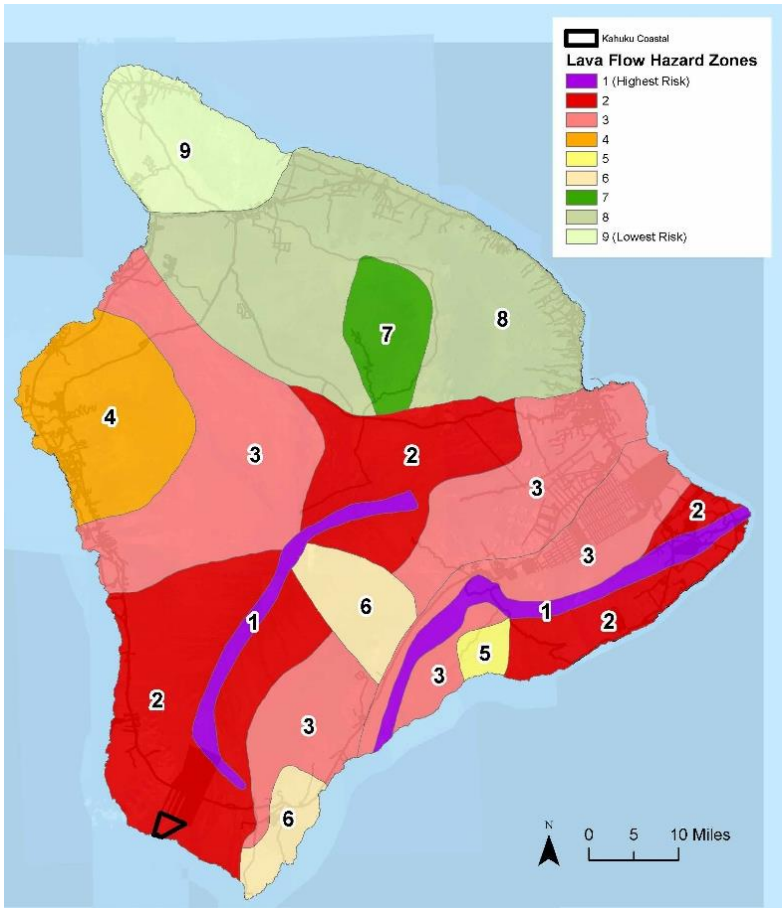
2.4.2 Lava Flow Hazard

The U.S. Geological Survey developed a map in 1974, and slightly revised in 1992, categorizing nine Lava Flow Hazard Zones based on characteristics of past eruptions, topographic features that could affect the path of lava, and the assumption that future eruptions will be similar to

those in the past (Figure 3). The map was designed primarily to provide information for general planning purposes to communicate long-term lava flow hazards.

Lava Flow Hazard Zones 1 and 2 are where flows are most likely to occur, with Zone 9 the least likely to occur. Kahuku Coastal is in Lava Flow Hazard Zone 2. Lava Flow Hazard Zone 2 is located in areas adjacent to and downslope from Lava Flow Hazard Zone 1. Since 1800, lava flows have covered 15 to 25 percent of Zone 2 on Mauna Loa; and within the last 750 years, lava flows have covered 25 to 75 percent of Zone 2. The relative hazard within Zone 2 decreases gradually as one moves away from Zone 1.

Figure 3. Lava Flow Hazard Zones



2.4.3 Other Hazards

The Property is located outside of the tsunami evacuation zone and high risk flood area. Consultations highlighted the strong current and dangerous ocean conditions in this area. In July 2021, it was reported that a fisherman fell into the water along the shoreline at the end of Road to the Sea. Another gentlemen attempted to rescue the fisherman, but the current swept them further out into the ocean, where they were found unresponsive and later died.

2.5 Infrastructure

There is no existing infrastructure, nor improved roadways, within the Property. At the time of acquisition, the County secured a legal access from Māmalahoa Highway on the southern side of Hawaiian Ocean View Ranchos subdivision.

2.6 Moʻolelo/Wahi Pana

Kahuku Coastal is within the ahupuaʻa of Kahuku, which is the second largest land division in the district of Kaʻū at approximately 184,298 acres. Kaʻū appears in several ʻōlelo noʻeau, including Kaʻū ʻāina kipi, which refers to the people of Kaʻū that are known to rebel against oppression, even killing their own oppressive chiefs.

This section shares moʻolelo associated with this region. The origin of the people in the western section of Kaʻū is believed to have occurred from a gourd vine that sprouted and grew across the land before fruiting and giving birth to the ancestors of this region.

> There was a local myth which accounted for the origin of the people of the western districts of Kaʻu. It tells of a beloved chiefess of Kaʻu living in Kamaʻoa who fell ill and

> died just before she was to bear a child. Her body was put in a cave and a great stone was placed across its entrance. On the day when the child was due to have been born, a sprout emerged from the navel of the chiefess and grew out through a small opening in the entrance to the cave. It crept along over the country westward until it came to the house of a chief. There a gourd began to grow and to mature. The chief thumped and pinched it every day to see whether it was ready to pick. The spirit of the chiefess appeared to the kahuna of her ancestral house, who searched out the distant abode of the malihini chief by following the gourd vine. He then led the chief back to the cave in which the body lay, with the vine growing out of the navel. Thus he persuaded the chief to respect the gourd which had ripened on his land. The gourd was carried back to Kamaʻoa and kept carefully in a fine tapa cloth. In time it cracked open and out fell two seeds which developed into identical twin girls. These robust and prolific young women became the ancestress of the Kamaʻoa plain. The people of Kamaʻoa and of the districts westward to the border of Kona, over which the vine had spread, regarded themselves as descended from the gourd. Throughout this area gourd vines were never burned when they were dried or blighted, but were buried in a deep hole. Seven *ahupuaʻa* were crossed by the vine in its westward growth: Kamaʻoa, Pakini-iki, Pakini-nui, Kahuku, Kiao (a small *ahupuaʻa* practically enclosed between Pakini and Kahuku), Manuka, and Kapuʻa (which is in Kona where the gourd fruited). (Handy and Handy, 1991:582-583 as cited in ASM Affiliates, 2020)

Another moʻolelo associated with this region is Nā Puʻu o Pele (The Hills of Pele), which explains the origins of the two littoral cones known as Nā Puʻu o Pele located in the vicinity of the Property. The flow events that resulted in the formation of the littoral cones occurred from the Hapaimamo Flows around the turn of the 18th century. It is believed that the flow events were the result of Pele's anger at two aliʻi of Kahuku who were known for their hōlua (sled riding) skills.

> That summer day, on the lava of long ago, so long ago that its date is not recorded, we heard the story of the chiefs of Kahuku and the fiery and voluptuous goddess of the volcanic forces of the Hawaiian Islands.
>
> Kahuku, the land now under past and present lava flows, was at one time luxuriant and beautiful. The sugarcane and taro beds were bordered by flowers and shaded by long-branching trees. Villages here and there marked the population which supported the chiefs of Kahuku.
>
> Two of the young chiefs were splendid specimens of savage manhood. They both excelled in the sports and athlete feats which were the chief occupation of those days. Wherever a hillside was covered with grass and the ground properly sloping, holua races were carried on. Very narrow sleds (holua) with long runners were used in these races.
>
> Maidens and young men vied with each other in mad rushes over the holua courses. Usually the body was thrown headlong on the sled as it was pushed over the brink of the little hill at the beginning of the slide. Sometimes the more courageous riders would rest on hands and knees while only the very skilful [sic] dared stand upright during the swift descent.

Pele, the goddess of fire, loved this sport and often appeared as a beautiful and athletic princess. She carried her sled with her to Kahuku to the holua hillside, and easily surpassed all the women in grace and daring.

Soon the two handsome young chiefs saw her and challenged her to race with them. For hours they sported together, the chiefs led captive by the charms of the goddess.

Jealous of each other, they strove to win Pele each to his own home. Thus the days passed by, filled with sports and pleasures.

At last the young men became suspicious of their companion, her love was so fitful and capricious, sometimes burning with a raging fire toward her friends and sometimes filled with hot anger on very slight provocation.

At last a warning came that this beautiful stranger might be the goddess Pele from the other side of the island; that her home was in Halemaumau (The continuing house) of the volcano Kilauea; her attendants the always leaping flames; the caves filled with rolling waves of fire her dwelling-rooms; that she carried the control of the fires of the underworld with her wherever she went.

The young chiefs talked together concerning their experiences and then began to draw away from their dangerous visitor.

But Pele made it difficult for them to escape from her presence. She continually called them to race with her. At last the grass began to die. The soil became warm, and the heat intense. Slight earthquakes made themselves felt. The tides were more snappy as they cast their surf waves along the beach.

The chiefs became afraid. Pele saw it and was overcome with anger. Her appearance changed. Her hair floated out in tangled masses, touched by the breath of hot winds. Her arms and limbs shone as if enwrapped with fire. Her eyes blazed like lightning, and her breath poured forth in volumes of smoke. In great terror the chiefs rushed toward the sea.

Pele struck the ground heavily with her feet. Again and again she stamped in wrath. Earthquakes swept the lands of Kahuku. Then the awful fiery flood broke from the underworld, and swept down over Kahuku. On the crest of the falling torrent of fire rode Pele, flashing the fires of her anger in great explosions above the flood.

The chiefs tried to flee toward the north, but Pele hurled the fiercest torrents beyond them to turn them back. Then they fled toward the south, but Pele again forced them back upon their own lands.

Then they hurried down to the beach, hoping to catch one of their canoes and escape on the ocean. Quickly these young men leaped on. Swiftly came the fiery flood behind them. Pele was urging the underworld forces to their utmost speed. Shrieking like fierce, whistling winds, tearing her hair and throwing it away in bunches, Pele sped after the chiefs. The floods of lava, obeying the commands of the goddess, spread out over all the

land of the chiefs so that from the mountain to the sea the luxuriant lands became desolate.

Nearer and nearer to the sea came the swift runners. It seemed as if they had found the way of escape, for the surf waves waited eagerly to welcome them, and a canoe lay near the beach.

But Pele leaped from the flowing lava and threw her burning arms around the nearest one of her former lovers. In a moment the lifeless body was thrown to one side. The lava piled itself up around it, while at the command of Pele a new gush of lava rose up like a fresh crater and swallowed up all that was left.

The other chief was petrified by fear and horror. In a moment Pele seized him and called for another outburst of lava, which rose up rapidly around them. In a few minutes the Hills of Pele were built.

Thus the lovers of Pele died and thus their tombs were made. For many years, even from ancient times, they have marked the destruction of the beautiful lands of Kahuku.

Later lava flows have turned aside to spare the monuments of the chiefs with whom Pele played for a time, and the two hills of Pele are still seen near the shore of the ocean. (Westervelt, 1916:21-26 as cited in ASM Affiliates, 2020)

2.7 Land Tenure History

This section provides a general overview of the land tenure for Kahuku Coastal. Most of the information is summarized from the Archaeological Reconnaissance Survey prepared by Clark and Brandt (2020). Eruptions of Mauna Loa significant to this area are also noted below.

1848 During the Māhele, William Pitt Leleiohōku, grandson of Kamehameha, claims Kahuku Ahupuaʻa.

1850 Following Leleiohōku's death in 1848, Kahuku Ahupuaʻa, in addition to other lands, is ceded to the Government to cover the cost of commutation fees. The Government sets aside Kahuku Ahupuaʻa as "School Lands for the use and income of the Department of Public Instruction" and is held by the Board of Public Institution.

More than 30 kuleana claims in Kahuku Ahupuaʻa are filed with the Land Commission. Only seven claims, totaling 69 acres, are awarded.

1861 King Kamehameha IV sells Kahuku Ahupuaʻa (184,298 acres) by Royal Patent Grant No. 2791 to Charles Coffin Harris for $3,000.

1866 Harris sells Kahuku Ahupuaʻa to Theophilus Brown of Connecticut for $5,250.91. Brown starts Kahuku Ranch.

1868 Eruption of Mauna Loa, and associated earthquake measuring 7.7 on the Richter scale and tsunami, impacts the entire Kaʻū coastline. It destroys the ranch houses and covers a large portion of the land with fresh lava.

1871 Brown sells Kahuku Ahupuaʻa to a group of businessmen that includes William H. Reed, Charles E. Richardson, George W.C. Jones, and L. Kaina.

1877 Jones buys out his partners' interests to become the sole owner of Kahuku Ahupuaʻa.

1887 Eruption of Mauna Loa flows to the coast of Kahuku Ahupuaʻa and enters the ocean near Pōhue Bay.

1888 Jones sells Kahuku Ahupuaʻa to Samuel Norris for $27,000.

1903 Eruption of Mauna Loa covers sections of Kahuku Ahupuaʻa.

1907 Eruption of Mauna Loa covers sections of Kahuku Ahupuaʻa, nearly reaching the coast near Kahuku Coastal.

1910 Norris sells Kahuku Ahupuaʻa to Charles Macomber, his long-time friend and employee on the ranch, for a dollar.

1912 Macomber sells Kahuku Ahupuaʻa to Alfred W. Carter of Parker Ranch for $90,000. Parker Ranch operates Kahuku Ranch until 1947.

1916 Eruption of Mauna Loa covers inland portions of Kahuku Ranch.

1926	Eruption of Mauna Loa covers inland portions of Kahuku Ranch.
1947	Parker Ranch sells Kahuku Ahupua‘a to James W. Glover, founder of the Glover general construction firm for $365,000.
1958	Following Glover’s death, Kahuku Ranch is sold under court order by the Hawaiian Trust Company, the executor of his estate, to pay for other debts. The trustees of the Samuel Damon Estate offer a winning bid of $1.36 million for the ranch. Soon after the purchase, Damon Estate sells off much of the western section of Kahuku Ahupua‘a including the study area, Kahuku Coastal, because it is too dry for economical cattle ranching.
Late 1950s	Crawford Oil Company begins developing the Hawaiian Ocean View Estates, mauka of Māmalahoa Highway.
Late 1960s and early 1970s	Smaller subdivisions are developed makai of Māmalahoa Highway: Kona Gardens, Kona South Estates, Keoni’s Hawaiian Ranchos, Kula Kai View Estates, and Hawaiian Ocean View Ranchos.
1987	Palace Development Corporation and the Hawai‘i Ka‘ū ‘Āina Partnership propose the Hawaiian Riviera Resort[9] development, which consists of the Hawaiian Palace Resort and the Hawai‘i Ka‘ū ‘Āina Resort, on 3,245 acres.
2009	The public nominates Kahuku Coastal as lands worthy of preservation. The PONC identifies Kahuku Coastal in the Annual Prioritized List submitted to the Mayor.
2011	Nani Kahuku ‘Āina, LLC proposed a scaled back resort development known as Kahuku Village, on lands (16,000+ acres) to the east of Kahuku Coastal.
2016	The County acquires Kahuku Coastal using the County’s Preservation Fund and leveraging funds from the State DLNR Legacy Land Conservation Program and USFWS Recovery Lands Acquisition program.

[9] The Hawaiian Palace Resort, which was proposed for the Kahuku Coastal lands, included a resort and residential community, an extensive commercial area around a proposed 400-slip marina, a cruise ship terminal, and a golf course. At build-out, the total units would have consisted of 1,500 visitor units including 900 hotel rooms distributed between two hotels, 375 Luxury Villa apartments, 225 garden apartments, and 727 residential units. A regional airport was also proposed as part of the resort development.

2.8 Archaeology

Kahuku Coastal is rich in historic and archaeological resources. The coastal sections of the study area have been previously surveyed by PHRI (Haun and Walker) in 1987 for the Hawaiian Riviera Resort development project. The survey prepared by Haun and Walker (1987) documented 40 sites containing 146 features. These sites were interpreted as having been used for habitation, temporary habitation, lava tube habitation, transportation, rock art, quarry, and marker purposes during the prehistoric and historic periods. Three of these sites (HRHP 50-10-72-3697, 3698, and 3699) were also previously documented by the Bishop Museum.

In September 2020, an archaeological reconnaissance survey was conducted for the entire Kahuku Coastal property by ASM Affiliates (Clark & Brandt). This section provides a general overview of the features identified in the study prepared by Clark & Brandt (2020). It should be noted that details concerning exact archaeological site locations are not provided in this report in an effort to reduce vandalism and intentional looting of the sites.

Ahu, cairns, and cobble collections were found throughout the Property on both pāhoehoe and ʻaʻā lava surfaces. As described by Clark & Brandt (2020), these features represent "a pile of cobbles that was created by human agency at a certain time and place (within a particular cultural setting) for a specific purpose." More formal rock piles were classified as ahu; the smaller, less labor-intensive constructions were classified as cairns; and the most ambiguous piles as cobble collections. A total of 148 features, or 10 percent of features documented, were classified as either ahu, cairns, or cobble collections. These features were likely used to mark primary trail routes, or possibly for ceremonial purposes. Some ahu or cobble collections were found aligned with C-shaped enclosures or associated with C-shape enclosures. It is hypothesized that the ahu or cobble collections were used as foundational elements for poles to support roof structures or as auxiliary habitation structures (i.e., fire hearths or drying racks) to the C-shape enclosures.

