

REVISED DRAFT—Archaeological Survey for Geotechnical Testing at Kuaokalā Ridge, Ka‘ena and Keawa‘ula Ahupua‘a, Waialua and Wai‘anae District, Island of O‘ahu, Hawai‘i

Portions of TMK: (1) 6-9-003:001; (1) 8-1-001:014



Prepared For:

Missile Defense Agency
Redstone Arsenal, AL 35898



December 2018

Keala Pono 

Keala Pono Archaeological Consulting, LLC • PO Box 1645, Kaneohe, HI 96744 • Phone 808.381.2361

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MANAGEMENT SUMMARY

A pedestrian survey was conducted for 66.73 ha (164.89 ac.) on Kuaokalā Ridge in support of proposed geotechnical testing. As a federal project requiring a state permit, the undertaking is subject to both Section 106 of the National Historic Preservation Act and HRS Chapter 6E-42. The project area is located on portions of TMK: (1) 6-9-003:001 and (1) 8-1-001:014 in Ka'ena and Keawa'ula Ahupua'a, Waialua and Wai'anae District, on the island of O'ahu. The survey was designed to identify and appropriately treat archaeological resources that may be affected by the geotechnical testing. Two archaeological sites were recorded: Site 8777, Pu'u O Pōhaku Hāpaina; and Site 188, the previously-identified Moka'ena Heiau. In addition, two bottles dating from the late-1950s to early 1960s were collected. They are isolated finds and are not associated with either of the archaeological sites.

While the geotechnical testing would not affect the physical architecture, it would adversely affect the integrity of the sites both culturally and spiritually. The current review process arguably does not allow for anything other than an assessment of physical adverse effects. This report has been prepared with this in mind. Additional data is needed to evaluate site 8777 for eligibility for the National Register of Historic Places; however, the site is recommended eligible for the Hawai'i Register of Historic Places. Site 188 is recommended eligible for both Registers. Geotechnical testing will affect the mana at both Sites 188 and 8777, which is a contributing quality of the sites. Therefore, the geotechnical testing is recommended to have an adverse effect on historic properties under Section 106 of the National Historic Preservation Act. A finding of "effect, with agreed upon mitigation commitments" is recommended under HRS Chapter 6E-42. Should the cultural/spiritual adverse effects be excluded from consideration, then it may be concluded that no historic properties will be impacted. But if these effects are taken into consideration, then it should be concluded that these two historic properties will be affected by the project.

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LIST OF ACRONYMS

ACL	Applied Color Label
AIS	Archaeological Inventory Survey
APE	Area of Potential Effect
CFR	Code of Federal Regulations
GPS	Global Positioning System
HAR	Hawai'i Administrative rules
HDR	HDR, Inc (formerly known as Henningson, Durham, and Richardson, Inc)
HDR e²M	Same as HDR
HDR-H	Homeland Defense Radar - Hawaii
HRHP	Hawai'i Register of Historic Places
HRS	Hawai'i Revised Statues
KFS	KFS, LLS (a business owned by Na 'Oiwi Kane, a NHO based in Alabama)
KPSTS	Ka'ena Point Satellite Tracking Station
LCA	Land Commission Award
MDA	Missile Defense Agency
NEPA	National Environmental Policy Act
NHO	Native Hawaiian Organization
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
OHA	Office of Hawaiian Affairs
OR&L	Oahu Railway and Land Company
SHPD	State Historic Preservation Division
SIHP	State Inventory of Historic Places
SOI	Secretary of the Interior
TCP	Traditional Cultural Property
TMK	Tax Map Key
TS	Temporary Site
USGS	United States Geological Survey

INTRODUCTION

At the request of KFS, LLC on behalf of the Department of Defense Missile Defense Agency (MDA), Keala Pono Archaeological Consulting has prepared an archaeological survey report in support of geotechnical testing at Kuaokalā Ridge, adjacent to Ka'ena Point Satellite Tracking Station (KPSTS). This is located in Ka'ena and Keawa'ula Ahupua'a, Waialua and Wai'anae District, on the island of O'ahu, Hawai'i. Geotechnical testing will take place on portions of TMK: (1) 6-9-003:001 and (1) 8-1-001:014. This work was designed to identify, document, assess significance, and provide mitigation recommendations for any historic properties that may be located in the project area in anticipation of the proposed geotechnical testing.

This report is drafted to meet the requirements and standards of federal and state historic preservation law, as set out in Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) and its implementing regulations in 36 Code of Federal Regulations (CFR) Part 800, Chapter 6E of the Hawai'i Revised Statutes, and the State Historic Preservation Division's (SHPD's) draft *Rules Governing Standards for Archaeological Inventory Surveys and Reports*, Hawaii Administrative Rules (HAR) §13–276.

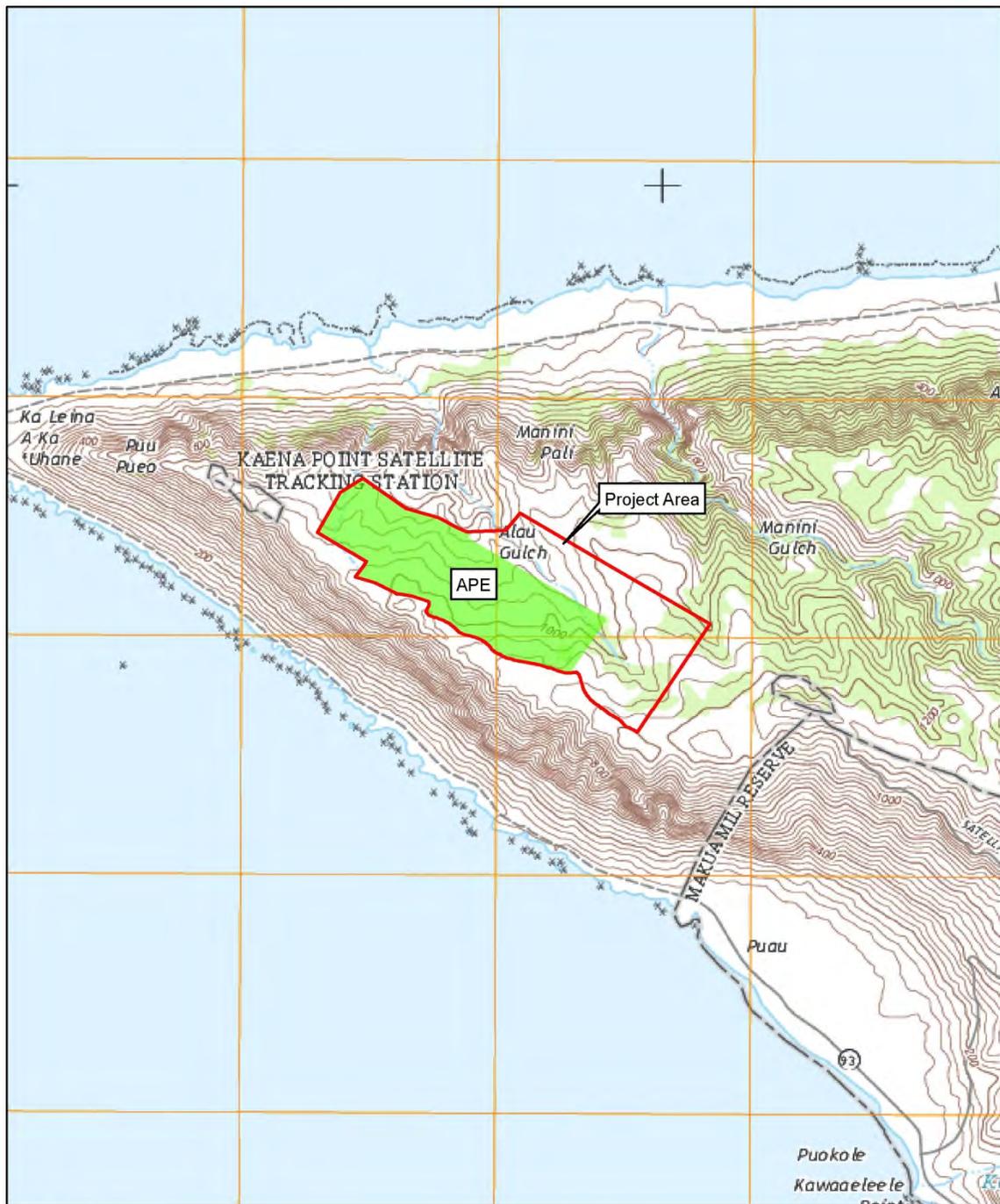
The report begins with a description of the project area and a historical overview of land use, Hawaiian traditions, and archaeology in the area. The next section presents methods used in the fieldwork, followed by results of the survey. Project results are summarized and recommendations are made in the final section. Hawaiian words and technical terms are defined in a glossary at the end of the document.

The Undertaking

The undertaking consists of geotechnical testing to determine the constructability of the parcel and to support site selection for possible future MDA projects at the location. For the geotechnical testing, approximately 10 soil borings and three auger borings will be excavated. Each boring will measure 10–15 cm (4–6 in.) in diameter and may extend to a depth of 30 m (100 ft.). Auger borings will measure up to 30 cm (1 ft.) in diameter and will be excavated to as deep as 1.8 m (6 ft.). Borings will be backfilled with cement-bentonite grout and drilling spoils, while auger borings will be backfilled with drill spoils. Equipment used in the undertaking may include truck or track mounted drill rigs, flat bed support trucks, low-boy trailers, water trucks, and/or pickup trucks or sports utility vehicles. Equipment will access the excavation sites using existing KPSTS roads, although vegetation may be cleared to form work areas and additional pathways. As part of the geotechnical testing, MDA will conduct archaeological and cultural monitoring. The monitoring will serve to provide additional information on the stratigraphy and archaeological potential of the APE and will enable rapid identification and protection in the event of an unanticipated discovery.

Project Location and Environment

The undertaking is situated on the northwest corner of O'ahu, in the ahupua'a of Ka'ena in the Waialua District and in the ahupua'a of Keawa'ula in the Wai'anae District (Figure 1). This is located on Kuaokalā Ridge on state land managed by the Department of Fish and Wildlife and adjacent to KPSTS. The area that was surveyed covers 66.73 ha (164.89 ac.), while the Area of Potential Effect (APE) consists of 37.49 ha (92.64 ac.) within the project area. This is located on portions of TMK: (1) 6-9-003:001 and (1) 8-1-001:014 (Figure 2). Most of the project area lies within Ka'ena Ahupua'a, while a small portion on the south is situated within Keawa'ula Ahupua'a.



Legend

Project Area APE

USGS Ka'ena Quadrangle, Dated 2013

0 0.5 1
 Kilometers



Figure 1. The project area and APE on a 7.5 minute USGS 2013 Kaena quadrangle map.

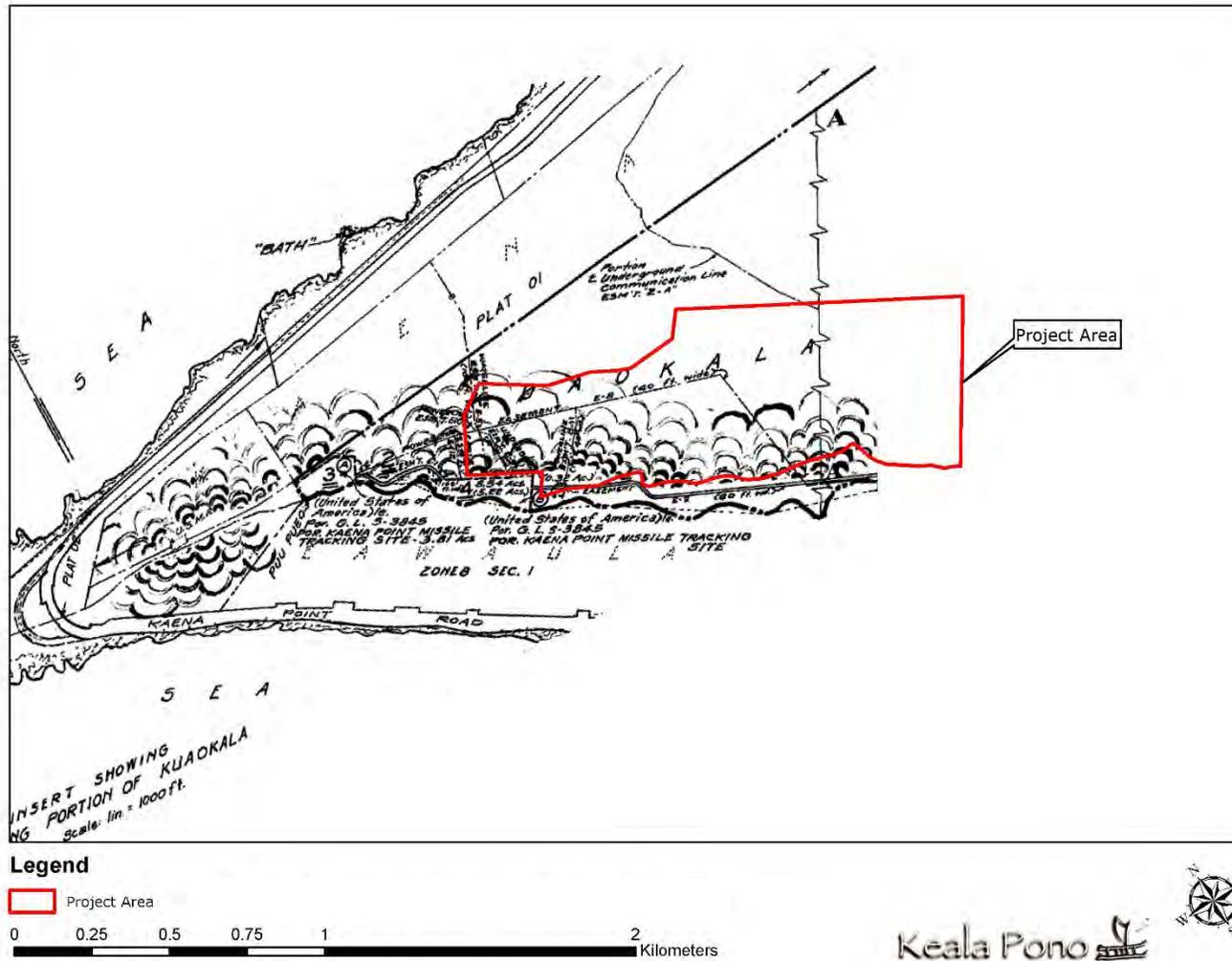


Figure 2. Project area on TMK plat (1) 6-9-003.

The project lies at an elevation of 260–320 m (850–1,050 ft.) and the closest point to the coast is approximately .5 km (.3 mi.) away at Yokohama Beach. Topography is gently to steeply sloping, with several gulches that lead to the Waialua Plain below. Rainfall is relatively low, with a mean annual rainfall of approximately 80 cm (32 in.) (Giambelluca et al. 2013). One non-perennial stream runs through the project area at Ālau Gulch. Most of the project area is currently utilized for cattle pasture, and vegetation consists primarily of grass, as well as koa haole and various small shrubs. Stream-deposited material from the many valleys and gulches of the Wai‘anae Mountain Range formed the Waialua Plain, the flat lowland below the project area. The Wai‘anae Mountains exhibit steep cliffs on the north and east side, and Kuaokalā Ridge sits on the top of the western end of these mountains. The Wai‘anae Volcanic Series is classified as lower, middle, and upper. The lower portion built the mass of the Wai‘anae Mountains, while the middle section is made up of rocks that amassed in the caldera. The upper portion is a thin cap that formed later in time (Macdonald et al. 1983).

The project area lies on soils of the Mahana-Badland complex (MBL), Mahana silty clay loam 6–12% slopes (McC2) and Mahana silty clay loam 12–20% slopes (McD2) (Figure 3) (Foote et al. 1972). Mahana soils are generally used for woodland, pasture, sugarcane, wildlife habitat, and water supply (Foote et al. 1972:85).



Legend



Figure 3. Soils in the vicinity of the project area.

BACKGROUND

This section of the report presents background information as a means to provide a context through which one can examine the cultural and historical significance of the project area, located in the ahupua‘a of Ka‘ena and Keawa‘ula, in the uplands of Kuaokalā. In the attempt to record and preserve both the tangible (e.g., traditional and historic archaeological sites) and intangible (e.g., mo‘olelo, place names) culture, this research assists in the discussion of anticipated finds and provides context for evaluating sites for significance. Research was conducted at the Hawai‘i State Archives, Hawai‘i State Library, the State Historic Preservation Division, as well as online at databases such as the Hawai‘i Department of General Accounting map database, Ulukau, and Waihona ‘Aina. Historical maps, archaeological reports, and historical reference books were among the materials examined.

Ka‘ena and Keawa‘ula in the Pre-Contact Era

Ka‘ena and Keawa‘ula Ahupua‘a have a rich traditional history. They were storied places visited by the renowned mythical fisherman, Maui, as well as Hi‘iaka, sister of Pele, and Pele herself. Leina a ka ‘uhane were located here, where souls of the dead would make their final leap to the netherworld. A place where the soul could be restored to its body also was located in the area. It is important to note, however, that most of the mo‘olelo presented here took place in the setting of coastal Ka‘ena and Keawa‘ula, while the project area sits atop the ridge overlooking the coast. While the mo‘olelo are relevant to the project site, they did not directly take place there, unless otherwise noted.

Place Names

One often overlooked source of history is the information embedded in the Hawaiian landscape. Hawaiian place names “usually have understandable meanings, and the stories illustrating many of the place names are well known and appreciated... The place names provide a living and largely intelligible history” (Pukui et al. 1974:xii).

Place names associated with the current project area are listed in *Place Names of Hawaii* (Pukui et al. 1974), along with the meanings of the names and/or other comments about the specific locales:

Ka‘ena... northwesternmost point, O‘ahu, said to be named for a brother or cousin of Pele who accompanied her from Kahiki... *Lit.*, the heat. (Pukui et al. 1974:61)

Ka‘ie‘ie Waho. Channel between O‘ahu and Kaua‘i. *Lit.*, outer Ka‘ie‘ie. (This is the common name for the channel). (Pukui et al. 1974:68)

Keawa‘ula. Cave, land division, and beach park now known as Yokohama Bay...It was believed that the spirits of the newly dead would come to a place here called Ka-ho‘iho‘ina-Wākea (Wākea’s turning back place); if the personal god (‘aumakua) thought the person was not ready to die, he would turn the spirit back to re-enter the body. The goddess Hi‘iaka opened a cave here to get water...*Lit.*, the red harbor (said to be named for numerous cuttlefish [*mūhe‘e*] that color the water). The O‘ahu Railroad train stopped here to let Japanese fishermen off; so many came that the bay was called Yokohama Bay...(Pukui et al. 1974:105)

Kua-o-ka-lā. Land section, forest reserve, and ancient *heiau* site overlooking Ka‘ena Point, O‘ahu. *Lit.*, back of the sun. (Pukui et al. 1974:119)

Leina-a-ka-‘uhane. Land section near Ka-‘ena Point, O‘ahu, from which ghosts were thought to leap to the nether world. Similar places are reported on every island... *Lit.*, leaping place of ghosts. (Pukui et al. 1974:131)

Manini... Gulch and cliff near Ka-‘ena Point, O‘ahu, named for the *manini* fish: a man who had been ordered by a chief on pain of death to find an answer to a riddle offered Hi‘iaka a *manini* fish in return for the answer... *Lit.*, surgeonfish. (Pukui et al. 1974:145)

Moku-lē‘ia. Land section, beach park, surfing area, and station...The historian Kamakau was born here... *Lit.*, isle [of] abundance. (Pukui et al. 1974:155)

Pōhaku-loa... Land division, Wai-a-lua, O‘ahu... *Lit.*, long stone. (Pukui et al. 1974:186)

Pōhaku-o-Kaua‘i. Legendary stone at Ka-‘ena Point, O‘ahu, believed to have been hurled by a giant (Hā‘upu) from Kaua‘i... When Māui attempted to draw the islands together, sea goddesses snagged his hook on this rock. Inland is a stone called Pohaku-o-O‘ahu. *Lit.*, rock of Kaua‘i. (Pukui et al. 1974:187)

Pu‘u-pueo. Hill (969 feet high), Ka-‘ena Point... *Lit.*, owl hill. (Pukui et al. 1974:205)

Wai-a-lua... Mill, town, railroad, bay, beach park, recreation center, district. (Pukui et al. 1974:220)

Wai‘anae...Land division, town, valley...A lizard goddess named Pūhāwai (water hollow) once lived inland at a place called Pūhā; she stole a woman’s husband; the wind god, Makani-ke-oe restored him to her... *Lit.*, mullet water. (Pukui et al. 1974:220)

Subsistence and Traditional Land Use

Due to the remnants of an ancient fishing complex near Ka‘ena Point and at least three fishing shrines which were once located along the Ka‘ena coastline, along with Thrum’s account depicting the rich waters off of Mokulē‘ia, it is safe to assume that Ka‘ena Ahupua‘a provided an abundance of marine resources in traditional times. Although there were known springs scattered on the land, it was not enough to support large-scale taro cultivation like elsewhere in Waialua District, and instead the cultivation of Ka‘ena Ahupua‘a might have focused more on ‘uala, or sweet potato:

This ahupua‘a must have grown sweet potatoes exclusively, except for one group of about 20 taro patches, terraced with rock facings, on the slopes before Uluhulu Gulch. These terraces were irrigated from Uluhulu spring on the hillside west of the gulch. Besides the terraces (now dry and abandoned) there were clearings which were used presumably for sweet potatoes. David Keaau of Kawaihapai says that no taro was grown between those terraces and Kaena Point. Although high up in several gulches there are green spots, indicating the presence of springs, there is evidently not enough level ground surrounding them for any planting. Kaaimoku Kekulu, native of the district, says that the name of the spring and the terrace section noted above is Kaaiea. (Handy 1940:84)

Keawa‘ula was also known for its rich fishing grounds, particularly for the fish ‘ahi and aku (‘Ī‘Ī 1959:98). Wai‘anae was one of three dry or leeward moku on the Island of O‘ahu (Handy et al. 1991). The staple crop of Waianae was also ‘uala (Handy 1940:156) although ‘uala cultivation may have been more common in other ahupua‘a within the moku of Wai‘anae, as Keawa‘ula is not specifically mentioned. There may have been at least one small area of wet taro cultivation in Keawa‘ula, as indicated by a few terraces below the cliff (Handy 1940:86).

Archaeological Sites of Importance

As mentioned above, there were at least three known fishing shrines along the Ka'ena coastline. One was named Ponuahua, which was located near Ka'ena Point, and another was located east of that and named Alauiki, which McAllister (1933:127) described as "a group of stones near the edge of the water, no different from other stones in the vicinity." The third was named Hauone, which McAllister claimed was destroyed by the time of his archaeological survey. These sites are far below the Kuaokalā project area.

Besides the three aforementioned fishing shrines, at least two heiau are known to have been constructed in Ka'ena Ahupua'a. The first is Moka'ena Heiau (also Mokaena or Moku'ena), built atop the Kuaokalā ridgeline, within the project area. The site has the distinction of being the heiau located at the highest elevation in all of O'ahu (McAllister 1933:127). It is thought to have been built by people from Kaua'i (McAllister 1933:127). The other heiau was named Ulehulu, which was situated mauka of the ahupua'a's historic-era cane fields. McAllister (1933:128) suggested that "stones from the heiau were probably used to construct the modern stone walls in the vicinity." This second heiau is not located near the current project area.

Another very important Ka'ena site to mention is Leina-a-ka'uhane, a place where souls of the recently departed went to enter the next world. The site is located at the very end of Ka'ena Point. Learning from a native informant named Hookala, McAllister explained what the souls of the deceased did in Ka'ena after leaving their physical bodies:

[Ka'ena] point is probably best known as the place from which souls departed from this earth. Hookala tells that when an individual lay on the deathbed his soul left his body and wandered about, first going to a fishing shrine (ko'a) named Hauone... If all earthly obligations had been fulfilled, the soul continued wandering, otherwise it was returned to the body. In its continued wandering it then approached Leina Kauhane at Kaena Point. Here it was taken by two minor gods... and thrown into a pit known as Lua ahi a Kehena. It was at this time that the soul was thrown into this pit that death actually came upon the body. The soul then went to Na ulu o le'i walo... on the boundary between Ewa and Honolulu districts. (McAllister 1933:124, 126)

In Keawa'ula there are at least two more fishing shrines and also an important cave. The cave is known as Poha Cave, where fresh water would flow into the ocean (McAllister 1933:124). Fishermen would collect drinking water by diving down to the flow with an upturned calabash and filling it with fresh water before returning to the surface. These sites are far below the project area.

Mo'olelo

As mentioned earlier, Hawaiian place names were connected to traditional stories through which the history of the places was preserved. These stories were referred to as "mo'olelo, a term embracing many kinds of recounted knowledge, including history, legend, and myth. It included stories of every kind, whether factual or fabulous, lyrical or prosaic. Mo'olelo were repositories of cultural insight and a foundation for understanding history and origins, often presented as allegories to interpret or illuminate contemporary life... Certainly many such [oral] accounts were lost in the sweep of time, especially with the decline of the Hawaiian population and native language" (Nogelmeier 2006:429– 430). Three mo'olelo in particular hint at the significance of Ka'ena.

Kaanaana

The first mo'olelo deals with the prophet Kaanaana, who lived at Ka'ena Point. This was the first person to predict that the Hawaiian Islands would lose its sovereignty to foreigners. This prophecy would later be echoed by the high priest Ka'ōpuluhulu, giving his son the same message after they

rounded Ka'ena Point and went to meet their death in Wai'anae District at the hands of Chief Kahahana (Kamakau 1996). The mo'olelo of Kaanaana is recounted here:

Kaena Point, the home of the famous reader of omens (kuhikuhi puuone) Kaanaana, the first to prophecy of what was to come to Hawaii, that some will rise and others sink until they vanish entirely. There were to be two fish, the manini and the oililepa. (The lepa (flag) of the Haole did rise). The very first prophecy was uttered by this man, it has indeed come as we see it today. (Sterling and Summers 1978:95-96)

Pikoiakaalala and Kakahe'e

A second mo'olelo centers on Pikoiakaalala, a kupua of whom Beckwith (1970) explains can take the form of a supernatural rat or human. In this story, Pikoiakaalala and his father are sailing in the waters off of Ka'ena. There, they come across a supernatural he'e, or octopus, named Kakahe'e. The supernatural rat, Pikoiakaalala, kills the octopus, and that area is still known by that name, Kakahe'e, until this day. The mo'olelo is told as follows:

[Pikoiakaalala and his father] set sail for the sea of 'Ie'ie-waho. There Pikoi-a-ka-Alala saw a certain octopus called Kakahe'e. He said to his father, "A large octopus!" "Where?" asked his father. "There, in a hole where the sea washes ashore." They sailed along till they were almost within sight of land where the octopus was. This octopus was a supernatural one.

The boy set his bow and let the arrow fly. He shot while they were yet far from land. The octopus was pierced where the sea washed ashore. They arrived later and came ashore at Waiaka'aiea. The canoe was beached there and they came along to kill the octopus. They beat it to death. (O reader, these two places Waiaka'aiea and Kakahe'e still remain on this side of Kaena Point). (Sterling and Summers 1978:95)

Pōhaku O Kaua'i

The third mo'olelo is associated with Pōhaku O Kaua'i, a huge boulder located on the Ka'ena shore. Among its many points of significance is that it represents a relative of Pele who came with the fire goddess on her voyage from Kahiki and stayed at Ka'ena as they were making their way from Kaua'i across the islands (Sterling and Summers 1978). In another story connected to this boulder, it was thrown by a chief of Kaua'i named Haupu, who hurled it at a chief of O'ahu named Kaena (Sterling and Summers 1978). The boulder landed there, killed the O'ahu chief, and since then the area continues to bear the chief's name, Ka'ena. And finally, in still another mo'olelo, the boulder is a piece of Kaua'i island caught in the magical hook of the demigod Maui, as he tried to pull Kaua'i island closer to O'ahu (Emerson 1997). All three of these stories, though different in substance, all highlight an ancient connection of northwest O'ahu to Kaua'i Island next door. The mo'olelo explaining the significance of Pōhaku O Kaua'i with regard to the demigod Maui is recounted in Emerson's book, *Pele And Hiiaka*:

The most audacious terrestrial undertaking of the demigod Mawi [sic] was his attempt to rearrange the islands of the group and assemble them into one solid mass. Having chosen his station at Kaena Point, the western extremity of Oahu, from which the island of Kaua'i is clearly visible on a bright day, he cast his wonderful hook, Mana-ia-ka-lani, far out into the ocean that it might engage itself in the foundations of Kaua'i. When he felt that it had taken a good hold, he gave a mighty tug at the line. A huge boulder, the Pohaku o Kaua'i, fell at his feet. The mystic hook, having freed itself from its entanglement, dropped into Palolo Valley and hollowed out the crater, that is its grave. This failure to move the whole mass of the island argues no engineering miscalculation

on Mawi's part. It was due to the underhand working of spiritual forces. Had Mawi been more polite, more observant of spiritual etiquette, more diplomatic in his dealings with the heavenly powers, his ambitious plans would, no doubt, have met with better success. (Emerson 1997:104)

Oli and Mele

The noteworthiness of specific locales in Hawaiian culture is further bolstered by their appearance in traditional chants. An oli refers to a chant that is done without any accompaniment of dance, while a mele refers to a chant that may or may not be accompanied by a dance. These expressions of folklore have not lost their merit in society today. They continue to be referred to in contemporary discussions of Hawaiian history, identity, and values.

Returning to that great saga of Hawaiian oral traditions, that is the epic journey of Hi'iaka, several chants commemorate her visit to Ka'ena. When the story was published in the Hawaiian language newspaper *Ka Na'i Aupuni* in 1904 and 1905, Ka'ena and Pōhakuokaua'i are brothers whom Hi'iaka greets with a chant. The mele is translated and presented here with contextual reference:

[Hi'iaka's party] sailed until nearing Ka'ena Point, and when Hi'iaka saw the brother, Kalaeoka'ena and Pōhakuokaua'i, she chanted this chant...

Greetings to you, O Ka'ena and Pōhakuokaua'i
Dwelling there on that famished cape shore
Surviving on the spray of the sea
Drinking from my waters that spring from the cliff
Here I am, soon to land.

Hi'iaka then steered the prow of their canoe for the point at Ka'ena. They landed their canoe in a small enclosed bay on the Waialua side of the place called Leinaaka'uhane, Leaping Place of the Spirits. (Ho'oulumāhiehie 2006:241)

In another chant, Hi'iaka speaks metaphorically, likening Ka'ena to the seabirds that nest there. Her words also paint a picture of the rough seas off of Ka'ena's coast. Here is a portion of that chant, translated:

Ka'ena soars like a bird in the calm
Like the swooping of an 'ua'u bird
Like the winging of a koa'e bird
The billows out in the Ka'ie'iewaho Channel
Like a man gorging on the sea in the calm
The white spray fronts the basalt stone
Pounded by the sea until dark and reddened
Reddish brown is the face of the basalt
Lying in the sea of Kāpeku
Blustery-voiced is the sea, the month is Ho'oilo
A darkness rises over the water
A sea omen upon the land
The sea of Kahulumanu rises
The sea, flooding sea of the land
Exposed are the cloud banks, the yellow banks

Kanaloa's flock of birds, an ally is he
Raging at the cape of Kalā'au
Torn apart by the sea of Awalua
The cliffed gullies of Unulau. (Ho'oumāhie 2006:163–164)

‘Ōlelo No‘eau

Like oli and mele, traditional proverbs and wise sayings, known as ‘ōlelo no‘eau, have been another means by which the history of Hawaiian places has been recorded. In 1983, Mary Kawena Pukui published a volume of close to 3,000 ‘ōlelo no‘eau that she collected throughout the islands. The introductory chapter of that book reminds us that if we could understand these proverbs and wise sayings well, then we would understand Hawai‘i well (Pukui 1983).