A total of 197 features, or 13 percent of features documented, were classified as either **lava tube entrances, lava blisters, or overhangs**. Lava tubes likely provided shade and shelter from the wind, as well as a means to collect and store potable water. For example, gourd fragments found in one of the lava tube passages was probably from a gourd container used to gather water drips from the lava tube ceiling. Another lava tube passage contained several bamboo poles and carved sticks that were likely used for storage. Some of the lava tube entrances, lava blisters, and overhangs were also likely utilized for transient habitation. No human burials were encountered within the lava tubes that were explored by the archaeologists on the Property; however, burials have been documented in nearby caves in the surrounding area outside of the Kahuku Coastal property boundary.

Enclosures primarily used for short-term/temporary habitation were found throughout the Property. An enclosure as defined by Clark & Brandt (2020) is “a collection of basalt material formed into walls or alignments that surround an interior space on at least 25% of the perimeter.” The enclosures within the project area consisted of C-shape, L-shape, U-shape, circular or oval, square or rectangular, linear, and irregular forms. A high concentration of enclosures is located near the coast on the pāhoehoe lava surface below the 100-foot elevation contour. Near the coast are also several small clusters of 5 to 10 temporary habitation enclosures. These enclosures were likely used seasonally for longer durations than those found further inland. Enclosures in more inland areas were likely constructed along mauka/makai trail routes. A total of 86 features (or 5.5 percent of features documented) were identified as enclosures.

C-shaped shelter at Kahuku Coastal

Excavations, also referred to as “extraction pits,” were the most common feature type found within the project area. It accounted for almost 60 percent of all the features documented. The extraction pits occurred primarily on the pāhoehoe lava surfaces where small blisters or cracks from the surface layer have been excavated. Pāhoehoe excavations typically occurred in areas with gas pockets. Removal of the surface layer exposes the space between the surface layer and the underlying flow thus resulting in an artificial pit. ‘A‘ā excavations were done simply by removing the cobble material to create an artificial pit. While there are many differing interpretations for the possible functions of

Example of an excavation

excavations, these excavations were likely done to extract resources for use as construction materials. Small vesicular basalt slabs could have also been used as raw material for making abraders. While further study is needed, Clark & Brandt (2020) speculates that pāhoehoe excavations within Kahuku Coastal could also have been used to create or enhance nesting habitats for indigenous/endemic Hawaiian bird species (so eggs could be more easily collected as a food source) or even as a way to gather potable water from the arid landscape.

Petroglyph near the coastline

Petroglyph features consisting of Hawaiian rock art images (kiʻi pōhaku), papamū (kōnane game boards), basins and ground surfaces, and abraded surfaces were primarily located below the 200 foot elevation contour. A total of 62 petroglyphs/kiʻi pōhaku containing anthropomorphic, geometric design, text and a footprint were identified. Two faint papamū were located on the pāhoehoe lava near lava tube entrances and enclosures used for habitation purposes. Basins and ground surfaces were found near the coastline. Basins are bowl-like depressions created by pecking into pāhoehoe lava, while ground surfaces are created by repetitive grinding into pāhoehoe lava. Three petroglyph complexes, consisting of a total of 72 basins and ground bedrock surfaces, were documented on the Property. These basins and ground surfaces were likely used as salt pans, or for activities such as processing bait or preparing food items gathered from the nearshore waters. Abraded surfaces were found in three areas, two located near a small lava tube entrance at the 180 foot elevation contour and one near the 650 foot elevation contour.

A **platform** can be found on the Kīpuka Kanohina Lava Flow at the 90 foot elevation close to an overhang entrance. Two faint petroglyph images (both anthropomorphs) are pecked into the bedrock surface to the east of the entrance. Given the platform's formal attributes and contextual associations, Clark & Brandt (2020) identified it as a *possible* burial or utilized for ceremonial purposes.

Seven **trail** segments were identified and recorded by Clark & Brandt (2020). Early inhabitants were able to traverse the rough terrain of Kaʻū using lateral (coastal) and mauka-makai trails. These trails were important for pedestrian access and movement in the region. For example, these trails enabled people living in the mountain ranges to access the coast for subsistence activities. Trails also provided access for cultural and religious practices and allowed for communication between extended families and neighboring communities. Clark & Brandt (2020) identified trail segments located on the ʻaʻā and mixed ʻaʻā terrain within the Property. Typically, trail construction methods included the placement of cobble stepping-stones and/or curbstone and coral-cobble line trails. Trails constructed on ʻaʻā lava surfaces are generally easier to

identify than those constructed on pāhoehoe lava surfaces. Therefore, trail routes across the pāhoehoe lava surfaces were not recorded by Clark & Brandt (2020) in the field. However, trails and other likely routes of travel within the Property was interpolated based upon several factors, including the findings of previous archaeological studies, historical documentary research, projections between mapped trail sections, and presence of naturally occurring landscape markers and features.

Clark & Brandt (2020) was not able to verify the actual path of the Ala Loa Trail except near the western boundary of the Property. Consultations indicated that some lineal descendants may know the alignment of the Ala Loa Trail in this area. The Ala Loa Trail is an ancient lateral trail that traversed the entire island of Hawai‘i and enabled people to travel along the coast and around the island. The projected route of the Ala Loa across the Property is located slightly more inland than the current alignment of one of the roads referred to as the coastal Jeep road. Kahuku Coastal is located outside of the “priority area” for implementing the National Park System’s (NPS) Ahupua‘a Trail System Plan for maintaining the Ala Kahakai National Historic Trail over the next 15 years (NPS, 2009).

In addition to the trail segments, seven modern road sections were mapped by Clark & Brandt (2020). These roads, made up of worn paths across pāhoehoe surfaces or bulldozed paths across ‘a‘ā surfaces, are only accessible to 4WD vehicles. The majority of the road segments are located near the coastline except for one located inland on the northeastern corner of the Property. These roads also provide current vehicular access within the Property, and consequently, the highest impacts to cultural sites are found near these road sections.

2.9 Traditional Cultural Practices

Based on consultations to date, some of the cultural practices/uses of the Property include fishing, surfing, hunting of mouflon and goat, and gathering of nearshore resources, medicinal plants (e.g., ‘uhaloa) and salt. A kupuna described the use of ‘uhaloa (*Waltheria indica*) for medicinal purposes to treat sore throats. Also, pili grass (*Heteropogon contortus*) can be found at Kahuku Coastal and traditionally have been used for thatching hale.

Of these practices, it appears that fishing is the most common practice that still occurs today on the Property and is frequently carried out in conjunction with overnight camping. Consultations indicated that a popular fishing area frequently accessed by fisherfolks, commonly referred to as Smoking Rock, is located on the adjacent State Manukā Natural Area Reserve.

A more modern practice that occurs in this region is the collection of seeds to replenish an area with native plants after a wildfire.

“Share cultural practices passed down from generations and put food on the table to feed my ‘ohana.”

‘Uhaloa, used for medicinal purposes to treat sore throats, is found on the Property.

2.10 Nearshore Resources

"For years it has been a gathering place for us fishermen."

The nearshore waters around Kahuku Coastal provide important habitat for certain fauna and flora. There are many different types of fish and invertebrates found in the nearshore waters, which also serve as a resource for local residents that gather for subsistence uses. This management plan is not intended to address nearshore resources but understands the implications of land management decisions on these sensitive resources. A marine survey conducted for this area would be helpful in developing a more complete understanding of the biological resources of Kahuku Coastal and therefore provide additional foundation for future management actions.

2.11 Vegetation

Most of Kahuku Coastal consists of lava rock with very sparse vegetation. The biological survey conducted in August 2020 by Terry & Hart did not find any currently listed threatened or endangered plants. It found a low diversity of native plant species on the Property. Of the 36 plant species observed, only eight were native plant species.

Two observed plant species are endemic, or found only in the Hawaiian Islands: the lama tree (*Diospyros sandwicensis*) and ʻiwaʻiwa (*Doryopteris decora*). The indigenous plant species, or those found naturally in Hawaiʻi and elsewhere, include: ʻaʻaliʻi (*Dodonaea viscosa*), mauʻu ʻakiʻaki (*Fimbristylis cymosa*), pili (*Heteropogon contortus*), ʻ ōhiʻa (*Metrosideros polymorpha*), ʻakiʻaki (*Sporobolus virginicus*), and ʻuhaloa (*Waltheria indica*). All of the native plant species observed at Kahuku Coastal are relatively common in the region and on the island. Mauʻu ʻakiʻaki, ʻuhaloa, and pili grass were dispersed throughout the Property, whereas ʻ ōhiʻa was confined inland near the northern boundary of the property. In addition to the native plant species identified by Terry & Hart, the indigenous naupaka (*Scaevola taccada*) was observed along the shoreline. A few introduced coconut palms (*Cocos nucifera*) were also found near the coastline.

Table 4. Native Plants at Kahuku Coastal (from Terry & Hart, 2020)

Common Name	Hawaiian Name	Scientific Name
Endemic		
Lance fern	ʻIwaʻiwa	*Doryopteris decora*
Hawaiian Ebony/Persimmon	Lama	*Diospyros sandwicensis*
Indigenous		
Button sedge	Mauʻu ʻakiʻaki	*Fimbristylis cymosa*
	Naupaka	*Scaevola taccada*
Pili grass	Pili	*Heteropogon contortus*
	ʻŌhiʻa	*Metrosideros polymorpha*
Seashore dropseed	ʻAkiʻaki grass	*Sporobolus virginicus*
Sleepy morning	ʻUhaloa	*Waltheria indica*
Hawaiian hopseed bush	ʻAʻaliʻi	*Dodonaea viscosa*

The non-native sourbush (*Pluchea carolinensis*), along with the native ʻuhaloa, are the most common plants found near the coast and most common throughout the Property. A few scattered Christmas berry (*Schinus terebinthifolius*) and koa haole (*Leucaena leucocephala*) are also located on the Property. Of concern for fire risk is fountain grass (*Cenchrus setaceus*), which is found in pockets throughout the site, including clusters near the northeastern corner of

the Property. Fountain grass is an invasive and highly flammable grass that serves as fuel for wildfires. While fountain grass does not appear to be spread widely throughout the Property, pockets of fountain grass clusters were observed during the site visit.

2.12 Anchialine Pools

A complex of anchialine pools may be found at Kahuku Coastal. These anchialine pools are within a series of deep littoral tension fissures that run parallel to the shoreline and provide important habitat for certain fauna. In 2017, DLNR Division of Aquatic Resources (DAR) staff surveyed and documented four fissures, approximately a half mile east of Humuhumu Point, two of which appeared to be interconnected. The longest fissure was approximately 560 feet long and branched into a shorter section that was 220 feet long. The two other fissures with anchialine habitats were approximately 170 and 92 feet long. The depth from the fissure openings to the surface of the water ranged from 2.3 to 12.6 feet. In 2017, DLNR DAR staff described the anchialine habitats as being relatively undisturbed and more pristine than most anchialine pools in West Hawai‘i. They indicated that at that time the overall water quality and physical habitat characteristics did not show any measurable impacts resulting from direct human disturbance, such as elevated nutrient input or pollution. DLNR DAR staff attributed the good condition of the habitat found in the anchialine pools during their survey to the remoteness of the anchialine pools, lack of development, difficult access to the area, and the relatively inconspicuous nature of the anchialine fissures. However, during a site visit in November 2020, it appeared that one of the anchialine pools may have been utilized as a toilet.

The following native species were observed in the anchialine pools: endemic ‘ōpae ‘ula (*Halocaridina rubra*), indigenous ‘ōpae ‘oeha‘a (*Macrobrachium grandimanus*), indigenous kūpīpī (*Abudefduf sordidus*), and indigenous Fryer’s false moray (*Xenoconger fryeri*). Introduced Tahitian prawns (*Macrobrachium lar*) were also observed.

Series of deep littoral tension fissures in the lava running parallel to the shoreline

Anchialine pools provide important habitat for certain fauna, including the endemic ‘ōpae ‘ula

It is not typical to find kūpīpī in anchialine pool habitats, but consultations have indicated that fishermen have used the anchialine pools in other places as an “ice box,” putting live fish that they either catch or use as bait into the pools. This practice is discouraged because some fish may prey upon the ʻōpaeʻula that live there.

The Fryer’s false moray is a relatively rare native chlopsid eel found in anchialine pools in Hawaiʻi and similar habitats in other parts of the Indo-Pacific. At least four Fryer’s false moray were identified in one location. There are very few recorded sightings of this eel in Hawaiian anchialine habitats because of its cryptic nature. Other sightings of this eel have been reported in anchialine pools in Manukā and South Kohala. DLNR DAR staff notes that the confirmed presence of the relatively rare native chlopsid eel found in the anchialine pools at Kahuku Coastal is important for understanding the biology and distribution of the species.

Within the surveyed areas (Sakihara, 2017), the ʻōpae ʻula was the most abundant of all species, ranging between an estimated 20 to 80 individuals per 1 square meter. In comparison, the invasive Tahitian prawn was recorded in lower densities typically less than five individuals per 1 square meter and were most prevalent and active during the nighttime.

2.13 Hawksbill Sea Turtles

The beaches in Kaʻū are well-documented nesting beaches for the endangered hawksbill sea turtles or honuʻea (*Eretmochelys imbricata*). The majority of documented hawksbill nests in the Hawaiian Islands are actually found in the Kaʻū District. Hawksbills are the rarest of all sea turtle species in the entire Pacific and were the first marine turtle species to be listed under the Endangered Species Act. The hawksbill sea turtle is listed as Critically Endangered under the International Union for Conservation of Nature[10] (IUCN, 2021) Red List of Threatened Species, which assesses the conservation status of species at a global level.

Hawksbill sea turtle at Kahuku Coastal, September 2016 (Photo credit: Bronson Malani)

[10] The International Union for Conservation of Nature (IUCN) Red List of Threatened Species assesses the conservation status of species at a global level. There are nine categories: Not Evaluated, Data Deficient, Least Concern, Near Threatened, Vulnerable, Endangered, Critically Endangered, Extinct in the Wild, and Extinct.

According to NOAA Fisheries, hawksbill sea turtles spend almost their entire lives in the ocean foraging primarily for sponges, but will also eat other invertebrates such as mollusks, marine algae, crustaceans, sea urchins, and jellyfish. Gravid females only come ashore to dig nests on beaches to lay their eggs, primarily at night. After hatching, hawksbill hatchlings find their way to the ocean, reaching sexual maturity between 20-35 years of age. Female hawksbill sea turtles are known to return to the beaches where they were born every two to five years to nest. Nesting season varies by location, but generally occurs between April and November. Hawksbill sea turtles typically nest at night on small, isolated pockets of sand with scattered cobblestones and/or coral.

"Naupaka is an ideal beach plant because its weak bristly roots are easy for nesting females to break when digging an egg chamber and for their hatchlings to emerge. Plant species with fibrous roots make it difficult for nesting females and their hatchlings."

Based on consultations with the National Park Service, the Hawai'i Island Hawksbill Turtle Recovery Project (HIHTRP) has monitored and managed hawksbill nesting on Hawai'i Island since the early 1990s, primarily between South Kona to Hawai'i Volcanoes National Park. HIHTRP defines suitable nesting habitat in Hawai'i as "an area above the high tide line with substrate in which a nesting turtle is capable of digging an egg chamber."

Most of the information in this section is derived from data collected by HIHTRP (Seitz et al., 2012). Data collected for nesting sites in the vicinity of the County's Kahuku Coastal property include nearby 'Āwili Point and Pōhue Bay. In 2010, HIHTRP reported that one newly tagged hawksbill turtle laid three confirmed nests and possibly two more at 'Āwili Point. At least 248 hawksbill hatchlings reached the sea from two highly successful nests. At Pōhue Bay, nine nests from two returning hawksbill turtles were protected and over 1,300 hatchlings reached the ocean. While both of these nesting sites are located outside of the boundaries of the County's parcel, 'Āwili Point and Pōhue Bay have well-documented nesting activity and

Humuhumu Point , located outside of the County's Property, may be a possible nesting site for hawksbill sea turtles.

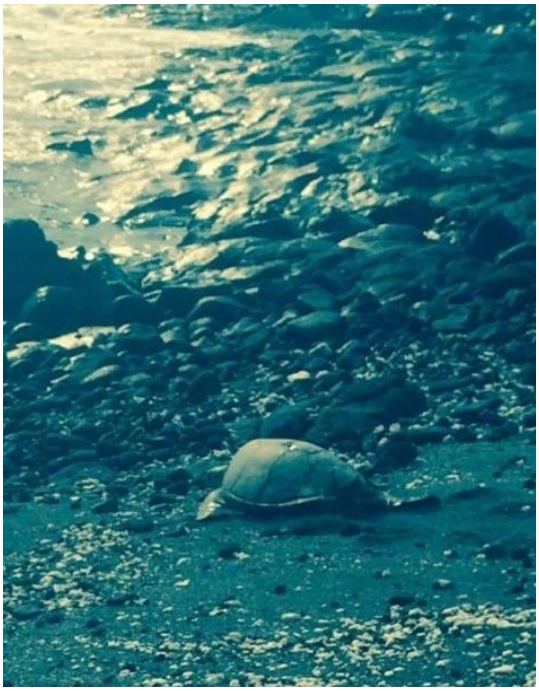
suggest the potential for hawksbill turtles to be present in the vicinity of the Property and possibly explore it for nesting. Between the early 1990s and 2009, HIHTRP tagged 100 adult female hawksbill turtles on Hawai‘i Island. Twenty of the 100 female turtles were tagged at Pōhue Bay, thus making it the site of the second most tagged female turtles.

Humuhumu Point, also outside of the County's Property, has been identified as a possible nesting site by HIHTRP. The 5-acre privately-owned parcel is situated at the end of Road to the Sea, the road just within the western border of the County's parcel. The beach is composed of sand, cobble stones, and coral rubble. Access to the beach from the ocean for nesting hawksbill turtles may be difficult due to a lava shelf. In 2009, adult female tracks and digs were found at Humuhumu Point, but HIHTRP staff were not able to confirm any nests. Humuhumu Point is frequented by campers, fisherfolks, and beachgoers.

HIHTRP personnel occasionally walk by Humuhumu Point on their way between Pōhue Bay and ‘Āwili Point. A dead turtle was discovered in a nearby anchialine pool lava crack in 2008. The turtle found in the lava crack was a gravid adult female turtle with approximately 123 eggs. The turtle was previously tagged at Pōhue Bay in 2005, which also reconfirmed that some individual hawksbill turtles use multiple nesting sites along the coastline. Data collected by HIHTRP indicate that 13% of the turtles documented use multiple beaches during the same nesting season or in subsequent seasons.

HIHTRP staff noted several other incidents where hawksbill turtles have been trapped in the lava crack in this area but were successfully rescued, including in September 2016 when volunteers found a female hawksbill turtle in the lava crack at Kahuku Coastal. Although the turtle survived the fall, there was a crack on the shell.

A hawksbill sea turtle is rescued after falling into the lava crack at Kahuku Coastal, September 2016 (Photo credit: Bronson Malani)



(Right) A hawksbill sea turtle returns to the ocean after being rescued from falling into the lava crack at Kahuku Coastal, September 2016 (Photo credit: Bronson Malani)

2.14 Green Sea Turtles

The federally threatened green sea turtles or honu (*Chelonia mydas*) are commonly seen in the nearshore waters around the Property. The green turtle is categorized as Endangered although the Hawaiian subpopulation is listed as Least Concern under the IUCN Red List (2021-3).

Rocky beach area suitable for green sea turtles and monk seals to bask.

The majority of green sea turtles are known to breed and nest at French Frigate Shoals in the Northwestern Hawaiian Islands but have been known to nest in the main Hawaiian Islands. Climate change and natural disasters, such as Hurricane Walaka in 2018, may significantly impact important green sea turtle nesting sites in the northwestern Hawaiian Islands, making alternative nesting sites important to protect.

The green sea turtles can be found foraging for seagrasses and algae and hauling out onto beaches, including the shoreline rocks of the ʻaʻā storm beaches found on the Property to rest or bask in the sun. The 1998 USFWS and NMFS *Recovery Plan for U.S. Pacific Populations of Green Turtles* identifies the protecting of foraging area as a priority action.

2.15 Hawaiian Monk Seals

The Hawaiian monk seals, ʻīlio holo i ka uaua or nā mea hulu (*Neomonachus schauinslandi*), are also federally endangered and are endemic to the Hawaiian Islands. They were the first species to be listed as depleted under the Marine Mammal Protection Act and were listed as an endangered species under the federal Endangered Species Act in 1976. The Hawaiian monk seal is categorized as Endangered under the IUCN Red List (2021-3).

The Hawaiian monk seals spend most of their time at sea, but come ashore to rest on beaches, sometimes for days at a time and often returning to the same beaches to rest. They also haul out to beaches for pupping and nursing. While they generally prefer sandy, protected beaches surrounded by shallow waters for pupping, the seals may pup and nurse on sand, coral rubble, or volcanic rock shorelines. While the Property lacks a protected, sandy beach ideal for seals to haul out, seals may still utilize the shoreline within the Property to rest.

The 2007 National Marine Fisheries Service (NMFS) *Recovery Plan for the Hawaiian Monk Seal* identifies significant threats to Hawaiian monk seals, including disturbance of their habitats when monk seals haul out on to beaches to rest, or for pupping and nursing. Monk seals spend about two-thirds of their time in the water, and the remainder on shoreline habitats. They

generally prefer sandy beaches but can be found hauling out on all substrates. Since 1990, there have been an increasing number of seal sightings in the main Hawaiian Islands. It is estimated that there are 200 monk seals currently living in the main Hawaiian Islands and since the late 2000s, approximately 20 monk seal pups have been born each year (NMFS, 2015). The growing number of seals, particularly in heavily populated areas, is a management challenge, as it increases potential human interactions that may disturb the seals' ability to utilize their habitats. Other challenges include increased risk of infectious diseases to interactions with fisheries. The 2007 *Recovery Plan for the Hawaiian Monk Seal* included a recommendation to develop a plan that addressed the full scope of monk seal management needs in the main Hawaiian Islands. In 2015, NOAA Fisheries developed the *Main Hawaiian Islands Monk Seal Management Plan*, which lists as a conservation goal to provide "sufficient shoreline and marine habitat in the main Hawaiian Islands to support resting, pupping, molting, foraging, and other natural behaviors of at least 500 monk seals."

2.16 Other Mammals

The federally endangered Hawaiian hoary bat (ʻōpeʻapeʻa; *Lasiurus cinereus semotus*), the only native land mammal in Hawaiʻi, is present in the project area. Some of the larger shrubs and trees within the Property may be suitable nesting habitat for the bats. Bats may also forage for flying insects over the Property on a seasonal basis. Radar surveys detected numerous targets that flew in a bat-like manner, which were further confirmed with acoustic detections. Findings suggest that the bats are relatively abundant across the Property (Terry & Hart, 2020).

Spinner dolphins or naiʻa (*Stenella longirostris*) are frequently seen offshore and are well known for their habit of leaping from the water and spinning in the air before falling back into the water. Spinner dolphins prefer nearshore habitats, such as bays and lagoons, during the day and deeper, offshore waters for feeding at night. Hawaiian humpback whales (*Megaptera novaengliae*) and other potential cetaceans such as the false killer whale (*Pseudorca crassidens*) or the short-finned pilot whale (*Globicephala macrorhynchus*) may also utilize the offshore waters.

2.17 Birds

Terry & Hart (2020) found seven species of birds on the Property during a site reconnaissance. All of the bird species except for one (wandering tattler or ʻulili; *Tringa incana*) were non-natives. The other bird species observed were the yellow-fronted canary (*Serinus mozambicus*), the zebra dove (*Geopelia striata*), the spotted dove (*Streptopelia chinensis*), the common myna (*Acridotheres thristis*), the grey francolin (*Francolinus pondicerianus*), and the house finch (*Haemorhous mexicanus*). The yellow-fronted canary was the most abundant bird species found within the widely spaced ʻōhiʻa trees. While only a few bird species were observed during the site reconnaissance, it is likely that more bird species may utilize the Property at different times of the year.

Birds of Prey

Native birds of prey that are in the area and are presumably present at times in this area include the federally endangered Hawaiian hawk or ʻio *(Buteo solitarius)*. The Hawaiian hawk was not seen during the site reconnaissance by Terry & Hart (2020). While hawks are highly unlikely to nest at Kahuku Coastal as they prefer large trees for nesting, it is possible that hawks sometimes forage on the Property.

Shorebirds

The rocky shoreline, cliffs, and tidepools at Kahuku Coastal provide habitat for several migratory shorebirds, including the wandering tattler or ʻulili. Other indigenous shorebirds that likely make use of the Property but were not observed by Terry & Hart (2020) include the ruddy turnstone (ʻakekeke; *Arenaria interpres*), the bristle-thighed curlew (kioea; *Numenius tahiteiensis*), and the Pacific golden-plover (kōlea; *Pluvialis fulva*). The Pacific golden-plover is a relatively common migratory shorebird that is present in Hawaiʻi during the winter months.

Seabirds

The black noddy (noio; *Anous minutus melanogenys*), which nests on ledges and in crevices of coastal sea cliffs and in sea caves has been observed at Kahuku Coastal although not during the site reconnaissance by Terry & Hart (2020). The high cliff on the eastern edge of the Property is suitable habitat for the noio. Another bird reported to have been seen flying above the Property is the great frigatebird (ʻiwa; *Fregata minor palmerstoni*), a large seabird better known from Oʻahu and Kauaʻi, and the indigenous white-tailed tropicbird (koaʻeʻkea; *Phaethon lepturus dorotheae*). The island of Hawaiʻi has historically been an important nesting site for the federally endangered Hawaiian petrels (ʻuaʻu; *Pterodroma sandwichensis*) and band-rumped storm-petrels (ʻakē ʻakē; *Oceanodroma castro*), and the federally threatened Hawaiian subspecies of Newell's shearwaters (ʻaʻo; *Puffinus auricularis newelli*). Both the Hawaiian petrels and the band-rumped storm-petrels may likely utilize the airspace above the Property at night as they fly to the ocean from their high mountain burrows.

2.18 Invertebrates

Several invertebrate species are found in the anchialine pools at Kahuku Coastal: the endemic ʻōpae ʻula, indigenous ʻōpae ʻoehaʻa, and the non-native Tahitian prawns. These species were observed during a survey conducted by the State DAR (Sakihara, 2017), which provided a "snapshot" of the species composition of the anchialine pools. The ʻōpae ʻula was the most abundant of all species found in the anchialine pools. Three other anchialine pool shrimp species (*Metabetaeus lohena*, *Palaemonella burnsi, Procaris hawaiana*) were also listed in the Biological Inventory submitted in the DOFAW grant application and referenced in the RLA Grant Agreement; however, the presence of these anchialine pool shrimp species was not verified as part of this management plan process. Two endangered anchialine pool shrimp (*Procaris hawaiana* and *Vetericaris chaceorum*) are known to be found at pools from nearby areas.

The unique ecology of the lava tube system at Kahuku Coastal provides habitat for endemic and indigenous subterranean invertebrate organisms. The DOFAW grant application listed the following species: the small-eyed big-eyed wolf spider (*Lycosa howarthi*), *Lyniphiidae*, *Oonopidae*, sow bugs (*Isopoda*), cave adapted centipede (*Cambalidae: Nannolele sp.*), springtails (*Collembola*), silverfish (*Nicoletia*), *Caconemobius*, bling cave earwig (*Anisolabis howarthi*), cave emesine (*Reduviidae*), the cave planthopper (*Oliarus polyphemus*), cave and entrance zone moths (*Noctuidae Schrankia sp.*), and blind flightless flies (*Phoridae Megaselia*).

Other invertebrate species that have some potential to be present at Kahuku Coastal include the endangered Hawaiian yellow-faced bee (*Hylaeus anthracinus*) and the endangered Blackburn's sphinx moth (*Manduca blackburni*). However, neither of these invertebrate species were observed by Terry & Hart (2020). According to Terry & Hart (2020), the likelihood of the bee being present is very low. The coastal strand vegetation within the Property is minimal and only a single patch of tree heliotrope is present that may provide suitable habitat for the yellow-

faced bee. Similarly, suitable habitat for the Blackburn's sphinx moth was not found on the Property. The adult moth feeds on nectar from native plants including beach morning glory, ilie'e, and maiapilo, neither of which are present on the Property.

2.19 Summary of Key Threats to Resources

Human Activity and Use

Unmanaged human trash and waste at Kahuku Coastal pose threats to the overall ecosystem and resources, including disturbing habitats for threatened and endangered species. Cultural sites and natural features located in frequently used areas have been repurposed, or reused for camping, bathroom and trash disposal (e.g., human waste found in anchialine pools and enclosures) areas. Human waste with food scraps left on the property can increase the populations of mammalian predators, which pose a threat to threatened and endangered species. For example, cats, rats, and mongooses can prey on hawksbill hatchlings and eggs by digging up nests. Illegal dumping and the presence of abandoned vehicles also negatively impact the overall ecosystem.

Inadvertent disturbance to cultural sites is caused by modern recreational use of Kahuku Coastal for camping, swimming, and fishing purposes. For example, there are signs of pirating cobble materials to build cairns, fire hearths, walls, and other modern stone constructions. The **intentional looting** of Hawaiian artifacts from Kahuku Coastal also poses a serious threat to the cultural heritage.

Presence of artificial light from vehicles, campfires, lanterns, flashlights, dive lights, etc. may have an impact on hawksbill turtles and may discourage them from using the area. Sea turtles live in the ocean, but hatch at night on the beach. Hatchlings find the sea by detecting the bright horizon over the ocean, however, artificial lights disorient nesting females and hatchlings, increasing the risk of stranding, injury, and death. For example, the presence of artificial lights may disorient hawksbill sea turtles, and as a result, misdirect turtles away from the ocean and increase the risk of falling into the **lava cracks** and being trapped.

Unmanaged vehicular traffic is a threat to the fragile resources, including cultural sites that are present at Kahuku Coastal. Several pāhoehoe surfaces and petroglyphs were observed to have been damaged by vehicles that have repeatedly run over them. Vehicular traffic can lead to compaction, rutting and displacement of sand. Sand compaction can particularly damage hawksbill nests and hatchlings since it makes nesting more difficult for females and emergence more difficult for hatchlings. Recreational off-roading can negatively impact resources and contribute to increased erosion of the pu'u.

Marine debris, including discarded fishing gear can entangle hawksbill and green turtles at sea causing them eventually to drown. Marine debris also negatively impacts the overall ecosystem.

Unsustainable harvesting and fishing practices pose a serious threat to the long-term supply of subsistence resources for families.

General Habitat Degradation or Loss

Climate change negatively affecting the health of coral reef ecosystems threatens hawksbill and green turtles because they depend on coral reefs for foraging habitat. Sea level rise could also diminish beach habitat used for nesting by hawksbill sea turtles and basking by green sea

turtles. With climate change impacts to nearshore and coastal resources, it is critical to protect these resources as much as possible from other threats including invasive species and/or human use. Drier climate as a result of climate change could increase fire risk, thus making control of fountain grass very important.

Invasive Species

Invasive mammals such as cats, mongooses, rats, and feral pigs prey on hawksbill hatchlings and eggs by digging up nests. The threat of predation by pigs is assumed to be low at Kahuku Coastal, but the abundance of human food and trash can increase the populations of these and other predators.

Invasive plants alter the structure and vegetative composition of habitats for threatened and endangered species, and specifically, can reduce available nesting habitat for hawksbill sea turtles. The roots of invasive plants can form dense matrices in the sand, making it difficult for female hawksbills to dig nests and trapping hatchlings that become entangled as they try to emerge from their nests.

Fountain grass is an invasive and highly flammable grass that serves as fuel for wildfires. While it does not appear to be widely spread throughout Kahuku Coastal, pockets of fountain grass clusters can be found on the property and should be controlled early on.

Invasive aquatic species pose a threat to native crustaceans because they compete for food resources in the anchialine pools and may prey on them.

3 Management Plan

3.1 Goals and Objectives

In recognition of the conservation values that the Kahuku Coastal acquisition was trying to preserve, the requirements in the grant utilized to purchase the property, and consultation with stakeholders, the following goals and objectives for this resources management plan are:

- **Goal 1:** Preserve and maintain the pristine, natural character of the landscape, open space, and unique lifestyle practices that makes Kaʻū, Kaʻū.
    - Objective 1.1: Emphasize low-impact activities and minimal improvements that are consistent with the remote, wilderness nature of Kahuku Coastal.
    - Objective 1.2: Minimize the human footprint on the land.
- **Goal 2:** Protect cultural and natural resources, especially considering potential climate change impacts to nearshore and coastal resources.
    - Objective 2.1: Protect and perpetuate cultural knowledge and practices passed down for generations and protect unique cultural resources in cooperation with the kūpuna and descendants of the place.
    - Objective 2.2: Minimize alteration and disturbance of habitat for the endangered hawksbill turtle, threatened green turtle, and endangered Hawaiian monk seal.
    - Objective 2.3: Protect, restore, monitor, and maintain nesting sites for the endangered hawksbill sea turtle.
    - Objective 2.4: Prevent establishment of new invasive species, control established invasive species, and maintain habitat for native flora and fauna species, with emphasis on the kīpuka of native lowland dry forests and complex of anchialine pools.
- **Goal 3:** Provide opportunities for the people of Kaʻū and residents from other regions of the island to enjoy this area without compromising the integrity of its resources, its high ecological value, and the special qualities unique to this place.
    - Objective 3.1: Balance use of the Property with the need to maintain its important qualities and to protect its resources for future generations.
- **Goal 4:** Enable proper management by increasing public understanding of the cultural and natural significance of this place and the threats that endanger it and by increasing support for the community and their capacity to provide stewardship.
    - Objective 4.1: Encourage community stewardship of this place through awareness, education, and participation.
    - Objective 4.2: Coordinate and partner with lineal descendants, cultural practitioners, organizations and individuals from Kaʻū, and other government agencies to steward this place.