Approximately 500 places are listed in the ‘ōlelo no‘eau book along with the proverbs and wise sayings that refer to these specific locales. Of these, a handful of ‘ōlelo no‘eau mention Ka‘ena by name. The first two personify Ka‘ena by describing the place using elements of the natural environment there. The third is an affirmation that Ka‘ena and its greater district of Waialua are inseparable. A fourth ‘ōlelo no‘eau was written specifically for Kuaokalā. The ‘ōlelo no‘eau are listed here:

Kaha Ka‘ena me he manu la i ka mālie.
Ka‘ena Point poises as a bird in the calm.
This is a line in a chant by Hi‘iaka praising Ka‘ena Point, O‘ahu. (Pukui 1983:141)

Kapa ‘ehu kai o Ka‘ena na ka makani.
Ka‘ena is adorned with a garment of sea sprays by the blowing of the wind.
Refers to Ka‘ena, O‘ahu. (Pukui 1983:164)

Like no Ka‘ena me Waialua.
Ka‘ena and Waialua are one.
Ka‘ena Point is in Waialua. Similar to the saying, “Six of one and half a dozen of the other.” (Pukui 1983:215)

He lohe ‘ōlelo ia Kalehuawehe, he ‘ike maka ia Kuaokalā.
Have only heard of Kalehuawehe, but have seen Kuaokalā.
That is only hearsay so I do not know much about it; but this I have seen and know about. (Pukui 1983:84)

Ka‘ena and Keawa‘ula in the Early Historic Era

When the first Westerners arrived in the Hawaiian archipelago in 1778, the islands were not yet united under one ruler. At that time, the entire island of O‘ahu was under the rule of Chief Kahahana. In 1783, Chief Kahahana’s reign was ended with the invasion and victory of Chief Kahekili of Maui. This would forever be the end of O‘ahu’s independence as a sovereign entity. When Chief Kahekili died in 1794, control of O‘ahu went to his son Kalanikūpule. The following year, Chief Kamehameha of Hawai‘i Island invaded O‘ahu to engage Kalanikūpule in battle. Kamehameha overwhelmed Kalanikūpule’s warriors, effectively gaining control of all the islands from Hawai‘i to O‘ahu. Eventually, Kamehameha would make a peaceful agreement with Chief

Kaumuali'i of Kaua'i, bringing that island and Ni'ihau into the fold and thereby uniting the Hawaiian archipelago under one rule (Kamakau 1996, Kanahele 1995).

Under Kamehameha's rule, the island of O'ahu was administered by High Chief Boki. Kamehameha I died in 1819, and under the rule of Kamehameha II with Queen Ka'ahumanu, the Waialua District was governed by the ali'i 'ai moku, Kahekili Ke'eaumoku. After Ke'eaumoku's passing in 1824, Waialua went to his sister Lydia Kekuapi'ia Namahana. And after Lydia Namahana's death in 1829, the district of Waialua went to Kīna'u. Finally, when Kīna'u passed away in 1839, her youngest daughter, Victoria Kamāmalu inherited the Waialua District. Kamāmalu kept her Waialua lands until the Māhele of 1848, at which time, she retained only Kawailoa and Pa'ala'a Ahupua'a, and relinquished the rest of her Waialua property (Alameida 1994).

During the first half of the 19th century, records show sandalwood harvesting in the Wai'anae Mountain Range as well as missionary activities occurring within Ka'ena's larger district of Waialua, but nothing significant is recorded as specifically taking place within Ka'ena Ahupua'a during this time. Regarding Keawa'ula, an early historical reference was made in 1826 by the missionary Levi Chamberlain. He mentioned in his journal the presence of a school:

About 12 o'clock we arrived at Keavaula [sic], an indifferent village, but the place of a school, containing 24 scholars nearly all destitute of books and but five acquainted with the letters. (Chamberlain 1826:490)

Ka'ena and the Changes in Land Tenure

During the reign of Kamehameha III, as the Hawaiian kingdom became increasingly exposed to outside influences, the Hawaiian monarchy faced a crossroads of major change. "The Constitution of 1840 confirmed that only two offices could convey allodial title. These were the mō'i and the kuhina nui. The Māhele was an instrument that began to settle the constitutionally granted vested rights of three groups in the dominium of the kingdom—mō'i, ali'i, and the maka'āinana" (Beamer 2014:143). However, the king felt the difficulty of governing a land where the influence of foreigners had been growing. Dr. David Keanu Sai describes this predicament:

Kamehameha III's government stood upon the crumbling foundations of a feudal autocracy that could no longer handle the weight of geo-political and economic forces sweeping across the islands. Uniformity of law across the realm and the centralization of authority had become a necessity. Foreigners were the source of many of these difficulties. (Sai 2008:62)

"Several legislative acts during the period 1845–1855 codified a sweeping transformation from the centuries-old Hawaiian traditions of royal land tenure to the western practice of private land ownership" (Moffat and Fitzpatrick 1995:11). Most prominent of these enactments was the Māhele of 1848 which was immediately followed by the Kuleana Act of 1850.

The Mahele was an instrument that began to settle the undefined rights of three groups with vested rights in the dominion of the Kingdom --- the government, the chiefs, and the ho'a'aina. These needed to be settled because it had been codified in law through the Declaration of Rights and laws of 1839 and the Constitution of 1840, that the lands of the Kingdom were owned by these three groups... Following the Mahele, the only group with an undefined interest in all the lands of the Kingdom were the native tenants, and this would be later addressed in the Kuleana Act of 1850. (Beamer 2008:194–195)

Although the Māhele had specifically set aside lands for the King, the government, and the chiefs, this did not necessarily alienate the makaʻāinana from their land. On the contrary, access to the land was fostered through the reciprocal relationships which continued to exist between the commoners and the chiefs. Perhaps the chiefs were expected to better care for the commoners' rights than the commoners themselves who arguably might have been less knowledgeable of foreign land tenure systems. Indeed, the ahupuaʻa rights of the makaʻāinana were not extinguished with the advent of the Māhele, and Beamer points out that there are “numerous examples of hoāʻāina living on Government and Crown Lands Post-Mahele which indicate the government recognized their rights to do so” (Beamer 2008:274).

Hoāʻāina who chose not to acquire allodial lands through the Kuleana Act continued to live on Government and Crown Lands as they had been doing as a class previously for generations. Since all titles were awarded, “subject to the rights of native tenants.” The hoāʻāina possessed habitation and use rights over their lands. (Beamer 2008:274)

For those commoners who did seek their individual land titles, the process that they needed to follow consisted of filing a claim with the Land Commission; having their land claim surveyed; testifying in person on behalf of their claim; and submitting their final Land Commission Award (LCA) to get a binding royal patent. However, in actuality, the vast majority of the native population never received any LCAs recognizing their land holdings due to several reasons such as their unfamiliarity with the process, their distrust of the process, and/or their desire to cling to their traditional way of land tenure regardless of how they felt about the new system. In 1850, the king passed another law, this one allowing foreigners to buy land. This further hindered the process of natives securing lands for their families.

During the 1848 Māhele, 210 acres of Keawaʻula were awarded to Laʻamaikahiki, and the remainder was listed as government land. Kaʻena Ahupuaʻa was claimed by Victoria Kamāmalu, but the ahupuaʻa became government lands when she exchanged the property to pay debts on other land holdings. There are no LCAs located in the vicinity of the current project area.

New Industries: Ranching Enterprises and Sugarcane Cultivation

Besides the mention of a sole Hawaiian, a Mrs. Kamealani, who leased some land in the Kaʻena uplands, the Government Lands of the Kuaokalā ridgeline went to foreigners who used it for economic purposes. Ranching was prevalent in Keawaʻula between the 1860s and 1930s. In 1864 the government portion of land was leased to Joseph and John Booth for 25 years for ranching until their deaths in 1873. At that time the lease was transferred to Samuel Andrews. In 1889, he received an additional 21 years on the lease; however, it appears that he transferred the lease to L.L. McCandless around 1901. McCandless extended the lease until 1920 and continued to lease the lands until 1925 on a “tenancy at will” basis. The land was put out to bid by the State in 1925 and McCandless was outbid by James Frank Woods from Kohala on the island of Hawaiʻi. After two years, Woods signed the lease over to McCandless who then retained the lease until his death in 1940.

In 1898, the Oahu Railway and Land Company completed a railway that extended from Kahuku around Kaʻena Point to the Ewa Plantation in Waiʻanae. The railway was built to serve the sugar plantations in Waiʻanae. Many Japanese workers were brought in for the construction and maintenance of the railway. These workers gave Keawaʻula Beach its common name of “Yokohama Beach” (Hammatt et al. 1993:15). In addition to the sugar plantations, the railway was also utilized by the livestock industry, commercial vegetable growers, and for movement into and out of the area generally. Between 1942 and 1946 the railroad company and the City and County of Honolulu had an agreement to transport refuse to Keawaʻula from Kapālama. In 1946 a tsunami

destroyed the railway leaving only remnants behind. The 19th century ended with the overthrow of the Hawaiian monarchy and the U.S. claim of annexation of the Hawaiian Islands. Throughout the islands, former Government Lands and Crown Lands were no longer under the oversight of the monarchy. After the overthrow, the U.S. federal government and the American military increased its land use around Ka'ena and Waialua, and throughout the islands.

Two historic maps were found that help to paint a picture of the project area at the turn of the 19th century. In a territorial map dated 1902 most of the land from the Ka'ena coast on the north, over Kuaokalā, to the Keawa'ula shore on the other side, is claimed by the government (Figure 4). Note that this is less than a decade after the overthrow of the monarchy and the claim of annexation by the U.S. in 1898. This map does show some smaller land parcels, particularly along Ka'ena shoreline. In addition, the traditional Leina Ka'uhane is illustrated just northwest of where Pu'u Pueo is annotated. Kawaiakaaiea is labeled offshore of the east end of the project area. This is likely a place name.

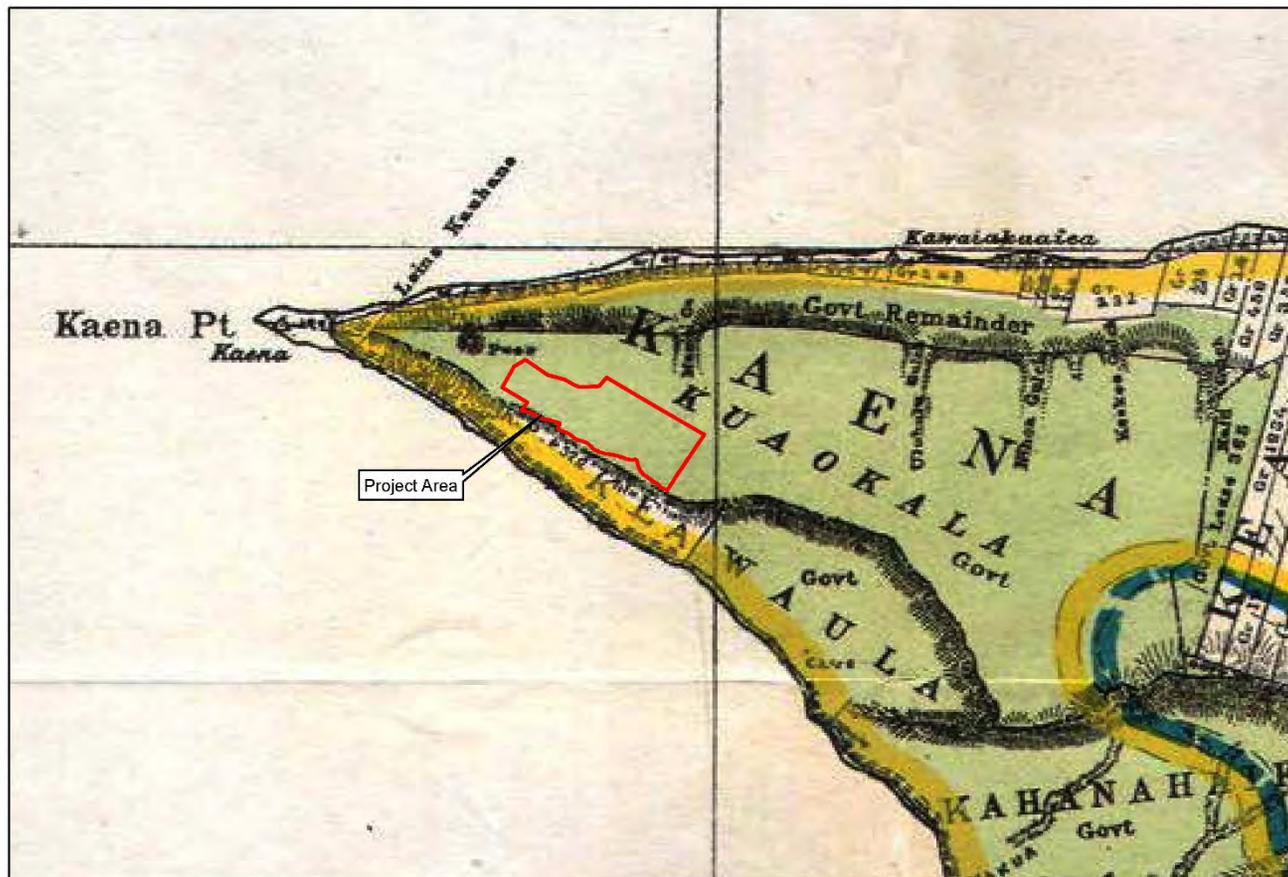
A 1909 map shows the project area and the waters around it (Figure 5). In this map, the entire offshore area, that is, the sea off the coast from Ka'ena Point past Kawaihāpai to Mokulē'ia is claimed by the government. According to this map, more than half of the Keawa'ula fishery is owned by L. McCandless while the rest of it is owned by the government, all the way to the waters fronting Mākua. The Government Road, shown as a dashed line, appears to continue around Ka'ena Point, where there is no vehicular access today. Note also on this map, a heiau is marked at the northwest tip of Kuaokalā above Ka'ena Point.

Ka'ena in the 20th Century and Beyond

The 1920s saw the start of pineapple cultivation atop the Kuaokalā ridgeline. C. Pringle started his pineapple venture in partnership with an association of Japanese farmers. Records indicate that the pineapple project did yield good crops, but the problem that Pringle and his partners faced was how to transport the large quantities of pineapples down the mountain and to the market. Eventually, a solution was found utilizing wagons to and from the O.R.&L. railway on the North Shore.

Also by the 1920s, some of Ka'ena's mauka lands had been set aside and designated for forest reserve purposes. This is clearly indicated in a 1926 map (Figure 6). The O.R.&L. railroad track can be seen on this map, along with a "Trail-Road" makai of the private properties. In some places, the railroad track and the road both cut into the private properties. While the railroad goes around Ka'ena Point and continues down the Wai'anae Coast, a separate trail accesses the Kuaokalā ridgeline, connecting the uplands to the shore near the boundary of Keawa'ula and Kahanahāiki Ahupua'a. The map shows no traditional sites nor any man-made structures along the ridge of Kuaokalā, but at the northwest tip of the ridgeline, above Ka'ena Point, the area is labeled as a "Military Reservation for Fire Control Station" as ordered by Executive Order No. 144. Also, the area of Kuaokalā ridge further inland and mauka of Manini Gulch is shown to be designated as a forest reserve.

Also in the 1920s, portions of Ka'ena's ridgeline were claimed by the U.S. government to be transformed into the Ka'ena Point Military Reservation. An Executive Order proclaimed this in 1923, and the site was made ready for full-scale construction during World War II. A 1946 map shows the project area just after World War II (Figure 7). Like the previous map dated 20 years earlier, the O.R.&L. railroad track is still shown going around Ka'ena Point, and the Kuaokalā Ridge above the point is still labeled as a Military Reservation Fire Control Station. Further inland, the Kuaokalā Forest Reserve is depicted as on the previous map. In addition, the Kealia Trail is clearly shown descending from Kuaokalā into Kealia Ahupua'a. Note that today, this trail is sometimes called the Kawaihāpai Trail.



Legend

 Project Area

Hawaii Territory Survey, Oahu, Walter E. Wall, Dated 1902

0 1 2 3 4 Kilometers



Figure 4. Portion of a map of O'ahu (Wall 1902).

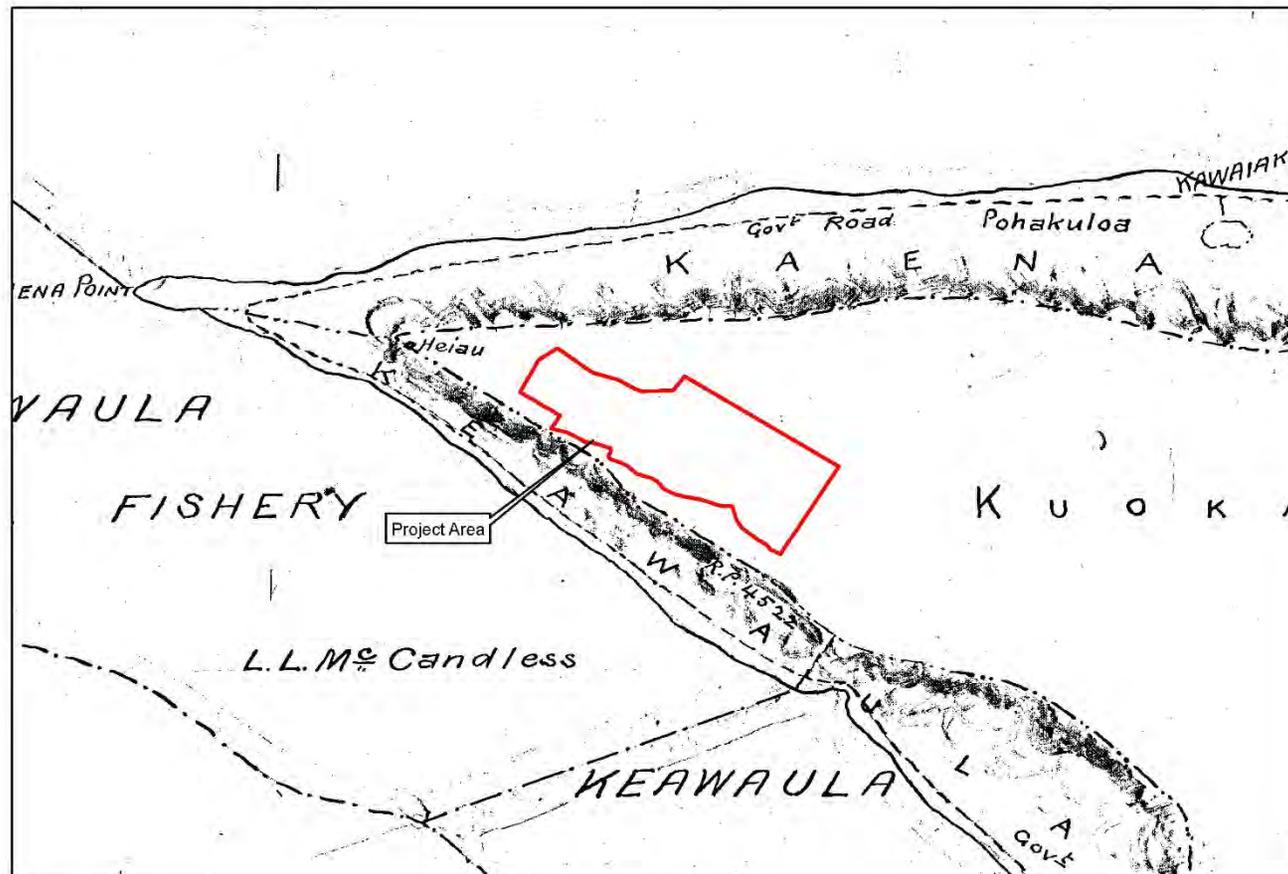


Figure 5. Portion of a fisheries map (Monsarrat 1909).

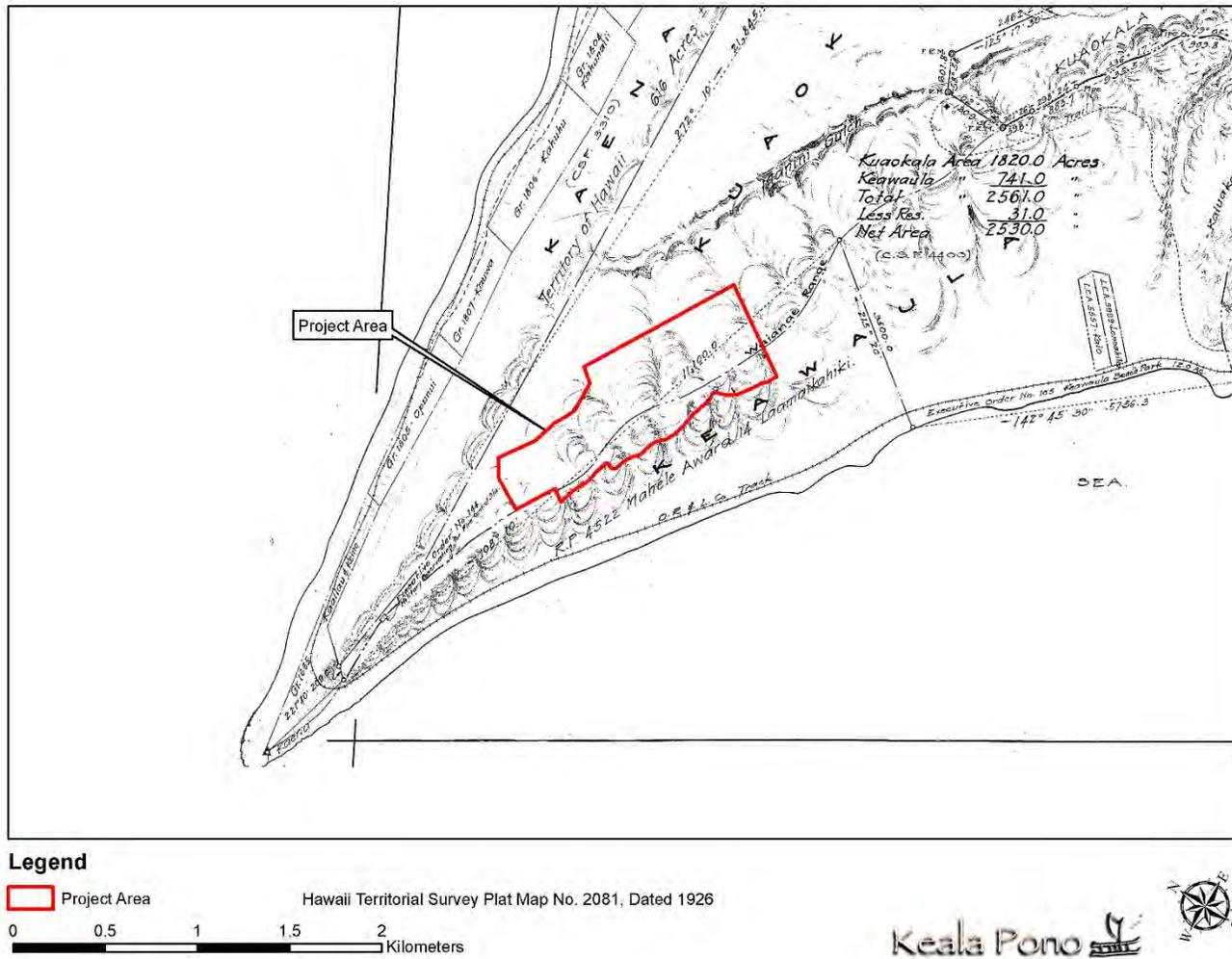


Figure 6. Portion of a map of Makua-Kahanahaiki and Keawaula-Kuaokala (Wall 1926).

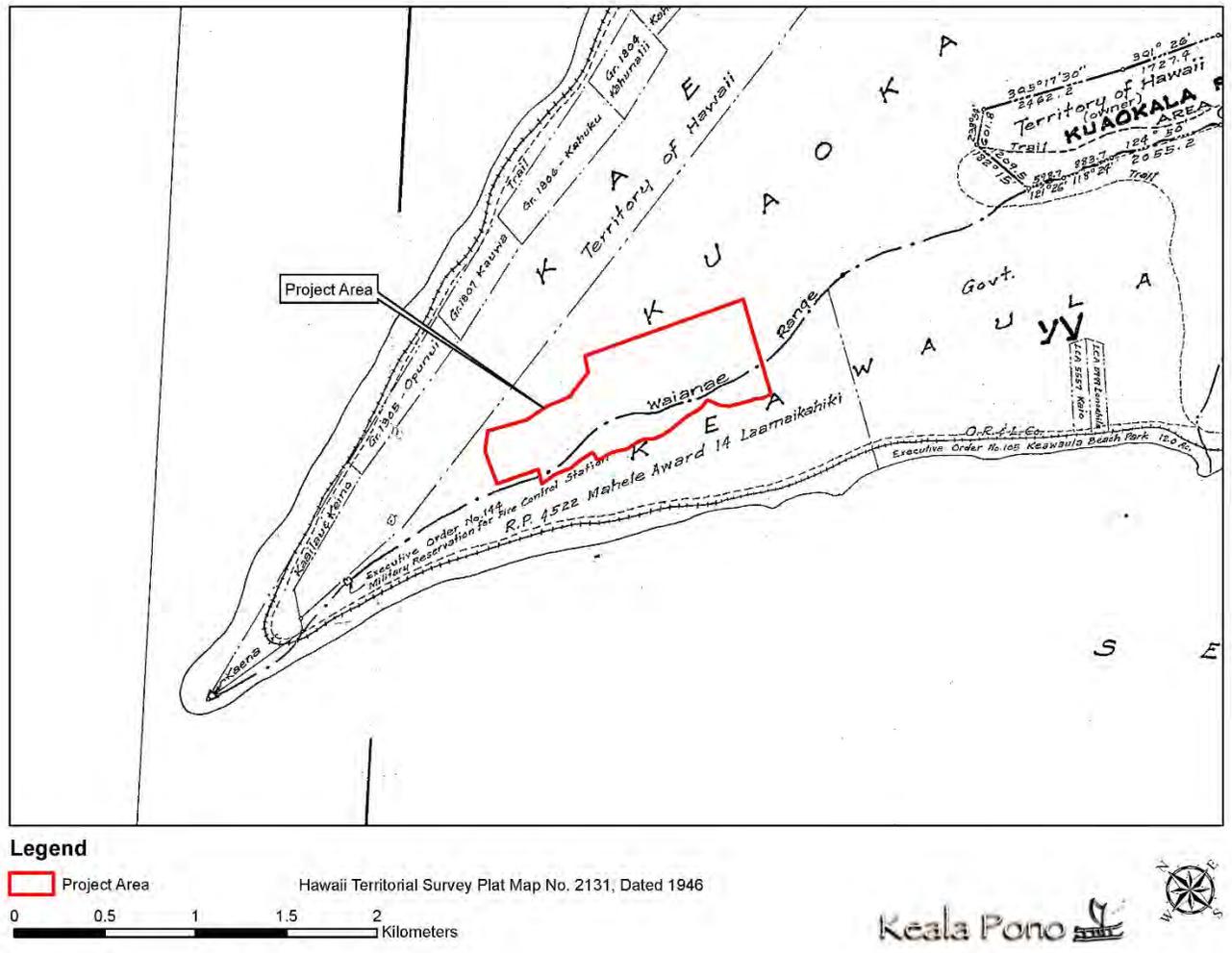


Figure 7. Portion of a Forest Reserve map (Marks 1946).

The U.S. military began acquiring land in nearby Mākua Valley in 1929. Maneuvers were conducted as early as 1932. In 1941, with the onset of World War II, the military acquired all of Keawa‘ula, Kahanahāiki, and Mākua valleys under martial law. These areas were used for extensive training maneuvers. KPSTS was initially constructed between 1958 and 1959, additional buildings were added through the mid-1960s, and new antenna systems were built in the 1970s.

In 1921, under the Governor’s Executive Order 105, a 12-acre area was created as a beach park fronting the government portion of Keawa‘ula. In the 1970s, the State of Hawai‘i turned the area into the Ka‘ena Point State Park and constructed the Ka‘ena Point access road. The area is still used for recreation and also for subsistence fishing and the gathering of pa‘akai (Shirai 2009).

Previous Archaeology

Previous archaeological surveys offer significant information regarding traditional and historic land use. The following discussion summarizes the findings of archaeological studies in the vicinity of the project area, based on reports found at the SHPD Kapolei library (Table 1 and Figure 8. State Inventory of Historic Places (SIHP) numbers are prefixed with 50-80-03 (see Figure 8).

Table 1. Previous Archaeology in the Study Area

Author & Year	Location	Study	Findings
McAllister 1933	Island-Wide	Survey	Within the current study area, one site was identified: Moka‘ena Heiau (Site 188).
Hammatt & Borthwick 1987	KPSTS	Reconnaissance Survey	Identified nine archaeological sites (SIHP 3708 and 3714- 3720), including the previously recorded Moka‘ena Heiau (McAllister 1933, Site 188).
Hammatt et al. 1993	Mokulē‘ia to KPSTS	Archaeological Inventory Survey	None.
Jourdane & Dye 2006	KPSTS	Archaeological Inventory Survey	Documented previously-recorded SIHP 3719, the remains of two post-contact structures. A rock alignment was also noted but it was thought to be a modern construction.
Rasmussen 2007	KPSTS	Archaeological Inventory Survey	Assessed sites within KPSTS and reinterpreted the previously-recorded rock alignment (Jourdan and Dye 2006) as a pre-contact feature. Identified one new site near the current project area: a World War II gun emplacement. SIHP numbers were not assigned at the time of the study.
McElroy 2010a	KPSTS	Archaeological Inventory Survey	Identified several Cold War-era resources, all of which were less than 50 years old at the time of the study.
McElroy 2010b	KPSTS	Site Documentation	Documented a Cold-War-era cable tray.
McElroy 2012	KPSTS	Archaeological Monitoring	None.

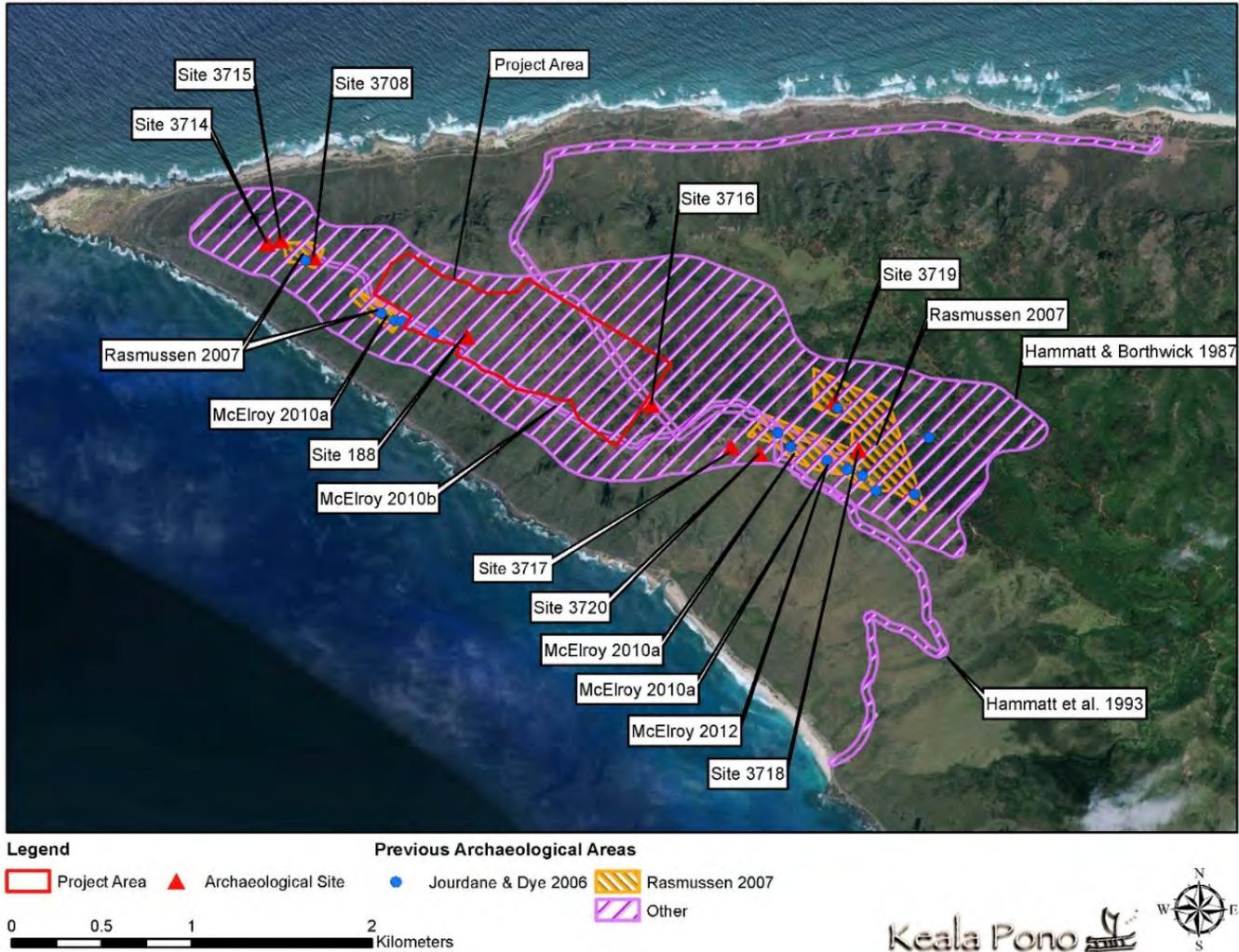


Figure 8. Location of previous archaeological studies and known sites in the vicinity of the project area.