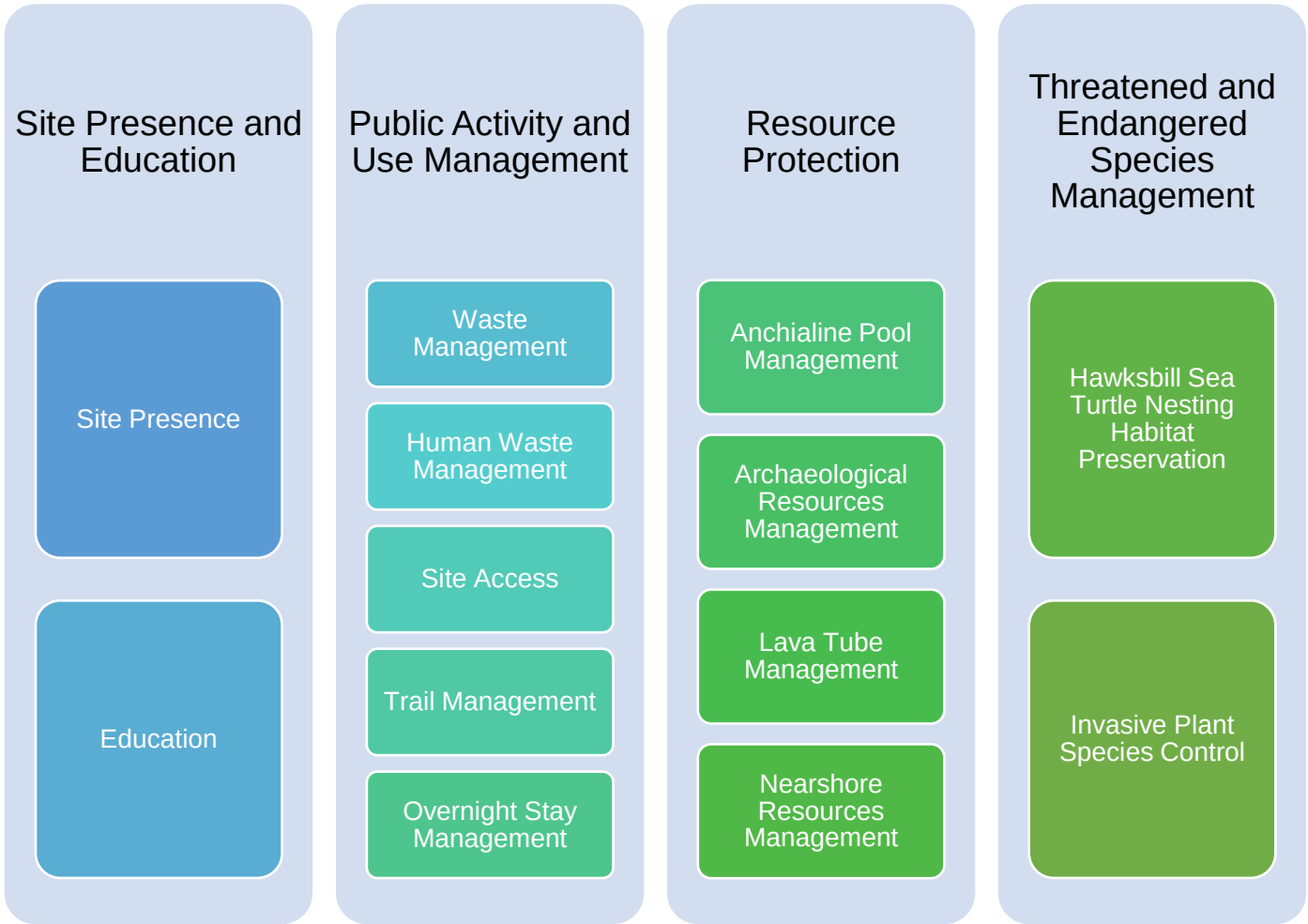
3.2 Management Strategies

This section presents management strategies for the protection of the natural resources, cultural heritage, and overall ecosystem at Kahuku Coastal. The management strategies for the resources management plan are grouped into the following topic areas:

- Site Presence and Education
- Public Activity and Use Management
- Resource Protection
- Threatened and Endangered Species Management

In general, the management strategies presented below are intended to act synergistically to improve the overall health of the ecosystem, which in turn has direct and indirect benefits for all native species and resources.

Figure 4. Management Topics and Strategies



The following recommendations are overarching with regard to management:

- **Co-management structure** – Successful stewardship of Kahuku Coastal requires cooperation and coordination amongst many stakeholders—acting in the best interest for the long-term health of resources. A co-management structure, consisting of County staff, along with the community (e.g., lineal descendants, cultural practitioners, community organizations, conservation groups, adjacent landowners) is encouraged to steward this place. With such a large acreage and diversity of resources, a coalition of organizations will be needed to help steward different aspects of the landscape.
- **Community engagement** – Direct community involvement in stewardship increases awareness of important resources present at Kahuku Coastal and discourages inappropriate use of resources. It promotes a greater sense of respect for the place by connecting people to it. Facilitated discussions amongst kūpuna, lineal descendants, and other groups involved in the stewardship of Kahuku Coastal are recommended to promote collaboration, communication, and effective co-management of the place. These discussions could be conducted as part of on-going community talk story sessions where updates on Kahuku Coastal and stewardship activities are shared. Consider forming a Stewardship/Advisory Group and a Volunteer Group specifically for Kahuku Coastal.

  Hold an annual virtual or (when possible) in-person community meeting to discuss the status of the Management Plan/Programs. These meetings could be conducted at the same time with an annual clean-up, Mālama Kahuku Coastal Day. Also, consider quarterly virtual meetings to discuss recent issues and events relating to Kahuku Coastal.

- **Reporting mechanism** – A reporting mechanism (i.e., phone hotline, email, online system) to allow the community to serve as the "eyes and ears" for the County to report issues will also help in the management of the place. County staff will need to enforce rules and properly respond to activities reported.
- **Consultation** – Management decisions should consider the knowledge passed down from kūpuna, desires of the descendant community of Kahuku, and input from the local Kaʻū community that regularly use the area. Kūpuna and descendants of the place should be consulted regularly in the stewardship process to ensure proper protocols are followed and to minimize inadvertently damaging resources.
- **Required staff/volunteer education** – All County staff, community groups and individuals involved in the stewardship of Kahuku Coastal should have some familiarity with the history and culture of Kaʻū, cultural protocols, and the local community. They should also be knowledgeable about the cultural, historical, and natural resources of the place and be respectful of the local culture. If possible, organizations from the Kaʻū community should have a priority in stewardship.

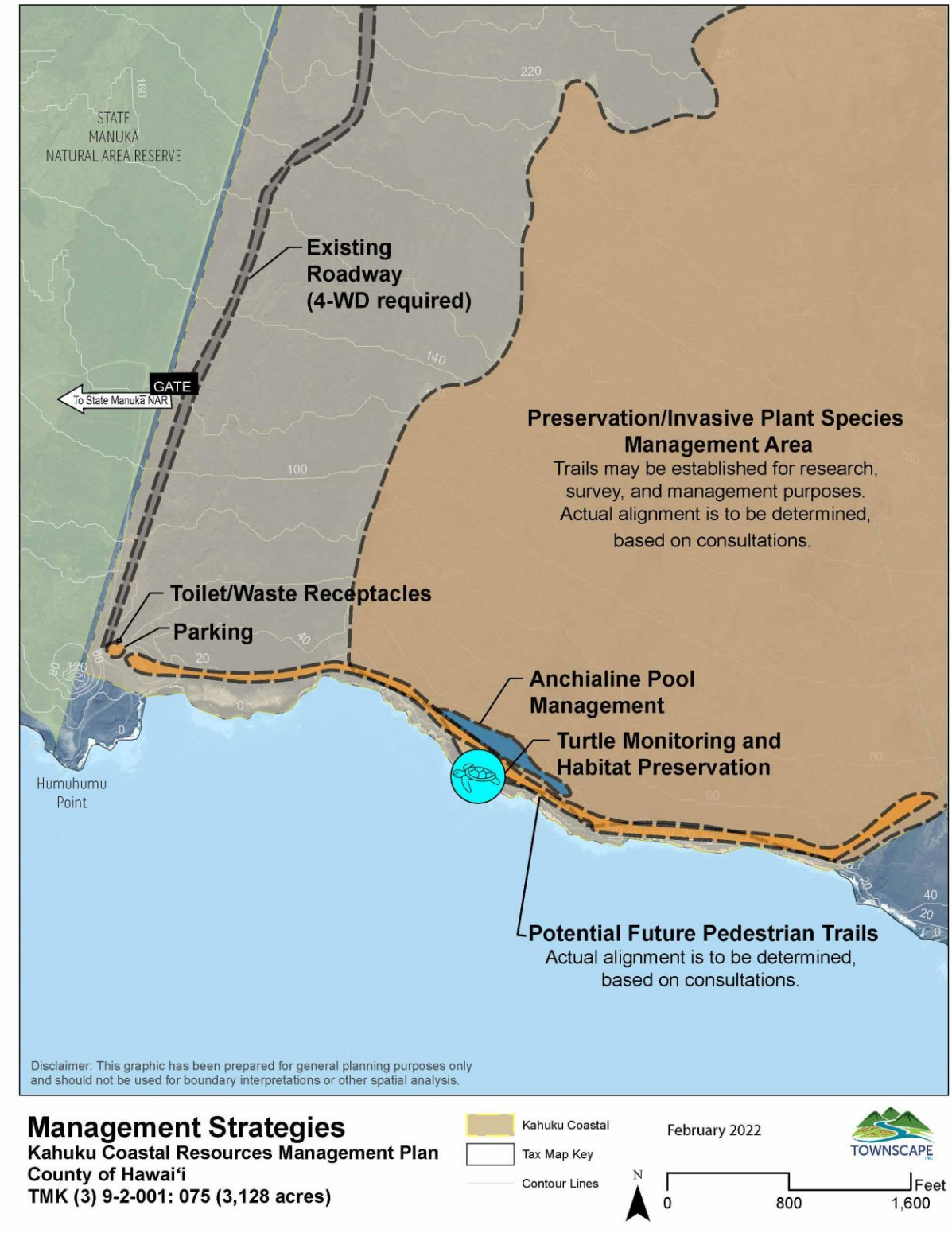
- **Prohibition of on-site commercial activities** – Commercial activities such as private tours should not be permitted on the Property.
- **Design criteria and use guidelines** – Conduct additional consultation with stakeholders to further define design criteria and use guidelines. Some of the design criteria should be to include the use of natural materials, where possible; minimize the number and size of structures (if any); and design and site features like signage, waste receptacles, or benches in locations that minimize visual impacts and do not compromise the natural and wilderness qualities of the place.
- **Increasing accountability** – Modify the management approach if those visiting the Property do not voluntarily comply with rules and guidelines.
- **Collaborative management** – Collaborate with adjacent landowners to ensure effective management of interconnected landscapes. Adjacent landowners and nearby residential community associations should be kept informed of ongoing management activities. Collaboration with the State DOFAW managers of the neighboring Manukā Natural Area Reserve is recommended so that, at minimum, there is visual consistency for management strategies (e.g., pathways, access routes, signage) and for weed control (e.g. fountain grass). Also, consultations indicated that many fisherfolks access a popular fishing spot in the State Manukā Natural Area Reserve via the County's property. Thus, any management strategies implemented for the County parcel will impact site users for the State property as well.

Example of Possible Management Approach

A trail register could be utilized to record people entering and leaving Kahuku Coastal. This management tool would help to keep track of people entering and leaving the property for safety purposes and aid in the enforcement of rules. However, if rules continue to not be followed and resources are negatively impacted, then use of a permit system should be considered. The permit system could be similar to the system implemented for Kaʻena Point on Oʻahu, where the public can request an annual permit at no cost. Permit conditions require drivers to remain on a designated roadway and stress that it is not a four-wheel drive recreation area. The permit system ensures all users receive accurate information about the area. If permit holders conduct illegal activities while in the area, their permit may be revoked and users will not have access to the gate combination. Those entering without a permit may be subject to penalties and may not be eligible for a permit in the future. The permit process provides opportunities to offer educational information about the property and resources. Lock combinations may be retrieved 24 hours a day online and changed weekly.

(Right) Modern fishing pole holder placed along the shoreline

Figure 5. Overview of Management Strategies



3.2.1 Site Presence and Education

Strategy 1A

Establish a regular presence by partnering with local stewards to care for the resources.

Management Actions:

1. County staff to work with community groups and partners to care for the resources.
2. Utilize local stewards to assist in interpreting cultural, natural, and historic resources of the area as well as mitigate undesired behaviors to ensure the safety and health of resources and people.
3. Establish a Memorandum of Understanding (MOU) with each non-profit organization that wishes to steward specified aspects of Kahuku Coastal.

Greater site presence through the use of County staff and/or local stewards at Kahuku Coastal is important to ensure that public activity and use are compatible with the protection of resources. The County should establish a MOU with each non-profit organization involved in a specific component of stewardship for Kahuku Coastal. Further discussions will be required between non-profit organizations and the County in order to clearly define the expectations, roles, and responsibilities for each party. The County's role would include overseeing stewardship groups and conducting periodic check-ins with them to make sure resources are properly cared for. Each agreement would be worked out between the entities on a case-by-case basis.

Periodic check-ins would allow the County to ensure that organizations are following through on their stewardship proposals. Regularly scheduled meetings to facilitate discussions amongst kūpuna, lineal descendants, and other groups involved in the stewardship of the place are encouraged. These meetings would promote collaboration, communication, and effective co-management of the place, and provide opportunities to address any issues that may arise, including ensuring that proper protocols are being followed.

Some of the responsibilities of the County staff and/or local stewards could include the following:

- Educate the public on the historical and cultural significance of the place and inform them that sensitive cultural sites and natural resources are present.
- Encourage respectful behavior. For example, cobble materials should not be pirated to build fire hearths, walls, etc. Enclosures, lava tubes, and other natural features should not be repurposed, or reused, for camping, bathroom, or trash disposal purposes. Recreational off-roading activities are not permitted.
- Notify users of essential information including, but not limited to, waste management policies, the lack of facilities, and hazardous conditions.

- Provide emergency road assistance, as appropriate.
- Document daily site use.
- Inform users that four-wheel drive vehicles are required to access the area.

Strategy 1B

Increase awareness about the significance and sustainable use of resources, including proper protocols to follow, through educational outreach.

"It could be similar to a protect the environment and antilitter education campaign (leave places better than when you arrive)".

Management Actions:

1. Establish and implement an educational outreach strategy, including identifying partners to provide outreach and education.
2. Develop educational outreach material, including signage, in coordination with lineal descendants, kūpuna, and other stakeholders.

Educational outreach could be provided through multiple platforms, from on-site signage and engagement to off-site materials and programs. It is important that all educational information provided share consistent information and be developed in coordination with lineal descendants, kūpuna, and other key resource stakeholders. Educational material should highlight the important resources of Kahuku Coastal and teach responsible stewardship of the fragile coastline and land.

Educational outreach regarding waste management and fishing practices, along with site presence and citizen reporting, are important for nearshore management to protect habitat and basking/rest areas for hawksbill sea turtles, green sea turtles, and monk seals.

The intent of providing educational outreach is to help increase site users' respect, understanding, and appreciation for the place and ultimately, to avoid inadvertent and intentional disturbance of the resources. Consultations with kūpuna and cultural practitioners revealed that families have practiced the kapu system for generations and gathered by the moon calendar to help protect resources and to assure a sustainable food supply, especially in this rural area where families still rely on subsistence practices. A kupuna explained that sometimes "western rules" are not applicable in specific regions. For example, there is one lobster season established Statewide but in Kaʻū, lobsters spawn during that time. This is why it is important to consult those who have deep knowledge of this particular place when developing specific protocols and policies.

On-site educational outreach could consist of interpretive signs to raise public awareness about the sensitive resources at Kahuku Coastal. Signage needs to be implemented in a manner that

"My suggestion is [to have] a few signs posted along Road to the Sea where the County boundary starts and [intersects with] the other side road coming from Kona Garden Estates. The sign[s] should address trash issues and whatever else is expected from the general public using the area."

does not compromise the natural character and vistas of the place because preservation of the natural and unaltered landscape is important to the community. Interpretive signs, coupled with on-site community outreach, can educate visitors about sensitive resources and protect this special place. For example, local stewards or community groups could provide the historical and cultural context of the area, educate visitors about sensitive resources, and encourage respectful behavior at Kahuku Coastal.

Off-site educational programs and materials can be of equal importance as on-site educational outreach. A long-term education program in schools, through civic associations, and at community events, could be established. Educational videos developed in cooperation with kūpuna, lineal descendants, educators, and other key resource stakeholders could be utilized as off-site outreach material. Other off-site educational outreach opportunities may consist of holding community talk story sessions for various stakeholders to share information or featuring educational displays at community events. Materials on Kahuku Coastal could also be included in broader efforts to teach people about Ka'ū.

3.2.2 Public Activity and Use Management

Strategy 2A

Reduce waste to improve the overall health of the Property.

What is "Pack In, Pack Out"?

A practice that requires site users to pack out everything they pack in. In other words, pack out all trash, leftover food, and litter. It is a policy implemented in many wilderness areas, at the county, state, and national level. This practice allows staff and volunteers to redirect their focus and resources away from trash maintenance, and to invest resources towards other conservation efforts.

Management Actions:

1. Implement a "**Pack In, Pack Out**" policy for trash.
2. Install signage to inform users of the waste policy and utilize County staff and/or stewardship groups to help educate and monitor.
3. Monitor and assess the waste policy, if needed.
4. Consider providing secured waste receptacles only if staff is available to maintain them.
5. Remove any abandoned vehicles and discarded trash or marine debris.
6. Organize, at minimum, an annual site clean-up with the general public. Regularly organized site clean-ups provide opportunities for the

general public to participate in stewardship and can increase awareness and enhance public understanding of the Property's unique resources.

7. Work with other County agencies, elected officials, and residents to address illegal dumping that occurs along the roads leading to Kahuku Coastal.

Public activity and use of Kahuku Coastal will result in disturbed habitats, littered beaches and anchialine pools, and contamination of the environment if early action is not taken to ensure resources are protected. While minimal compared to other places, impacts from public use can already be observed at Kahuku Coastal. These impacts include litter, human waste, modern stacking of rocks for firepits, and erosion of cinder cones and archaeological features from vehicles. Trash and marine debris removal will improve the overall health of the Property, enhance the suitability of hawksbill sea turtle nesting and lessen the risk of entanglement for sea turtles. Preventing human waste and land-based debris from entering the waterways and ocean will help protect the Kahuku Coastal ecosystem.

A "Pack In, Pack Out" policy would require site users to take their trash with them when they leave. Signs clearly outlining the rule should be installed at access point(s) to Kahuku Coastal so that site users are informed of the policy. Additionally, the "Pack In, Pack Out" policy for trash needs to be incorporated into the educational outreach message as described earlier under Strategy 1B. Over time, the County will need to re-evaluate this policy to determine whether any changes or modifications are needed. It will be crucial to engage the Ka‘ū community, with support from community stewardship groups, to build awareness and encourage the public to take responsibility for keeping Kahuku Coastal clean.

While installing waste receptacles can help to reduce litter, they require staff resources to maintain and may detract from the beauty of the natural environment, which is an important quality of Kahuku Coastal. If the County decides at a later time that waste receptacles are needed, it is important that County staff and/or stewardship groups have the capacity to maintain them regularly. If not properly maintained, waste receptacles can attract non-native predators to the area, such as mongooses, rats, and feral cats, that may pose harm to native species (e.g., prey on hawksbill hatchlings and eggs by digging up nests). The waste receptacles need to be secured, covered, and strategically placed near frequently used areas so that they will be utilized effectively but not compromise the natural landscape of the place. Input from site users may help to inform the County on useful locations to install the waste receptacles.

Example of waste receptacles with secured lid utilized at Hawai‘i Volcanoes National Park

In addition to implementing the "Pack In, Pack Out" policy for trash, regularly organized site cleanups by community stewardship groups with support from the County will help to engage the community, build awareness, and promote responsible stewardship. The cleanup should focus on areas most frequently used and coastal areas to remove debris washed up from the ocean.

An abandoned vehicle is located along the primary route used to access the coast on the western boundary and should be removed from the Property. Ideally, the presence of County staff personnel and community stewardship groups at Kahuku Coastal will help to regularly monitor activities and uses and will deter future vehicles from being left on the Property.

Illegal dumping of trash and bulky waste occurs along the roads utilized to access Kahuku Coastal, which is likely spurred by cost and convenience factors. While this illegal dumping occurs primarily outside of the County's parcel near Māmalahoa Highway, cleaning up the trash leading up to the County's parcel will help to establish a greater sense of respect for this area. Although removal of the tons of waste accumulated throughout the years is needed, the long-term solution to preventing illegal dumping requires the collective efforts of residents, elected officials, and government agencies and ultimately, involves behavioral modifications from individuals. Community policing programs may be effective in helping to regulate some of the illegal dumping activities.

Strategy 2B

Manage the disposal of human waste.

Management Actions:

1. In the near-term, inform users that there are no toilet facilities at Kahuku Coastal.
2. Encourage the use of Waste Alleviation and Gelling ("WAG") bags, or waste disposal kits.
3. In the long-term, install and maintain composting toilets, but only if there's personnel to regularly maintain and monitor their proper use and prevent vandalism.

In the near-term, County staff personnel and local stewards will need to make sure that users understand that there are no toilet facilities at Kahuku Coastal. Site users will have to bring their own "WAG" bags, or waste disposal kits, to pack out their human waste. This human waste policy needs to be incorporated into the educational outreach message as described under Strategy 1B.

In the long-term, the County will plan to adopt emerging technologies for managing human waste, providing that the County has the capacity and/or resources to properly maintain them. Any human waste facility may impact scenic vistas, therefore, its long-term benefits will to be balanced with its impacts to the environment and resources.

Strategy 2C

Partner with willing adjacent landowners on pedestrian and vehicular access.

Management Actions:

1. Coordinate and partner with willing adjacent landowners on site access. As a priority, work with stewardship groups to obtain vehicular site access to Kahuku Coastal.
2. In the interim, mark the County's legal access so the public can hike down from Māmalahoa Highway (until physical vehicular access may be established in the future).
3. Designate an area for parking if/when the County is able to partner with willing adjacent landowners on vehicular site access.

The lack of an improved road at Kahuku Coastal helps to protect the area and as a result, the resources are generally in a very good state. With road access limited to four-wheel drive vehicles along the western boundary and other access strictly pedestrian, the natural, rough state of the landscape protects the area's vulnerable resources.

Many consultations raised concerns relating to the condition of the roads used to access the property, including the roadway along the western boundary of the parcel. Some community members expressed wanting to see the roadway improved (from the Highway to the coast) to allow for easier access to the coastal areas. Others suggested improving the road for safety reasons and to allow for easier access for emergency vehicles. On the other hand, many community members supported keeping the roadways in this area unimproved to protect the resources. They were concerned that paving the road (or implementing any on-site improvements) would "open the area" to more people, which is a threat to the sense of place and environmental integrity of Kahuku Coastal. This management strategy does not propose to pave any roadways within the County's Kahuku Coastal property.

Restricting vehicular traffic along the shoreline, especially near sand and cobble beaches, will help to minimize land-derived pollution, protecting habitat and basking/rest areas for hawksbill sea turtles, green sea turtles, and monk seals.

Some residents suggested designating areas for vehicular travel and for parking within a reasonable walking distance of the shoreline. The goal would be to guide site users to areas that are safe, thus protecting sensitive resources within the Property and preserving the area's natural beauty and overall ecosystem.

Present-day access

The roadway currently used within the Property to get to the coast is located on the western boundary. Consultations indicated that three roads from Māmalahoa Highway have been utilized to access that roadway within the Kahuku Coastal parcel. These roads include Road to the Sea, an unnamed road to the south of Road to the Sea, and Kona Gardens Road. All three roads are privately-owned. Use of these privately-owned roads to access Kahuku Coastal by the general public is discouraged. Road to the Sea and the unnamed road to the south of Road

to the Sea are unpaved and require the use of a four-wheel drive vehicle to maneuver the steep ledges, cracks and potholes. They can be dangerous to navigate especially during and after heavy rain. Kona Gardens Road is a paved road located within the Kona Gardens subdivision, which requires gate access.

The roadway along the western boundary of Kahuku Coastal used to access the sea is limited to four-wheel drive vehicles.

Several mauka to makai roads within the Hawaiian Ocean View Ranchos subdivision also terminate at the boundary between the subdivision and the County parcel, allowing residents to access the mauka portion of Kahuku Coastal from these locations. There is an old ranch trail, referred to as “Old Ranch Road” that continues from the Ranchos subdivision into the Property, but it runs into the adjoining private parcel well before reaching the sea.

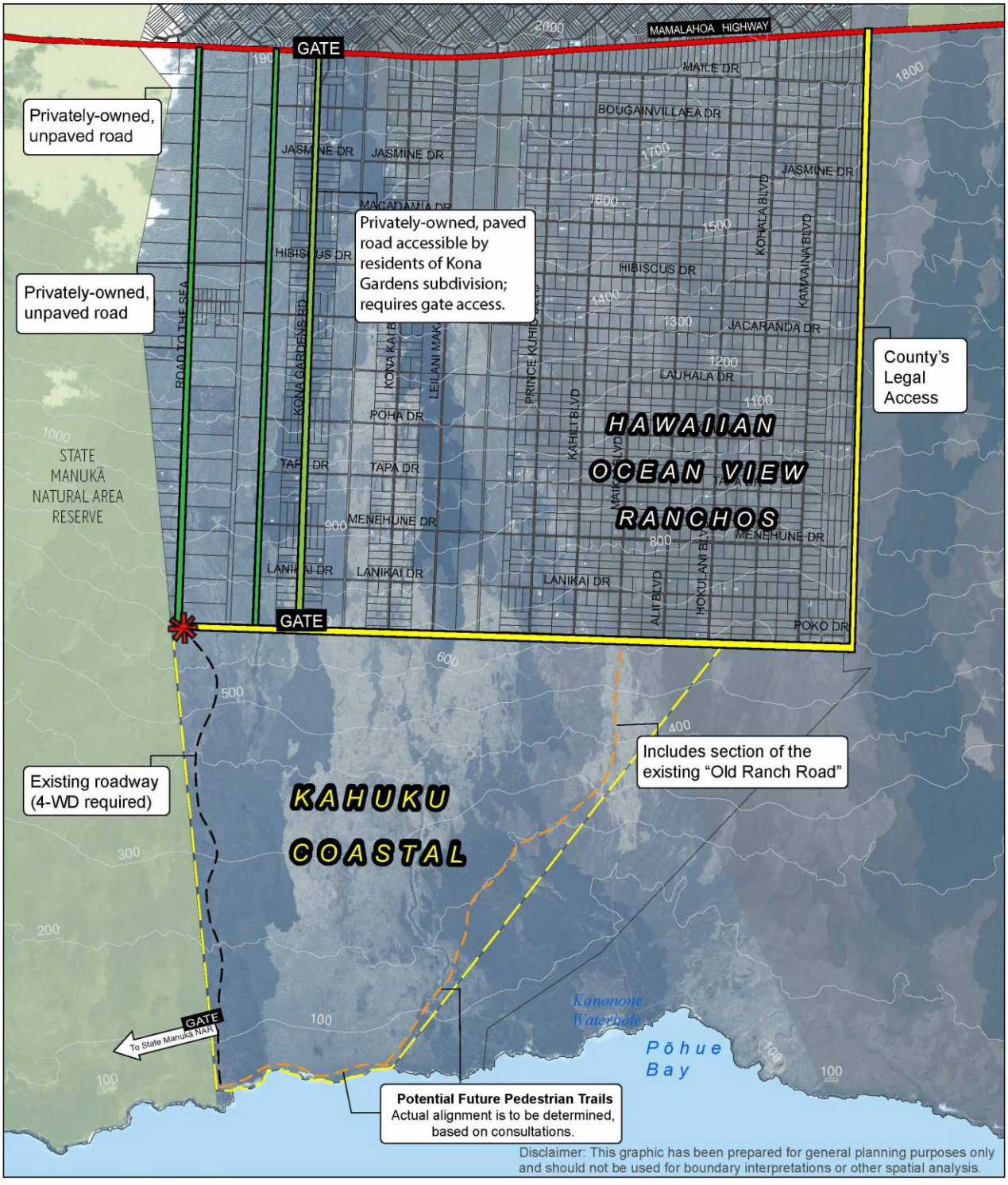
Legal Access

The County has an easement from Māmalahoa Highway (shown in yellow in Figure 6), on the south side of the Hawaiian Ocean View Ranchos subdivision, that could be used as a pedestrian access although trails would have to be created from Māmalahoa Highway and through the Property to the coast. At this time, the County’s easement has no physical roadway on the ground.

Possible Future Access

For future vehicular access to Kahuku Coastal, the County should coordinate and partner with willing adjacent landowners to use private roads. A section of the “Old Ranch Road” could be utilized as a potential future mauka-makai pedestrian trail. Fencing along the eastern boundary of Kahuku Coastal would need to be considered to prohibit trespassing onto the adjacent private property. Roads and trails within the Kahuku Coastal property are NOT recommended for paving. While it is recognized that some access is needed to provide for management, maintenance, the exercising of Hawaiian traditional and customary practices, and subsistence fishing and gathering, paved roads would encourage high volumes of use that are detrimental to the conservation values that led to the purchase of the property and to the goals of the management plan.

Figure 6. Access



Access
Kahuku Coastal Resources Management Plan
County of Hawai'i
TMK (3) 9-2-001: 075 (3,128 acres)

Kahuku Coastal
Tax Map Key
Contour Lines

August 2021

TOWNSCAPE

N
0 3,000 6,000 Feet

Strategy 2D

Create designated hiking trails.

Management Actions:

1. Identify coastal and mauka-makai trail routes to designate for public use and to provide site access for management and research activities.
2. Utilize the existing MOU between the National Park Service, State of Hawai‘i, and the County of Hawai‘i to delineate and establish the Ala Kahakai National Historic Trail on Kahuku Coastal and to protect and manage it for public use, pending further consultations with kūpuna, lineal descendants, and Ka‘ū residents.

Pedestrian access within the Property should include both coastal and mauka-makai trails. As described earlier, a section of the “Old Ranch Road” could be utilized as a potential future mauka-makai pedestrian trail. Trail routes can be utilized as a means to direct users to desired areas that are away from sensitive archaeological and natural resources to minimize inadvertent damage. The use of subtle “markers” and signage to guide users to stay on designated pedestrian trails are recommended. More active management of cultural features and resources along trails will also be needed.

Signage should be focused on “positive” language to educate the public about the presence of resources on-site (e.g., “Stay on trails to protect resources.”). Signs should be made of natural materials, where possible, and sited in locations that visitors can easily find while minimizing visual impacts that compromise the natural and wilderness qualities of the place. Other design elements along the trails, such as benches, could be considered in the future as long as they do not compromise the special qualities unique to Kahuku Coastal.

View of the “Old Ranch Road” located on the northeastern side of the Property (facing makai)

Strategy 2E

Manage overnight stays to facilitate traditional and customary practices, fishing and gathering for subsistence purposes, or stewardship efforts at Kahuku Coastal.

Management Actions:

1. Establish site rules and guidelines that must be followed for cultural practitioners, subsistence fishers and gatherers, and organizations involved with stewardship efforts requiring overnight stays at Kahuku Coastal.
2. Establish a system to allow cultural practitioners, subsistence fishers and gatherers, and organizations involved with stewardship efforts to inform the County of overnight stays on the Property for safety purposes.

Modern stacking of rocks for firepit found near the shoreline

The following guidelines are recommended in the near-term to control use in order to preserve resources and the important qualities of this place, including the area's isolation and privacy:

- Overnight stay is permitted only to 1) support traditional and customary practices, 2) allow for subsistence fishing and/or gathering, and/or 3) carry out stewardship activities by community organizations with a formalized agreement with the County. All individuals must follow site rules and guidelines, including careful considerations during hawksbill sea turtle nesting season.
- To minimize the overlap of site users, discourage the use of the property for parties and unruly behavior, and to ensure safety, notifications of overnight stays should be made to the County in advance, with a maximum number of nights per overnight stay established prior to initiation of such a program. A record of overnight users would also be helpful in emergency situations where the County would know to alert anyone on-site of a hazard such as a potential tsunami.
- Best management practices to reduce impacts to the habitat from overnight stays must be followed. The use of nighttime artificial lights during turtle and seabird nesting and hatching seasons should be avoided. If needed, red cellophane should be applied over lights to reduce the chances of disorienting hawksbill sea turtles and migratory seabirds at night.

In the future, designation of specific areas for camping should be considered provided that associated infrastructure (e.g., physical vehicular access and facilities for human waste

management) are in place and dedicated personnel are available to oversee, monitor, and maintain site conditions to ensure uses do not compromise the integrity of resources and habitat for threatened and endangered species.

Nightly turtle patrols and nest watches will be needed during the nesting season since hawksbill sea turtles nest at night. Volunteers would be tasked with counting the eggs, collecting data on the nest, controlling predators, and releasing any hatchlings that may be trapped by impacted sand or vegetation. Thus, overnight stays for volunteers involved with these stewardship efforts will need to occur during the nesting season.

3.2.3 Resource Protection

Strategy 3A

Monitor anchialine pool habitats and reduce human impacts.

Management Actions:

Education

1. Increase public awareness about resources within the anchialine pools and their sensitive habitats through on-site and off-site educational outreach (e.g., signage, stewardship group, etc.).
2. Develop educational material in cooperation with lineal descendants, kūpuna, DLNR DAR, and conservation groups.

Educational material should focus on informing the public about the value of and threats to anchialine pools (including human use for bathing, swimming, and/or toilets), the habitat they provide, and on conservation actions to protect them. Consultations revealed that, for example, fishermen have used the anchialine pools in other places as an “ice box,” putting live fish that they either catch or use as bait into the pools, some of which prey upon the ‘ōpae‘ula that live there. Educational material should share information on how such a practice impacts the ecology of the pool as a result of the introduction of alien fish.

Prevention/Protection

1. Educate and enforce the Pack In, Pack Out policy for trash.
2. Partner with community-based and local non-profit organizations to remove any trash in and around the anchialine pools.
3. Establish rules prohibiting the release of introduced fishes, bathing, and the dumping of trash in the anchialine pools at Kahuku Coastal. Restrict the use of these pools to traditional, research, and educational purposes only.

As of 2021, DLNR DAR is in the informal public scoping phase for developing statewide management rules for anchialine habitats. When completed and if approved, these policies will apply to the anchialine habitats at Kahuku Coastal. The County should participate in the planning process for the statewide management rules, when appropriate, to ensure that rules are aligned with the management actions outlined in this section. Policies to increase protections and restoration of wetland habitats, including anchialine pools, are proposed in the County's August 2019 draft of the 2040 General Plan. For example, a proposed policy requires minimum setbacks of 50 feet to be maintained as an open space buffer for development occuring adjacent to all types of wetlands.