In the 1930s, J.G. McAllister conducted an island-wide archaeological survey of O‘ahu (McAllister 1933). He recorded several sites along the coastline of Ka‘ena and Keawa‘ula, but only one site is located within the current project area. The site, situated atop Kuaokalā Ridge, is a heiau named Moka‘ena. Located at an elevation of 366 m (1,200 ft.), McAllister described this as being the heiau located at the highest elevation on O‘ahu. He provided a sketch map of the site (Figure 9) along with the following description:

A small three-division structure, of two upper rock-paved platforms and a larger lower division of dirt floor inclosed with very low walls. The whole heiau, rectangular in shape, measures only 35 by 75 feet. It was said to have been built by Kauaians who settled Oahu... Located on the Waianae side of this high table land, facing northeast, it is surprisingly inconspicuous and can only be seen when one is directly upon it. On the north edge of the second platform is a narrow pointed stone, measuring 2.5 feet by 4 by 6 inches, which appears to have stood erect on the edge of this platform. Two narrow, low terraces appear to have connected the inclosure with the adjoining platform. (McAllister 1933:127)

Several archaeological studies have been completed at KPSTS in and around the current project area. An early archaeological reconnaissance identified nine archaeological sites (Hammatt and Borthwick 1987). These include Moka‘ena Heiau (Site 188), five post-Contact military or ranching sites (SIHP 3708, 3715, 3716, 3719, and 3720), and three possibly pre-Contact sites (SIHP 3714, 3717, and 3718). Site 3708 consists of two soil terraces that are thought to be post-contact or recent in age. Site 3714 is a C-shaped structure, likely pre-contact in age, and Site 3715 is a post-contact wooden platform and cable. Site 3716 is a ranching-era platform, while Site 3717 is a stone scatter and alignment that may be pre-contact in age. Site 3718 is a series of rock alignments that may be pre-contact in age, Site 3719 consists of two historically-modified structures, and Site 3720 is a possible terrace remnant that may be a product of bulldozing.

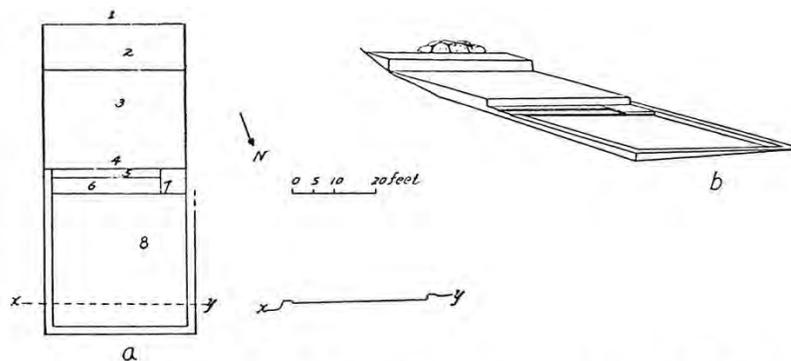


FIGURE 42.—Mokaena heiau at Kuokala, on ridge above Kaena Point, Site 188. *a*, ground plan; *b*, perspective view: 1, pile of very large natural rocks, possibly used in some heiau ceremony; 2, upper rock-paved terrace 34 by 11 feet, 3 feet higher than terrace 3; 3, terrace 34 by 24 feet, north half paved with stones of different sizes, south half probably dirt-paved, now covered with loose stones; 4, stone 2.5 feet by 4 inches by 6 inches which may have once been erect; 5, narrow terrace of large unevenly placed stones 2 feet lower than terrace 3, 2 feet wide, and 1 foot higher than stones 6; 6, line of stones with dirt fill less than 1 foot above inclosure 8; 7, terrace 6 feet square, about 1.5 feet above inclosure 8, faced with rocks and paved with dirt; 8, dirt-paved inclosure, none of present walls more than 2 feet high, averaging about 3 feet wide; *x-y*, cross sections.

Figure 9. Early sketch of Moka‘ena Heiau Site 188 (McAllister 1933:128).

Site 188, Moka'ena Heiau, was mapped (Figure 10) and described in detail:

...Mokaena heiau is a rectangular terraced platform structure... which incorporates a large in situ boulder outcrop. The structure measures 10.7 meters (35 feet) E/W by 23.8 meters (78 feet) N/S and is divided into 4 distinct terrace levels. The upper or southern-most terrace is a boulder cobble paved area incorporated into the boulder outcrop. This upper terrace measures 7.6 meters (25 feet) N/S by 6.7 meters (22 feet) E/W and has a nearly vertical north face with a maximum height of 1.2 meters (4 feet)... There was one small boulder sized chunk of branch coral (Pocillopora meandrina) observed in a crack between two large boulders.

The second terrace level is mostly soil with numerous scattered boulders and cobbles. This level measures 6.1 meters (20 feet) N/S by 10.7 meters (35 feet) E/W. The east wall is in better condition than the west wall, with both walls ranging in height from .2 to .6 meters (1 to 2 feet) and in width from .9 to 1.5 meters (3 to 5 feet). There is no vertical facing between this level (Level 2) and Level 3, instead Level 3 is delineated by a slight elevation drop and its rocky pavement.

Level 3...measures 3.66 meters (12 feet) N/S by 10.7 meters (35 feet) E/W and is well paved with boulders to pebbles. There are numerous coral cobbles and pebbles on this level, as well as a row of possible post holes. The post holes are about 2 inches in diameter and some of the holes have a surrounding scatter of coral pebbles. However, because of the nature of rock paved construction exact determination of such small post holes is difficult. At the west end of Level 3 is a roughly 2.9 meter square (3.5 foot square) shallow rock lined depression with a level soil interior. The downslope (north) edge of this level is marked by a nearly vertical .9 meter (3 foot) high facing that is somewhat collapsed in the eastern portion. The lower course of the facing incorporates large in situ boulders. In the approximate center of the vertical facing, on the downslope side, is a .8 meter long by .15 meter wide (2.5 foot long by .5 foot wide) pointed basalt boulder... The rock was probably an upright situated on the third level and possibly represents a ku'ula or "God Stone." There are other smaller uprights on the pavement of the third level, one in the southeast corner, another in the southwest section.

The lower terrace (terrace Level 4), has a soil surface with scattered rocks, and measures 9.1 meters (30 feet) N/S by 10.7 meters (35 feet) E/W. This terrace is open to the west, with a conspicuous absence of a wall or any rock alignment. The east wall, which is continuous for the entire length of the structure, is .2 to .6 meters (1 to 2 feet) high and .9 to 1.8 meters (4 to 6 feet) wide. The downslope (north) side is delineated by a .2 to .5 meters (1 to 1.5 foot) high and .6 meter (2 foot) wide piled boulder retaining wall that has a 1.8 meter (6 foot) wide gap in the east central portion of the wall. The gap appears to be of purposeful construction and may be an entry way to the structure. The soil interior of terrace Level 4 is approximately .5 meters (1.5) feet higher than the surrounding ground surface(s), possibly indicating in-filling of this terrace.

Approximately 30.5 meters (100 feet) downslope (north) of the site are two adjoining, relatively level soil areas. The soil areas are about 9.1 meters (30 feet) square and though their appearance is that of large soil terraces they are more probably just erosional features. (Hammatt and Borthwick 1987:41-42)

One 1 x 1 m (3.3 x 3.3 ft.) and three 50 x 50 cm (1.6 x 1.6 ft.) test units were excavated in the vicinity of the heiau, although none were placed on the structure to preserve its integrity (Hammatt and Borthwick 1987:43). It was hoped that buried alignments or cultural deposits would be revealed, and one possible buried alignment or paving was located on the north side of the heiau. This feature was found at 10-30 cm below surface (cmbs) (4-12 in. below the surface) and it

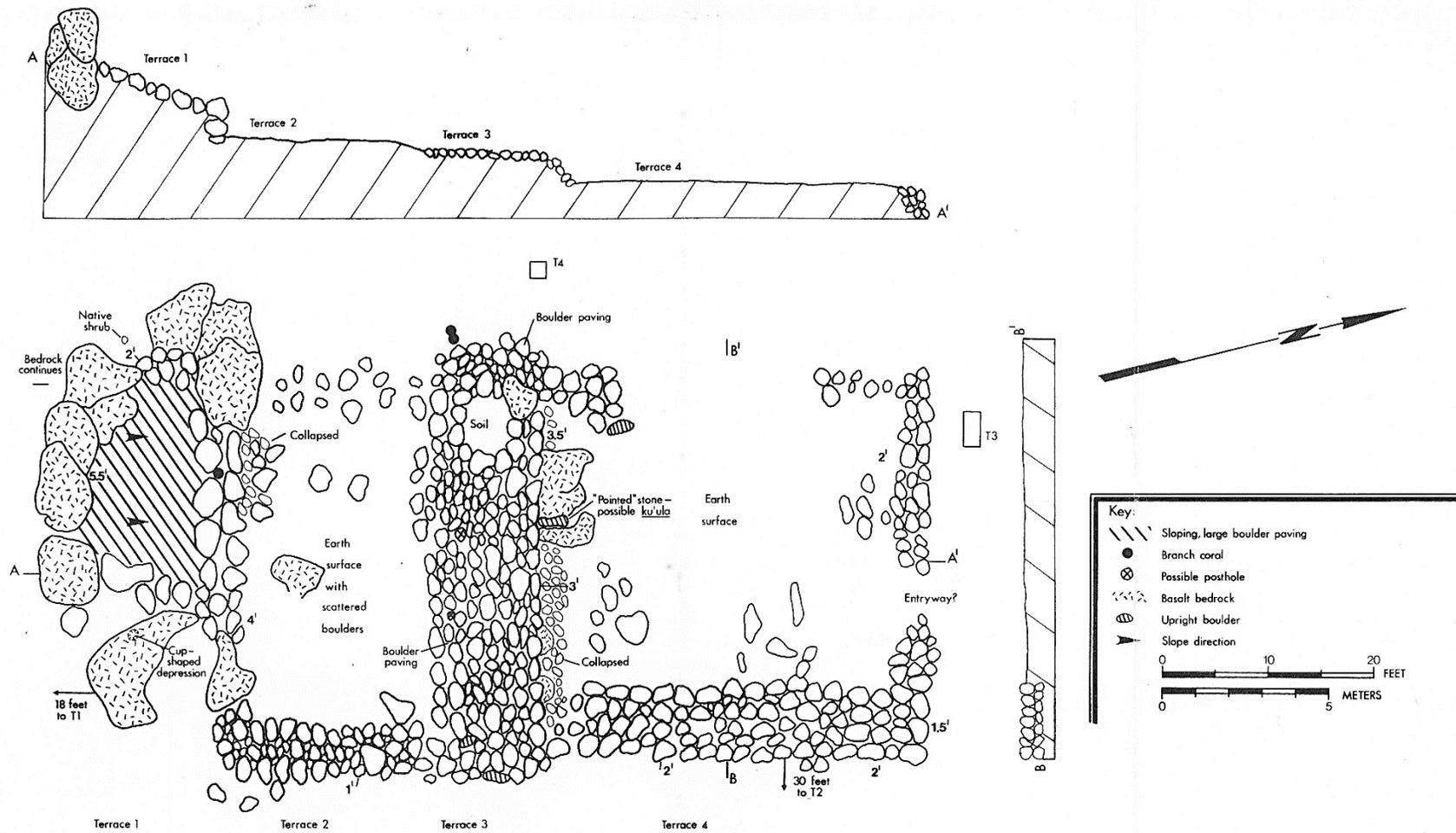


Figure 10. Plan view and cross-section drawings of Moka'ena Heiau (Hammatt and Borthwick 1987:37).

parallels the northern wall of the main heiau structure. No cultural deposits were identified in any of the excavations, although sparse charcoal flecking was noted in the upper 10 cmbs (4 in. below the surface) on the west side of the heiau.

An archaeological inventory survey was carried out for an upgrade of the water distribution system at KPSTS (Jourdane and Dye 2006). This study documented a portion of a previously identified site, SIHP 3719, near Building 20, which is not near the current project area. This site was recorded as two adjacent modern structures. A rock alignment was also found near Building 41 but it was thought to be a modern construction.

An archaeological inventory survey collected data for an updated Integrated Cultural Resources Management Plan (Rasmussen 2007). All archaeological sites within KPSTS were assessed and two new sites were found: Temporary Site 1 is the rock alignment identified by Jourdane and Dye (2006). This was reinterpreted as a possibly pre-contact habitation site or retaining wall. Temporary Site 2 is a World War II gun emplacement that overlooks Keawa'ula. SIHP site numbers were not assigned at the time of the study.

An archaeological inventory survey at KPSTS documented Cold War era resources, including a metal cable tray and two radome buildings, all of which were less than 50 years old at the time of the study (McElroy 2010a). At the request of SHPD, the cable tray was documented with maps and photographs (McElroy 2010b).

Two studies at KPSTS had no findings. These consist of an archaeological inventory survey for a fiber optic corridor that ran from Mokulē'ia to KPSTS (Hammatt et al. 1993) and archaeological monitoring for the construction of an A-Side Remote Block Change Antenna (McElroy 2012).

Summary of Background Information

The project area is located in the Kuaokalā uplands, mostly within Ka'ena Ahupua'a but also extending into Keawa'ula Ahupua'a. Through examination of traditional and historic land use for this region as demonstrated in mo'olelo, historic literature, and archaeological investigations, it is clear that this area was once a land rich in natural, as well as cultural resources. Mo'olelo reveal a place known for its ocean resources, where fishing played an important role in subsistence. But the region was also able to support sweet potato and probably some taro cultivation, which supplemented the marine-based diet. Previous archaeology has identified a variety of archaeological sites in the Kuaokalā region, and Moka'ena Heiau, Site 188, is located within the project area. The structure is known as the heiau of highest elevation on O'ahu. Major changes took place in the post-1778 historic era, as foreign interests began to take hold. Sugarcane, pineapple, and the U.S. military were the key enterprises that shaped the ahupua'a later in time.

Anticipated Findings and Research Questions

Previous archaeological fieldwork within and close to the project area can help inform on the kinds of archaeological resources that may be found. Moka'ena Heiau, Site 188, is known to occur within the project area, and this is the foremost anticipated find. Previous archaeological research nearby has identified both pre- and post-contact archaeological sites, including soil terraces a C-shaped structure, platforms, rock alignments, a possible terrace remnant, World War II gun emplacements, and historic buildings. It is possible that these kinds of archaeological sites will also be found within the project area.

Research questions will broadly address the identification of the above archaeological resources and may become more narrowly focused based on the kinds of resources that are found. Initial research questions are as follows:

1. Are there surface archaeological resources within the survey area that have not been identified by previous surveys? Where are they located and to what time period do they belong?
2. What is the condition of Moka'ena Heiau (Site 188)? Are there any changes to the heiau from earlier studies (McAllister 1933, Hammatt and Borthwick 1987)?

Once these basic questions are answered, additional research questions may be developed in consultation with SHPD, tailored to the specific kinds of archaeological resources that occur in the project area.

METHODS

Pedestrian survey and mapping were carried out between July 6 and 17, 2018. The pedestrian survey was completed by Secretary of the Interior (SOI) qualified archaeologists Joey Condit, MA, Trisha Drennan, MA, Arleen Garcia-Herbst, PhD, Windy McElroy, PhD, and Andrew Mueller, MA. Between three and five archaeologists were present per day, for a total of 23 person-days of survey. The mapping was supervised by Windy McElroy, PhD with assistance of Arleen Garcia-Herbst, PhD, Max Pinsonneault, BA, and Danielle Shemesh, BA. Three archaeologists participated in the mapping each day, for a total of 9 person-days of work. McElroy served as Principal Investigator, overseeing all aspects of the project.

For the pedestrian survey, the ground surface was visually inspected for surface archaeological remains, with transects walked for the entire project area. Archaeologists were spaced approximately 8 m apart. Of the 66.73 ha (164.89 ac.) survey area, 100% was covered on foot. Vegetation was variable, consisting of large tracts of grass pastureland with some areas of taller grass and trees such as koa haole (Figure 11). Transects and archaeological sites were recorded with a 3 m-accurate Garmin GPSmap 62st.

The scale in all field photographs is marked in 10 cm increments. The north arrow on all maps points to magnetic north. Throughout this report rock sizes follow the conventions outlined in *Field Book for Describing and Sampling Soils*: Gravel <7 cm; Cobble 7–25 cm; Stone 25–60 cm; Boulder >60 cm (Schoeneberger et al. 2002:2–35). Two glass bottles were collected and are currently being curated with Keala Pono archaeologist Max Pinsonneault before being returned to the landowner.



Figure 11. Example of densely vegetated survey area on the project's west side. Orientation is to the north.

RESULTS

Pedestrian survey and mapping were conducted in the 66.73 ha (164.89 ac.) project area. Two archaeological sites were found: the previously-recorded Moka'ena Heiau (Site 188) and Pu'u O Pōhaku Hāpaina (Site 50-80-03-8777), formerly labeled as Site TS 1. In addition, two historic bottles were found on the surface, unassociated with either site.

Pedestrian Survey

The surface survey included 100% of the 66.73 ha (164.89 ac.) project area. Visibility was variable in different parts of the project area; the west side consists of portions of tall grass and trees that obscured the ground surface (Figures 12 and 13), while much of the eastern project area is open pastureland vegetated with low grass that offered better visibility. Two archaeological sites were identified during the pedestrian survey, Pu'u O Pōhaku Hāpaina and Moka'ena Heiau (see Figures 12 and 13).

Pu'u O Pōhaku Hāpaina, SIHP 50-80-03-8777

Pu'u O Pōhaku Hāpaina consists of a possible terrace and alignment located 35 m northeast of Building 30 (see Figure 13). The site is 12.8 m by 3.7 m (47.36 m²), incorporating the two identified features and the immediate vicinity that may have been used. The terrace measures 2.7 m long, 3.7 m wide, and 60 cm tall (Figure 14). It is composed of stacked stones and cobbles and is roughly rectangular in plan (Figure 15). The alignment is slightly uphill of the terrace and appears to be aligned with the terrace wall. It measures 1.1 m long, 70 cm wide, and 15 cm tall. It is composed of cobbles that are aligned in roughly a c-shape (Figure 16). Community consultation indicated that Pu'u O Pōhaku Hāpaina is a traditional (pre-contact Hawaiian) site associated with the training of the kahuna class. Archaeologically it is in poor condition and is not well defined, yet it is still culturally important. Preservation of Pu'u O Pōhaku Hāpaina is recommended. In addition, data recovery may take place in the future. Excavation at this site could yield more specific information on the site's function and age. If data recovery is warranted in the future, further community consultation should transpire to reconcile community concerns with the evaluation of the site, and a data recovery plan should be prepared.

No information about site 8777 was found during the literature review for the pedestrian survey (discussed in the Background Research section). However, during MDA's consultation under Section 106 and Chapter 6E Pu'u O Pōhaku Hāpaina was identified as a site associated with Moka'ena Heiau. It was a place where the kāhuna-in-training were tested. A specific test that took place at Pu'u O Pōhaku Hāpaina was the moving of a boulder with one's spiritual power. If the kahuna-in-training was able to do this, then that person was advanced to the next level. This ability was used to construct the Moka'ena Heiau. Mo'olelo shared during consultation point out that both Moka'ena Heiau and Pu'u O Pōhaku Hāpaina serve ceremonial functions. Consultants explained that the mana of the sites extend beyond the architecture and into the surrounding land. As a result, any drilling there would be sacrilegious and unwanted. In addition, the community consultants explained that these two sites along with Kuaokalā Ridge itself and the lands and waters of Ka'ena down below are all part of a connected Traditional Cultural Property (TCP) (see Community Consultation Section).

Moka'ena Heiau, Site 188

Site 188 is Moka'ena Heiau. It is located approximately 65 m northeast of Road C, where there is a bend in the road (see Figure 13). The heiau is a traditional Hawaiian ceremonial site that was previously documented archaeologically, first by McAllister (1933) and then by Hammatt and Borthwick (1987) (see Previous Archaeology section).

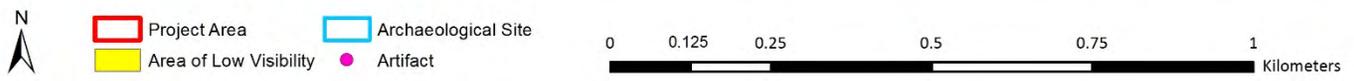
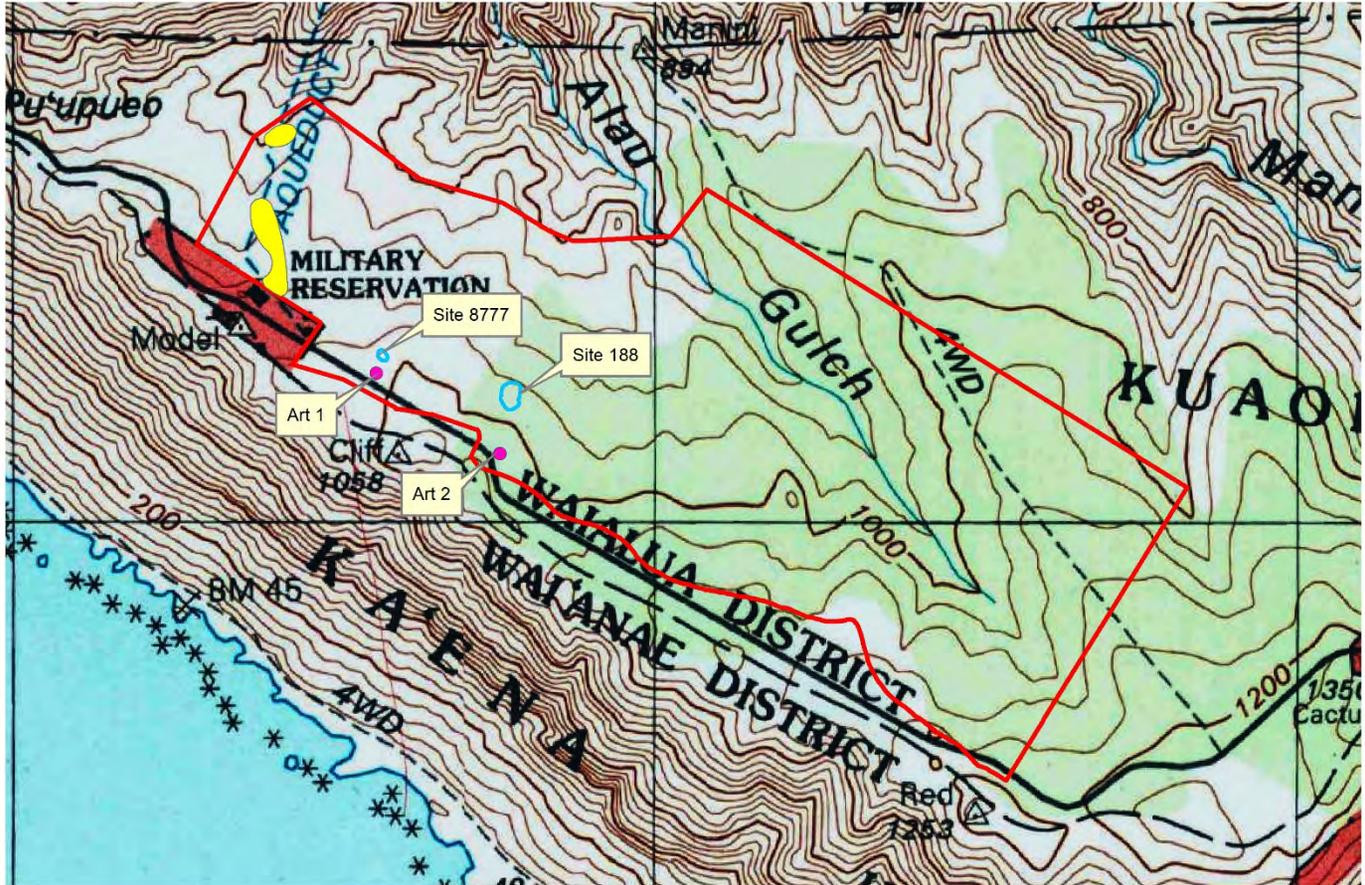


Figure 12. Archaeological sites, artifacts, and areas of low visibility encountered during pedestrian survey on USGS 1998 Kaena Quadrangle.

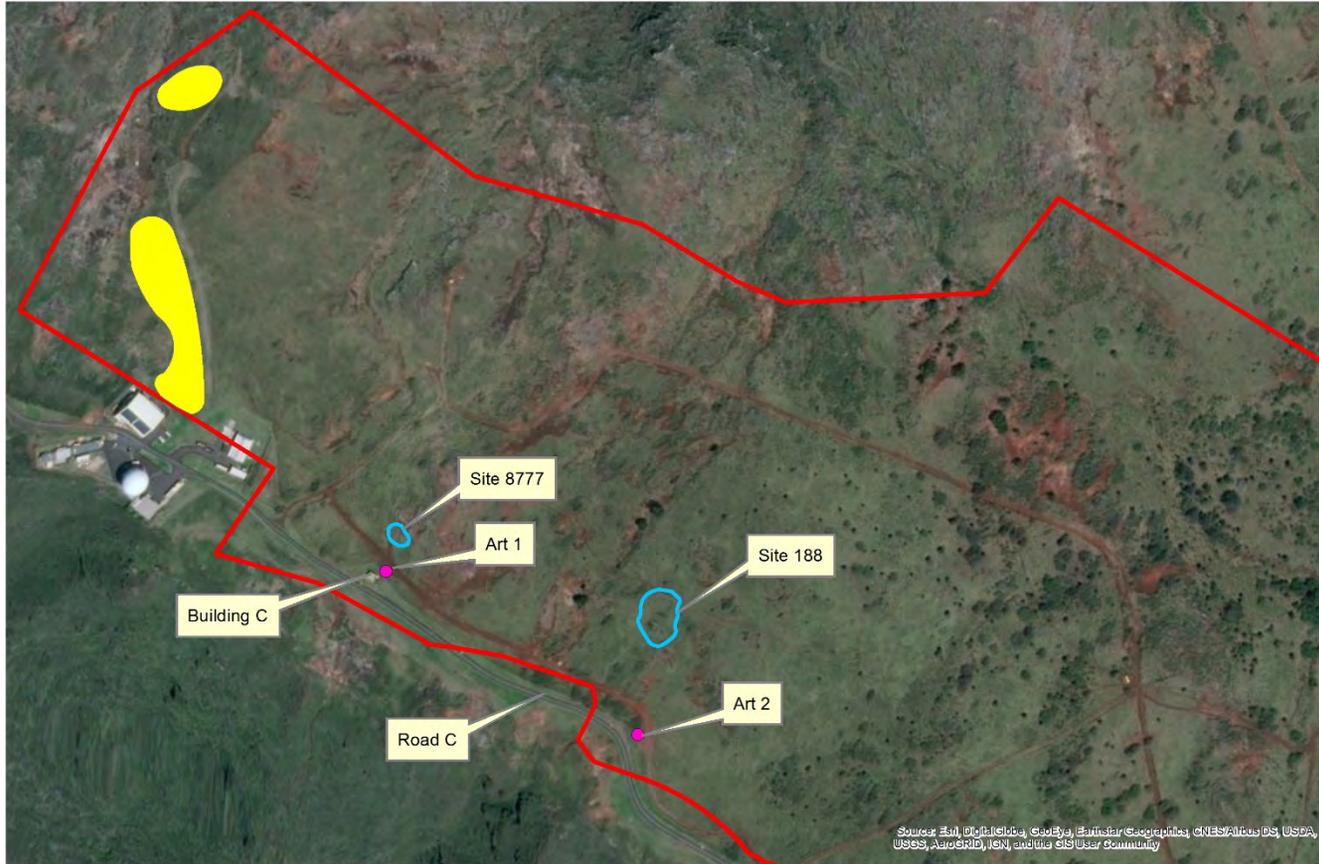


Figure 13. West side of the project area showing archaeological sites, artifacts, areas of low visibility, and landmarks.

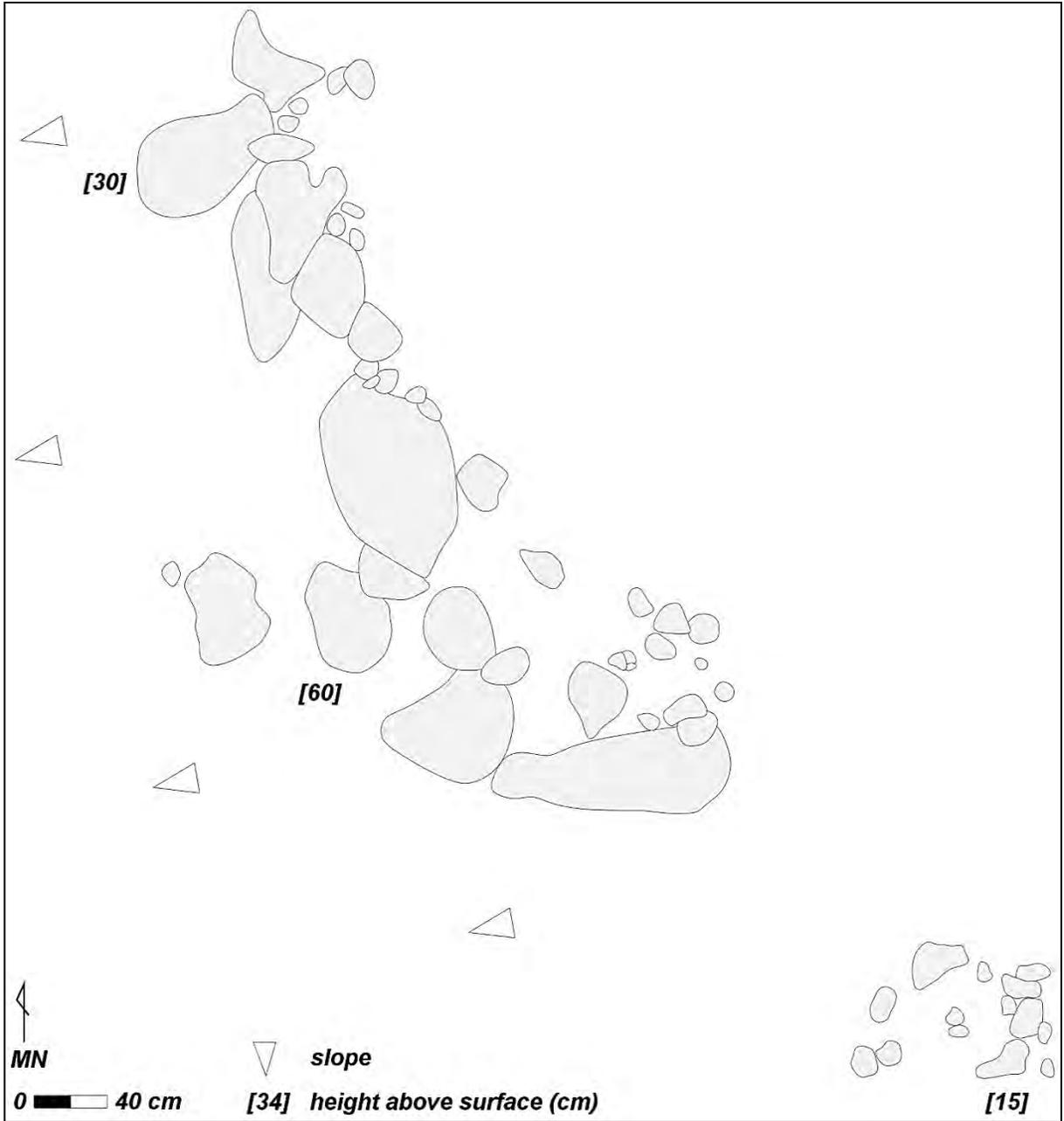


Figure 14. Site 8777 possible terrace and alignment, plan view drawing.



Figure 15. Site 8777 possible terrace, facing southeast.



Figure 16. Site 8777 possible alignment, facing east.

As part of the pedestrian survey and site recording, Keala Pono defined a new site boundary that extends approximately 10 m beyond the physical remains of the heiau, for total site dimensions of 38 m by 22 m (836 m²). The current condition of the heiau is roughly consistent with earlier maps and descriptions. McAllister (1933:127) described the heiau as a “3-division structure” measuring 22.9 by 10.7 m. Hammatt and Borthwick (1987:41) noted “4 distinct terraces” measuring 23.8 m by 10.7 m. The current assessment considers the uppermost boulder area as a terrace and is thus in agreement with Hammatt and Borthwick’s (1987) count of four terraces. Including this boulder area and possible wall fall around the structure, the current measurements are approximately 28 m long and 12 m wide (Figures 17 and 18).

The uppermost terrace is composed mainly of boulders, some of which are piled (Figure 19). The middle two terraces include intact wall faces which are made up of stacked stones and cobbles with a few boulders. The tallest height of the intact facing is 1.2 m. The walls of the lowest terrace are primarily made up of piled stones and cobbles. Several offerings of branch coral were observed within the structure and in a stone-lined pit (Figure 20; see Figure 17), and a possible kū’ula (stone image used to attract fish) is located at the base of one of the walls (Figure 21; see Figure 17). A stone with the appearance of a long face was noted within the third terrace (Figure 22). Hammatt and Borthwick (1987) also observed a row of possible post holes, two inches in diameter each, on the third terrace, but these were not identified in the current survey. The site as a whole is in good condition, with several intact sections as well as some areas where walls have fallen. A significant aspect of this heiau is its viewshed. Situated at 1,200 ft. above sea level, this is the highest documented heiau on O’ahu (McAllister 1933:127), and its position affords sweeping views of the landscape and ocean. There is a prominent large boulder on the ridge to the northeast that may also be associated with the site (visible in Figure 19). The site is currently demarcated by barbed wire fencing that is in disrepair, with damaged sections on the northwest and southeast corners where cattle can enter from adjacent fields (see Figure 17).

During MDA’s consultation under Section 106 and Chapter 6E, Moka’ena Heiau was identified as a Kāne temple built by the earliest population of the area, people of the Indigenous religion, Kānenuiākea, a Native Hawaiian religion recognized by the United Nations International Association for Religious Freedom. This is the same population associated with the Kumu Nui Akea mo’olelo which references Ka’ena Point. In this mo’olelo, the people are referred to as “Menehune,” and they are credited with constructing a kū’ula for the harvesting of the kūmū fish. This is the same population that built four other known heiau on O’ahu, the earliest temples constructed on the island. Those who carry on this religion today request that the Kuaokalā viewshed remains unobstructed because of the importance of observing the path of the sun from the temple. In addition, there are alignments of cultural significance with regard to the traditional sites and natural terrain features and the sun’s path throughout the year, especially during the solstice.

During consultation, Moka’ena was also identified as Moku’ena Heiau, a temple built and used by the ho’okalakupua/kaula class of kāhuna. The translation of this alternate name, Moku’ena is in line with the translation of Ka’ena, as is the name Moka’ena, with the kahakō diacritical mark over the letter “o,” as in Mōka’ena. Additionally, Kuaokalā was identified with the alternate name of Kū’ōkala which refers to the howl, or “kūō,” of the chanting done by the kāhuna at Moku’ena Heiau. This heiau was especially important to the population during the time of Kamehameha I’s impending invasion of Kaua’i. The heiau was used as an observation point and early warning place to notify the people of Kaua’i of Kamehameha’s movement. Following the peace treaty between Kamehameha I and Chief Kaumuali’i of Kaua’i, there was no longer a need to use Moka’ena as a place to sound a warning for the Kaua’i people. Therefore, the heiau was abandoned. This

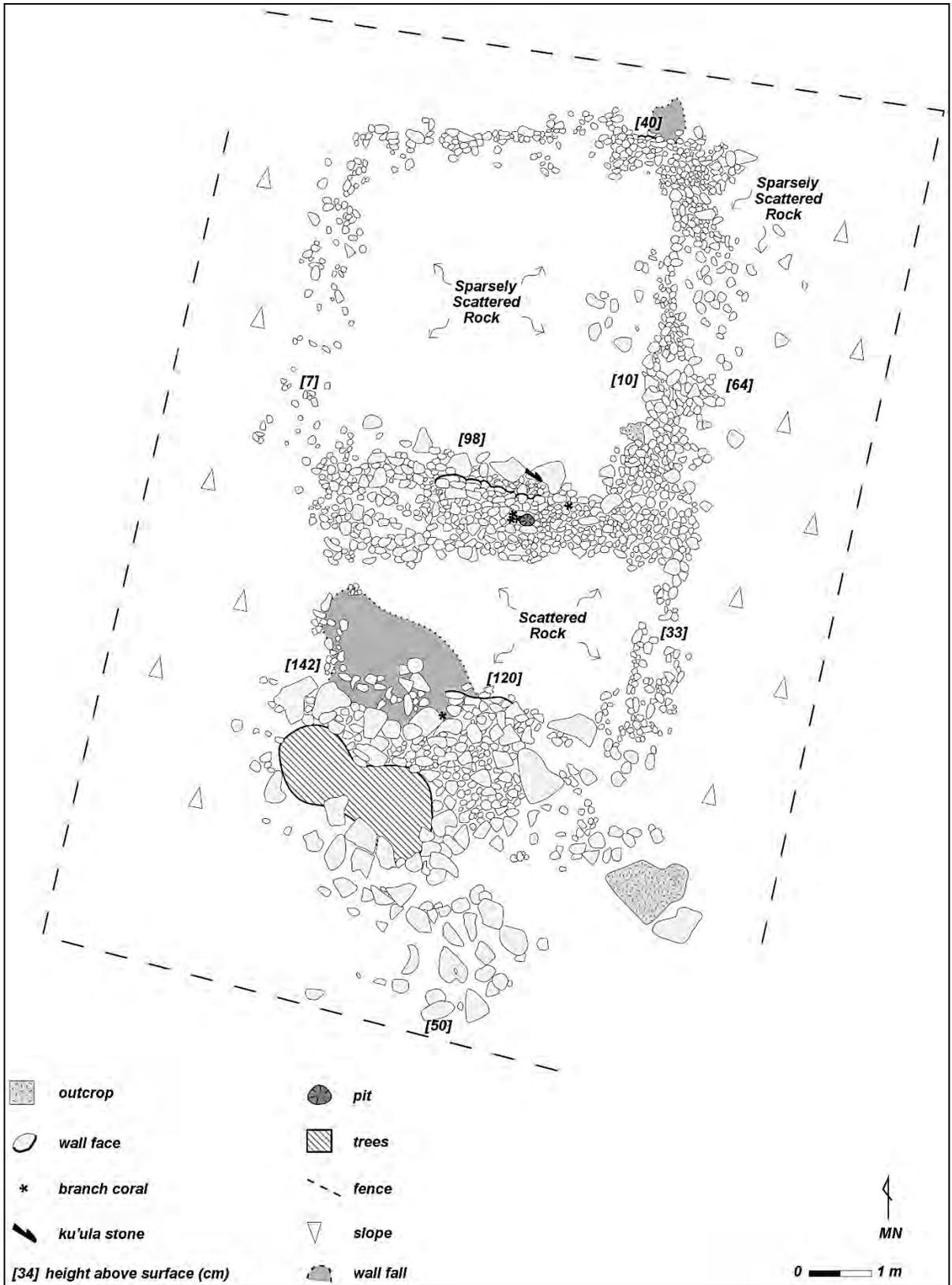


Figure 17. Site 188, Moka'ena Heiau, plan view drawing.



Figure 18. Site 188, Moka'ena Heiau, facing east.



Figure 19. Site 188, Moka'ena Heiau, boulders of uppermost terrace, facing north. Also note the large boulder in the distance which may be of cultural significance.



Figure 20. Site 188, Moka'ena Heiau, stone-lined pit with coral offerings, plan view.



Figure 21. Site 188, Moka'ena Heiau, possible kū'ula stone, plan view.



Figure 22. Site 188, Moka'ena Heiau, stone that resembles a face (long, rectangular lighter colored stone, center of photo).

aforementioned mo'olelo further emphasizes the interconnectedness of the people of the western side of O'ahu with the people of Kaua'i. It includes a reference to the channel between the two islands, Ka'ie'iewaho, whose name refers to the 'ie'ie vine which binds the two peoples together.

It is recommended that Site 188, Moka'ena Heiau, be avoided during any future construction. If construction is to occur in the vicinity, a preservation plan should be completed for the site, with the viewshed of the heiau considered. Although outside the project area, the prominent boulder visible from the heiau should be examined for cultural significance if the heiau's view plane is to be affected. Access should be made available to the heiau for cultural practitioners and other interested community members. The barbed wire fence that surrounds the site is currently in disrepair and should be fixed and maintained to ensure that cattle do not damage the heiau. The fence should also be moved farther away to provide an adequate buffer (see Recommendations of Project Effects and Treatment section). In addition, Site 188, Moka'ena Heiau, should be nominated to both the National and Hawai'i Register of Historic Places.

Laboratory Results

Two whole glass bottles were found on the surface (see Figures 12 and 13). Both items are machine-made soda bottles from the late 1950s or early 1960s (Table 2). Artifact 1 (Art 1) is a hobble-skirt Coca-Cola bottle produced between 1957 and 1961. The label was an Applied Color Label (ACL) but it has been completely worn off. Artifact 2 (Art 2) is a Diamond Head Beverage bottle produced in 1959 by the Maywood Glass Company in Los Angeles, California. The labeling was also ACL but has partially remained visible on the bottle.

Table 2. Artifact Data

Contents	Company	Origin	Date	Glass Color	Glass Type	Height (cm)	Diameter (cm)	Description
Soda	Undetermined	Undetermined	1957–1961	Greenish-Aqua	Container	20	6	Whole Hobble-Skirt Coca-Cola bottle. Embossing on the bottle reads: "CONTENTS 6 1/2 FL. OZS." "REG. U.S. PAT. OFF." and "60 08". On the base, in the center there is a single circle with a wave through the center and an H located above and off center.
Soda	Maywood Glass Co.	Los Angeles, CA	1959	Colorless	Container	20	7	Whole Diamond Head soda bottle. The Diamond Head Beverages label is printed on the front of the bottle's body. On the rear: "DIAMOND HEAD <i>Beverages</i> CONTENTS 7 1/2 FLUID OUNCES BOTTLED BY COCA-COLA BOTTLING OF HONOLULU". On the base: "PRUP OF CG-80 TT. CO. HON. EID." surrounding "8902" over "MG 59" over "13" in the center of the base of the bottle.

Bottles were analyzed by Keala Pono archaeologist Max Pinsonneault, BA, according to the Society for Historic Archaeology Historic Glass Bottle Identification & Information Website published and maintained by Bill Lindsey, formerly of the Bureau of Land Management. Artifact 1 was identified through the iconic hobble-skirt design of Coca-Cola bottles and utilizing Lockhart and Porter's research on the subject (Lockhart and Porter 2010, Porter and Lockhart 2012). Artifact 2 was identified by researching the manufacturer logos upon the base of bottle, along with year of manufacture printed to the left (Koons 2017, Lindsey 2018).

Artifact 1 (1957–1961)

Artifact 1 was found on the surface just northeast of Building 30 (see Figure 13). It is a complete greenish-aqua hobble-skirt Coca-Cola bottle (Figure 23). A horizontal seam separates the heel from the body and two vertical seams run from the heel and up the length of the bottle. There is embossing on the bottle, firstly on opposite sides of the upper body within the labeling nook, reading: "CONTENTS 6 1/2 FL. OZS." and "REG. U.S. PAT. OFF." Secondly, "60 08" is printed horizontally along the maximal lower constriction of the bottle. On the base, in the center there is a single circle with a wave through the center and an H located above and off center.

The dates on this Coca-Cola bottle can be narrowed down to between 1957 and 1961 both by the presence of : "CONTENTS 6 1/2 FL. OZS." Embossed in the label area and the lack of a "BOTTLE TRADE MARK ®" embossed on the base. The former began production in 1957 and continued through the 21st century and the latter was embossed on all Coca-Cola bottles from 1962 onward (Lockhart and Porter 2010, Porter and Lockhart 2012).

Artifact 2 (1959)

Artifact 2 was found on the surface to the north of Road C (see Figure 13). It is a whole colorless Diamond Head soda bottle (Figure 24). A horizontal seam separates the heel and the body of the bottle, and two vertical seams run from the heel up and over the bore of the bottle. The Diamond Head Beverages label is printed on the front of the bottle's body. On the rear are: "DIAMOND HEAD *Beverages* CONTENTS 7 1/2 FLUID OUNCES BOTTLED BY COCA-COLA BOTTLING OF HONOLULU". On the base: "PRUP OF CG-80 TT. CO. HON. EID." surrounding "8902" over "MG (ligature) 59" over "13" in the center of the base of the bottle.

This bottle was produced by the Maywood Glass Company in Los Angeles, California in 1959, as evidenced by the MG ligature commonly used at that time and the standardized date code "59" to the right of the logo (Koons 2017).

Community Consultation

MDA conducted consultation with interested parties under Section 106 of the NHPA and HRS Chapter 6E-42, and information resulting from the consultation has been incorporated into this report. Topics of consultation included the definition of the APE, the identification of historic properties, the evaluation of historic properties, and potential project impacts. MDA's consultation was led primarily by Buff Crosby, Ph.D., MDA's environmental lead for the proposed geotechnical testing undertaking. Dr. Crosby has 25 years of experience managing public lands for multiple benefits including conservation and managing NEPA projects. She has been involved or led federal agency consultations for historic preservation compliance with indigenous communities on projects over the past 15 years. Assisting Dr. Crosby were Shari Clayton Hendrix, Tina Lemmond, and Catherine Spencer, also with MDA/Environmental; and Elizabeth Leclerc and Jeanne Barnes, cultural resource

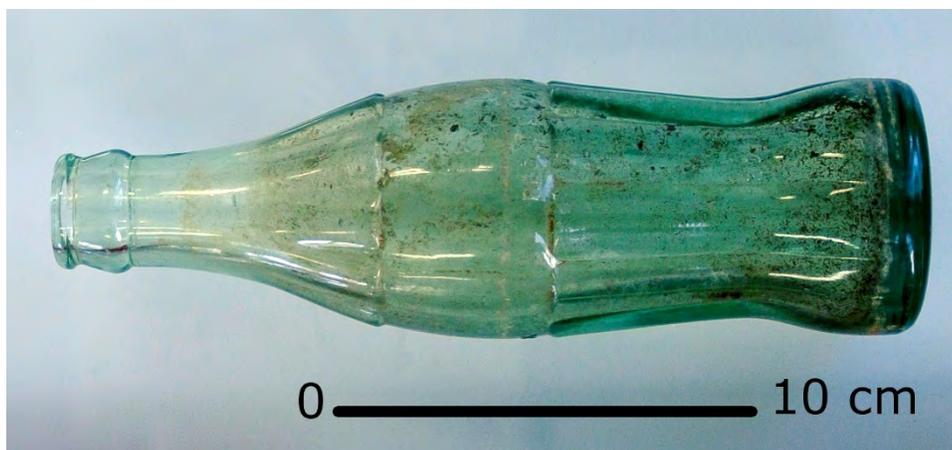


Figure 23. Artifact 1, Coca-Cola bottle, 1957–1961.

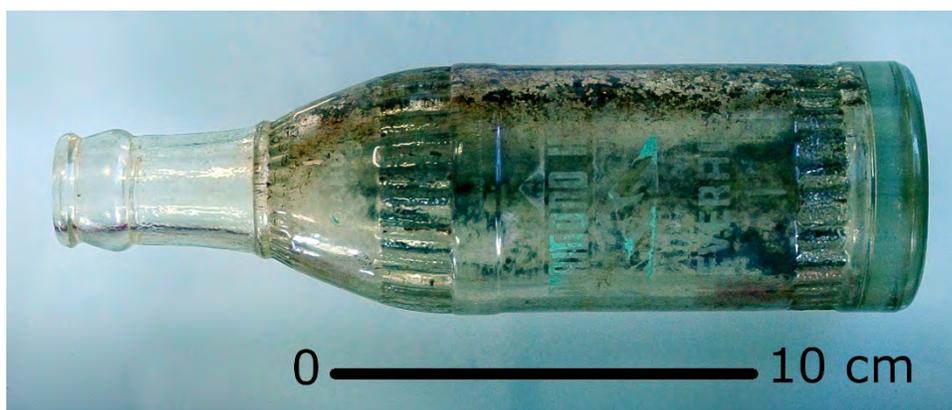


Figure 24. Artifact 2, Diamond Head soda bottle, 1959.

specialists with HDR, Inc. These individuals variously assisted with maintaining contact lists and preparing materials to support the consultation such as information packages, posters, and presentations. In addition to the above, MDA leadership attended consultation meetings held in October 2018, including Admiral Jon Hill, Deputy Director, and Brigadier General Michael Guetlein, Program Director.

Identifying and Contacting Consulting Parties and Knowledgeable Persons

MDA reviewed multiple sources to identify parties that may be interested in and/or knowledgeable of historic properties in the survey area. MDA reviewed the U.S. Department of the Interior’s “Native Hawaiian Organization Notification List,” dated May 14, 2018, as well as a list of NHOs with consultative interests at Ka’ena Point Satellite Tracking Station, as identified through a 2010 NHO outreach and engagement project (HDR/e²M 2010). MDA also identified potentially interested parties from public comments submitted on their Homeland Defense Radar-Hawaii (HDR-H) project, for which one of the alternatives is sited in the project area and is the subject of separate Section 106 and Chapter 6E reviews. During the first comment period, MDA requested consulting parties to identify any additional organizations or individuals that should be included. Between the two comment

periods, MDA expanded the consultation contact list to include new participants from the first comment period and input from the Office of Hawaiian Affairs (OHA). From these sources MDA identified a total of 145 organizations and individuals, including a number of lineal descendants and cultural practitioners knowledgeable of historic properties in the project area (discussed below). A full list of contacted parties and details of their participation in the consultation are contained in a consultation summary report (Leclerc and Barnes 2018). Several individuals participated in the consultation anonymously and included community members with cultural or lineal ties to the APE or general interest in the project.

MDA's consultation consisted of two comment periods held July 16, 2018 to August 3, 2018 and September 21, 2018 to October 24, 2018. Consultation meetings were held in Wai'anae and Wahiawā, with one meeting at each location during each comment period. MDA contacted identified parties through postal mailings, electronic mailings, and telephone calls, based on the availability of contact information for each party. In each mailing and at each meeting, MDA provided information about the project and AIS, and the legal statutes for which the consultation was conducted. MDA invited parties to share information and perspectives about historic properties in the project area, the significance of identified historic properties, and the potential for the geotechnical testing to affect historic properties. The draft AIS report and other documents related to the consultation (such MDA's responses to comments) were shared with consulting parties on MDA's website, www.mda.mil. Consultation meetings were recorded by a stenographer to produce a transcript and record of the comments provided. MDA provided a summary of comments and responses to consulting parties following the first set of consultation meetings. Meeting minutes were provided following the second set of meetings, and comment-response summary will be provided for the second set of meetings upon submittal of this report to the SHPD.

MDA received many verbal and written comments during the comment periods and consultation meetings. The following individuals had lineal ties and/or were particularly knowledgeable about the project area and its historic properties:

- DeMONT Conner, Ho'omana Pono Political Action Committee. Mr. Conner traces his ancestry to the kahuna who built and used the Moka'ena Heiau.
- Noelani DeVincent, Helenihi 'Ohana and Hawaiian Civic Club of Wahiawā. Ms. DeVincent has lineal ties to the Ka'ena Point area and Kuoakalā Ridge.
- Glen Kila, Koa Ike/Koa Mana. Mr. Kila is a cultural practitioner and Kanenuiakea worshipper that has used the Moka'ena Heiau for his religious practices.
- Thomas Shirai, Kawaihapai 'Ohana, whose family is from the Ka'ena Point area.

In addition to the lineal descendants and cultural practitioners listed above, there were a number of participants in the consultation that provided substantive comments on the definition of the undertaking's APE, the identification of historic properties, and impacts of the geotechnical testing. These included individuals involved in local neighborhood boards, civic clubs, and other organizations, including: Thomas Lenchanko, aha kukaniloko koa mana mea ola kanaka mauili; Summer Mullins, formerly part of the Ka'ena Cultural Practice Project; Sharlotte Poe, Chairwoman of the Wai'anae Neighborhood Board; and Cynthia Rezentes, Chairwoman of the Nanakuli-Maili Neighborhood Board. Many others provided comments and/or participated in consultation meetings; however, the many of the comments were outside the scope of historic property identification and evaluation and are not reviewed here. In total, MDA received input from a total of 67 parties.

Information Provided by Consulting Parties

Consulting parties provided information about historic properties in and around the project area, the significance of historic properties; and potential effects from the geotechnical testing undertaking. In

addition to the historic properties identified during the AIS (Pu‘u O Pohaku Hāpaina and Moka‘ena Heiau), the parties discussed properties in the vicinity such as the Ka‘ena cultural complex, Leina a ka ‘uhane, a stone carved with the Helenihi family name, and burial sites. Many of these properties are below the ridge or at Ka‘ena Point, and no additional historic properties were specifically identified in the survey area. While some consulting parties indicated that iwi kupuna are present on Kuoakalā Ridge, none provided specific locations of burial sites, and no burial sites were identified in the project area during the AIS. Consulting parties emphasized the connectedness of Moka‘ena Heiau and Kuaokalā Ridge to the larger landscape, and discussed that Moka‘ena Heiau and TS-1 are part of a TCP or cultural landscape that encompasses the ridge and surrounding area, including Ka‘ena Point. Mokaena Heiau and Pu‘u O Pohaku Hāpaina were the only cultural features of this landscape identified in the project area.

Consulting parties provided information on the origin, function, and significance of sites 188 and 8777. This information, summarized briefly here, was incorporated into the site descriptions above. Mr. Conner shared that his ancestors came from Kaua‘i and built site 188, Moka‘ena Heiau, at the time of Kamehameha I’s conquest. The kahuna used the heiau to send oli over the channel to Kaua‘i and warn of Kamehameha I’s movements. He stated that his family abandoned the heiau after it served its purpose, and was then used by local people for their own purposes. Mr. Shirai discussed the heiau’s purpose as a fishing shrine, and related the heiau to the mo‘olelo of Kumu Nui Akea, which has to do with the Menehune, or at least an earlier population, that harvested the goat fish in the waters there. Mr. Shirai also related the heiau and specifically the kū‘ula found at the heiau to more recent stories of successful fishing exploits around Ka‘ena Point from the twentieth century. Mr. Kila provided information about the heiaus’ significance to traditional and modern religious practice, sharing that the heiau is a temple of Kāne and is used for sun worship. Mr. Kila stated that sightlines to solar paths and other cultural sites on the landscape are an important aspect of the site.

Consulting parties provided less information about Pu‘u O Pohaku Hāpaina. Mr. Shirai commented generally about the site as part of a larger complex of historic properties at Kuoakalā Ridge and Ka‘ena Point. Mr. Conner provided the name of the site, and stated that the rock alignment was formed by kahuna who had to demonstrate their ability to use spiritual power to move rocks before they could advance to a higher class. Only then could they become a true kahuna and be allowed to participate in the construction of Moka‘ena Heiau.

Consulting parties also commented on the definition of the APE; MDA’s proposals to implement protective buffers during testing and conduct archaeological and cultural monitoring; and the potential for the undertaking to affect historic properties. As discussed in the introduction, feedback about the extent of testing activities related to the APE contributed to MDA’s decision to reduce the APE to its present 37.49 ha area. Several consulting parties commented that geotechnical testing would impact the ridge and Moka‘ena Heiau, regardless of the size of the buffer used. Others commented that a 30 m buffer would be sufficient, and still others that a 100 m buffer would be preferred. Consulting parties agreed that archaeological and cultural monitoring would be necessary, and that cultural monitors should be Hawaiian cultural experts, preferably from the local area.

Additional comments of archaeological/cultural interest include the following:

- The entire Kuaokalā Ridge is a culturally sacred area, and drilling into the earth is considered an act of desecration.
- Use ground-penetrating radar instead of drilling for the tests. Return any core samples, after testing, to the area they were taken from.
- Put pollution control barriers around site to prevent washout from drilling, and from future construction, and from possible oil & fuel spills.

- Another proper name of Kuaokalā is Kū'ōkala, and it refers to a “howling” proclamation and the intonations sounded by the kahuna ho'okalakupua/kahuna kaula class of kāhuna.
- Another proper name of Ka'ena Point is Ka Lae O Kalā'au which refers to the male role in creation.
- The Ka'ena Point area is steeped in mo'olelo, including those associated with the hero Maui and especially his attempt to pull together O'ahu and Kaua'i.
- The Leina a ka 'uhane, located at the end of Ka'ena Point is a significant site of the region and should be afforded special consideration, including a separate nomination to the National and Hawai'i Registers of Historic Places.
- Pu'u Pueo is a significant hill toward the end of Ka'ena Point that is associated with owls. One participant pointed out his work with government agencies to re-inter a pueo near Moka'ena Heiau.
- Designate all of Kuaokalā and the Ka'ena lands below as a cultural landscape with significance under criterion E. There is overwhelming significance in the sites on the ridge, the observed path of the sun, the Leina a ka 'uhane, and the kū'ula with its fishing grounds, all of which are connected to the earliest population of the area.
- The channel between Kaua'i and O'ahu was named Ka'ie'ie Waho in reference to the interconnectedness of the two islands and the sea between them.
- Moka'ena Heiau was a site of sun worship (for the Kāne religion); the path of the sun, shadows during solstices, the viewshed to the ocean, and an unobstructed view of the sky are key elements that must be kept intact for cultural purposes.
- Moka'ena Heiau and Pu'u O Pōhaku Hāpaina may have associated subsurface deposits.
- Several participants commented on the integrity of the Moka'ena Heiau. One commenter suggested the current religious integrity of the heiau is unknown and could have been compromised by past activities at the heiau (e.g. activities of the military, or the presence of a woman during menses). Another commenter suggested the heiau's integrity is intact.
- Moka'ena Heiau should be nominated to the National and Hawai'i Registers of Historic Places.
- Another proper name of Moka'ena is Moku'ena, which has a meaning more in line with that of Ka'ena.
- A significant stone with a family name carved into it is located at Kuaokalā
- Site visits should be allowed so that community members can see Moka'ena Heiau and Pu'u O Pōhaku Hāpaina.
- One participant explained that the rock alignment at Pu 'u O Pōhaku Hāpaina is the archaeological evidence of kāhuna demonstrating their ability to move rocks using spiritual power.
- Several participants suggested that burials are present throughout Kuaokalā Ridge to include cave systems which extend from the sides of the ridge to the insides of the ridge; these may be adversely impacted by drilling. Others suggested there is no likelihood for burials in the APE, citing previous surveys and lack of cultural disturbance.

In summary, community consultation conducted by MDA and facilitated by HDR provided further information on Moka'ena Heiau, Pu'u O Pōhaku Hāpaina, and the Ka'ena Point region in general. One community member identified a significant stone; although the community member has not

provided the location of the stone, the context of discussions about the stone suggest it may be located below the ridge near the historic railroad around Ka'ena Point. An ethnographic or TCP study should be undertaken to clarify the traditional associations between cultural resources of Kuaokalā and Ka'ena Point and determine whether the resources comprise a significant TCP. The many other community concerns, questions, and recommendations should also be taken into account, and further consultation should be conducted through all stages of the undertaking.

Summary of Findings

Pedestrian survey conducted on 66.73 ha (164.89 ac.) at Kuaokalā identified two archaeological sites and two isolated artifacts. The sites are Site 50-80-03-8777, Pu'u O Pōhaku Hāpaina; and Site 188, the previously-identified Moka'ena Heiau. The artifacts are both glass bottles that date from 1959 to the early 1960s. The lack of any other historic trash in the area indicates that these artifacts are likely isolated finds and not part of a larger historic midden in the area, and they are not associated with the two archaeological sites.

Community consultation, as conducted by MDA and recorded by HDR, identified several mo'olelo and points of significance for Moka'ena Heiau and Pu'u O Pōhaku Hāpaina. Moka'ena Heiau is a Kāne temple built by the earliest population of the area, people of the indigenous religion Kānenuiākea, a Native Hawaiian religion recognized by the United Nations International Association for Religious Freedom. Those who carry on this religion today request that the Kuaokalā viewshed remain unobstructed because of the importance of observing the path of the sun from the temple. In addition, there are alignments of cultural significance with regard to traditional sites and natural terrain features and the sun's path throughout the year.

Moka'ena was also identified as Moku'ena Heiau, a temple built and used by the ho'okalakupua/kaula class of kāhuna. The translation of this alternate name, Moku'ena is in line with the translation of Ka'ena, as is the name Moka'ena, with the kahakō diacritical mark over the letter "o," as in Mōka'ena. Additionally, Kuaokalā was identified with the alternate name of Kū'ōkala which refers to the howl, or "kūō," of the chanting done by the kāhuna at Moku'ena Heiau. This heiau was especially important to the population during the time of Kamehameha I's impending invasion of Kaua'i. The heiau was used as an observation point and early warning place to notify the people of Kaua'i of Kamehameha's movement. This corresponding mo'olelo further emphasizes the interconnectedness of the people of the western side of O'ahu with the people of Kaua'i. It includes a reference to the channel between the two islands, Ka'ie'iewaho, whose name refers to the 'ie'ie vine which binds the two peoples together.

Pu'u O Pōhaku Hāpaina was identified as a place associated with Moku'ena Heiau. It was a site where the kāhuna-in-training were tested. A specific test that took place at Pu'u O Pōhaku Hāpaina was the moving of a boulder with one's spiritual power. If the kahuna-in-training was able to do this, then that person was advanced to the next level.

All of the relevant mo'olelo point out that both Moka'ena Heiau and Pu'u O Pōhaku Hāpaina serve ceremonial functions. Consultants explained that the mana of the sites extend beyond the architecture and into the surrounding land. As a result, any drilling there would be sacrilegious and unwanted.

One additional potential historic property which was identified during consultation was a carved stone. The consulting party has not provided specific location information. However, from the context of discussion it seems the stone may be located near the historic railroad around Ka'ena Point. The stone was not observed during the pedestrian survey.