While roping or fencing the pools off to keep people out and prevent nesting turtles from getting trapped may work at other locations, such management actions may actually bring more attention to the anchialine pools at Kahuku Coastal. The anchialine fissures here are relatively inconspicuous, therefore affording natural protection. Instead, a natural barrier, such as native plantings, or a rockwall, could steer turtles away from falling in the pools while trying to find a nesting area and protect the anchialine habitats.

Monitoring and Surveying

1. Work with DLNR DAR to establish a monitoring protocol.
2. Regularly monitor and survey anchialine habitats to assess the health of the pools and to document habitats. For example, the following data on the biology, physical habitat, and water quality should be recorded quarterly, or whenever possible:
    - Biology:
        - List of aquatic life observed to its lowest taxonomic unit (species if possible)
        - Density estimates of aquatic invertebrates using a 0.25 square meter quadrat to replicate 1-minute surveys across an anchialine pool
        - If a species is unknown, collection and/or high-resolution photographs are taken
        - Notes on any unusual/unexpected observations
    - Physical Habitat:
        - Pool surface dimensions
        - Deepest depth in the pool
        - Type of anchialine habitat (e.g., single pool, cave, fissure, lava tube, etc.)
        - Substrate (e.g., ʻaʻā, pāhoehoe)
        - Estimate percent canopy cover from riparian vegetation
        - Time, Global Positioning System (GPS) location
        - Record any unusual/unexpected observations
    - Water Quality:
        - Water temperature, salinity, pH, conductivity, turbidity (usually measured simultaneously with a YSI multi-parameter sonde/hand-held unit)

- Background inorganic nutrient water sample collections (~40 to 45 ml of filtered water samples collected in sterilized bottles and chilled on ice). (Note – This task could be done annually or semi-annually).

Restoration

1. While it may not be feasible to conduct alien species eradication efforts in the anchialine fissures at Kahuku Coastal, any opportunities to remove non-native fish is encouraged.

Strategy 3B

Work with County staff, stewardship groups, and archaeologist(s) to monitor and assess the condition of cultural sites, particularly near frequently used areas most susceptible to impacts from public use and activity.

Management Actions:

Education

1. Increase public awareness about archaeological resources through on-site and off-site educational outreach.
2. Develop educational material in cooperation with lineal descendants, kūpuna, and archaeologists.

Educational material should focus on informing the public about the archaeological and cultural significance of the area, interpretation of some of the resources, and provide conservation actions to protect them. For example, cobbles should not be moved for road marking and improvements and/or for modern reuse for fishing and related activities. Stewardship groups should also regularly engage the public in conversations, sharing mana‘o about the cultural landscape of Kahuku. Signage should be strategically placed in areas frequented by the public.

Monitoring

1. Develop a monitoring protocol for archaeological resources particularly in “frequent use” areas, or areas most susceptible to human impact.
2. Regularly monitor and assess the condition of archaeological resources in partnership with lineal descendants, kūpuna, Native Hawaiian organizations, and archaeologists.
3. Continually update baseline data collected by ASM Affiliates (2020) in Geographic Information System (GIS) maps as new information is collected.
4. Modify management strategies, as needed, based on findings from monitoring and surveying. Stricter management strategies may be needed if features are not protected from inadvertent or intentional disturbance.

Protection

1. Direct site users away from sensitive areas without calling attention to the resources themselves through the use of signage, vegetation, markers, etc.
2. Limit areas with sensitive archaeological resources to only pedestrian access to minimize inadvertent damage to resources.
3. If/when trail routes are opened for public use, more active management of cultural features along the trail will be required, along with installation of additional informational/educational signage.

Strategy 3C

Work with the lava tube research community, and other research/educational entities to inventory, map, monitor and protect lava tubes and associated resources; and to facilitate on-going dialogue between these researchers and educators and lineal descendants/cultural practitioners to ensure proper and best management of resources.

Management Actions:

Education

1. Support the exploration of lava tubes for scientific and educational purposes to expand biological and ecological knowledge of lava tubes and fauna, provided that proper safety and cultural guidelines and best management practices are followed to protect the sensitive subterranean ecosystem.

Protection

1. Utilize trail routes as a means to direct site users away from lava tube entrances without calling attention to the resources themselves.
2. Restrict removal or modification of any archaeological resources within the lava tubes.
3. Utilize County staff and/or stewardship groups to discourage the general public from entering lava tubes for safety reasons.
4. Regularly monitor lava tubes and associated resources for any invasive species that may be introduced; prepare a rapid response plan so that, if detected, mitigation measures can be implemented immediately.

Strategy 3D

Support and participate in community-based outreach and education efforts to ensure pono fishing and gathering practices are observed.

Management Actions:

1. Work with kūpuna, cultural practitioners, fisherfolks, and the State to implement place-based pono fishing and gathering practices through education, monitoring and community-based outreach.
2. Assist the public with reporting resource violations to the State DLNR Division of Conservation and Resources Enforcement (DOCARE) to allow for proper response and follow-up.

3.2.4 Threatened and Endangered Species Management

Strategy 4A

Partner with Hawaii Island Hawksbill Turtle Recovery Project and conservation organizations to monitor hawksbill sea turtle nesting activity, protect nests, manage vegetation, implement predator control measures, and reduce human impacts.

- **Target**: Protect threatened and endangered species and their appropriate habitat within Kahuku Coastal.

Management Actions:

Education

1. Increase public awareness about threatened and endangered species found at Kahuku Coastal and their sensitive habitats through on-site and off-site educational outreach (e.g., signage, stewardship group, etc.).
2. Develop educational material in cooperation with lineal descendants, kūpuna, and conservation groups.
3. Install proper signage so that the public is aware that hawksbill sea turtles do nest on the beach occasionally.

Educational material should focus on informing the public about the hawksbill sea turtle nesting sites and on conservation actions to protect them.

Protection

1. Predator Control
    - Place temporary enclosures over nests when signs of nesting activity are observed. Enclosures will need to be removed several days before hatchlings are projected to emerge. Note that this activity must be covered under a USFWS permit due to the risk of entrapping and exposing hatchlings to predators if not monitored carefully.
    - Install traps for small mammals in the vicinity of nesting areas when signs of nesting activity are observed, creating at least a 25-foot buffer around the nest.
    - Set regulations where domestic dogs must be kept on a leash.
2. Encourage best management practices especially during nesting and hatching seasons.
3. Maintain vegetation near hawksbill sea turtle nesting sites, including outplanting vegetation (e.g., naupaka) and/or building a rockwall along the perimeter of the sandy area to prevent sea turtles from going inland beyond the beach area and falling into the lava cracks. Restore the native coastal strand, where appropriate, to protect habitat for hawksbill sea turtles and other native species.

Note that any management activities that directly impact federally listed threatened and endangered species will require a permit from USFWS.

If signs of hawksbill sea turtle nesting are observed, the Hawaii Island Hawksbill Turtle Recovery Project should be contacted immediately at (808) 985-6090.

Best management practices for reducing impacts from human activities include avoiding use of nighttime artificial lights during nesting and hatching seasons; or, if needed, applying red cellophane over lights to reduce the changes of disorienting hawksbill sea turtles at night; and prohibiting driving on beaches.

Best management practices such as applying red cellophane over lights will also help to reduce the chances of disorienting migratory shorebirds at night.

There have been several incidents where hawksbill sea turtles have been trapped in the lava cracks; one was found dead while two were successfully rescued. Naupaka could be strategically planted to prevent turtles from going beyond the beach area and falling into the lava cracks. Naupaka also has weak bristly roots which tend to be both easier for nesting hawksbill females to break when digging an egg chamber and for their hatchlings to emerge. Consultations have indicated that plants with fibrous roots (e.g., coconut trees and hale koa) make it difficult for nesting females and their hatchlings, both when digging an egg chamber and for hatchlings to emerge. A rockwall or other physical barrier placed around the sand area could prevent turtles from going beyond the beach area and possibly falling into the lava crack.

Monitoring and Surveys

1. Monitor beaches once daily in the morning, or as frequently as possible, during the nesting season. If possible, overnight monitoring should be conducted.
2. Conduct a baseline survey of the nearshore resources to help develop a more complete understanding of the biological resources of Kahuku Coastal, and to support the long-term monitoring of the nearshore resources and habitat.

Strategy 4B

Manage and, if possible, eradicate high priority non-native, invasive plant species such as fountain grass.

- **Target**: Minimize new introductions of fountain grass and other invasive plant species.

Management Actions:

1. Survey the Property to identify species distribution and size of large populations.
2. Map areas with high priority non-native, invasive plants such as fountain grass which is an extremely flammable plant species.
3. Prioritize areas for intensive weed control based on factors such as possible contribution to the spread of fountain grass and other invasive plant species (e.g., sourbush).
4. Target the pockets of fountain grass and other invasive plant species by manually removing the individual plants and/or using chemical means (treating with an herbicide). Consider restoring with native plant species, such as pili grass, where appropriate.
5. Monitor areas to detect changes in long-term distribution and abundance. Eradicate any new population of fountain grass as early as possible.

Pockets of fountain grass clusters found on the Property

6. Work with DLNR NAR staff to do fountain grass eradication on both the State Manukā Natural Area Reserve and County's Kahuku Coastal parcel to share mobilization costs.
7. Partner with State DOFAW to control goats should the goat population grow exponentially in a manner that negatively impacts resources.
8. Collaborate with Hawai'i Invasive Species Council.

For Kahuku Coastal, seeds are likely dispersed by wind and goats. Winds are generally northeast trade winds, suggesting that the northeast section of the parcel should be prioritized to prevent the spread of seeds by the wind. During the site visit, an area on the northeast section of the Property contained clusters of fountain grass. This area should be cleared of fountain grass immediately to prevent further spread.

Hand removal of invasive plants is effective but labor intensive, as the entire root system of the invasive plant needs to be removed in order to be successful. Note that fountain grass seeds are lightweight and may go airborne quickly. Chemical control may be more effective in eliminating invasive plant species covering large areas, but best management practices should be established, such as avoiding spraying near the coastline or anchialine pools. Hand pulling to remove small clusters of fountain grass and sourbush works well, including digging out large clusters, but the plants should be bagged and removed from the site to prevent spread. Alternatively, the plants could be covered with a tarp to dry out and to keep them from blowing around and possibly re-rooting elsewhere. Volunteer groups who are uncomfortable with using herbicide, or a group that includes children, may consider this methodology. Another option, which is costly, is the use of helicopter spray to get to fountain grass individuals or small populations (e.g., 2 meters x 2 meters) spread over a very large area (e.g., an area larger than 10 square kilometers).

Controlled areas should be monitored every three months for the first two years to exhaust the existing seed bank of fountain grass and other invasive species. After that, monitoring may be done bi-annually, unless there are months of long rain events. In these instances, monitoring should occur every three months for at least three cycles.

3.3 Implementation

This section provides general guidance on the next steps that are needed to implement the management strategies presented in this plan.

3.3.1 Collaborate with Community Partners

Community involvement is essential to the long-term success of this plan. Ideally for Kahuku Coastal, County staff would work with community partners and local stewards to care for the resources, with emphasis placed on partnering with lineal descendants, cultural practitioners, and community organizations and individuals from Kaʻū to steward Kahuku Coastal—acting in the best interest for the long-term health of resources. These community partners should include organizations with knowledge in different aspects of the place, especially entities with expertise in managing and protecting habitat for species highlighted in the RLA Grant Agreement (see Table 2).

The County should establish a Memorandum of Understanding (MOU) or Grant Agreement with each non-profit organization involved in a specific component of stewardship for Kahuku Coastal (see Strategy 1A). Community organizations should actively seek funding through the County's Maintenance Fund (see Section 1.1.2) to carry out actions outlined in the plan. The Maintenance Fund provides funding specifically for public safety maintenance and preservation of lands and easements acquired through the PONC Program.

Long-term stewardship of Kahuku Coastal will require a collaborative effort amongst stakeholders, including kūpuna, lineal descendants, cultural practitioners, community organizations, and State and County agencies, to carry out many of the actions outlined. The County should conduct periodic reviews to ensure agreed upon tasks are being performed and that goals are being accomplished. Any issues that impede progress should also be discussed and resolved.

3.3.2 Priority Management Strategies

Table 5 outlines the top five Management Strategies that should be implemented, as a priority, specifically for Kahuku Coastal. These five strategies are priorities because 1) they affect all or several resources and goals; 2) they would have a significant impact on protecting resources and goals; and/or 3) they are needed to design or implement other strategies.

Table 5. Priority Management Strategies

Management Strategy	County	Community Partners
Strategy 1B: Increase awareness about the significance and sustainable use of resources, including proper protocols to follow, through educational outreach.	Lead	Support
Strategy 2A: Reduce waste to improve the overall health of the Property.	Support	Lead
Strategy 2C: Partner with willing adjacent landowners on pedestrian and vehicular access.	Lead	Support
Strategy 2D: Create designated hiking trails.	Lead	Support
Strategy 4B: Manage and, if possible, eradicate high priority non-native, invasive plant species, such as fountain grass.	Support	Lead

3.3.3 Permits and Approvals

The following land use permits and approvals are anticipated to carry out this management plan:

- **Environmental Review**
  Hawai‘i Revised Statutes (HRS) Chapter 343 environmental review is triggered because implementation will involve the use of County lands and funds and/or use within lands classified as a conservation district by the state land use commission. The Environmental Assessment (EA) process involves early consultation and a 30-day comment period initiated after publication of the Draft EA, during which the general public has an opportunity to review and provide feedback on the plan and its potential impacts on the environment. However, some actions may be declared exempt from the preparation of an EA by the County. The County’s Department of Finance has not developed an exemption list to be submitted to the Environmental Council for review and concurrence, but the exemption list developed by the County Department of Parks and

Recreation may provide a suitable template for future HRS Chapter 343 compliance efforts.

- **Special Management Area Permit**
  Any "development" (e.g., composting toilet) proposed within the Special Management Area will require a Special Management Area Permit, which is administered by the County of Hawai'i in accordance with Rule 9 of the Planning Commission Rules. A major permit will be required for any improvements with construction costs exceeding $500,000 and/or anticipated to have a substantial adverse impact on the environment. Major permits require a public hearing and a more involved review process.
- **Conservation District Approval or Permit**
  Some land uses within the State Conservation District will require a Site Plan Approval from the State Office of Conservation and Coastal Lands (OCCL), a Conservation District Use Permit approved by the Chair of DLNR, or a Conservation District Use Permit approved by the Board of Land and Natural Resources.

3.3.4 Adaptive Management

Lastly, the concept of adaptive management should be applied for Kahuku Coastal. This concept enables the County to make more effective decisions based on improved understanding and management of both the resources and the place over time. Kahuku Coastal, like other properties acquired using the Preservation Fund, is unique and requires a place-based approach versus a "one-size-fits-all" method. In recognizing the complexity of managing Kahuku Coastal, there are also many external factors beyond the control of the County. For example, during the COVID-19 pandemic, more residents were observed spending time engaged in outdoor activities. There was an increased demand for activities including camping, fishing, and gathering for subsistence to supplement store-bought food. As the islands move towards recovery from the pandemic, more visitors are arriving with similar desires to enjoy the outdoors. As noted earlier, the lack of road access for Kahuku Coastal has helped to protect the area and resources. While this property should be treated as a wilderness area with the focus on preserving its natural and cultural resources undisturbed, undoubtedly more impacts will result from public use and activity, as more people will likely visit this place. If management strategies are implemented *before* irreversible consequences compromise the ability of future generations to enjoy this special place, then the work of the many kūpuna, lineal descendants, cultural practitioners, and residents who have fought hard for decades to preserve open space along the Ka'ū coastline and to sustain the unique lifestyle that makes Ka'ū, Ka'ū will be achieved.

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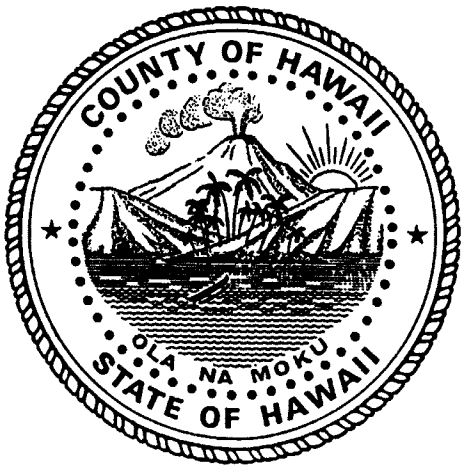
Kahuku Coastal Resources Management Plan

Appendix A

Hawai‘i County Charter

COUNTY CHARTER



COUNTY OF HAWAIʻI
2020

(5) Negotiated sales of county property found unusable for public purposes and valued below $250.00 without public auction.

(f) All county storerooms (other than departmental) shall be supervised and operated by the director of finance.

(g) The director of finance shall require such guarantees of performance by vendors as in the director of finance's opinion may be necessary or may be prescribed by ordinance.

(1979, Prop. 8; 1990, Prop. 14, sec. 1 and Prop. 16, sec. 3; 1994, Ord. No. 94-50, sec. 2; 2010, Prop. 7, sec. 43.)

Section 10-15. Public Access, Open Space, and Natural Resources Preservation Fund.

(a) In adopting each fiscal year's operating budget, the council shall appropriate a minimum of two percent of the certified real property tax revenues, including penalty and interest, to a fund known as the public access, open space, and natural resources preservation fund. Deposits to the fund shall occur at a minimum, on a quarterly basis.