NRHP EVALUATIONS AND SIGNIFICANCE ASSESSMENTS

The two sites identified during the pedestrian survey, Site 8777 and Site 188, were evaluated in accordance with Section 106 of the NHPA and HRS Chapter 6E-42 (HAR 13-284-6). Assessments for each site are presented separately under the corresponding legal authorities. The Section 106 and Chapter 6E criteria of significance are similar; therefore, the recommendations are similar under both analyses. Site 8777, Pu‘u O Pohaku Hāpaina, needs additional data to determine eligibility for NRHP listing. The site is recommended significant under Criterion “e” under Chapter 6E. Site 188, Moka‘ena Heiau, is recommended eligible for NRHP listing under Criteria A and D. Under Chapter 6E the site is recommended significant under Criteria “a”, “d”, and “e”.

Section 106 of the NHPA

Each site addressed during this survey was evaluated or updated in regards to NRHP eligibility. The development of NRHP eligibility recommendations followed the NRHP criteria set forth in 36 CFR Part 60.4 and National Park Service National Register Bulletin 15, How to Apply the National Register Criteria for Evaluation. The eligibility recommendations under Section 106 of the NHPA are summarized in Table 3.

Table 3. Recommendations for NRHP Eligibility

Site	Description	Function	NRHP Criteria	Justification
8777	Rock Alignment and Possible Terrace (Pu‘u O Pohaku Hāpaina)	Ceremonial /Religious	Needs Data	Additional information is needed to establish significance and eligibility under Criterion A and D. Data gathered does not indicate eligibility under Criteria B or C.
188	Moka‘ena Heiau	Ceremonial /Religious	A, D	Property of traditional religious and cultural significance associated with defensive strategies of resistance to Kamehameha I’s conquest; and productive fishing around Ka‘ena Point. May yield information important to the study of history/prehistory.

To be considered eligible for listing in the NRHP, a cultural resource must meet at least one of the four following criteria of significance:

- A. The resource is associated with events that have made a significant contribution to the broad pattern of history.
- B. The resource is associated with the lives of people significant in the past.
- C. The resource embodies distinctive characteristics of a type, period, or method of construction; represents the work of a master; possesses high artistic value; or represents a significant and distinguishable entity whose components may lack individual distinction.
- D. The resource has yielded, or may be likely to yield, information important in prehistory or history.

A cultural resource must possess historic integrity to be eligible for NRHP listing. Integrity is defined as the authenticity of a property’s historic identity, as evidenced by the survival of physical characteristics it possessed in the past, and its capacity to convey information about a culture or people, historic patterns, or architectural or engineering design or technology. The aspects of integrity are: location, design, setting, materials, workmanship, feeling, and association. Location refers to the place where an event occurred or a property was constructed. Design considers elements such as plan, form, and style of a property. Setting is the physical environment of the property. Materials refer to

the physical elements used to construct the property. Workmanship refers to the craftsmanship of the creators of a property. Feeling is the property's ability to convey its historic time and place. Association refers to the link between the property and a historic event or person.

SIHP 8777, Pu'u O Pōhaku Hāpaina

Additional data is needed to evaluate the significance of Pu'u O Pohaku Hāpaina and its eligibility for NRHP listing. Oral history shared during consultation indicates the site may be eligible under Criterion A due to associations with the traditional practices and training of the kahuna class and with construction of Moka'ena Heiau. However, more ethnographic work is needed to understand the site's historic context(s) for evaluating significance. For example, is the property potentially important in a local context or perhaps a more regional or state-wide context? Are there similar properties in this geographic area, or is the site unique? More work is also needed to clarify whether the site is significantly associated with an important event, series of events, or historic trend within its historic context(s) to establish significance under Criterion A. For example, was the training of kahuna at the site significant to the overall development and identity of the kahuna class? As discussed below, Moka'ena Heiau is significant in part for association with Kamehameha's attempted invasions of and subsequent peace treaty with the Kingdom of Kaua'i. However, it is unclear whether the role of Pu'u O Pohaku Hāpaina in the construction of Moka'ena Heiau is also significant within this context. If available, additional ethnographic work should clarify whether Pu'u O Pohaku Hāpaina was a significant place for the tests and demonstrations that occurred there.

Additional data is also needed to evaluate the site's significance under Criterion D. Although there were no observable archaeological deposits on the ground surface at the site, it is possible that subsurface deposits may be present. Archaeological testing may help determine the age and function of Pu'u O Pohaku Hāpaina and would be needed to determine whether intact and significant subsurface deposits are present that could yield important information. However, archaeological investigation may be incompatible with the site's traditional significance, if established under Criterion A. If the site is determined eligible under Criterion A, then it would not be necessary to also establish significance under Criterion D. If archaeological testing is warranted, for example if ground disturbance were ever proposed within the site boundary, then additional consultation would be needed to determine if archaeological testing would be appropriate and to develop a testing plan. Data gathered during the AIS and consultation does not support eligibility under Criteria B or C.

Pu'u O Pohaku Hāpaina has integrity of location, setting, and feeling. The site is near, and within view of, modern construction at KPSTS, including a radome and associated buildings. However, most of the area surrounding the site is undeveloped and the historic and culturally significant aspects of setting and feeling remain intact. Integrity of association varies depending on the criteria for significance. With regard to Criterion A, oral traditions associate the site with traditional practices of the kahuna class and Moka'ena Heiau, which is geographically nearby (200 m east-southeast). However, integrity of association with regard to archaeological features and deposits remains unclear. The site appears to have poor integrity of materials, workmanship, and design; the terrace and alignment features are poorly defined. Further ethnographic and archaeological study may provide new information regarding historic integrity.

SIHP 188, Moka'ena Heiau

Moka'ena Heiau is recommended eligible for NRHP listing under Criteria A and D. As related through oral history described in the Results section, the heiau is a property of traditional religious and cultural importance to native Hawaiians. During consultation, Moka'ena Heiau was identified as a Kāne temple built by the earliest population of the area, referred to by some as "Menehune". This is the same population that built four other known heiau on O'ahu, the earliest temples constructed on

the island, of which Moka'ena Heiau is the highest. The population is also associated with the Kumu Nui Akea mo'olelo which references Ka'ena Point. In this mo'olelo, the Menehune are credited with constructing a kū'ula for the harvesting of the kūmū fish. During consultation, a lineal descendant of Ka'ena Ahupua'a specifically linked the possible kū'ula identified at Moka'ena Heiau with the Kumu Nui Akea mo'olelo and with the productivity of the region's fishing more generally, both past and present.

Cultural practitioners shared that the heiau was, and still is, used by people of the indigenous religion, Kānenuiākea, a Native Hawaiian religion recognized by the United Nations International Association for Religious Freedom. One consulting party stated that they continue to practice at that heiau today, whereas another stated he frequently practiced at the heiau until ten or twenty years ago, but was unable to return to the heiau since then. The consulting parties stated that the viewshed is an integral part of the heiau, in part because of the importance of observing the path of the sun from the temple and also because of visual alignments of cultural significance to traditional sites and natural terrain features from the heiau. The sun's path throughout the year across the viewshed from the heiau is also important, especially during the solstice. Other consulting parties pointed out that mana imbued in the landscape by the builders and past users at the heiau is an important characteristic of the heiau.

Moka'ena was also identified as Moku'ena Heiau during consultation, a temple built and used by the ho'okalakupua/kaula class of kāhuna. This heiau was especially important to the population during the time of Kamehameha I's impending invasion of Kaua'i. The heiau was used as an observation point and early warning place to notify the people of Kaua'i of Kamehameha's movement. Following the peace treaty between Kamehameha I and Chief Kaumuali'i of Kaua'i, there was no longer a need to use Moka'ena as a place to sound a warning for the Kaua'i people. Therefore, the heiau was abandoned. This aforementioned mo'olelo further emphasizes the interconnectedness of the people of the western side of O'ahu with the people of Kaua'i. It includes a reference to the channel between the two islands, Ka'ie'iewaho, whose name refers to the 'ie'ie vine which binds the two peoples together.

Based on oral history and as expressed by consulting parties, the heiau is significant under Criterion A for its association with Kamehameha I's failed attempt to conquer and eventual peace treaty with the people of the Kaua'i kingdom. The heiau is also eligible under Criterion A due to significant association with the earliest population of the area and the development of the area around Ka'ena as productive fishing grounds, particularly for the kūmū fish. Ka'ena and Ka'ie'iewaho have been important fishing areas for O'ahu from pre-contact to present. A third aspect of significance under Criterion A is the heiau's association with Hawaiian religious practice that still occurs at the heiau today, including the practice of the Kānenuiākea religion.

The heiau also has potential for intact archaeological deposits as demonstrated during previous subsurface testing at the heiau, as described under the section Previous Archaeology. That work, conducted in 1987, identified a buried rock alignment or paving. Although no artifacts were identified in the test units, the presence of the buried cultural surface indicates that intact archaeological deposits may be present around the heiau. Data from Moka'ena Heiau may address research questions related to indigenous religious practices and heiau architecture. Site 188 is not eligible under Criteria B and C.

Moka'ena Heiau retains historic integrity sufficient to support eligibility under both Criteria A and D. The heiau has excellent integrity of location and setting. There is very little modern development within view of the heiau and viewsheds are largely unobstructed. The only development visible within a mile of the heiau consists of radomes and buildings at KPSTS approximately 1 mi (1.6 km) east-southeast. The viewshed, particularly to the north and east, and the spiritual mana imbued in the ridge are important qualities of the site's setting. The heiau has moderate to good integrity of materials, workmanship, and design. Materials to construct the heiau are original and mostly intact. Although

some of the terrace edges have collapsed and been disturbed by cattle trampling, the arrangement of spaces and construction evident in the remaining walls and terraces retain historic integrity. The heiau has excellent integrity of association based on the scope and detail provided by multiple oral accounts recorded during consultation. Overall, the heiau has excellent integrity of feeling. The heiau is mostly intact, save for some damage from cattle grazing, and has sweeping, unaltered views of Kuoakalā Ridge, the sky, and the ocean.

HRS Chapter 6E-42 (HAR 13-284-6)

Significance assessments for sites 8777 and 188 were conducted following the criteria established at HAR 13-284-6 and are summarized in Table 4. The first four criteria of significance are similar to the NRHP criteria set forth in 36 CFR 60.4 reviewed above. However, the regulations also establish a fifth criteria, Criterion “e” related to a site’s traditional value. The criteria of significance under HAR 13-284-6 are provided below.

Table 4. Significance Assessments under HRS Chapter 6E

Site	Description	Function	Criteria	Justification	Recommended Mitigation Commitments
8777	Possible Terrace	Ceremonial/Religious	E	Associated with an important event, may yield further information, culturally important.	Preservation
188	Moka’ena Heiau	Ceremonial/Religious	A, D, E	Associated with an important event, may yield further information, culturally important.	Preservation

To be significant, a historic property shall possess integrity of location, design, setting, materials, workmanship, feeling, and association and shall meet one or more of the following criteria:

- (1) Criterion “a”. Be associated with events that have made important contribution to the broad patterns of our history;
- (2) Criterion “b”. Be associated with the lives of persons important in our past;
- (3) Criterion “c”. Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value;
- (4) Criterion “d”. Have yielded, or is likely to yield, information important for research on prehistory or history;
- (5) Criterion “e”. Have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts – these associations being important to the group’s history and cultural identity. (HAR 13-284-6(b))

SIHP 8777, Pu’u O Pōhaku Hāpaina

As with the NRHP evaluation discussed above, additional information is needed to establish the significance of Pu’u O Pohaku Hāpaina under Criteria “a” and “d”. Oral traditions suggest the site is associated with traditional practices of the kahuna class, but additional ethnographic study is needed to determine if the activities performed at Pu’u O Pohaku Hāpaina contributed significantly to the broad patterns of Hawaiian history (Criterion “a”). Surface observations at the site were inconclusive

regarding the site's potential to yield data important to the study of prehistory or history, and additional archaeological testing would be needed to establish significance under Criterion "d". However, as noted above under the NRHP evaluation, additional consultation would be needed to determine if such testing would be appropriate and to develop a testing plan.

Pu'u O Pohaku Hāpaina is recommended significant under Criterion "e." The site is associated with traditional beliefs and oral accounts related to the kahuna class, which are important to native Hawaiian history and cultural identity. As described previously, oral history shared during consultation describes that the site was a place where kahuna were tested in order to advance to the next level. The site is also associated through oral history with the construction of Moka'ena Heiau, as kahuna had to demonstrate their ability to use their spiritual power to move pohaku before they could participate in the construction of the heiau. Additional significant cultural associations may be established with additional ethnographic study and consultation.

Pu'u O Pohaku Hāpaina retains sufficient historic integrity to support significance under Criterion "e", including integrity of location, setting, association, and feeling. Although the site does not have good integrity of materials, design, or workmanship, these aspects of integrity are not essential to convey the site's historic significance related traditional beliefs and oral accounts important to native Hawaiian culture.

SIHP 188, Moka'ena Heiau

Moka'ena Heiau is recommended significant under Criteria "a", "d", and "e". Significance under Criteria "a" and "d" is the same as described under the NRHP evaluation above. The site is associated with Kamehameha I's failed attempt to conquer and eventual peace treaty with the people of the Kaua'i kingdom; with development of the area around Ka'ena as productive fishing grounds; and with Hawaiian religious practice that still occurs at the heiau today, including the practice of the Kānenuiākea religion. The site also has potential for intact archaeological deposits that would be likely to yield information important to the study of prehistory or history.

Moka'ena Heiau is recommended significant under Criterion "e" for many of the same reasons as Criterion "a". The heiau is a wahi pana connected through cultural belief with the surrounding landscape. These connections are reinforced through naming of the heiau and the ridge. The translation of an alternate name provided for the heiau, Moku'ena, is in line with the translation of Ka'ena, as is the name Moka'ena, with the kahakō diacritical mark over the letter "o," as in Mōka'ena. Additionally, Kuaokalā was identified with the alternate name of Kū'ōkala which refers to the howl, or "kūō," of the chanting done by the kāhuna at Moku'ena Heiau. The heiau is associated with historic events and oral accounts related to Kamehameha I's unification of the Hawaiian islands, a pivotal period in Hawai'i's history and cultural identity. The heiau is also associated through belief and oral history with the first people of this area of O'ahu, and with religious and cultural practices related to fishing, which remains an important subsistence and economic activity in Ka'ena and Keawa'ula Ahupua'a. As a temple of Kāne, the heiau is significant to the beliefs and practices of the Kānenuiākea religion.

As described under the NRHP evaluation above, Moka'ena Heiau retains excellent integrity of location, setting, feeling, and association and moderate to good integrity of materials, design, and workmanship. The site has sufficient integrity to support significance under Criteria "a", "d", and "e".

SUMMARY AND CONCLUSION

A pedestrian survey was conducted in support of geotechnical testing at Kuaokalā in Ka'ena and Keawa'ula Ahupua'a, Waialua and Wai'anae District, on the island of O'ahu. The project area covered 66.73 ha (164.89 ac.) of TMK: (1) 6-9-003:001 and (1) 8-1-001:014. Two archaeological sites were identified (see Table 3) and two historic bottles were collected that were not associated with the sites. The sites consist of Site 8777, a possible terrace; and Site 188, the previously-recorded Moka'ena Heiau. Site 8777 needs additional data to establish NRHP eligibility while Site 188 is recommended eligible. Under Chapter 6E, both sites are recommended significant and eligible for inclusion in the HRHP.

Recommendations of Project Effects and Treatment

MDA has committed to install temporary buffers around the two identified sites and avoid geotechnical testing activities within at least 30 m of the sites (Figure 25). However, it is recommended the project will still have adverse effects on site 188, Moka'ena Heiau, and on site 8777, Pu'u O Pōhaku Hāpaina, because the testing will damage the mana of the area, which is a contributing quality of these sites. As such, an "adverse effect" determination is recommended under Section 106 and an "effect with agreed upon mitigation commitments" determination is recommended under Chapter 6E-42. Preservation is the recommended mitigation commitment, as noted in Table 4.

If possible, ground penetrating radar should be used to test the land instead of boring. Should geotechnical testing go forward, an archaeological monitoring plan, allowing for both archaeological monitors and cultural monitors, should be accepted by the SHPD in advance. The plan should outline temporary preservation measures that will be implemented during the geotechnical testing. In addition, any boring samples taken out of the ground should be returned to the same location after the testing is complete. It is important to educate the testing team on the location of the sites and their significance and to install temporary buffers around the sites to ensure that they will not be disturbed. During consultation for the undertaking, community members indicated the two sites are part of a larger TCP that incorporates other culturally significant sites and places in Kuaokala Ridge and Ka'ena landscape. It is recommended a TCP study be completed to document this TCP and evaluate it for NRHP and HRHP eligibility. Additional site-specific treatment measures are discussed below.

Pu'u O Pōhaku Hāpaina, Site 50-80-03-8777

The site is currently recommended for preservation; however further work is also needed to establish eligibility for NRHP listing under Section 106. Additional ethnographic study may yield additional information relative to Criteria A and D (and Criteria "a, d, and e" under Chapter 6E) and, if appropriate, archaeological testing would be needed to determine if there are intact archaeological deposits at the site. If such testing identifies significant archaeological deposits, then data recovery may be warranted in the future.

It is recommended that Pu'u O Pōhaku Hāpaina be avoided during any future construction. However, if construction is to occur in the vicinity, a preservation plan should be completed for the site. During geotechnical testing at Kuaokalā Ridge, the sites' buffer zone should be marked with orange construction fencing, and no ground disturbance allowed within the fence. Access to the site should be maintained for cultural practitioners and other interested community members. Along with Moka'ena Heiau, Pu'u O Pōhaku Hāpaina should be nominated to the Hawai'i Register of Historic Places. If data recovery is warranted in the future, further community consultation should transpire to reconcile community concerns with the evaluation of the site, and a data recovery plan should be prepared.

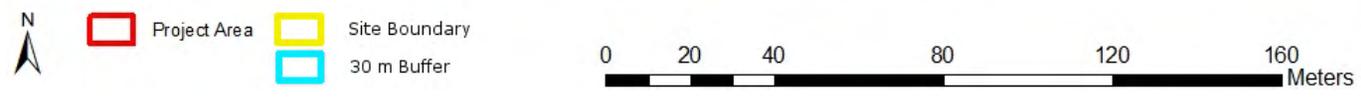


Figure 25. Proposed 30 m avoidance buffers for Pu‘u O Pōhaku Hāpaina (Site 8777) and Moka‘ena Heiau (188) showing mapped features and site boundaries.

Moka'ena Heiau, Site 188

It is recommended that Site 188, Moka'ena Heiau, be avoided during any future construction. During geotechnical testing at Kuaokalā Ridge, the 30 m buffer zone around the site boundary should be marked with orange construction fencing, and no ground disturbance allowed within the fence. If future construction is to occur in the vicinity, a preservation plan should be completed for the site, with the viewshed of the heiau considered as explained above. Although outside the project area, the prominent boulder visible from the heiau should be examined for cultural significance if the heiau's view plane is to be affected. Access to the heiau should be maintained for cultural practitioners and other interested community members. The barbed wire fence that surrounds the site is currently in disrepair and should be fixed and maintained to ensure that cattle do not damage the heiau. The fence does not reflect the larger, revised site boundary, and should be moved farther away to provide an adequate buffer. In addition, Site 188, Moka'ena Heiau, should be nominated to both the National and Hawai'i Register of Historic Places as discussed above. It is the highest elevation heiau on the island of O'ahu and is exceptionally important to the Hawaiian community.

Conclusion

A pedestrian survey was conducted in support of geotechnical testing at Kuaokalā in Ka'ena and Keawa'ula Ahupua'a, Waialua and Wai'anae District, on the island of O'ahu. The project area covered 66.73 ha (164.89 ac.) of TMK: (1) 6-9-003:001 and (1) 8-1-001:014. Two archaeological sites were identified and two historic bottles were collected that were not associated with the sites. The sites consist of Site 50-80-03-8777, Pu'u O Pōhaku Hāpaina; and Site 188, the previously-recorded Moka'ena Heiau. Additional data is needed for Site 8777 to determine the site's eligibility for listing in the NRHP. Site 188 is recommended eligible for NRHP listing and the site is also recommended for nomination. Under Chapter 6E, both sites are recommended significant and eligible for inclusion in the HRHP. Site 188 and Site 8777 are also recommended for nomination to the HRHP.

Furthermore, both sites are recommended to be included in a Traditional Cultural Property (TCP) Study that addresses not only the two sites, but also the surrounding Kuaokalā Ridge and the lands and possibly the nearshore waters of Ka'ena below. If a TCP is defined through that study, it should be evaluated for eligibility to the NRHP and HRHP.

GLOSSARY

‘ahi	Tuna fish, such as the yellow-fin tuna (<i>Thunnus albacares</i>).
ahupua‘a	Traditional Hawaiian land division usually extending from the uplands to the sea.
aku	The bonito or skipjack (<i>Katsuwonus pelamis</i>), a prized eating fish.
ali‘i	Chief, chiefess, monarch.
ali‘i ‘ai moku	Chief of a district.
‘aumakua	Family or personal gods. The plural form of the word is ‘aumākua.
he‘e	Octopus (<i>Polypus</i> sp.).
heiau	Place of worship and ritual in traditional Hawai‘i.
hoa‘āina	Native tenants that worked the land.
‘ie‘ie	The vine <i>Freycinetia arborea</i> , an endemic, woody branching climber that grows at altitudes of 300–600 m. In ancient Hawai‘i, vines were considered sacred and used in basketry and for ceremonial purposes.
Kahiki	A far away land, sometimes refers to Tahiti.
ko‘a	Fishing shrine.
koa haole	The small tree <i>Leucaena glauca</i> , historically-introduced to Hawai‘i.
koa‘e	The tropic bird, particularly the white-tailed variety (<i>Phaethon lepturus dorotheae</i>). Tropic birds tend to inhabit cliffs on high islands.
kuhina nui	Prime minister or premier. Ka‘ahumanu was the first kuhina nui. The position was abolished in 1864.
kuleana	Right, title, property, portion, responsibility, jurisdiction, authority, interest, claim, ownership.
kūmū	The adult goatfish <i>Parupeneus porphyreus</i> .
kupua	Demigod, hero, or supernatural being below the level of a full-fledged deity.
kū‘ula	A stone god used to attract fish, an altar near the sea, or a hut where fishing gear was kept with kū‘ula images to invoke their power.
leina	To leap or spring. Leina ka ‘uhane or leina a ke akua were places where spirits leapt into the nether world.
Māhele	The 1848 division of land.
manini	The surgeonfish <i>Acanthurus triostegus</i> , common in Hawaiian waters.
maka‘āinana	Common people, or populace; translates to “people that attend the land.”
makai	Toward the sea.
mauka	Inland, upland, toward the mountain.
mele	Song, chant, or poem.
mō‘ī	King.
moku	District, island.
mo‘olelo	A story, myth, history, tradition, legend, or record.

mūhe‘e	The cuttlefish <i>Sepioteuthis arctipinnis</i> ; also the name of the pearl shell fishing lure; perhaps named for its color-changing abilities reminiscent of the cuttlefish.
‘ōlelo no‘eau	Proverb, wise saying, traditional saying.
oli	Chant.
pa‘akai	Salt.
pōhaku	Rock, stone.
post-contact	After A.D. 1778 and the first written records of the Hawaiian Islands made by Captain James Cook and his crew.
pre-contact	Prior to A.D. 1778 and the first written records of the Hawaiian Islands made by Captain James Cook and his crew.
pueo	The Hawaiian short-eared owl, <i>Asio flammeus sandwichensis</i> , a common ‘aumakua.
sugarcane	The Polynesian-introduced <i>Saccharum officinarum</i> , or kō, a large grass traditionally used as a sweetener and for black dye.
‘uala	The sweet potato, or <i>Ipomoea batatas</i> , a Polynesian introduction.
‘ua‘u	<i>Pterodroma phaeopygia</i> , known commonly as the dark-rumped petrel, an endangered seabird.

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APPENDIX: SECTION 106 AND CHAPTER 6E CONSULTATION INFORMATION

Updated Native Hawaiian Consultation for Phase I Geotechnical Testing at Kuaokalā Ridge

*Ka'ena Ahupua'a, Waialua District and Keawa'ula
Ahupua'a, Wai'anae District, Island of O'ahu*

[TMK 6-9-003:001 and 8-1-001:014]

December 2018

Updated Native Hawaiian Consultation for Phase 1 Geotechnical Testing at Kuaokalā Ridge

Missile Defense Agency

Prepared By:

Elizabeth Leclerc, HDR Inc.
Jeanne Barnes, HDR Inc.

HDR INC. ROLE

Environmental
Consultant

LOCATION

Island of O‘ahu, Hawai‘i

TYPE OF WORK

Native Hawaiian
Consultation Summary

CLIENT

Missile Defense Agency

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Abstract

HDR has prepared this summary of the Missile Defense Agency's (MDA) consultation with Native Hawaiian Organizations (NHOs) and individuals of Native Hawaiian descent for MDA's proposal to conduct geotechnical testing on Kuaokalā Ridge. The consultation was conducted in part to address the requirements of Section 106 of the National Historic Preservation Act and Hawai'i Revised Statutes Chapter 6E-42. Consultation on the proposal began on July 16, 2018 when MDA conducted its first outreach. Outreach was conducted by mail, email, and telephone. MDA held two comment periods that included a total of four in-person roundtable and town-hall style meetings. MDA continues to engage with consulting parties with periodic communications to answer questions, provide meeting minutes, and project updates. Since initiating consultation, MDA has reached out to a total of 145 parties and engaged with an additional 15 members of the public who attended consultation meetings. The MDA received verbal and written input from a total of 67 parties. Comments and consultation covered a variety of topics and themes related to the undertaking, the Area of Potential Effects (APE), historic properties, and effects from geotechnical testing. MDA also received comments outside the purview of historic preservation such as personal stances on the project and comments and questions about environmental impacts on resources other than historic properties.

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Abbreviations and Acronyms

ACHP	Advisory Council on Historic Preservation
APE	Area of Potential Effects
CFR	Code of Federal Regulations
DLNR	Department of Land and Natural Resources
DoD	Department of Defense
DOFAW	Division of Forestry and Wildlife
HAR	Hawai'i Administrative Rules
HDR-H	Homeland Defense Radar-Hawaii
KPSTS	Ka'ena Point Satellite Tracking Station
MDA	Missile Defense Agency
NHO	Native Hawaiian Organization
NHPA	National Historic Preservation Act
ROE	Right-of-Entry
SHPD	State Historic Preservation Division
TMK	Tax Map Key
TCP	Traditional Cultural Property

1. Introduction

This report summarizes the Missile Defense Agency's (MDA) consultation with Native Hawaiian Organizations (NHOs) and individuals of Native Hawaiian descent for MDA's proposal to conduct Phase I Geotechnical Testing at Kuaokalā Ridge (Tax Map Key [TMK] (1) 6-9-003:001; (1) 8-1-001:014). MDA proposes to conduct the testing to determine the constructability of the Homeland Defense Radar-Hawaii (HDR-H) project, which is a related but separate undertaking for which MDA has not yet initiated consultation. The proposed testing will occur on lands leased by Ka'ena Point Satellite Tracking Station (KPSTS) on State land managed by the Department of Land and Natural Resources (DLNR), Division of Forestry and Wildlife (DOFAW). MDA has coordinated with DLNR to obtain a Special Use Permit, Game Management Area Right-of-Entry (ROE) permit for this activity.

As a federal undertaking with the potential to affect historic properties, the Phase I Geotechnical Testing proposal is subject to Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) and its implementing regulations at 36 Code of Federal Regulations (CFR) § 800. Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties, defined as resources listed in or eligible for listing in the National Register of Historic Places, and affords the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on the undertaking. Because the geotechnical testing will occur on State land and require a permit from DLNR, the undertaking is also subject to Hawai'i Revised Statutes 6E-42 and Hawai'i Administrative Rules (HAR) 13-284. Chapter 6E-42 requires State agencies to identify historic properties and seek a determination of effect from the State Historic Preservation Division (SHPD).

MDA initiated pre-decisional consultation with NHOs and Native Hawaiian individuals to seek their input and expertise related to historic preservation issues in the undertaking's area of potential effect (APE). Specifically, MDA requested input on the identification and evaluation of historic properties in the APE, the potential for the undertaking to affect historic properties, and MDA's plan to avoid historic properties and conduct archaeological and cultural monitoring during the undertaking. The consultation was conducted in accordance with Section 106 of the NHPA, 36 CFR § 800, Chapter 6E-42, HAR 13-284, Department of Defense Instruction 4710.03, *Consultation with Native Hawaiian Organizations*, and the ACHP's *Consultation with Native Hawaiian Organizations in the Section 106 Review Process: A Handbook* (2011).

This summary presents information about the undertaking, MDA's consultation team, outreach and consultation with NHOs and Native Hawaiian individuals; and a summary of comments and input received during the process. Only comments meaningful to the Section 106 and Chapter 6E processes for the Phase I Geotechnical Testing and received prior to December 14, 2018, are detailed in this summary. Comments outside the historic preservation review processes for the Phase I Geotechnical Testing are summarized but are not discussed in detail.

MDA initiated consultation on the Phase I Geotechnical Testing proposal on July 16, 2018. Outreach was conducted by mail, email, and telephone. MDA held two comment periods that included a total of four in-person roundtable and town-hall style meetings. The first comment period was from July 16, 2018 to August 3, 2018 with consultation meetings during the week of

July 30, 2018. MDA invited 121 NHOs and potentially interested individuals to consult during the first comment period. Eighteen additional organizations and individuals attended the consultation meetings. As a result of post-meeting community dissemination of project information, comments were received from an additional 36 members of the public through August 7, 2018.

As a result of feedback received during and after the first comment period, MDA held a second comment period from September 21, 2018 to October 24, 2018 with in-person meetings during the week of October 8, 2018. MDA reached out to an expanded list of 145 organizations and individuals based on participation and input received during the first comment period. At least an additional 15 organizations and individuals attended the consultation meetings, some of them anonymously. The MDA received verbal and written input from a total of 67 parties. MDA continues to engage with consulting parties with periodic communications to answer questions, provide meeting minutes, and project updates. MDA will continue to accept comments through implementation of the undertaking and additional consultation will occur as part of proposed archaeological and cultural monitoring.