(b) Funding shall consist of a minimum of two percent of actual revenue received in the fiscal year. Additional revenue may consist of grants and private contributions intended for the purpose of this section, voluntary contributions of any amount as specified on the real property tax bill, proceeds from the sale of general obligation bonds authorized and issued for the purpose of this section, council appropriations for the purpose of this section, and any other source of revenue.

(c) Monies in this fund shall be used solely to:

(1) Purchase or otherwise acquire lands and easements in the County of Hawai'i for public outdoor recreation and education, including:

(A) Access to beaches and mountains;

(B) Preservation of historic or culturally important land areas and sites;

(C) Protection of natural resources, significant habitat or eco-systems, including buffer zones;

(D) Preservation of forests, beaches, coastal areas, natural beauty and agricultural lands; and

(E) Protection of watershed lands to preserve water quality and water supply.

(2) Pay the principal, interest and premium, if any, due with respect to bonds issued in whole for the purpose of this fund.

(3) Pay for the salary, wages and benefits of staff dedicated to advancing the activities contained within this section and Section 10-16 of this charter.

(d) Any balance remaining in the fund at the end of any fiscal year shall not lapse, but shall remain in the fund accumulating interest from year to year. The moneys in this fund shall not be used for any purpose except those listed in this section.

(e) The council shall by ordinance establish procedures for the administration and expenditure of moneys in this fund.

(f) This fund shall be used for acquisition of land and easements and shall not be used for development, maintenance or for any purpose other than as provided in this section.

(g) The highest and best use of this fund is to leverage the money in the fund by attracting matching funds, although, matching funds are not required in every purchase.

(h) Any land acquired with this fund shall contain the following restrictive covenant in its recorded deed of conveyance: "This land was acquired with moneys from the Public Access, Open Space, and Natural Resources Preservation Fund. It shall be held in

perpetuity for the use and enjoyment of the people of Hawai'i County and may not be sold, mortgaged, traded or transferred in any way."

(i) Any easement acquired with this fund shall contain the following restrictive covenant in its recorded deed of conveyance: "This easement was acquired with moneys from the Public Access, Open Space, and Natural Resources Preservation Fund. It shall be held in perpetuity for the use and enjoyment of the people of Hawai'i County and may not be sold, mortgaged, traded or transferred in any way."

(2010, Prop. 1, sec. 1; 2012, Ord. No. 11-94, sec. 1; 2020, Prop. 6, sec. 1.)

Section 10-16. Public Access, Open Space, and Natural Resources Preservation Maintenance Fund.

(a) The purpose of the public access, open space, and natural resources preservation maintenance fund is to accrue and use moneys for maintenance of lands and easements acquired by the public access, open space, and natural resources preservation fund. The maintenance fund will ensure that money is dedicated to preserve the land, promote public safety, and maintain a healthy stewardship.

(b) For the purpose of this section, "maintenance" means to preserve and conserve lands and easements acquired by the public access, open space, and natural resources preservation fund and keep them in good repair for public safety.

(c) There is established a public access, open space, and natural resources preservation maintenance fund (hereinafter "maintenance fund"). The maintenance fund shall be administered and managed by the department of finance.

(d) Deposits due to the maintenance fund.

(1) In adopting each fiscal year's operating budget, the council shall appropriate one-quarter of one per cent of all real property tax revenue (including interest and penalties) to the maintenance fund. Deposits to the maintenance fund shall occur on a quarterly basis at a minimum.

(2) Additional revenue deposited in the maintenance fund may consist of grants and private contributions intended for the purpose of this section, proceeds from the sale of general obligation bonds authorized and issued for the purpose of this section, council appropriations for the purpose of this section, and any other source of revenue.

(e) Accounting for the maintenance fund; interest bearing accounts; reporting by the department of finance.

(1) All moneys in the maintenance fund shall be deposited in interest bearing accounts until needed. Any interest shall accrue to the maintenance fund.

(2) Moneys in the maintenance fund shall be identified separately for:

(A) Funding received from the real property tax revenue including interest and penalties; and

(B) Funding received from grants and private contributions, and any other source of revenue, and its interest earned, which:

i. Shall be itemized and earmarked for specific projects for the lands or easements.

ii. Shall not be subjected to the maximum accrual of funds limit provided in subsection (f).

(3) Financial statements shall be posted each month on the public access, open space, and natural resources preservation fund web site.

(f) Maximum accrual limit in maintenance fund; exemption to funding.

(1) Only moneys derived from real property tax revenue, its interest, and its penalties shall be included in the computation of the maximum accrual limit for the maintenance fund. All other moneys specifically directed to the maintenance fund shall be held separately from those moneys in the maintenance fund that originated from real property tax revenues (including interest and penalties), and shall not be subjected to the maximum accrual limit.

(2) The maximum accrual limit shall not exceed $3,000,000.

(3) At the end of any fiscal year in which the maintenance fund holds unencumbered funds derived from real property tax revenue (including interest and penalties) of at least $3,000,000, any unencumbered amount in excess of that $3,000,000 shall be permanently transferred to the general fund balance.

(4) Exemption to funding. If the maintenance fund holds $3,000,000 in unencumbered funds derived from real property tax revenue (including interest and penalties), then the council and the executive branch do not need to add more money to the maintenance fund until the next budget cycle. This exemption shall not release the administration from its mandatory duty to maintain and preserve lands and easements acquired by the public access, open space, and natural resources preservation fund in good repair for public safety each fiscal year.

(g) The maintenance fund shall be used solely for public safety maintenance and preservation of those lands and easements acquired by the public access, open space, and natural resources preservation fund, and shall be used only for expenditures directly related to its purpose. Expenditures by the administration and/or stewardship grants presumed to be directly related are as follows:

(1) Reparation (fixing, mending, repair work, and servicing);

(2) Preservation (damage control, salvaging, safekeeping, and safeguarding);

(3) Conservation of soil, forests, shorelines, native wildlife, streams, wetlands, watershed, and floodways;

(4) Restoration (replacement, reclamation, reconditioning, and remediation);

(5) Wildfire and fire prevention;

(6) Repair of existing buildings to meet the current code requirements, if the building is deemed reasonable to save;

(7) Replacing signs to meet the current code requirements;

(8) Installation, repair, or replacement fencing and gate or access mechanisms;

(9) Installation or repair of cattle guards;

(10) Building, renting, leasing, installing, and maintenance of toilet facilities;

(11) Building and installation of small sheds or structures for the storage of maintenance equipment;

(12) Building, installation and maintenance of structures to provide protection from the elements;

(13) Creation of trails or paths to access land for public safety, maintenance, and preservation;

(14) Mitigation of flooding problems including repair or restoration of existing culverts, drainage features, or other similar flood control mitigation;

(15) Archeological survey and buffering of Native Hawaiian historical or cultural sites after appropriate consultation with Native Hawaiian descendants and cultural practitioners;

(16) Biological studies for the protection of Native Hawaiian species of plants and animals; or

(17) Mitigation of Americans with Disabilities Act compliance issues that may arise during the course of public safety maintenance and preservation.

(h) Stewardship Grants. Moneys may also be used to provide grants-in-aid for projects, which uses are reflected in subsection (g).

(1) An award of a stewardship grant shall be by council resolution. Stewardship grants may be awarded only until moneys in the maintenance fund are extinguished. Grants shall be awarded on the basis of ability of the stewardship organization to complete the project on time and within cost estimates.

(2) Only 501(c)3 nonprofits or an organization that operates under the umbrella of a 501(c)3 nonprofit, and that can complete a project for the good of the community, shall be considered for a stewardship grant.

(3) Public notice by the department of finance of the availability of the stewardship grants shall be placed in two newspapers of general circulation, as well as electronic media accessible by internet, by August 1 of each fiscal year provided money is available. These advertisements shall be paid for from the maintenance fund.

(4) To apply for a stewardship grant, a stewardship organization shall provide to the department of finance and the public access, open space, and natural resources preservation commission the following:

(A) An application form obtained from the department of finance, which is completed for each specific purpose or project;

(B) A copy of its letter of determination from the Internal Revenue Service confirming its 501(c)3 status or the 501(c)3 status of the umbrella organization;

(C) A copy of its bylaws and mission statement;

(D) A detailed business plan that includes the description of the specific project, time frames for project goals, costs, and activities to accomplish the stated purpose, and any other information requested by the department of finance; and

(E) A signed agreement to file a written report to the department of finance one year or less after receipt of funds or thirty days following project completion, which shall include details as to what has been accomplished on the project, actual costs, expense receipts, and any other information requested by the department of finance. The completed report shall be provided to the public access, open space, and natural resources preservation commission and the council.

(5) Unexpended funds shall be returned to the maintenance fund within thirty days of submitting a final report.

(6) No officer, board member, or employee of the 501(c)3 nonprofit organization or the organization that operates under the umbrella of a 501(c)3 nonprofit organization shall receive a salary or any portion of a salary from this fund for

performing their general duties or functions as an officer, board member or employee; however, compensation for specific duties such as labor, educational workshops and maintenance work may be paid to an officer, board member or employee if those duties have been specifically identified and officially approved in the detailed business plan submitted as part of the stewardship grant proposal. The 501(c)3 nonprofit shall sign an agreement so stating these conditions and submit it with the application.

(7) Mismanagement of moneys awarded for a stewardship grant shall permanently bar the 501(c)3 nonprofit organization and the organization that operates under the umbrella of a 501(c)3 nonprofit organization from receiving future grants from the maintenance fund.

(8) The director of the department of finance shall provide a short written evaluation of the proposed project to the council and include a recommendation about the applicant's ability to complete the project according to the project plan.

(2012, Ord. No. 12-16, sec. 1; 2020, Prop. 10, sec. 1.)

Section 10-17. Disaster and Emergency Fund.

(a) In adopting each year's fiscal operating budget, the council shall appropriate a minimum of one per cent of the certified real property tax revenues to a fund known as the disaster and emergency fund. Additional funds may be deposited into the disaster and emergency fund from state and federal grants, the federal emergency management agency, private sources, and any other source of revenue. Such appropriation shall continue until a minimum of $20,000,000 is accumulated in the fund. Use of the funds for any of the purposes listed in this section may be permitted even if the target goal of $20,000,000 is not met.

(b) Moneys in the disaster and emergency fund shall be utilized only for the following purposes:

(1) Repair of county facilities and infrastructure damaged by a natural or human-caused disaster or emergency;

(2) Cleaning of county property, including roads, drainage and sewage systems, damaged by a natural or human-caused disaster or other emergencies when such action serves a public purpose;

(3) Providing immediate response for services to deal with public health and safety risks due to a natural or human-caused disaster or emergency in the form of personnel, equipment, materials, supplies and service contracts;

(4) Matching federal, state or private grants-in-aid individually or in any combination to develop or restore public property to a safe and useable condition;

(5) Paying for operational expenses of the county after a disaster or emergency when the county is unable to realize revenue at sufficient levels due to the disaster or emergency;

(6) Paying for acquisition of property to mitigate future potential disasters or emergencies; and

(7) Paying for administrative expenses, which shall not exceed five percent except as indicated in (5) above. For the purposes of this section, administrative expenses are defined as staff or contracted salaries and related fringe benefits.

(c) If the county should receive reimbursement of funds for money advanced by the disaster and emergency fund, those funds shall be deposited into the disaster and emergency fund.

Kahuku Coastal Resources Management Plan

Appendix B

Warranty Deed

NC/D

STATE OF HAWAII
BUREAU OF CONVEYANCES
RECORDED
November 04, 2016 8:01 AM
Doc No(s) A – 61520211

1 1/1 KEO
B – 32893646

/s/ LESLIE T. KOBATA
ACTING REGISTRAR

Conveyance Tax: $13,000.00

LAND COURT REGULAR SYSTEM

(AREA ABOVE RESERVED FOR RECORDING INFORMATION)

After Recordation, Return by ☒ Mail or ☐ Pick-up Phone#: (808) 961-8251

FILL IN NAME AND ADDRESS BELOW:

Office of the Corporation Counsel (RK)
101 Aupuni Street, Suite 325
Hilo, Hawai'i 96720

TG: 201541532-9
TGE: 210150638 89
BARBARA PAULO

DOCUMENT CONTAINS 15 PAGES

TITLE OF DOCUMENT: WARRANTY DEED

PARTIES TO DOCUMENT

GRANTOR: SANDS OF SOUTH KONA, LLC, a Hawai'i limited liability company
468 North Camden Drive, Suite 300
Beverly Hills, California 90210-4507

GRANTEE: COUNTY OF HAWAI'I
25 Aupuni Street
Hilo, Hawai'i 96720

AFFECTS TAX MAP KEY: (3) 9-2-001-075

WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS:

That SANDS OF SOUTH KONA, LLC, a Hawai'i limited liability company, whose mailing address is 468 North Camden Drive, Suite 300, Beverly Hills, California 90210-4507, as fee owner, hereinafter called the "Grantor," in consideration of the sum of TWO MILLION SIX HUNDRED THOUSAND AND NO/100 DOLLARS ($2,600,000.00) and other valuable consideration to it paid by the COUNTY OF HAWAI'I, a municipal corporation of the State of Hawai'i, whose principal place of business and mailing address is 25 Aupuni Street, Hilo, County and State of Hawai'i 96720, hereinafter called the "Grantee," the receipt of which is hereby acknowledged, does hereby grant, bargain, sell and convey unto the Grantee, its successors and assigns, in fee simple, forever, the following real property:

> All of that certain parcel of land situated in the District of Ka'u, Island and County of Hawaii, State of Hawaii (being a portion(s) of the land(s) described in and covered by Royal Patent Grant Number 2791 to C. C. Harris), being the property identified as Tax Map Key No. (3) 9-2-001-075, as more particularly described in Exhibit "A" and depicted on Exhibit "B", both of which are attached hereto and made a part hereof, hereinafter called the "Property".

TO HAVE AND TO HOLD the same, together with all rights, improvements, easements, privileges and appurtenances thereunto belonging or in anywise appertaining, or held and enjoyed therewith, unto the Grantee, its successors and assigns, in fee simple, forever.

SUBJECT, however, to the restriction that the Property was acquired with moneys from the County of Hawai'i's Public Access Open Space and Natural Resources Preservation Fund ("PONC") and shall be held in perpetuity for the use and enjoyment of the people of Hawai'i County and may not be sold, mortgaged, traded, or transferred in any way.

SUBJECT, further, to the restrictions that: a) the Grantee shall not dispose of, exchange, encumber its title or other interests in, or convert the use of this Property without the approval of the

United States Fish and Wildlife Service or its successor agencies, and b) the Grantee must adhere to the conditions of a grant received from the State of Hawai'i, Department of Land and Natural Resources, Legacy Land Conservation Program ("LLCP"), as further explained below.

AND the Grantor, for itself and its successors and assigns, does hereby covenant with the Grantee and its successors and assigns, that Grantor is seised in fee simple of the Property; that the same is free and clear of and from all encumbrances except as aforesaid; that it has good right to sell and convey the same as aforesaid; and that it will, and its successors and assigns will, WARRANT AND DEFEND the same unto the Grantee and its successors and assigns, forever, against the lawful claims and demands of all persons whomsoever.

Notice of Federal Participation

The Property is acquired in part with funds received from the Endangered Species Act Section 6 Cooperative Endangered Species Conservation Fund (CFDA #15.615) by the Grantee through Federal Award number F12AP01107 dated September 10, 2012, as amended, between the United States Fish and Wildlife Service ("Service") and the State of Hawai'i, Department of Land and Natural Resources, and is subject to all the terms and conditions of said federal award, a copy of which is kept on file at:

U.S. Fish and Wildlife Service
Division of Wildlife and Sport Fish Restoration
911NE 11th Avenue
Portland, Oregon 97232-4181

and

Department of Land and Natural Resources
Division of Forestry and Wildlife
1151 Punchbowl Street, Room 325
Honolulu, Hawai'i 96813

The Property shall be managed pursuant to the terms of the award in perpetuity for conservation of listed species including the Hawksbill Turtle, Hawaiian Monk Seal, Green Turtle, and

22 other rare, endemic, and indigenous animal species as per the grant proposals submitted by the Division of Forestry and Wildlife. This acquisition is for the protection of threatened and endangered species' habitat in perpetuity, and the restrictions herein shall run with the land to all heirs and successors of the Property. Violations of award terms are subject to 43 C.F.R. § 12.71 and the Grantee must contact the Service for disposition instructions which could include requiring the Grantee to: acquire title to and manage other real property that is of equal value and serves the same conservation purposes for which the Property was originally acquired; repay to the Service in cash the proportionate share of funds of the original purchase price, or if greater, of a newly determined value based on the current fair market value of the land, parcel of land, or any portion thereof; or as a last resort, transfer the subject Property to the Service or to a third-party designated or approved by the Service. In addition, there will be no discrimination during the useful life of the project pursuant to 43 CFR § 17.204(c) (2).

State of Hawai'i Legacy Land Conservation Program ("LLCP")

Furthermore, the Property has been acquired with LLCP funds through grant agreement number 61772, dated June 5, 2015 as amended, and is subject to all of the terms and conditions of that grant agreement. Title of the Property conveyed by this deed shall vest in County of Hawai'i subject to the restrictions above and disposition instructions from the State of Hawai'i, Department of Land and Natural Resources ("DLNR") or its successor agencies. The property shall be managed consistently with the purposes for which the LLCP grant was awarded and Chapter 173A, Hawai'i Revised Statutes.