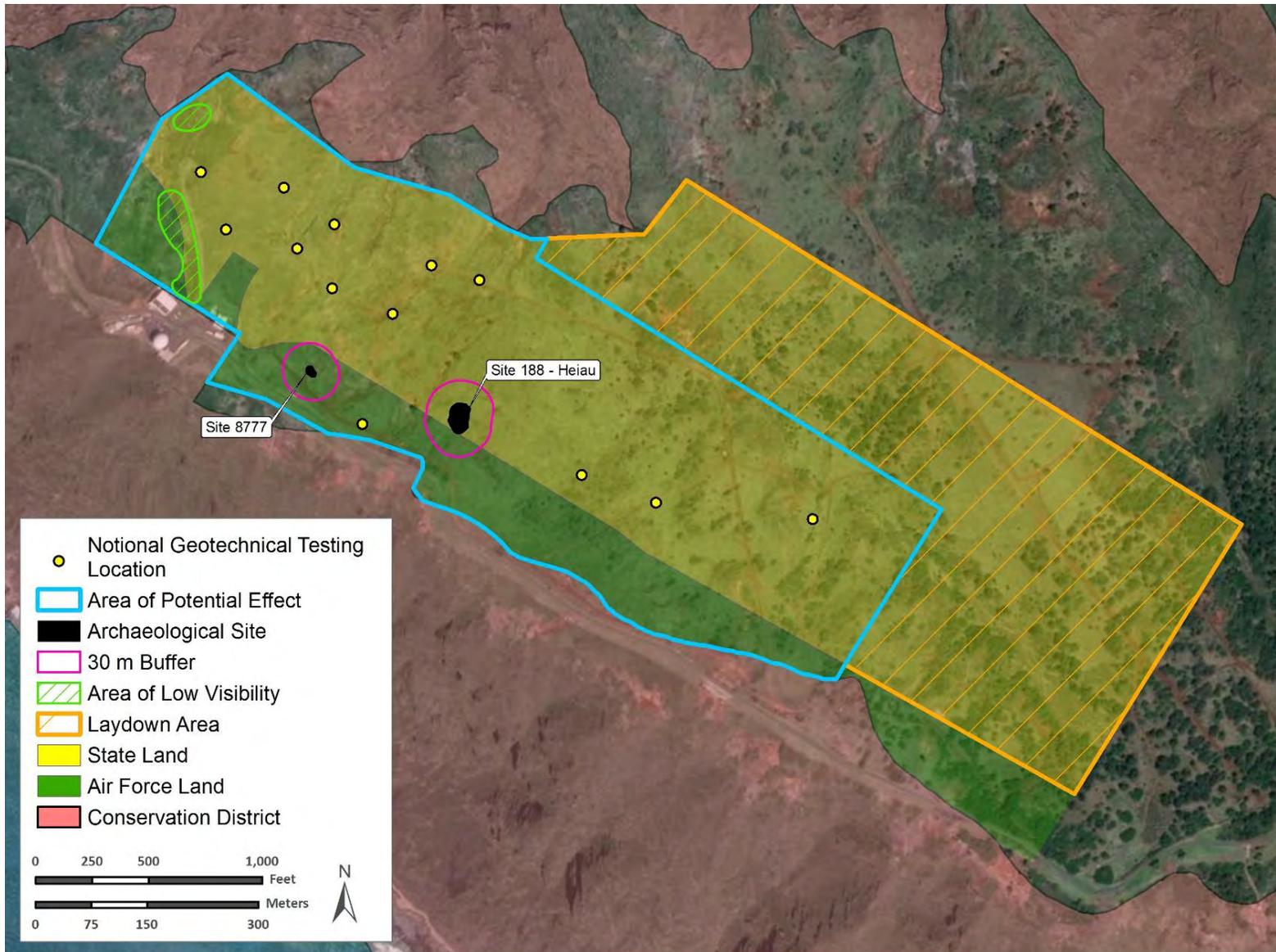
2. Description of the Undertaking and APE

The undertaking is defined as conducting Phase I Geotechnical Testing in support of potential future MDA actions and alternative selection related to the HDR-H project. The HDR-H project is a separate undertaking that is proposed at Kuaokalā Ridge. The geotechnical testing will involve the use of drill rigs to conduct 10 soil test borings and 3 auger borings. The borings will be 4 to 6 inches in diameter and up to 100 feet deep. The auger borings would be conducted using a 12-inch or smaller diameter auger, drilled to a depth of approximately 6 feet. In accordance with HAR § 13-168-16 and the DLNR Commission on Water Resource Management, the lower portion of each soil test boring will be backfilled with bentonite and the top portion backfilled with drill spoils and on-site soils. Each auger borehole will be backfilled with drill spoils. Equipment for the geotechnical testing may include the following: a truck- or track-mounted drill rig, a flat-bed support truck, a low-boy trailer, a water truck, and pick-up trucks and/or sports utility vehicles. All equipment would access the project area using the KPSTS station road.

As part of the undertaking, MDA will avoid identified historic properties during testing activities. MDA will also employ archaeological and cultural monitors during geotechnical testing to ensure known sites are protected and that any unanticipated discoveries of subsurface archaeological or cultural deposits, including burials, are properly identified and protected from further disturbance until post-review discovery procedures can be implemented. HDR has separately prepared an *Archaeological Monitoring Plan for the Geotechnical Testing at Kuaokalā Ridge* (Leclerc and Mueller 2018) which outlines measures that will be implemented to protect historic properties in the APE and document any new historic properties that may be encountered during the course of the proposed geotechnical testing activities.

MDA originally defined the APE as the approximate 160-acre parcel comprising the HDR-H Kuaokalā Ridge candidate site, shown as the combination of yellow and green shaded areas in Figure 1. Based on comments received during the first comment period, MDA revised the APE to the specific area within the candidate site where geotechnical testing activities could occur, totaling approximately 89 acres and shown in blue in Figure 1. Notional locations for proposed borings are also shown in Figure 1; however, these are subject to change within the APE.

Figure 1. Area of Potential Effect



Data Source: World Imagery

3. Consultation Outreach and Engagement

MDA, supported by a team of contractors to assist with the consultation, conducted a robust consultation effort that reached out to a total of 145 NHOs and Native Hawaiian individuals across two comment periods. For each comment period, MDA provided parties with information about the project and requested their attendance at consultation meetings held in Waiʻanae and Wahiawā. Parties were also provided a comment form for submitting comments independently of the consultation meetings. Where possible, MDA followed up with telephone calls to parties to confirm receipt of the consultation materials and attendance at the consultation meetings. The scope of the consultation included the following elements:

- Proposed Activities (the Undertaking)
- Results of the Archaeological Inventory Survey (AIS) (McElroy and Duhaylonsod 2018)
- Identification and Evaluation of Historic Properties
- Effects on Historic Properties from Geotechnical Testing
- Approaches to Avoid or Minimize Effects on Historic Properties

During the second comment period, MDA also incorporated a summary of their responses to comments received during the first comment period. Materials related to the consultation, including the AIS report and MDA's comment-responses were posted to the project website at www.mda.mil and shared with consulting parties at the beginning of the comment period

3.1 Consultation Team

MDA's consultation was led primarily by Buff Crosby, Ph.D., MDA's environmental lead for the proposed geotechnical testing undertaking. Dr. Crosby has 25 years of experience managing public lands for multiple benefits including conservation and managing NEPA projects. She has been involved or led federal agency consultations for historic preservation compliance with indigenous communities on projects over the past 15 years. Prior to Dr. Crosby, consultation was briefly led by Mr. David Fuller, MDA's former environmental lead for the proposed undertaking. Assisting Dr. Crosby were Shari Clayton Hendrix, Tina Lemmond, and Catherine Spencer, also with MDA; and Elizabeth Leclerc and Jeanne Barnes, cultural resource specialists with HDR, Inc. These individuals variously assisted preparing materials to support the consultation such as contact lists, information packages, posters, and presentations. Team members and their project roles are listed in Table 1.

3.2 Outreach

Prior to beginning consultation, MDA identified NHOs and Native Hawaiian individuals with potential interest in historic properties in the APE from the Department of Interior's Native Hawaiian Organization Notification list, dated May 14, 2018; a report detailing a prior effort to identify and determine the concerns of NHOs regarding KPSTS (HDR|e²M 2010); and from public scoping under the National Environmental Policy Act for MDA's Homeland Defense Radar-Hawaii (HDR-H) project. The contact list was expanded after the first comment period to

include parties that attended the first set of meetings, provided comments, or whose names were provided by existing contacts. Although historic preservation issues are outside the scope of some of the organizations in the final list of 145 contacts (see Appendix A), all identified contacts were invited to consult in the event they had personal or professional interest in the APE or historic preservation issues. Although the Phase I Geotechnical Testing undertaking is separate from the proposed HDR-H project, MDA wished to ensure that participants that may be involved in the HDR-H consultation were aware of Phase I Geotechnical Testing even if they chose not to consult.

Table 1. MDA Consultation Team

Name/Title	Role
MDA	
Buff Crosby, FDO Environmental	MDA Representative
Shari Clayton Hendrix, FDO Environmental	Materials Development and Coordination
Catherine Spencer, FDO Environmental	Materials Development and Coordination
David Fuller, FDO Environmental	MDA Representative (Comment Period 1)
HDR Inc.	
Elizabeth Leclerc, Cultural Resources Specialist	Materials Development and Support
Jeanne Barnes, Cultural Resources Practice Group Lead and Architectural History Program Manager	Materials Development and Support
Emily Smith, NEPA Specialist	Meeting Logistics and Support (Comment Period 1)
ManTech, Inc.	
Meagan Ostrem, Environmental Scientist	Meeting Logistics and Support

3.3 Comment Period One

MDA developed a consultation initiation package that provided background information about the project and known historic properties in the APE. The package included a consultation participation form, which participants could use to respond to the invitation to consult, RSVP for the consultation meetings, and submit comments. The package also included a distribution list with a request for recipients to identify any other organizations or individuals they thought should be included. These materials were sent electronically via email on July 12, 2018 to 96 contacts for whom MDA had obtained email addresses. Hardcopy materials were sent on July 16, 2018 via certified mail to 118 contacts for whom mailing addresses were available. Following the mailing, MDA made phone calls to 70 contacts for which telephone numbers were available. Phone calls were made on July 23, 2018 and July 27, 2018. Appendix A provides the contact list for the undertaking with dates for each attempted correspondence. Appendix B provides copies of consultation initiation materials provided.

Of the 121 contacts, MDA received responses from 38 organizations and individuals by August 7, 2018. Responses included acknowledgement of receipt; comments; meeting RSVPs; and requests to be removed from the contact list. Comments are summarized in Section 4.

Two consultation meetings were held in Wai‘anae and Wahiawā on August 1 and 2, 2018, respectively. During the meetings, MDA presented information about the undertaking, the APE, and the results of the AIS, including identified historic properties. A fact sheet summarizing the

undertaking and findings of the AIS was provided to meeting participants, and posters displaying additional information and photographs of identified sites were circulated around the meetings. Participants were encouraged to ask questions throughout the presentation. The presentation was approximately 10 minutes without questions. The remainder of the meeting was open to questions, comments, and discussion. Participants were invited to share information and perspectives about any other historic properties in the APE; the evaluation of identified properties; effects from the undertaking on historic properties; and MDA's proposal to avoid identified sites and conduct archaeological monitoring during the geotechnical testing. MDA hired stenographers to transcribe each meeting to facilitate the recording of comments and concerns. Representatives from Keala Pono Archaeological Consulting, which conducted the AIS, were present at both meetings to answer questions about the survey. Copies of meeting materials are presented in Appendix B.

3.3.1 Wai'anae Consultation Meeting

The Wai'anae meeting was scheduled at Wai'anae High School from 6:00 pm to 8:00 pm on Wednesday, August 1, 2018. Six people attended the meeting, including representatives from the following organizations: Koa Ike/Koa Mana, Wai'anae Coast Neighborhood Board No. 24, Nanakuli-Maili Neighborhood Board No. 36, Wai'anae Economic Development Council, and Aha Moku Council – O'ahu, Wai'anae Moku. The meeting concluded at approximately 7:30 pm after participants finished providing their comments. No written comments were submitted during the meeting.

3.3.2 Wahiawā Consultation Meeting

The Wahiawā meeting was held at Wahiawā Public Library from 5:00 pm to 7:00 pm on Thursday, August 2, 2018. At least 17 participants attended the meeting; exact attendance was not recorded, as some participants requested to withhold their personal information and did not sign in. Participants represented the Ho'omanapono Political Action Committee, Kawaihapai Ohana, and Office of Hawaiian Affairs. MDA collected nine written comments during the meeting.

3.4 Comment Period Two

During and after the first comment period, MDA received feedback that the agency should conduct additional consultation and provide interested parties with additional time to submit comments. MDA held a second comment period from September 21, 2018 to October 24, 2018. Consultation packages were sent to a total of 145 parties. The package sent to existing participants invited comments and participation in additional consultation meetings in Wai'anae and Wahiawā. The package included a response to substantive comments received during the first comment period, a revised description of the APE, a summary of the AIS, and a consultation participation and RSVP form. The package referred participants to MDA's website, where information and documents related to the consultation are posted, including the draft AIS. MDA also sent a consultation package to 24 newly identified parties who attended the previous consultation meetings, submitted substantive written comments, and/or whose information was provided to MDA by other parties. This package was similar to the follow-up package sent to existing parties, but included an introductory document that described the action and identified

historic properties. Copies of consultation materials for the second comment period are provided in Appendix B.

Consultation packages were sent via priority mail on September 20, 2018 with confirmed deliveries to all but five recipients, those packages being undeliverable. The package was also sent electronically on September 21, 2018 to all contacts for whom MDA had email addresses. Following the mailing, MDA placed phone calls on October 1 and 2, 2018, to 68 recipients. A record of correspondence for the second comment period is provided in Appendix A. In addition to the 145 parties contacted by mail, email, and telephone, at least an additional 15 parties took part in the consultation meetings, some of them anonymously. MDA received responses from 39 organizations and individuals during Comment Period 2. Responses included acknowledged receipt, meeting RSVPs, and comments. Comments are summarized in Section 4.

Two consultation meetings were held in Wai‘anae and Wahiawā on October 9 and 11, 2018, respectively. MDA representation included MDA leadership (Admiral Jon Hill, Deputy Director and Brigadier General Mike Guetlein, MDA Program Director) and members of the HDR-H project team (in the event consulting parties for the geotechnical testing also had questions about the HDR-H project). As during the first meetings, MDA presented information about the geotechnical testing undertaking, the APE, and the AIS. MDA also reviewed their responses to comments received during the first comment period. A fact sheet and posters with summary information accompanied the presentation. The presentation was 5-10 minutes without questions. The remainder of the meeting was open to questions, comments, and discussion. MDA requested that participants share comments about the significance of historic properties, the effects of the undertaking, and MDA’s avoidance buffers and monitoring plans. MDA again hired stenographers to transcribe each meeting to facilitate the recording of comments and concerns. Copies of meeting materials are presented in Appendix B.

3.4.1 Wai‘anae Consultation Meeting

The Wai‘anae meeting was scheduled at the Wai‘anae Neighborhood Community Center from 6:00 pm to 8:00 pm on Tuesday, October 8, 2018. At least 21 participants attended the meeting; exact attendance was not recorded, as some participants requested to withhold their personal information and did not sign in. Some participants were in addition to those sent invitations. Attendees included representatives from the following organizations: Royal Order of Kamehameha, Nanakuli-Maili Neighborhood Board No. 36, Women of Wai‘anae, Office of Hawaiian Affairs, LHCC (acronym undefined), Aha Moku Council – O‘ahu, Wai‘anae Moku, and Mālama Makua. The meeting concluded at approximately 9:00 pm when the venue closed.

3.4.2 Wahiawā Consultation Meeting

The Wahiawā meeting was held at the Wahiawā District Park from 6:00 pm to 8:00 pm on Thursday, October 11, 2018. At least 18 participants attended the meeting; exact attendance was not recorded, as some participants requested to withhold their personal information and did not sign in. Participants represented Associated Students of the University of Hawai‘i - West O‘ahu, Hawaiian Civic Club of Wahiawā, Helenihi ‘Ohana, Ho‘omanapono Political Action Committee, Hunters Association, Kawaihapai Ohana, Mahu ‘Ohana, Office of Hawaiian Affairs, and WHCC (acronym undefined). The meeting concluded at approximately 8:30 pm.

4. Comment Summary

MDA received written and verbal comments during the consultation, including the four consultation meetings. Comments covered a variety of topics and themes related to the undertaking, the APE, historic properties, and effects from geotechnical testing, as well as comments relating to project opposition, environmental impacts other than cultural resources, and impacts of MDA’s separate HDR-H project. Many meeting participants were passionate about their concerns and delivered their comments with great emotion. Comments and MDA’s responses are summarized in Table 2 where they are organized by topic. As noted in the introduction, many comments were unrelated to historic preservation issues. These issues are summarized briefly at the end of the table. Further, there was a tendency among participants at the consultation meetings to provide comments on the separate HDR-H undertaking. MDA is retaining all comments and will consider them again when consulting separately on the HDR-H undertaking.

Table 2. Comment Summary

Topic	Summary of Comments
The Undertaking and Area of Potential Effect	Kuaokalā Ridge is a sacred area; drilling on the ridge is an act of desecration and is akin to drilling in Arlington Cemetery.
	The APE is too large for the action. [Note, this comment was received during the first comment period and the APE was subsequently revised.]
	The Ka’ena Point area is steeped in mo’olelo, including those associated with the hero Maui.
	Kuaokalā Ridge and Ka’ena Point are the phallic symbol of Kāne.
Identification of Historic Properties	A new AIS is needed of the APE and a new detailed recording the Moka’ena heiau is needed. The AIS should be conducted by a Native Hawaiian firm such as Keala Pono.
	The selection of Keala Pono to conduct the archaeological inventory survey (AIS) was a good choice.
	MDA should have involved people with lineal ties to the project area in the AIS.
	A TCP study needs to be completed for the Ka’ena Point area.
Mokaena Heiau	The Moka ’ena Heiau was a site of sun worship. The path of the sun, shadows during solstices, the viewshed to the ocean, and an unobstructed view of the sky are key elements that must be kept intact for cultural purposes.
	Moka’ena Heiau is one of five temples built by the menehune, or the first people that came to these islands.
	The heiau is a temple for Kāne, and is the temple used for religious practices of the Kānenuiākea religion. This is an indigenous religion recognized by the International Association for Religious Freedom.
	The heiau was built by people from Kaua’i. The heiau is related to the interconnectedness of the two islands and the fishing grounds between them.
	Moka’ena Heiau (shrine/church) is located along the ridge. Used for time, weather, seasons, and reproduction observations, the heiau was lined up so the sun could line up and shoot from the Kona side of O’ahu, from Kapi’olani park straight through to Kuaokalā and coming through the center of the heiau.

Topic	Summary of Comments
	<p>The Moka'ena Heiau was built by a certain class of kahuna at the time of Kamehameha's conquest to provide an early warning of his impending attack on Kaua'i. Kāhuna used the heiau to send messages across the channel between O'ahu and Kaua'i, called Ka'ie'iewaho, "the vine that binds," to inform the people that something was happening. The correct name of the heiau is Moku'ena.</p>
	<p>Moka'ena Heiau is a fishing shrine, and the kū'ula at the heiau is associated with the story of Kumu Nui Akea and menehune who caught the kūmū fish (goat fish), a highly prized fish in Hawaiian culture. The shrine is associated with a fishing koa for kūmū and other productive fishing areas near Ka'ena Point. The power of the fishing shrine remains today, and is evidenced in newspaper stories from recent history of successful fishing exploits around Ka'ena Point.</p>
	<p>More research should look at Moka'ena as part of a larger cultural complex which also would include Leina a ka 'uhane and other sites between Pu'u Pu'eo and Moka'ena, including the areas up mauka and along the shoreline. There are sites within Ka'ena that have connections between mauka and makai, for example Alau and Alauiki.</p>
	<p>Moka'ena Heiau should be nominated to the National and Hawai'i Registers of Historic Places.</p>
	<p>Moka'ena Heiau is not just the rocks, it is the entire area. The area where the proposed borings are is where the mana, the spirit, the power of the heiau is.</p>
	<p>There may be subsurface remains at Moka'ena Heiau.</p>
	<p>Cows are desecrating and adversely affecting Moka'ena Heiau. The fence is broken and not effective in keeping the cows out.</p>
<p>Pu'u O Pōhaku Hāpaina (formerly designated TS 1, now designated Site 8777)</p>	<p>The correct name for site TS-1 is Pu'u O Pōhaku Hāpaina and this is the name that should be used. The name "Temporary Site 1" is offensive to Native Hawaiians. Pu'u O Pōhaku Hāpaina is associated with the construction of Moka'ena Heiau. The heiau was built by kāhuna who used the correct intonation in their oli that resonated in the pohaku (rocks) and lifted them into place with vibration. Before they could participate in the construction of the heiau, the kāhuna had to demonstrate their ability to move pohaku using their oli. They did this demonstration at Pu'u O Pōhaku Hāpaina, where they moved a rock from one end of the rock alignment to the other.</p>
<p>Other Historic Properties</p>	<p>The Leina a ka 'uhane, the place where souls on O'ahu depart for the afterlife, is located at the end of Ka'ena Point. This is a significant site and should be afforded special consideration, including separate nomination to the National and Hawai'i Registers of Historic Places. (Outside the APE)</p>
	<p>Pu'u Pu'eo is a significant hill toward the end of Kuaokalā Ridge that is associated with owls. (The hill is outside the APE.)</p>
	<p>A significant stone with a family name carved into it is located on Kuaokalā Ridge (The party has not provided a location for the stone, but the context of discussion indicates it is outside the APE. No such stone was identified during the AIS).</p>
	<p>The various cultural sites on and around Kuaokalā Ridge are part of a cultural complex/traditional cultural property (TCP).</p>
	<p>The area of Kuaokalā Ridge is a cultural landscape significant under multiple significance criteria pursuant to Hawai'i Administrative Rules 13-275-6 and is particularly significant under Criterion "e".</p>
<p>Effects on Historic Properties</p>	<p>Buffer zones of at least 100 meters should be established around each archaeological site in advance of geotechnical testing.</p>
	<p>It is impossible to avoid impacts to the heiau, no matter how far away the drilling is, because the heiau and the ridge are one.</p>
	<p>The geotechnical testing would injure the 'aina and affect familial relationships with one's mo'olelo (personal and collective history) and mo'oka'auhau (genealogy), which are embodied in this eligible traditional cultural landscape.</p>
	<p>Archaeological and cultural monitors are needed. The cultural monitors must be cultural experts.</p>

Topic	Summary of Comments
	The vehicle and derrick along with the radius of the drill (not more than 10-12 inches) will have little or no impact.
Iwi Kupuna	<p>Drilling for geotechnical testing could have a negative impact on cave systems within the mountains, many of which are the final resting place for iwi kupuna.</p> <p>There are many burials all along the ridge.</p> <p>There are no iwi kupuna on the ridge. There have been many cultural studies and no iwi have been found.</p> <p>There are no iwi kupuna on the ridge, most of it has not been culturally disturbed.</p> <p>Native Hawaiians do not need to tell MDA where the iwi are. MDA only needs to understand that the undertaking will disrupt the iwi.</p> <p>Vibrations from drilling could destroy delicate iwi.</p>
Other	<p>Opposition to the project.</p> <p>MDA needs to consider other impacts, such as traffic, noise, health effects, and effects on biological resources, including endangered species.</p> <p>MDA did not provide enough public notice or time to comment on the project.</p> <p>The project is not conforming with other Hawaiian laws, including Article 12 Section 7 of the State of Hawaii constitution, which clearly states the duty of the State and its agencies is to preserve, protect and prevent interference with the traditional and customary rights of native Hawaiians. Also, Act 50, relating to Environmental Impact Statements, which "should identify and address effects on Hawaii's culture and traditional and customary rights."</p> <p>A Cultural Impact Assessment is needed for this project.</p> <p>MDA is not following Section 106 of the NHPA. MDA must give NHOs 30 days to comment. MDA needs to consult NHOs on the definition of the APE.</p> <p>A site visit to Moka'ena Heiau is needed.</p> <p>Request a copy of the AIS and SHPD submittal.</p> <p>Soils removed from the APE during geotechnical testing should be returned after analysis.</p> <p>The remains of a Hawaiian owl will be reinterred at Moka'ena Heiau, which is situated on Pu'u Pueo overlooking Ka'ena Ahupua'a and specifically Leina Ka 'Uhane.</p> <p>Request MDA send a letter to the Bishop Museum urging continuing press of their publication entitled "Sites of Oahu"</p> <p>Request copy of the meeting presentations.</p> <p>Native Hawaiians have difficulty accessing the project area, even for gathering or religious purposes. The HDR-H project will take land away from native Hawaiians and further limit people's access to the area. Land is everything to native Hawaiians.</p> <p>The project area is an important area for hunting (gathering). Native hunting traditions are not a game and are critical to maintaining cultural identity. A loss of hunting areas would force native Hawaiians to become more westernized. Native Hawaiians want to keep their gathering traditions alive.</p> <p>MDA should give preference to information from local practitioners and lineal descendants. MDA also needs to know that local cultural protocols may differ from other areas and are more appropriate here.</p> <p>The HDR-H project is the same as the original purpose of the Moka'ena Heiau – to provide early warning of an attack. What MDA proposes to do has significance, but needs to be done appropriately.</p>

MDA is considering all comments received during this consultation and has offered the following responses to comments related to the Section 106 and Chapter 6E processes. More detailed comment responses that were provided to consulting parties are provided in Appendix C.

Definition of the APE

The original 160-acre APE was defined with reference to the Kuaokalā Ridge candidate site being considered under the separate, but related, Homeland Defense Radar – Hawai'i (HDR-H) project. As shared at previous consultation meetings, the proposed geotechnical testing that is the subject of the present consultation would only occur in a portion of this area: approximately 22 acres of existing USAF leased land and an approximate 67-acre parcel of State land where the HDR-H could be constructed. The MDA revised the APE as this 89 acre area (including USAF and State land).

Request for TCP Study

Consulting parties identified that many sites in the larger Kuaokalā Ridge and Ka'ena Point areas, including Moka 'ena Heiau, may be part of a TCP or landscape that appears to encompass all of the APE and extends outward to the surrounding ridge and coast. Consulting parties indicated the entire landscape of Ka'ena Point as having cultural significance to Native Hawaiians. At this time MDA does not have sufficient information to delineate a cultural landscape and evaluate it for significance under Federal or State law. MDA is planning to conduct a TCP survey as part of the HDR-H project that will document the extent of this TCP, its historic significance, and its historic integrity. MDA believes that identification efforts for the present undertaking are sufficient, and the possibility of a TCP or traditional cultural landscape is noted in the AIS. The heiau and Pu'u O Pōhaku Hāpaina (TS-1) are the only cultural features potentially part of this TCP that were identified within the APE, and MDA has assessed the potential for effects on these sites.

Moka'ena Heiau and Pu'u O Pōhaku Hāpaina (TS-1)

Oral history and comments about the significance of these sites has been incorporated into the AIS.

Effects on Historic Properties

The proposed Phase I Geotechnical Testing would be a discrete, short-term event that would be minimally invasive (ten 4-inch diameter borings and three 12-inch diameter borings in an 89-acre area). MDA believes a 30-meter buffer combined with archaeological and cultural monitoring is sufficient to protect the physical features of historic properties in the APE. MDA understands that geotechnical testing may impact the mana in the ridge that is a contributing quality of Moka'ena Heiau. However, MDA has determined this impact would not significantly alter the mana as a contributing quality of the heiau or the site's integrity of setting. The geotechnical testing would be temporary and intrusion into the ground would be minimal. MDA notes that many past and ongoing activities have occurred on the ridge, and consulting parties expressed that the mana at the ridge is still intact. MDA does not believe the Phase I Geotechnical Testing will have an adverse effect on the heiau or Pu'u O Pōhaku Hāpaina. MDA will invite cultural practitioners from the local area or those with familial/lineal ties to the project

area at the beginning of the geotechnical testing to do protocols and prepare the area for the testing.

Protective Buffers

MDA has reviewed input provided on the size of buffers needed to avoid identified historic properties. Some indicated no buffer would be large enough to prevent impacts, others that 100 meters would be needed. Still another NHO representative commented that the size of the equipment and borings would not affect the sites. MDA agrees the current fencing around Moka'ena Heiau is an inadequate buffer to prevent potential site impacts. MDA will install temporary construction fencing or flagging around a larger buffer to protect historic properties in the APE. MDA believes a 30-meter buffer will be sufficient to protect the sites and their surroundings.

Burials and Iwi Kupuna

MDA received mixed input regarding the potential for human burials, or iwi kupuna, in the APE. Given the proximity of the Moka'ena Heiau and some possibility for human remains and/or cultural materials, MDA is undertaking both archaeological and cultural monitoring during geotechnical testing. At a minimum, the cultural monitor will have generational or cultural affiliation with the project area, will have familiarity with cultural properties in the area, and will have sensitivity and the ability to represent and communicate with MDA on behalf of Native Hawaiians. MDA is also working with the consulting parties to identify a cultural monitor that has lineal ties to the area.

Return of Removed Soils

MDA is considering the request to return soils removed from the geotechnical borings back to the testing sites following the completion of analysis. MDA will implement this measure to the extent practicable with considerations to cost and schedule.

Section 106 Regulations

MDA is committed to following the regulations at 36 CFR § 800 for Section 106 of the NHPA. Although a commenter suggested the regulations require agencies provide NHOs a 30-day comment period, this is inaccurate. The implementing regulations of Section 106 require consultation with NHOs, but do not prescribe a time frame to the consultation as is the case with consultation with the State Historic Preservation Officer. Likewise, the regulations do not require agencies to consult with NHOs regarding the APE. However, MDA did accept and consider comments on the APE raised during this consultation.

MDA continues to accept and consider comments related to the undertaking and its effects on historic properties throughout the duration of the geotechnical testing. Should the MDA identify new historic properties or new adverse effects on historic properties, MDA shall treat these as post-review discoveries per 36 CFR § 800.13 and inform the SHPD.

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5. Conclusions

MDA reached out to a total of 145 NHOs and interested individuals with a stated interest in cultural resource issues at Kuaokalā Ridge to consult on the Phase I Geotechnical Testing undertaking. The consultation was conducted in part to address the requirements of Section 106 of the NHPA and Hawai'i Revised Statutes Chapter 6E-42 and included written communications, telephone calls, and in-person meetings. At least an additional 15 people participated in consultation meetings, some of them anonymously. MDA received responses from a total of 67 parties. MDA also received comments from members of the public, which, while not always well-informed on the undertaking or the Section 106 and Chapter 6E processes, provided helpful input for understanding the effects of the undertaking on resources of importance to Native Hawaiians and the community at large.

The consultation was successful in providing project information to participants and gathering input on key aspects of the Section 106 and Chapter 6E processes: the identification and evaluation of historic properties and the assessment of effects. This input was incorporated into the AIS report (McElroy and Duhaylonsod 2018), MDA's assessment of effects under Section 106, and DOFAW's recommendations on effects under Chapter 6E-42. MDA has concluded that under Section 106, the undertaking would have no adverse effects on historic properties; however, the agency is incorporating avoidance measures to ensure known historic properties are protected. MDA is also implementing archaeological and cultural monitoring, primarily to assess the potential for subsurface archaeological deposits in the APE but also so that if there are any unanticipated discoveries, these are appropriately handled. MDA received valuable input on these measures during consultation that was considered in the development of the archaeological monitoring plan (Leclerc and Mueller 2018). The results of this consultation will continue to inform MDA's present and future actions at Kuaokalā Ridge. Contacts with NHOs and community members generated by this consultation will also improve MDA's outreach to NHOs and consulting parties during future consultations.

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6. References Cited

HDR|e²M

2010 *Native Hawaiian Organization Consultation Project, Ka'ena Point Satellite Tracking Station, Island of O'ahu, State of Hawai'i*. Prepared for the Air Force Center for Engineering and the Environment. Prepared by HDR|e²M, Honolulu, Hawai'i.

Leclerc, Elizabeth and Andrew Mueller

2018 *Archaeological Monitoring Plan for Phase I Geotechnical Testing at Kuaokalā Ridge, Ka'ena and Keawa'ula Ahupua'a, Waialua and Wai'anae District, Island of O'ahu*. Prepared for Missile Defense Agency. Prepared by HDR, Inc.

McElroy, Windy and Dietrix Duhaylonsod

2018 *REVISED DRAFT – Archaeological Survey for Geotechnical Testing at Kuaokalā Ridge, Ka'ena and Keawa'ula Ahupua'a, Waialua and Wai'anae District, Island of O'ahu, Hawai'i*. Prepared for Missile Defense Agency. Prepared by Keala Pono Archaeological Consulting, LLC, Kaneohe, HI.