Grantee for itself, its successors and assigns, and in consideration of the LLCP grant, does hereby covenant that it shall not dispose of, encumber its title or other interests in, or convert the use of the Property without the written approval of the DLNR or its successor agencies. Upon notice from

the Grantee that it intends to dispose of, encumber the title or other interests in, or convert the use of the Property, the DLNR may:

1. Require Grantee to place on the Property a deed restriction or covenant to protect the resource values for which Grantee was awarded a LLCP grant, to an appropriate land conservation organization or county, state, or federal resource conservation agency. The deed restriction or covenant shall run with the land and be recorded with the appropriate state agency.
2. Require to be placed on the Property a conservation easement or agricultural easement under Chapter 198, Hawai'i Revised Statutes, to an appropriate land conservation organization or county, state, or federal resource conservation agency, that shall run with the land and be recorded with the appropriate state agency.
3. Require subsequent landowners to enter into a contract with the DLNR for the protection of the resource values consistent with the purposes for which the LLCP grant was awarded.

Grantee further covenants that if the Property is sold, leased, rented, or otherwise disposed of by Grantee, that portion of the net proceeds (sale price less actual expenses of sale) of such sale, rental, or proceeds equal to the proportion that the state grant bears to the original cost of the Property shall be paid to the State of Hawai'i.

This Warranty Deed may be executed in two or more counterparts, each of which shall be deemed an original, and said counterparts shall constitute one and the same document binding all of the parties, notwithstanding that all of the parties are not signatory to the original or same counterparts. For all purposes, including without limitation, recordation, filing, and delivery of this instrument,

duplicate, unexecuted, and unacknowledged pages of the counterparts may be discarded and the remaining pages assembled as one document.

IN WITNESS WHEREOF, the parties hereto have caused these presents to be executed this 4th day of October, 2016.

GRANTOR:

SANDS OF SOUTH KONA, LLC

JOSEPH DANESHGAR
Its Manager

GRANTEE:

COUNTY OF HAWAI'I

By
WILLIAM P. KENOI
Its: MAYOR

RECOMMEND APPROVAL:

DEANNA S. SAKO
Finance Director
County of Hawai'i

APPROVED AS TO FORM
AND LEGALITY:

RONALD KIM
Deputy Corporation Counsel
County of Hawai'i

STATE OF HAWAI'I)
) SS.
COUNTY OF HAWAI'I)

On this _____ day of _____, 2016, before me personally appeared JOSEPH DANESHGAR, as Manager of Sands of South Kona, LLC, to me known to be the person who executed the foregoing instrument, and acknowledged that he executed the same as his free act and deed.

_____
Notary Public, State of Hawai'i

_____
Print name

My commission expires: _____

See attached.

NOTARY CERTIFICATION

Doc. Date: _____ No. of Pages: _____

Notary Name: _____ _____

Doc. Description: _____ Circuit: _____

_____

_____

_____

Notary Signature Date

NOTARIAL ACKNOWLEDGEMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of Los Angeles

On September 12th, 2016, before me, Julie Elizabeth McGraw, Notary Public, personally appeared **JOSEPH DANESHGAR**, who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is~~/are~~ subscribed to the within instrument and acknowledged to me that he~~/she/they~~ executed the same in his~~/her/their~~ authorized capacity~~(ies)~~, and that by his~~/her/their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

I certify under the PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

JULIE ELIZABETH MCGRAW
Commission # 2068955
Notary Public - California
Los Angeles County
My Comm. Expires May 20, 2018

(Notary Seal)

STATE OF HAWAI'I)
) SS.
COUNTY OF HAWAI'I)

On this 4th day of October, 2016 before me personally appeared WILLIAM P. KENOI, to me personally known, who, being by me duly sworn, did say that he is the Mayor of the County of Hawai'i, a municipal corporation of the State of Hawai'i; that the seal affixed to the foregoing instrument is the corporate seal of said County of Hawai'i; that the foregoing instrument was signed and sealed in behalf of the County of Hawaii by authority given to said Mayor of the County of Hawai'i by Section 5-1.3 and 13-13 of the County Charter, County of Hawai'i (2010), as amended; and said WILLIAM P. KENOI acknowledged said instrument to be the free act and deed of said County of Hawai'i.

Paulette E. Wilson L.S.

Notary Public, State of Hawai'i, 3rd Jud. Cir.
Printed Name: Paulette E. Wilson
My Commission Expires: 12/16/2017

NOTARY CERTIFICATION

Document Description: Warranty Deed

(Sands of South Kona, LLC/County of Hawaii)
(TMK No. 3/9-2-001-075)

Doc. Date: October 4, 2016 ☐ undated at time of notarization.
No. of Pages: 8 + Exhibit **Circuit:** Third

Paulette E. Wilson L.S.

Notary Signature October 4, 2016 Date

Notary Name: Paulette E. Wilson

EXHIBIT "A"

All of that certain parcel of land (being portion(s) of the land(s) described in and covered by Royal Patent Grant Number 2791 to C. C. Harris) situate, lying and being at approximately 20,000 feet southwesterly of the Hawaii Belt Road (F.A.P. No. F-011-1(2)) at Kahuku, Ka'u, Island and County of Hawaii, State of Hawaii, being LOT 1, and thus bounded and described as per survey dated September 10, 1986, to-wit:

Beginning at the easternmost corner of this parcel of land, being also the northernmost corner of Lot 2 of this subdivision and a point on the southwesterly boundary of Lot 10, Block 23 of Hawaiian Ocean View Ranchos, Increment 3 (File Plan 1183), the coordinates of said point of beginning referred to Government Survey Triangulation Station "PUU O KAMAOA" being 15,609.92 feet south and 8,360.53 feet west and running by azimuths measured clockwise from true South:

1.	59	42′	22″	15,000.39	feet along Lot 2 of this subdivision and along the remainder of Grant 2791 to C. C. Harris to a point;

Thence, for the next three (3) courses following along the shoreline the direct azimuths and distances being:

2.	104	56′	30″	680.70	feet to a point;
3.	105	29′	18″	4,450.38	feet to a point;
4.	107	53′	20″	520.40	feet to a point;
5.	197	53′	20″	13,552.10	feet along Government Land at Manuka to a point;
6.	295	43′		40.38	feet along Lot 7, Block Z-7 of Kona Gardens Subdivision and along the remainder of Grant 2791 to C.C. Harris to a point;
7.	17	53′	20″	552.68	feet along the remainder of Grant 2791 to C. C. Harris to a point;
8.	221	32′		506.72	feet along the remainder of Grant 2791 to C. C. Harris to a point;
9.	295	43′		4,094.64	feet along the remainder of Grant 2791 to a point;
10.	205	43′		60.00	feet along the remainder of Grant 2791 to C. C. Harris to a point;

11.	295	43′	11,447.07	feet along Lot 21, Road Lot A, Lot 22 of Keone's Hawaiian Ranchos No. 2 (File Plan 1006); Lot 155, Kona Kai Blvd. and Lot 154 of Kula Kai View Estates, Increment II (File Plan 1149); Lots 21, 24 (Road Lot) and 22 of Kona South Estates, Unit III (File Plan 953); Lots 21, 24 (Road Lot) and 22 of Kona South Estates, Increment IV (File Plan 953); Lot 8, Block 11, Prince Kuhio Blvd., Lots 10 and 9 of Block 23, Kahili Blvd. and Lot 7, Block 34 of Hawaiian Ocean View Ranchos, Increment 1 (File Plan 1125); Lot 7, Block 12, Maikai Blvd., Lots 10 and 9, Block 23, Alii Blvd., and Lot 7, Block 34 of Hawaiian Ocean View Ranchos, Increment 2 (File Plan 1145); Lot 7, Block 12, Hakulani Blvd. and Lot 10 Block 23 of Hawaiian Ocean View Ranchos, Increment 3 (File Plan 1183) to the point of beginning and containing an area of 3,127.950 acres, more or less.

Together with, an interest in common with Hawaii Ka'u Ranch Property, Hawaii Ka'u II, Hawaii Ka'u III, Walter C. Witte Trust, Stephen M. Francis Trust and Linnea A. Francis Trust, and their respective assigns, in and to Parts 2 and 3 of Easement "A-1", which interest was reserved, as tenant in common by Mount Lebanon Corporation under deed of even dated herewith, being more particularly described as follows:

All of that certain parcel of land (being portion(s) of the land(s) described in and covered by Royal Patent Grant Number 2791 to C. C. Harris) situate, lying and being at approximately 20,000 feet southwesterly of Hawaii Belt Road (F.A.P. No. F-011-1(2)) at Kahuku, Ka'u, Island and County of Hawaii, State of Hawaii, being Easement "A-1" (Part 2) for access and utility purposes over and across Lot 2, being a portion of Lot 2, and thus bounded and described as per survey of Chrystal Thomas Yamasaki, Registered Professional Land Surveyor, dated September 10, 1986, to-wit:

Beginning at the northeasterly corner of this Easement, being also the northeasterly corner of Lot 2 and a point on the westerly boundary of Lot 3 of this subdivision, the coordinates of said point of beginning referred to Government Survey Triangulation Station "PUU O KAMAOA" being 17,228.01 feet south and 5,000.89 feet west and running by azimuths measured clockwise from true South:

1.	25	43′	60.00	feet along Lot 3 of this subdivision and along Easement "A-1" (Part 3) to a point;
2.	115	43′	3,769.46	feet along the remainder of Lot 2 to a point;

3.	239	42′	22″	72.36	feet along Lot 1 of this subdivision and along Easement "A-1" (Part 1) to a point;
4.	295	43′		3,729.00	feet along Lots 10 and 9 of Block 23 Kohala Blvd., Lots 10 and 9 of Block 35, Kaimana Blvd., and Lots 1, 2, 3 and 4, Block 47 Hawaiian Ocean View Ranchos, Increment 3 (File Plan 1183) to the point of beginning and containing an area of 5.164, more or less.

All of that certain parcel of land (being portion(s) of the land(s) described in and covered by Royal Patent Grant Number 2791 to C. C. Harris) situate, lying and being southerly of the Hawaii Belt Road (F.A.P. No. F-011-1(2)) at Kahuku, Ka'u, Island and County of Hawaii, State of Hawaii, being Easement "A-1" (Part 3) for access and utility purposes over and across Lot 3, being a portion of Lot 3, and thus bounded and described as per survey of Chrystal Thomas Yamasaki, Registered Professional Land Surveyor, dated September 10, 1986, to-wit:

Beginning at the northwesterly corner of this Easement, being also a point on the westerly boundary of Lot 3, the northeasterly corner of Lot 2 of thus subdivision and the southernmost corner of Lot 4, Block 47 of Hawaiian Ocean View Ranchos, Increment 3, File Plan 1183, the coordinates of said point of beginning referred to Government Survey Triangulation Station "PUU O KAMAOA" being 17,228.01 feet south and 5,000.39 feet west and running by azimuths measured clockwise from true South:

Thence, for the next three (3) courses following along the remainder of Lot 3:

1.	295	43′		533.11	feet to a point;
2.	205	43′		18,006.06	feet to a point;

Thence, following on a curve to the left with a radius of 20.00 feet, the chord azimuth and distance being:

3.	157	57′	26″	29.61	feet to a point;
4.	290	11′	52″	100.47	feet along the southerly side of the Hawai'i Belt Road (F.A.P. No. F-011-1(2)) to a point;

Thence, for the next three (3) courses following along the remainder of Lot 3:

Thence, following on a curve to the left with a radius of 20.00 feet, the chord azimuth and distance being:

5.	67	57′	26″	26.89	feet to a point;
6.	25	43′		18,075.73	feet to a point;

7.	115	43′	593.11	feet to a point;
8.	205	43′	60.00	feet along Lot 2 of this subdivision and along Easement "A-1", (Part 2) to the point of beginning and containing an area of 25.657 acres, more or less.

AND THE GRANT OF EASEMENT A-1, PARTS 2 and 3 and Grantee's use thereof is subject further, AND CONDITIONED UPON:

A. Agreement to share in the cost of development maintenance and repair of Easement "A-1" Parts 2 and 3, if, as and when utilized, with the share of participation being based upon percentage of usage by affected parties.

B. Agreement to indemnify Grantor for any damages to Grantor's property caused by Grantee's use of or failure to maintain the easements granted herein.

as disclosed by DEED dated May 15, 1987, recorded in Liber 21193 at Page 722.

Together also with easement rights conveyed by Commissioner's Deed dated January 31, 1995, recorded as Document No. 95-026250, including but not limited to the following:

Easement for road and utility purposes over Easements 2, 3 and 4, described in that certain survey of Jerry S. Nakagawa, Registered Professional Land Surveyor of the State of Hawaii, Certificate No. 1698, dated September 11, 1968, said easements having been reserved in that certain reservation to Hawaii Ka'u Ranch Property, Hawaii Ka'u II, Hawaii Ka'u III, Walter C. Witte Trust, Stephen M. Francis Trust, and Linnea A. Francis Trust, and their respective assigns, as set forth in Deed recorded in Liber 21193, Page 722, said reservation having been further noted in Deed recorded in Liber 21193, Page 701, and said Easement 2, 3 and 4, being more particularly described therein; and subject to the terms and provisions contained therein.

Being all the property described in the following LIMITED WARRANTY DEED:

GRANTOR: NOTEPOWER LIMITED, a United Kingdom corporation

GRANTEE: SANDS OF SOUTH KONA, LLC, a Hawai'i limited liability company

DATED: July 20, 2004
RECORDED: Document No. 2004-152743

SUBJECT, HOWEVER, to the following:

1. Reservation in favor of the State of Hawaii of all mineral and water rights of any nature.

2. Location of the seaward boundary in accordance with the laws of the State of Hawaii and shoreline setback line in accordance with County regulation and/or ordinance.

3. Any ancient ways and trails, as mentioned in Deed dated March 20, 1970, recorded in Liber 6963 at Page 223.

4. The following as set forth in Trustees' Deed January 29, 1980, recorded in Liber 14457 at Page 59, to-wit:

   (A) Easement (unrecorded) for utility pole and wire line running parallel to and along Mamalahoa Highway.

   (B) Meandering jeep trail along Northwest boundary.

   (C) Title to ancient cemeteries.

5. Easement "1" (40 feet wide) for road and utility purposes, described as per survey of Jerry S. Nakagawa, Registered Professional Land Surveyor dated September 11, 1968, to-wit:

"Beginning at the north corner of this parcel of land, being also the end of Course 26 of the above described Parcel 1, and running by azimuths measured clockwise from true South:

1.	295	43′		40.38	feet along remainder of Grant 2791 to C. C. Harris to a pipe;
2.	17	53′	20″	13,546.60	feet along remainder of Grant 2791 to C. C. Harris to a pipe;
3.	107	53′	20″	40.00	feet along remainder of Grant 2791 to C. C. Harris to a pipe;
4.	197	53′	20″	13,552.10	feet along government land of Manuka to the point of beginning and containing an area of 12.442 acres."

-Note: - Said above Easement "1", area 12.442 acres, and portion of Easement "A-1" (Part 1), besides Easement "3", area 6.306 acres, and Easement "4", area 23.081 acres are subject to the following: Agreement dated October 6, 1980, recorded in Liber 15179 at Page 566, by and between Hawaiian Ranchos, Inc., KGE Service Corporation and Kona Hawaiian Investment Corporation; re: applicable road maintenance funds accumulated pursuant to that certain Maintenance Agreement dated March 9, 1976, prior to March 10, 1978, shall be paid by KGE Service Corporation to Carl C. Adair and road maintenance funds collected after March 10, 1978, shall be paid to Hawaiian Ranchos, Inc., etc.

6. Easement "A-1" (Part 1) for access and utility purposes, described as per survey of Chrystal T. Yamasaki, Registered Professional Land Surveyor, dated June 26, 1986, said easement being more particularly described in instrument dated January 31, 1995, recorded as Document No. 95-026250.

7. "RESERVING, HOWEVER, to Hawaii Ka'u Ranch Property, Hawaii Ka'u II, Hawaii Ka'u III, Walter C. Witte Trust, Stephen M. Francis Trust and Linnea A. Francis Trust, and their respective assigns, an interest in and to Easement "A-1" (Part 1) for Access and Utility Purposes, being more particularly described above."; as reserved in DEED recorded in Liber 21193 at Page 722.

8. The terms and provisions contained in the following:

INSTRUMENT: DECLARATION

DATED: August 5, 1991
RECORDED: Document No. 91-105761

SHORT FORM AGREEMENT dated January 15, 1992, recorded as Document No. 92-026692, by and between PALACE DEVELOPMENT CORPORATION (PDC), a Hawaii corporation, and DEN NORSKE BANK (DnB), A/S, formerly named BERGEN BANK A/S, a Norway corporation.

AFFIDAVIT REGARDING RESCISSION OF LAND USE COMMISSION dated September 20, 1997, recorded as Document No. 97-129599.

9. Claims arising out of customary and traditional rights and practices, including without limitation those exercised for subsistence, cultural, religious, access or gathering purposes, as provided for in the Hawaii Constitution or the Hawaii Revised Statutes.

10. Discrepancies, conflicts in boundary lines, shortage in area, encroachments or any other matters which a correct survey or archaeological study would disclose.