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Consultation Outreach and
Participation

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Table A.1. Outreach to NHOs and Native Hawaiian Individuals

Organization/Name	Comment Period 1					Comment Period 2				
	Mail	Email	Phone	Meeting(s)	Response	Mail	Email	Phone	Meeting(s)	Response
Aha Kāne	X	X	X			X	X	X		
Ahahui Siwila Hawai'i O Kapōlei	X	X	X			X	X	X		
aha kukaniloko koa mana mea ola kanaka maui	X	X		X	X	X	X		X	X
Aha Moku Council - O'ahu	X	X			X	U	X			X
Aha Wahine	X	X	X		X	X	X	X		X
Aloha First	X	X	X			X	X	X		
Associated Students of the University of Hawai'i – West O'ahu									X	
Association of Hawaiian Civic Clubs	X	X								
Aupuni O Hawai'i	X	X	X			X	X	X		
Brian Kaniela Nae'ole Naauao	X	X	X			X	X	X		
Center for Pacific Island Studies							X			
Council for Native Hawaiian Advancement	X									
Department of Hawaiian Home Lands	X		X		X					
Friends for Waialua Town	U									
Friends of Hokule'a and Hawai'iola		U	X			X	X	X		
Friends of 'Iolani Palace	U	X	X		X	X	X	X		X
George K. Cypher 'Ohana	X		X		X	X	X	X		X
God's Country Waimanalo	X	X	X		X	X	U	X		X
Hawaiian Civic Club of Hilo	X	X								
Hawaiian Civic Club of Honolulu	X	X								
Hawaiian Civic Club of Wahiawa	X	X	X	X		X	X	X	X	X
Hawaiian Community Assets, Inc.	X	X	X			X	X	X		X
Helenihi Ohana				X	X	X	X	U	X	
Ho Ohana	X	U	X		X	X	X	X		X
Ho'okano Family Land Trust	X	X	X		X	X	X	X		
Ho'o Mana Pono Political Action Committee		X	X	X	X	X	X		X	X
Hui Huliau Inc.	X	X	X			X	X	X		X
Hui Kaleleiki Ohana	X	X	X			X	X	X		
Hui Malama I Na Kupuna O Hawaii Nei	X	X				X	X	U		
Imua Hawaii	U	X								
Ka'ala Cultural Learning Center	X	X	X			X	X	X		X
Ka'ena Cultural Practice Group				X		X	X	X		
Kahea Hawaiian-Environmental Alliance						X	X	X		
Kāko'o 'Ōiwi	X	X	X		X	X	X	X		
Kalaeloa Heritage and Legacy Foundation	X	X	U			X	X	U		
Kalihi Palama Hawaiian Civic Club	X	U	U							
Kamealoha	U	X	X		X	X	X	X		X
Kamehameha Schools	X	X	U			X	X	X		X
Kanu o ka 'Āina Learning 'Ohana	X	X	X			X	X	X		

Organization/Name	Comment Period 1					Comment Period 2				
	Mail	Email	Phone	Meeting(s)	Response	Mail	Email	Phone	Meeting(s)	Response
Kapolei Community Development Corporation	U	X	X			X	X	X		
Kauwahi 'Anaina Hawai'i Hawaiian Civic Club	U	X	U			X	X	X		
Kawaihapai Ohana	X	X		X	X	X	X		X	X
Ke One O Kakuhihewa	X	X								
King Kamehameha Hawaiian Civic Club	U	X								
Kingdom of Hawai'i	U	X	X		X	X	X	X		
Ko'olau Foundation	X	X	X		X	X	X	X		X
Ko'olaupoko Hawaiian Civic Club	X	X	X		X	X	X	X		X
Koa Ike	X	X	X	X	X	X	X	X		
Koolauloa Neighborhood Board No. 28	U	X	X		X	Removed by Request				
Kula no na Po'e Hawaii	X	X	X		X	X	X	X		
Kuloloi'a Lineage - I ke Kai 'o Kuloloi'a	X	X	X		X	Removed by Request				
Lahui Kaka'ikahi	U					X	X	X		
Ma'a 'Ohana c/o Lani Ma'a Lapilio	X	X	X			X	X	X		
Mahu Ohana	U	X	U			X	X	X		
Mainland Council Association of Hawaiian Civic Clubs	X	X	X		X	X	X	X		X
Makaha Hawaiian Civic Club	U	X	U			X	X	X		X
Mālama Mākua	X	X							X	
Malu'ōhai Residents Association	X	U	X		X	X	X	X		
Mana Health Services, Inc.	X	X	X			X	X	X		X
Marae Ha'a Koa	X	X	X			X	X	X		
Meleana Kawaiaea, LLC	X	X	X			X	X	X		
Menehune Foundation	U	X	U			X	X	U		
Mokuleia Community Association	X					X	X	X		
Na Koa Ikaika Ka Lahui Hawaii	X	X								
Na Ku'auhau 'o Kahiwakaneikopolei	U	X	X			X	X	X		
Na Ohana o Puaoi a me Hanawahine	X	X								
Nanakuli Hawaiian Homestead Association	U					X		X		
Nanakuli-Maili Neighborhood Board No. 36	X	X	X	X	X	X	X	X	X	X
Native Hawaiian Chamber of Commerce	X	X	X		X					
Native Hawaiian Church	U	X	X			X	X	X		X
Native Hawaiian Education Council	X	X	X			X	X	X		
Native Hawaiian Hospitality Association	X	X	X			X	X	X		
Nekaifes Ohana	X		X			X		X		
North Shore Neighborhood Board No. 27	X	X	X			X	X	X		
Office of Hawaiian Affairs	X	X	X	X	X	X	X		X	X
PA'I Foundation	X	X	X			X	X	X		
Pacific Justice & Reconciliation Center	U	X	X			X	X	X		X
Papa Ola Lokahi	X	X	X			X	X	X		
Partners in Development Foundation	X	X	X		X	X	X	X		X
Peahi Ohana	X	X	X			X	X	X		

Organization/Name	Comment Period 1					Comment Period 2				
	Mail	Email	Phone	Meeting(s)	Response	Mail	Email	Phone	Meeting(s)	Response
Prince Kūhiō Hawaiian Civic Club	X									
Royal Hawaiian Academy of Traditional Arts	X	X	X			X	X	X		
Royal Order of Kamehameha I	U	X	X			X	X	X	X	X
Sovereign Councils of Hawaiian Homestead Associations	X	X	X			X	X	X		
The I Mua Group	X	X	X			X	X	X		X
The Makua Group	X	X	X			X	X			
The Mary Kawena Pūku'i Cultural Preservation Society	X	X	X			X	X	X		
Wai'anae Hawaiian Civic Club	X	X	X			X	X	X		
Waialua Community Association	X	X	X		X	X	X	X		
Waialua Hawaiian Civic Club	X									
Waianae Coast Neighborhood Board No. 24	X	X	X	X	X	X	X			X
Waianae Economic Development Council	X			X	X					
Waianae Kai Homestead Association	X									
Wai'anae Moku (Aha Moku Council – O'ahu)	X	X		X	X	U	X	X	X	X
Waikīkī Hawaiian Civic Club	X	X								
Waimānalo Hawaiian Homes Association	X	X	X							
Phil Akee									X	
Jon Ross Auwae							X			
Jan Becket	X	U			X	Not Consulting				
Puanani Burgess	X									
Fred Cachola	X	X								
Kāulahealani Crawford-Kapanui				X	X		X			
Thora-Jean Cuaresma				X			X			
May Rose Dela Cruz				X	X	X	X			
Albert Distajo									X	
Jonathan Doane							X			
Micah Doane							X			
Vince Dodge	X				X					
Sheila Gage				X	X		X			
Liko Glushenko									X	X
Gary Goodhue	X									
Andrew Grandinetti									X	
Vincent Higa	U									
Black Ho'ohuli	X	X								
Mickael Keola Jones									X	
Josian Jumo									X	
Theresa K.				X	X				X	X
Samson Kama									X	X
Maria Karodia				X	X		X			
Rhonda Kekua									X	

Organization/Name	Comment Period 1					Comment Period 2				
	Mail	Email	Phone	Meeting(s)	Response	Mail	Email	Phone	Meeting(s)	Response
Priscilla Lacerdo				X	X		X			
Thomas Lenchanko	X	X		X	X	X	X		X	X
Tony Laakapu Lenchanko	X	U								
Luwella Leonardi				X		X	X	X	X	
Ayesha Liquorish				X	X		X			
Tyson Loughmiller	U									
Dan Lyman	U	X								
Elton "Pokii" Magallanes								X	X	
Nanea Magallanes						X			X	
Kamuela M. Magno	X	X							X	
Dan Mahiai	U								X	
Vernell Mahiai	U	X							X	
James Mānaku						X	X	X	X	
R. Mansfield									X	
Koone Marx									X	
Bruce Moku	U	X								
Summer Kaimalia Mullins						X	X	X		X
Bryan Nakamura	U	X								
Mark Naone	U									
Coco Needham		X			X	Removed by Request				
John Neill	X									
Keone Nunes	X									
Sonny Poe							X			
Harry Robins	X									
James Sarno									X	
Ronald Schaedel	X	X				X	X			
Thomas Shirai Jr.	X	X		X	X	X	X		X	X
Joseph Simpliciano							X			
Calfrey Stautan Jr.									X	X
Vernon Vickers									X	X
Nadine Vickers									X	
Dwight Victor	X	X				X	X	X		X
Lincoln L. Victor	X	U								
Vaughn Victor	X	X		X	X	X	X	U		
Kaukaohu Wahilani							X			
Michael Wikīli									X	X
Verdeza Yap									X	
Karen Young									X	

U – Undeliverable, unclaimed, or unable to reach/leave voicemail by phone

Table A.2. Consultation Meeting Attendance

Representative	Organization
Wai'anae Meeting on August 1, 2018	
Glen Kila	Koa Ike/Koa Mana
Cynthia Rezendes	Nanakuli-Mailii Neighborhood Board
Joseph Lapilio	Wai'anae Economic Development Council, Self
Sharlette Poe	Wai'anae Coast Neighborhood Board
Hanale Hopfe	Aha Moku Council – O'ahu, Wai'anae Moku
Vaughn Victor	Self
Wahiawā Meeting on August 2, 2018	
DeMONT Conner	Ho'o Mana Pono Political Action Committee
Thomas Shirai	Kawaihapai Ohana, Self
Lauren Morawski	Office of Hawaiian Affairs
Thomas Lenchanko	Self
Kristin Doyle	Self
Thora-Jeane P. Cuaresma	Self
May Rose Dela Cruz	Self
Priscilla Lalerdo	Self
Noelani DeVincent	Self
Jo-Lin Kalimapau	Self
Maria Kerodia	Self
Ayesha Liquirish	Self
Sheila Gage	Self
Winona Aguero	Self
Al Sabagala	Self
Kaulahealani Crawford-Kapanui	Self
(Anonymous)	Self
Wai'anae Meeting on October 9, 2018	
William J. DeLude	Royal Order of Kamehameha - Moku 'O Kapuaiwa
Rocky Naeole	Royal Order of Kamehameha - Moku 'O Kapuaiwa
James "Kimo" Hyde	Royal Order of Kamehameha - Moku 'O Kapuaiwa
Cynthia Rezendes	Nanakuli-Mailii Neighborhood Board
Karen Young	Women of Wai'anae
Lauren Murawski	Office of Hawaiian Affairs
Danni Nelson	LHCC (acronym undefined)
Hanale Hopfe	Aha Moku Council – O'ahu, Wai'anae Moku
Sparky Rodrigues	Mālama Makua
Luwella Leonardi	Self
Verdeza Yap	Self
Samson Kama	Self
James K. Mānaku	Self
Vernon Vickers	Self

Representative	Organization
Nadine Vickers	Self
Michael Wikīli	Self
James Sarno	Self
Liko Glushenko	Self
Albert Distajo	Self
Josian Jumo	Self
Thomas Lenchanko	Self
Wahiawā Meeting on October 11, 2018	
Koone Marx	Mahu ‘Ohana
Rawley Riccio	Associated Students of the University of Hawaii – West O‘ahu
Noelani DeVincent	Hawaiian Civic Club of Wahiawā, Helenihi ‘Ohana
Amy Perruso	Hawaiian Civic Club of Wahiawā
R. Mansfield	WHCC (acronym undefined)
Lauren Murawski	Office of Hawaiian Affairs
Calfrey Stautan Jr.	Hunters Association
Jo-Lin Lenchanko Kalimapau	Hawaiian Civic Club of Wahiawā
Hildegard Akee	Hawaiian Civic Club of Wahiawā
Thomas Shirai	Self, Kawaihapai ‘Ohana
DeMONT Conner	Ho‘omanapono Political Action Committee
Andrew Grandinetti	Self
Luwella Leonardi	Self
Thomas Lenchanko	Self
Theresa K.	Self
Rhonda Kekua	Self
Michael Keola Jones	Self
Phil Akee	Self

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Consultation Materials:
Comment Period 1

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B.1 Consultation Initiation Package



DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
5700 18TH STREET
FORT BELVOIR, VIRGINIA 22060-5573

July 12, 2018

Native Hawaiian Organization
O'ahu, Hawaii

Dear Sir or Madam:

The Missile Defense Agency (MDA) proposes to conduct geotechnical testing at a parcel of land on Kuaokalā Ridge to determine constructability and support site selection for future MDA projects. As a federal undertaking with potential to affect historic properties, the proposed geotechnical testing is subject to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36 Code of Federal Regulations Section 800. The parcel is on State land managed by the Department of Forestry and Wildlife (DOFAW), and the MDA must obtain a right-of-entry (ROE) permit to conduct the geotechnical testing. The project is also subject to Hawaii Revised Statutes (HRS) Chapter 6E, Historic Preservation. Under these laws, the MDA must identify significant historic properties, determine whether the undertaking will adversely affect historic properties, and avoid, minimize, or mitigate any adverse effects.

The MDA invites you to consult on the proposed geotechnical testing under Section 106 of the NHPA and HRS Chapter 6E. Please be aware the geotechnical testing at Kuaokalā Ridge is a separate undertaking from the Homeland Defense Radar-Hawaii (HDR-H) project, for which the MDA is preparing an Environmental Impact Statement under the National Environmental Policy Act. The assessment of effects for the geotechnical testing will be separate from the HDR-H project, as well as any mitigations identified. The geotechnical actions are being treated separately in part because DOFAW's issuance of a ROE permit for geotechnical testing is separate from any actions the agency may take on behalf of the HDR-H project. The MDA must complete the geotechnical testing before the site selection process for HDR-H can be completed. When the geotechnical testing results are available and the proposed HDR-H project is better defined, the MDA will conduct separate Section 106 and Chapter 6E consultation on the details of the construction and operation of the proposed HDR-H project.

Background information enclosed with this letter includes the proposed geotechnical testing, the area of potential effects (APE), a brief historic context of the area, previous cultural resource studies, and known historic properties. One site has been identified in the APE, the Moka'ena Heiau, which we understand to be a very important traditional resource to Native Hawaiians. The MDA will avoid this site and maintain a buffer around it during the geotechnical testing. We request your comments related to the significance of the Moka'ena Heiau and any other historic properties in the APE, as well as your comments on the potential effects geotechnical testing might have on these properties.

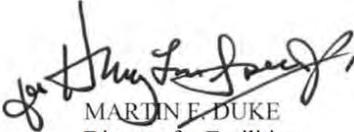
We hope you will join us at one of two consultation meetings in Wai‘anae and Wahiawā on August 1 and August 2, 2018, respectively. During the meetings, we will present information about the undertaking, APE, and historic properties. We will answer your questions and listen to your comments about historic properties and potential effects. The MDA is currently organizing a Phase I Archaeological Inventory Survey of the APE. We hope to discuss the results of that survey during the meeting, and hear your thoughts on any historic properties that might be identified through the survey. Meeting information is below:

6:00 pm to 8:00 pm, Wednesday, August 1, 2018
Wai‘anae High School, 85-251 Farrington Hwy, Wai‘anae, HI

5:00 pm to 7:00 pm Thursday, August 2, 2018
Wahiawā Public Library, 820 California Ave, Wahiawā, HI

We look forward to working with you to ensure historic properties and your cultural resource concerns are given due consideration in our geotechnical testing proposal. If you plan to attend one of the consultation meetings, please fill out and return the enclosed Consultation Participation form by July 23, 2018. Otherwise, please provide your comments by August 3, 2018 so we have adequate time to consider them as we consult with the State Historic Preservation Division and prepare to conduct the testing. You may return the form and your comments to Mr. David Fuller, MDA Deployment Environmental Officer at david.fuller@mda.mil or: Missile Defense Agency/FDOE, Attn: David Fuller, Bldg 5224 Martin Rd, Redstone Arsenal, AL 35898. You may also contact Mr. Fuller at 256-450-4744 or our Cultural Resource contacts, Elizabeth Leclerc at 720-633-7088 and Jeanne Barnes at 540-314-5367, if you have any questions. We also request that you review the enclosed list of recipients and inform us if you know of other organizations or individuals we should invite to consult.

Sincerely,



MARTIN E. DUKE
Director for Facilities
and Deployments

Enclosures:

1. Background Information on the Geotechnical Testing at Kuaokalā Ridge
2. Consultation Participation Form
3. Mailing List

**BACKGROUND INFORMATION ON THE
GEOTECHNICAL TESTING AT KUAOKALĀ
RIDGE**

FOR SECTION 106 AND CHAPTER 6E CONSULTATION

MISSILE DEFENSE AGENCY

JULY 2018

ENCLOSURE 1

Geotechnical Testing at Kuaokalā Ridge
Background Information

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Figure 1. Project Area2

Geotechnical Testing at Kuaokalā Ridge
Background Information

ABBREVIATIONS AND ACRONYMS

APE	Area of Potential Effect
DLNR	Department of Land and Natural Resources
KPSTS	Ka'ena Point Satellite Tracking Station
LCA	Land Commission Award
MDA	Missile Defense Agency
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
ROE	Right-of-Entry
TMK	Tax Map Key

Geotechnical Testing at Kuaokalā Ridge
Background Information

1. Introduction

Missile Defense Agency (MDA) proposes to conduct geotechnical testing on Kuaokalā Ridge, Ka'ena Ahupua'a, Waialua District and Keawa'ula Ahupua'a, Wai'anae District, Island of O'ahu (Tax Map Key [TMK] 6-9-3:2 and 8-1-1:14) (Figure 1). MDA proposes to conduct the testing to determine the constructability and to support site selection for possible future MDA projects at the location. The testing will consist of 10 soil test borings 4 to 6 inches in diameter and up to 100 feet deep and 3 auger borings up to 12 inches in diameter and 6 feet deep. The testing will occur adjacent to Ka'ena Point Satellite Tracking Station (KPSTS) on State land managed by the Department of Land and Natural Resources (DLNR), Division of Forestry and Wildlife. MDA is coordinating with DLNR to obtain a Right-of-Entry (ROE) permit for the testing.

As a federal undertaking with the potential to affect historic properties, the geotechnical testing is subject to Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) and its implementing regulations in 36 Code of Federal Regulations § 800. Section 106 of the NHPA requires agencies to assess the effects of their undertakings on historic properties, defined as resources listed in or eligible for listing in the National Register of Historic Places (NRHP), and affords the Advisory Council on Historic Preservation an opportunity to comment on the undertaking. Because the geotechnical testing will occur on State land and require a ROE permit from DLNR, the undertaking is also subject to Hawai'i Revised Statutes 6E and Hawai'i Administrative Rules 13-275. Chapter 6E requires State agencies to identify historic properties and seek a determination of effect from the State Historic Preservation Division (SHPD).

This document describes the undertaking, defines the Area of Potential Effect (APE), and identifies historic properties in the APE known from previous cultural resources work. MDA, upon request of the SHPD, is preparing to conduct a pedestrian archaeological inventory survey (AIS) of the APE. MDA also intends to conduct archaeological monitoring during the geotechnical testing.

2. Description of the Undertaking and Area of Potential Effect

The undertaking is defined as obtaining a ROE permit and conducting geotechnical testing in support of potential future MDA actions and alternative selection. The geotechnical testing will consist of approximately 10 soil test borings and 3 auger borings in an approximate 160-acre area that overlaps the Kuaokalā Game Management Area and KPSTS. MDA anticipates that all geotechnical testing will occur on State land. The borings will be 4 to 6 inches in diameter and up to 100 feet deep. The auger borings would be conducted using a 12-inch or smaller diameter auger, drilled to a depth of approximately 6 feet. Following each test boring, the lower portion of the boring will be backfilled with a cement-bentonite grout, and the top portion backfilled with drill spoils and on-site soils. Each auger borehole would be backfilled with drill spoils. The APE is the 160-acre parcel where testing will occur, and is shown in Figure 1.

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Geotechnical Testing at Kuaokalā Ridge
Background Information

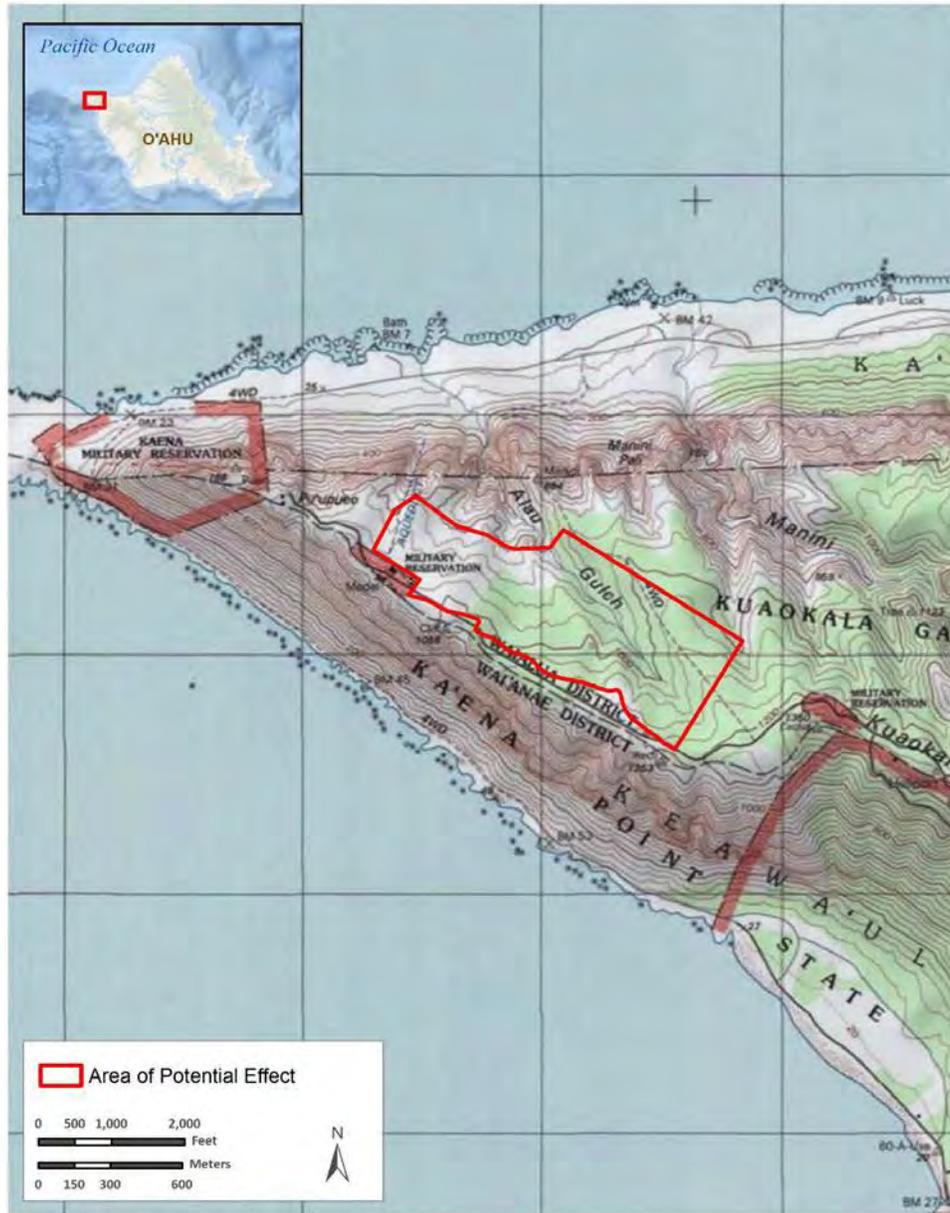


Figure 1. Project Area

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3. Summary Traditional and Historic Context

The project area is in a landscape rich in traditional history with many *mo'olelo* related to nearby place names and events. Ka'ena Point, northwest of the project area, is the nearest location on O'ahu to Kaua'i. This proximity is notable as Kaua'i is the only island in the Hawaiian chain that is not visible from another island except on exceptionally clear days (Tomonari-Tuggle 2008:21). Ka'ena Point is the site of several legends connecting O'ahu and Kaua'i. In another link between the islands, the *heiau* Moka'ena and Kuaokalā are said to have been built by people from Kaua'i (McAllister 1933:127), although Fornander (1917) attributes their construction to the *menehune*, a mythical race of beings. The location of the latter *heiau*, which shares its name with the Kuaokalā Ridge, is unknown. Ka'ena Point and Pu'u Pueo on Kuaokalā Ridge are traditionally associated with *leina a ka 'uhane*, or 'a leaping place of the spirit,' where spirits travel and leap into the afterlife. Ka'ena Ahupua'a has been described as poor in terrestrial resources but rich with ocean resources. Handy and Handy (1972:467) note:

"It was here that the ancient chief Kawelo distinguished himself as a fisherman; and there are also many stories of the culture hero Maui as a great fisherman identified with this area. Much of the coast hereabouts is marked by steeply built-up, shifting sand dunes and treacherously rough seas, which probably accounts for the acclaim connected with particular fishing exploits of the past."

The archaeological history of the area demonstrates that the area around Ka'ena Point was settled relatively late compared to most of O'ahu and was probably used only on a semi-permanent or seasonal basis until the 1700s. There is little archaeological data specific to the Ka'ena region. Radiocarbon dating of materials from a probable fishing camp at Ka'ena Point (Site 50-80-03-1183) yielded a date calibrated within a two-sigma range of A.D. 1453 to 1644 (Dagher 1994).

The earliest European account of the project area was made by Captain George Vancouver in 1793, who described the Wai'anae coast as "nearly destitute of verdure, cultivation, or inhabitants, with little variation all the way to the west point of the island" (McAllister 1933:112). Settlement of the region remained low through the nineteenth century. As a result of the Great Māhele, most of the lands surrounding the project area were turned over to the government except Māhele Award 14, a 210-acre parcel in Keawa'ula given to La'amaikahiki, and two land commission awards (LCAs) on the coastal flat of Keawa'ula awarded to Kaio (LCA 5557) and Lonoahiilei (LCA 5999). Government lands were subsequently leased for commercial ranching. In the 1920s entrepreneur C. D. Pringle attempted to establish a pineapple plantation on the Kuaokalā plateau northeast of the project area. The project did not succeed and the area reverted to cattle ranching.

Ka'ena Point Military Reservation was created at Ka'ena Point and part of Kuaokalā Ridge in July 1923 under Executive Order 4679. In April 1958, the U.S. Air Force acquired the site for KPSTS from the State of Hawai'i under a long-term lease. The station participated in several Department of Defense space programs throughout the Cold War, including the Discoverer Satellite Program (Tomonari-Tuggle 2008:27). Today the installation occupies 153 acres leased from the State of Hawai'i and private landowners, including easements and rights-of-way.

4. Known Historic Properties in the APE

MDA reviewed the KPSTS Integrated Cultural Resources Management Plan (ICRMP) (Tomonari-Tuggle 2008) and consulted records at the SHPD library in Kapolei, O'ahu to identify previous cultural resource studies and known historic properties in and around the APE. A reconnaissance level survey was completed at KPSTS and adjacent areas in 1987 (Hammatt and Borthwick 1987). This survey located one archaeological resource in the APE, Site 188, Moka'ena Heiau, which was first recorded by J. Gilbert McAllister during his island-wide reconnaissance in 1929 (McAllister 1933). Additional archaeological assessments and project-specific AISs have since been completed at and around KPSTS (Tomonari-Tuggle 2008); however, none of these included new reconnaissance or inventory survey in the APE, although an archaeological assessment in 2007 did produce updated documentation of Site 188 (Rasmussen 2007).

Hammatt and Borthwick's 1987 survey inventoried 300 to 400 acres of land on both sides of the station road along Kuaokalā Ridge. The survey area extended between 300 and 2,000 feet northeast of the road to include "any relatively gentle slope area that may eventually be part of facilities expansion" (Hammatt and Borthwick 1987:27). It is unclear how much of the APE was covered during the survey, but its location and topography suggests most, if not all, of the APE may have been surveyed. Hammatt and Borthwick recorded nine sites, of which only Site 188 is in the APE. The next nearest site recorded on KPSTS is approximately 2,300 feet southeast.

Site 188 is eligible for listing in the NRHP and is culturally significant as a traditional Hawaiian ceremonial site. The *heiau* is the highest of any on O'ahu. Hammatt and Borthwick described the *heiau* as:

"a rectangular terraced platform structure...which incorporates a large in situ boulder outcrop. The structure measures 35 feet (E/W) by 78 feet (N/S) and is divided into 4 distinct terrace levels...approximately 100 feet downslope (north) of the site are two adjoining, relatively level soil areas. The soil areas are about 30 feet square and though their appearance is that of large soil terraces, they are more probably just erosional features" (Hammatt and Borthwick 1987:38).

Hammatt and Borthwick (1987) conducted test excavations consisting of four test units around the perimeter of the structure at Site 188. Three test units measured 50 square centimeters and one test unit was 1 square meter. The excavation units were placed 2.7 to 9 meters from the edge of the structure. No artifacts were recovered; however, a possible buried rock alignment or paving and charcoal flecking were observed in excavations north-northeast and west of the feature.

Although the Moka'ena Heiau is outside the KPSTS lease area and installation boundary, the ICRMP recommends protective measures, including a protective buffer, preservation of view planes to the north and east, and monitoring of development in the immediate area. The *heiau* is enclosed in protective fencing that is in extreme disrepair. MDA will avoid the area around the *heiau* during geotechnical testing, to be enforced by archaeological monitors.

Geotechnical Testing at Kuaokalā Ridge
Background Information

There are no historic buildings in the APE. Several buildings are immediately west of the APE on KPSTS. Two of these, Buildings 35 and 39006, are eligible for listing in the NRHP.

5. References Cited

Dagher, Catherine A. 1994. Ka'ena Fishing Camp Site Synopsis: 50-80-03-1183. February 7.

Fornander, Abraham. 1917. *Fornander Collection of Hawaiian Antiquities and Folk-lore*. Volume IV, Part III. B.P. Bishop Museum Memoirs. Bishop Museum Press, Honolulu.

Hammatt, Hallett H. and Douglas K. Borthwick. 1987. *Archaeological Survey and Testing at the Ka'ena Point Satellite Tracking Station, Wai'anae and Waialua, O'ahu*. Prepared for U.S. Army Corps of Engineers, Pacific Ocean Division. Prepared for R. M. Towill, Inc. Prepared by Cultural Surveys Hawaii, Kailua, Hawai'i.

McAllister, J.G. 1933. *Archaeology of Oahu*. B. P. Bishop Museum Bulletin Number 104. Bishop Museum Press. Honolulu.

Rasmussen, Coral. 2007. *Archaeological Assessment at Kaena Point Satellite Tracking Station (KPSTS), O'ahu, Hawai'i*. Prepared for EA Engineering, Science, and Technology, Inc., Honolulu. Prepared by International Archaeological Research Institute, Inc., Honolulu.

Tomonari-Tuggle, M.J. 2008. *Integrated Cultural Resources Management Plan, Kaena Point Satellite Tracking Station, Hawaii*. Prepared for EA Engineering, Science, and Technology, Inc., Honolulu. Prepared by International Archaeological Research Institute, Inc., Honolulu. Updated September 11, 2009.

U.S. Air Force. 2017. *Final Environmental Assessment Addressing the Repair, Upgrade, or Replacement of the Dillingham Waterline for Kaena Point Satellite Tracking Station, Oahu, Hawaii*. Updated from the October 2015 version to 2017.

Geotechnical Testing at Kuaokalā Ridge
Background Information

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MISSILE DEFENSE AGENCY



<https://www.mda.mil>
mda.info@mda.mil

Consultation Participation

Geotechnical Testing at Kuaokalā Ridge

Thank you for your interest in consulting on the Missile Defense Agency's (MDA) proposal to conduct geotechnical testing at Kuaokalā Ridge. Please complete this form and return to:

David Fuller
Deployment Environmental Officer
Environmental Division
Missile Defense Agency
BLDG 5224 Martin Rd.
Redstone Arsenal, AL 35898
david.fuller@mda.mil

Consultation and Meeting Participation

- I accept MDA's invitation to consult on the proposal to conduct Geotechnical Testing at Kuaokalā Ridge. I wish to attend the following consultation meeting (*select one, note that meeting participation does not require an RSVP*):
- Wai'anae: 6:00 pm to 8:00 pm, August 1, 2018, Wai'anae High School, 85-251 Farrington Hwy, Wai'anae, HI
 - Wahiawā: 5:00 pm to 7:00 pm, August 2, 2018, Wahiawā Public Library, 820 California Ave, Wahiawā, HI
 - I do not plan to attend either meeting but still wish to participate in the consultation
- I do not wish to participate in consultation on the proposal to conduct Geotechnical Testing at Kuaokalā Ridge (*note you may request to re-join the consultation at any time*).

Contact Information

Please take this opportunity to update your contact information with us, including your email address and phone number.

Name: (First) _____ (Middle) _____ (Last) _____

Address: (Street) _____ (City/Town) _____ (State) _____

Phone: _____ Email Address: _____

(continued on reverse)

ENCLOSURE 2

Comments

Please use the space below to submit any comments you have at this time regarding the geotechnical testing proposal, cultural resources in the area of potential effects, and potential effects from geotechnical testing on cultural resources.

Missile Defense Agency
Proposed Geotechnical Testing at Kuaokalā Ridge
Consultation List as of July 12, 2018

Organizations

'Aha Kāne	Kanu o ka 'Āina Learning 'Ohana
Aha Kukaniloko Koa Mana mea ola kanaka mauli	Kapolei Community Development Corporation
Aha Wahine	Kauwahi 'Anaina Hawai'i Hawaiian Civic Club
'Ahahui Siwila Hawai'i O Kapōlei	Kawaihapai Ohana
Aloha First	Ke One O Kakuhihewa
Association of Hawaiians for Homestead Lands	King Kamehameha Hawaiian Civic Club
Association of Hawaiian Civic Clubs	Kingdom of Hawai'i
Au Puni O Hawai'i	Ko'olau Foundation
Brian Kaniela Nae'ole Naauao	Koolauloa Neighborhood Board No. 28
Council for Native Hawaiian Advancement	Ko'olaupoko Hawaiian Civic Club
Friends of 'Iolani Palace	Koa Ike
George K. Cypher 'Ohana	Kula no na Po'e Hawaii
God's Country Waimanalo	Kulolo'i'a Lineage – I ke Kai 'o Kulolo'i'a
Aha Moku Advisory Committee (Oahu)	Lahui Kaka'ikahi
Department of Hawaiian Home Lands	Ma'a 'Ohana c/o Lanī Ma'a Lapilio
Friends for Waialua Town	Mahu Ohana
Hawaiian Civic Club of Hilo	Mainland Council Association of Hawaiian Civic Clubs
Hawaiian Civic Club of Honolulu	Makaha Hawaiian Civic Club
Hawaiian Civic Club of Wahiawa	Mālama Mākua
Hawaiian Community Assets, Inc.	Malu'ōhai Residents Association
Ho Ohana	Mana Health Services, Inc.
Ho'okano Family Land Trust	Marae Ha'a Koa
Hui Huliau Inc.	Meleana Kawaiaea, LLC
Hui Kaleleiki Ohana	Menehune Foundation
Hui Mālama I Na Kupuna O Hawaii Nei	Mokuleia Community Association
Imua Hawaii	Na Koa Ikaika Ka Lahui Hawaii
Ka'ala Cultural Learning Center	Na Ku'auhau 'o Kahiwakaneikopolei
Kāko'o 'Ōiwi	Nanakuli Hawaiian Homestead Association
Kalaleloa Heritage and Legacy Foundation	Nanakuli-Maili Neighborhood Board #36
Kalihi Palama Hawaiian Civic Club	Na Ohana o Puaoi a me Hanawahine
Kamealoha	Native Hawaiian Chamber of Commerce
Kamehameha Schools – Community Relations and Communication Group	Native Hawaiian Church

Native Hawaiian Economic Alliance
Native Hawaiian Education Council
Native Hawaiian Hospitality Association
Nekaifes Ohana
North Shore Neighborhood Board #27
Office of Hawaiian Affairs, Ka Pouhana
Order of Kamehameha I
Pacific Justice & Reconciliation Center
PA'I Foundation
Papa Ola Lokahi
Papakōlea Community Development
Partners in Development Foundation
Peahi Ohana
Prince Kūhiō Hawaiian Civic Club
Royal Hawaiian Academy of Traditional Arts

Sovereign Councils of the Hawaiian
Homelands Assembly
The Friends of Hokule'a and Hawai'i'iloa
The I Mua Group
The Makua Group
The Mary Kawena Pūkui'i Cultural
Preservation Society
Waialua Community Association Waianae
Kai Homestead Association
Waialua Hawaiian Civic Club
Waianae Coast Neighborhood Board #24
Wai'anae Hawaiian Civic Club
Wai'kīkī Hawaiian Civic Club
Waimānalo Hawaiian Homes Association

Individuals

William Aila Jr.
Jan Becket
Puanani Burgess
Fred Cachola
Vince Dodge
Gary Goodhue
Vincent Higa
Black Ho'ohuli
Hanale Hopfe
Melvin Kauwila Clark
Tony Laakapu Lenchanko
Tyson Loughmiller
Dan Lyman
Kamuela M. Magno
Den Mahiai

Vernell Mahiai
Bruce Moku
Bryan Nakamura
Mark Naone
Coco Needham
John Neill
Keone Nunes
De Monte Connor
Harry Robins
Ronald Schaedel
Joe Simpliciano
Vaughn Victor
Dwight Victor
Lincoln L. Victor

B.2 Consultation Meeting Fact Sheet

MISSILE DEFENSE AGENCY



Fact Sheet

<https://www.mda.mil>
mda.info@mda.mil

5700 18th Street, Bldg 245
Fort Belvoir, VA 22060-5573

Geotechnical Testing at Kuaokalā Ridge – Section 106/Chapter 6E Consultation

Missile Defense Agency (MDA) proposes to conduct geotechnical testing on Kuaokalā Ridge to determine constructability and to support site selection for possible future MDA projects at the location. The testing will occur adjacent to Ka'ena Point Satellite Tracking Station (KPSTS) on State land managed by the Department of Land and Natural Resources (DLNR), Division of Forestry and Wildlife. MDA is coordinating with DLNR to obtain a Right-of-Entry (ROE) permit for the testing. As a federal undertaking, the geotechnical testing is subject to Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) and its implementing regulations at 36 CFR § 800. Because the geotechnical testing will occur on State land and requires a ROE permit from DLNR, the undertaking is also subject to Hawai'i Revised Statutes Chapter 6E and Hawai'i Administrative Rules 13-275.

Project Overview

The geotechnical testing will consist of approximately 10 soil test borings and 3 auger borings in an approximate 160-acre area that overlaps the Kuaokalā Game Management Area and KPSTS. MDA anticipates that all geotechnical testing will occur on State land.

- Soil test borings will be 4 to 6 inches in diameter and up to 100 feet deep.
- Lower portion of soil test borings will be backfilled with a cement-bentonite grout, and the top portion backfilled with drill spoils and on-site soils.
- Auger borings will be 12 inches in diameter or smaller and approximately 6 feet deep.
- Each auger borehole will be backfilled with drill spoils.
- MDA will avoid all known historic properties during geotechnical testing.
- MDA will conduct archaeological monitoring during the testing.



Example of truck-mounted drill rig for geotechnical testing.

Section 106 and Chapter 6E

Section 106 of the NHPA and Chapter 6E require federal and state agencies, respectively, to assess the effects of their actions on significant cultural resources, termed "historic properties" in Section 106 and referred to as "significant historic properties" under Chapter 6E. Under both laws, cultural resources are considered significant when they are associated with important events, people, design or construction, or for their information potential. Under Chapter 6E, properties may also be significant if they have important value to the Native Hawaiian people or to another ethnic group of the state. Historic properties must have both significance and have retained their historic integrity. Properties that meet at least one of the four criteria and have integrity are eligible for listing in the National Register of Historic Places.

Area of Potential Effects; The Area of Potential Effects (APE) is "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties" (36 CFR § 800.16(d)). The APE for the geotechnical testing at Kuaokalā Ridge is the approximate 160-acre parcel where testing will occur, and is shown on the reverse page.

Approved for Public Release
18-MDA-9729 (27 Jul 18)

Consultation: Section 106 of the NHPA requires federal agencies to consult with interested parties, including Native Hawaiian Organizations that attach religious and cultural significance to historic properties in the APE. MDA must consult on the identification of historic properties (including National Register evaluations) and the proposed undertaking's effect(s) on historic properties. If there are adverse effects, the agency must consult on measures to avoid, minimize, or mitigate the effects.

Under Chapter 6E, a state agency (or project proponent) must consult with ethnic organizations or members of ethnic groups when evaluating a property that might be significant under Criterion E. If the agency identifies adverse effects, they must also consult when recommending measures to mitigate the effects. For certain mitigation actions, the agency may need to consult with the Office of Hawaiian Affairs when developing work plans.

Known Cultural Resources

Previous reconnaissance surveys in the project area identified one site known to be in the APE, the Moka'ena Heiau, also known as Site 188. The site was first recorded by J. Gilbert McAllister during his island-wide reconnaissance survey in 1929 (McAllister 1933). Site 188 is eligible for listing in the National Register of Historic Places and the Hawaii Register of Historic Places, and is culturally significant as a traditional Hawaiian ceremonial site. The heiau, which is on State land, is at the highest elevation of any on O'ahu.

MDA contracted an archaeological inventory survey of the APE, which was completed on July 17, 2018. The survey identified one previously unknown archaeological site: a possible terrace and alignment that may be a traditional Hawaiian agricultural or habitation site. The site has been given the temporary designation TS-1. The survey also included detailed mapping of the Moka'ena Heiau.

MDA Needs Your Input

In accordance with the NHPA and Chapter 6E, we request your comments on the following topics:

- Identification of Historic Properties
- Significance of newly identified site TS-1
- Effects of geotechnical testing on the Moka'ena Heiau and TS-1 (testing will not occur within or adjacent to site boundaries).

Approved for Public Release
18-MDA-9729 (27 Jul 18)



Area of Potential Effect and general locations of Site 188, Moka'ena Heiau, and Site TS 1. Site boundaries shown in map are enlarged to protect site locations.

Comments should be submitted via postal mail or email to the contact information below by August 3, 2018:

David Fuller
Deployment Environmental Officer
Environmental Division
Missile Defense Agency
BLDG 5224 Martin Rd.
Redstone Arsenal, AL 35898
Email: david.fuller@mda.mil

B.3 Consultation Meeting Presentation

8/6/2018



8/6/2018



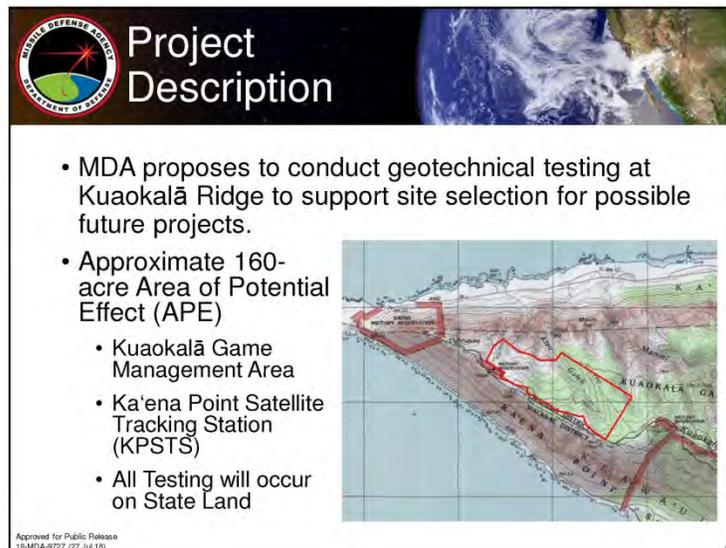
Consultation

MDA needs your expertise and input:

- Identify Historic Properties
- Evaluate Historic Properties for the National and Hawai'i Registers
- Assess Effects on Historic Properties
- Avoidance and Monitoring
- Satisfies legal requirements for consultation:
 - Section 106 of the National Historic Preservation Act
 - HRS Chapter 6E

Approved for Public Release
18-MDA-6727 (27 Jul 18)

3



Project Description

- MDA proposes to conduct geotechnical testing at Kuaokalā Ridge to support site selection for possible future projects.
- Approximate 160-acre Area of Potential Effect (APE)
 - Kuaokalā Game Management Area
 - Ka'ena Point Satellite Tracking Station (KPSTS)
 - All Testing will occur on State Land

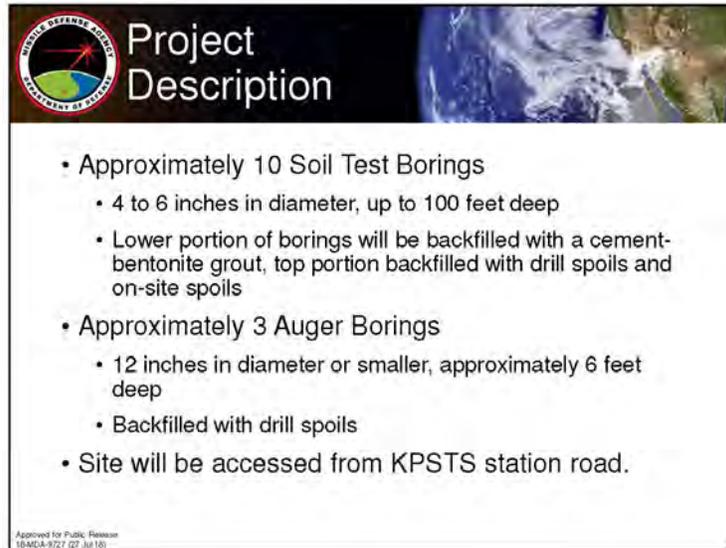


Approved for Public Release
18-MDA-6727 (27 Jul 18)

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2

8/6/2018



Project Description

- Approximately 10 Soil Test Borings
 - 4 to 6 inches in diameter, up to 100 feet deep
 - Lower portion of borings will be backfilled with a cement-bentonite grout, top portion backfilled with drill spoils and on-site spoils
- Approximately 3 Auger Borings
 - 12 inches in diameter or smaller, approximately 6 feet deep
 - Backfilled with drill spoils
- Site will be accessed from KPSTS station road.

Approved for Public Release
18MDA 9727 (27 Jul 18)



Project Description

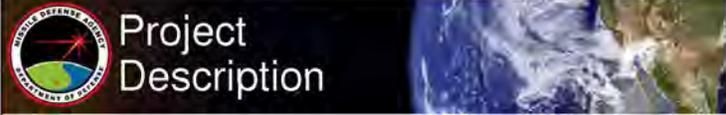
- Equipment may include the following:
 - drill rig (truck- or track-mounted)
 - flat-bed support truck
 - low-boy trailer
 - water truck
 - pickup trucks/sports utility vehicles



Example of truck-mounted drill rig for geotechnical testing.

Approved for Public Release
18MDA 9727 (27 Jul 18)

8/6/2018



Project Description

- MDA will avoid known historic properties during geotechnical testing
- MDA will conduct archaeological and cultural monitoring of all ground disturbance during the testing.
 - The monitoring will also serve to support the identification of subsurface archaeology if the site is selected for future projects.

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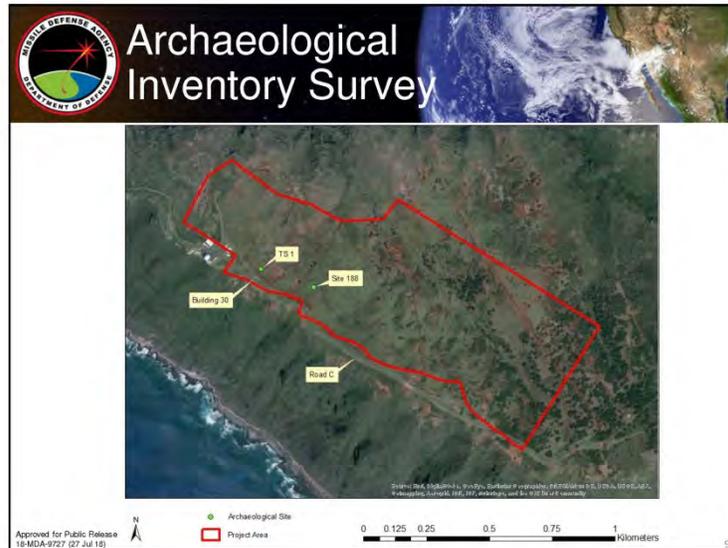
Archaeological Inventory Survey

- Keala Pono conducted an archaeological inventory survey (AIS) of the APE.
 - Pedestrian survey of the approximate 160-acre APE
 - Intensive-level site mapping and documentation
 - Detailed mapping of the Moka'ena Heiau
- Identified two sites:
 - Site 188, Moka'ena Heiau (previously known)
 - Site TS 1 (newly identified)

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Archaeological Inventory Survey

- Site 188, Moka'ena Heiau
 - Previously documented traditional Hawaiian ceremonial site
 - Highest elevation of any heiau on O'ahu
 - Four terraces
 - Observed branch coral offerings in a stone-lined pit
 - Possible ku'ula at the base of one wall
 - Sweeping views of the landscape and ocean

Moka'ena Heiau ↑

Possible Ku'ula →

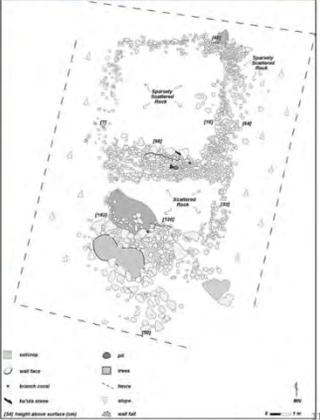
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 **Archaeological Inventory Survey**



Possible boulder of significance, as seen from Moka'ena Heiau (boulder is outside APE)



Plan View of Heiau →

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 **Archaeological Inventory Survey**

- Site TS 1
 - Possible terrace and stone alignment
 - Terrace is composed of stacked stones and cobbles, is roughly rectangular
 - C-shaped stone alignment is slightly uphill of the terrace, aligned with the terrace wall
 - Poor condition, not well defined

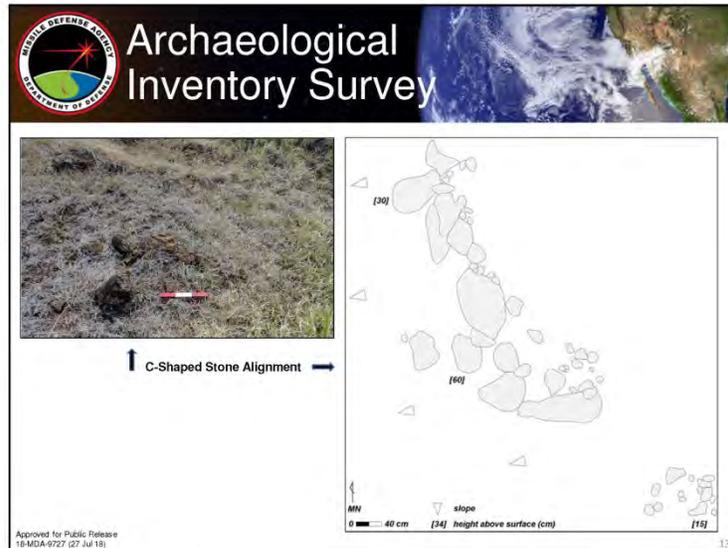


Possible Terrace

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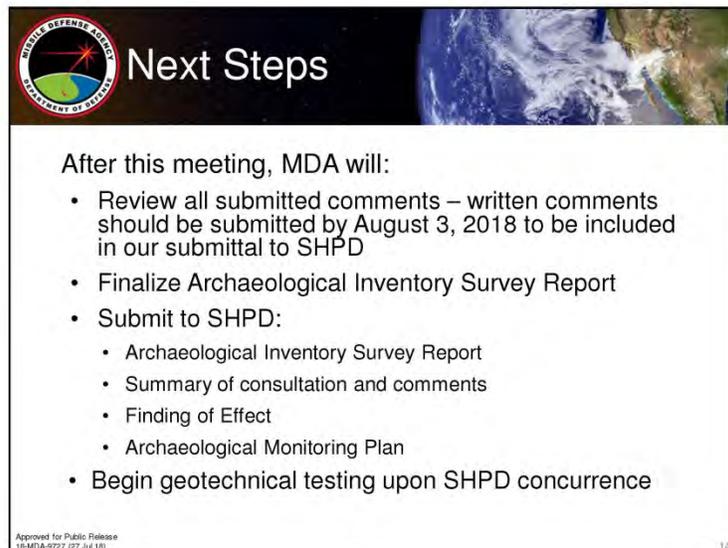
8/6/2018



The slide features the Native Defense Agency Department of Defense logo in the top left corner. The title "Archaeological Inventory Survey" is prominently displayed in the top center. On the right side, there is a satellite image of a coastal area. The main content area is divided into two parts: on the left, a photograph of a field with a red scale bar and an arrow pointing to a "C-Shaped Stone Alignment"; on the right, a topographic map of the Hawaiian Islands with elevation contours and a legend for "MN", "slope", and "height above surface (cm)".

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The slide features the Native Defense Agency Department of Defense logo in the top left corner. The title "Next Steps" is prominently displayed in the top center. On the right side, there is a satellite image of a coastal area. The main content area contains a bulleted list of actions to be taken after a meeting.

After this meeting, MDA will:

- Review all submitted comments – written comments should be submitted by August 3, 2018 to be included in our submittal to SHPD
- Finalize Archaeological Inventory Survey Report
- Submit to SHPD:
 - Archaeological Inventory Survey Report
 - Summary of consultation and comments
 - Finding of Effect
 - Archaeological Monitoring Plan
- Begin geotechnical testing upon SHPD concurrence

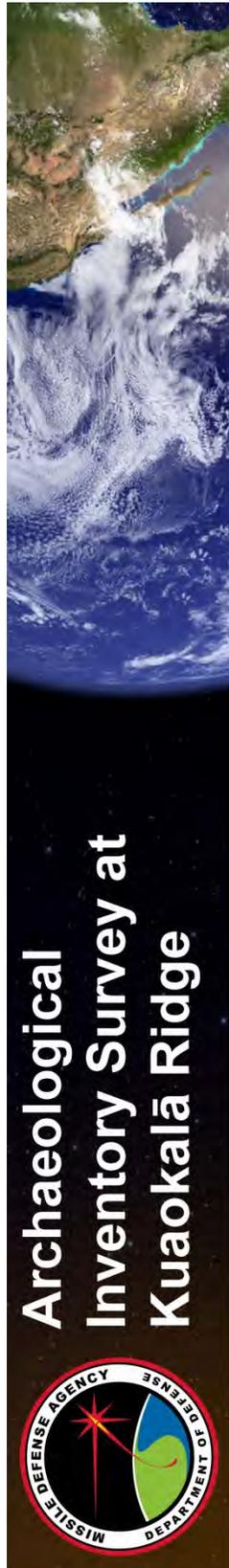
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B.4 Consultation Meeting Survey Poster

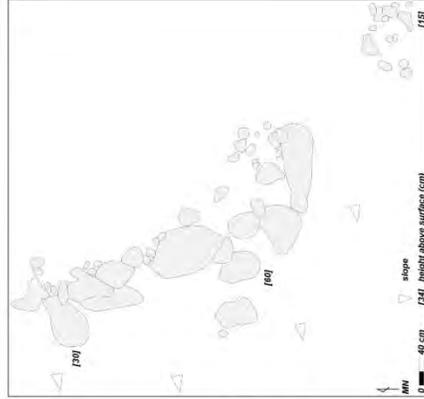


Site 188, Moka'ena Heiau facing east (above) and plan view (right)

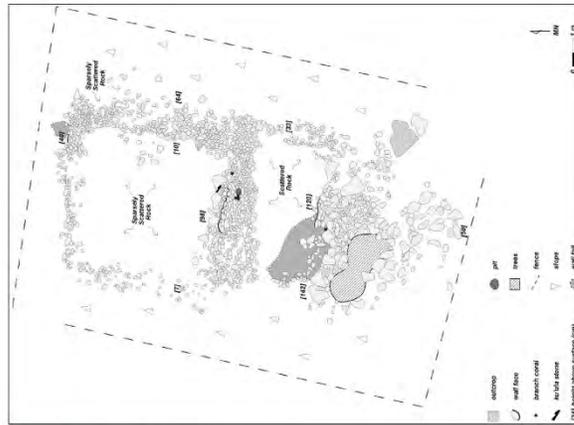
The Moka'ena Heiau is a National Register-eligible traditional Hawaiian ceremonial site at the highest elevation of any heiau on O'ahu. The heiau consists of four terraces that total 28 meters long by 12 meters wide. Several offerings of branch coral were observed within the structure. A possible ku'uila is at the base of one of the walls. The site has sweeping views of the landscape and ocean. A prominent large boulder on the ridge to the northeast (not shown) may be associated with the site.

MDA contracted Keala Pono Archaeological Consulting to conduct an Archaeological Inventory Survey of the Geotechnical Testing Area of Potential Effect. The survey was completed on July 17, 2018. Keala Pono performed detailed mapping of the Moka'ena Heiau and identified a newly identified site temporarily designated TS 1.

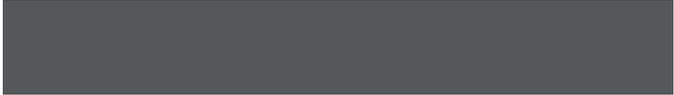
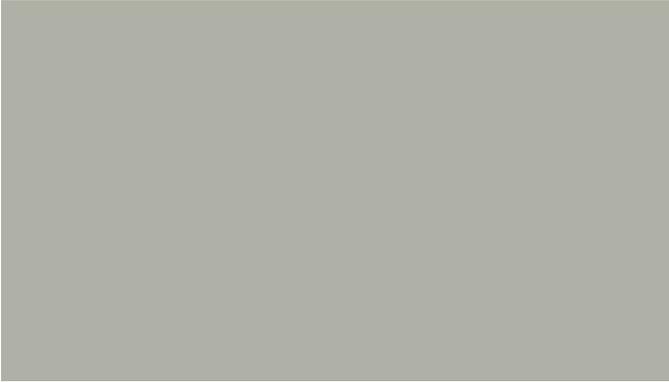
Site TS 1 is a possible Terrace and stone alignment. The terrace is 2.7 meters long by 3.7 meters wide and is composed of stacked stones and cobbles. The c-shaped alignment is slightly uphill of the terrace. The site, which is in poor condition, may be a traditional agricultural or habitation feature.



Possible stone alignment at TS 1 (above and bottom left). Overview of possible terrace at TS 1, facing southeast (bottom right)



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C

Consultation Materials: Comment Period 2

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C.1 Consultation Package (For Existing Consulting Parties)



DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
5700 18TH STREET
FORT BELVOIR, VIRGINIA 22060-5573

September 19, 2018

[REDACTED]
[REDACTED]
[REDACTED]

Dear Sir or Madam:

The Missile Defense Agency (MDA) seeks to continue consultation with you and/or your organization regarding our proposal to conduct geotechnical testing at Kuaokalā Ridge on O‘ahu as we move through federal and state review processes under Section 106 of the National Historic Preservation Act (NHPA) and Hawai‘i Revised Statutes (HRS) Chapter 6E. As described in previous correspondence sent to you or your organization and dated July 17, 2018, the MDA proposes to drill 13 soil test and auger borings to determine the future potential constructability of a parcel of State land adjacent to the existing Ka‘ena Point Satellite Tracking Station (KPSTS) on Kuaokalā Ridge. The testing is subject to a right-of-entry permit from the Division of Forestry and Wildlife (DOFAW), which manages this parcel of land. The geotechnical testing proposal is related to, but separate from the MDA’s Homeland Defense Radar – Hawai‘i (HDR-H) project, for which we are currently preparing an Environmental Impact Statement (EIS) under the National Environmental Policy Act and Hawai‘i Environmental Policy Act.

We have received from previous consultation a number of substantive comments regarding the project and its effects on historic properties. You can find a summary of these comments and the MDA’s responses in Enclosure 1. Among the comments were several that the Area of Potential Effects (APE) as defined for the geotechnical testing effort was too large and should more accurately reflect the area where geotechnical testing would occur. The APE was defined as the entire approximate 160-acre candidate site for the HDR-H project, composed of approximately 28 acres of KPSTS existing leased land, approximately 67 acres of State land where the HDR-H project would be located if the Kuaokalā site is selected as the deployment location, and approximately 65 acres of State land that would be used as a construction laydown area to stage equipment and vehicles. However, the proposed geotechnical testing would only take place on approximately 22 acres of KPSTS existing leased land and the approximate 67-acre parcel of State land where the HDR-H project could be constructed. In response to comments on the size of the APE, the MDA has reduced the APE to the approximate 89-acre area where geotechnical testing would occur, outlined in blue in Enclosure 2. When the MDA initiates consultation on the HDR-H project, a new APE will be defined as appropriate for the potential effects of that undertaking.

The MDA also received multiple requests to share the results of the Archaeological Inventory Survey (AIS) of the APE that was completed in July 2018 by the Hawai‘i-based archaeology firm Keala Pono Archaeological Consulting. We have placed a copy of the AIS draft report along with other documents related to the Section 106 and Chapter 6E consultation

on the MDA project website, <https://www.mda.mil>, which we invite you to review. We have also enclosed a summary of the AIS and its findings in this letter (Enclosure 3).

The MDA invites you to review the enclosed information and provide us with any additional comments related to the Section 106 and Chapter 6E reviews for the geotechnical testing. The MDA is hosting two meetings for consulting parties to meet with the MDA and discuss historic preservation issues related to the geotechnical testing, such as those outlined previously. Consulting parties are those that have consultative roles in the Section 106 and Chapter 6E reviews, including representatives of the State Historic Preservation Division, Native Hawaiian Organizations, and local governments. Please use the enclosed form (Enclosure 4) to RSVP by October 5, 2018 if you are a consulting party wishing to attend one of the meetings:

- 6:00 pm to 8:00 pm, Tuesday, October 9, 2018
Waiʻanae Neighborhood Community Center, 85-670 Farrington Hwy, Waiʻanae
- 6:00 pm to 8:00 pm Thursday, October 11, 2018
Wahiawā District Park, “Nutrition Site” Room, 1129 Kilani Ave, Wahiawā

Individuals or organizations that do not have a defined consultative role in the Section 106 and Chapter 6E reviews may request consulting party status if they have a demonstrated interest in the undertaking and historic preservation issues. If you wish to request consulting party status, please email buff.crosby@mda.mil with your request as soon as possible, including relevant details about your interest in the undertaking, historic preservation issues, and/or your relationship with the project area. The MDA will consider all requests for consulting party status. Again, you may still comment on the undertaking even if you are not a consulting party, and we encourage you to do so. Issues to consider in your comments may include:

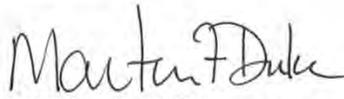
- Do you know of potential historic or cultural resources within the APE that were not included in the AIS?
- Do you have new or additional information about sites identified in the AIS?
- Does the evaluation of archaeological site significance in the AIS address how you or your organization views the significance of those sites?
- Do you have any recommendations or concerns regarding the MDA’s commitment to conduct archaeological and cultural monitoring of the geotechnical testing?

For information about the Section 106 process and the role of the public and consulting parties, we recommend reviewing the Advisory Council on Historic Preservation’s publication, “A Citizens Guide to Section 106 Review,” which can be found at www.achp.gov.

As described in our previous letter, please be aware the geotechnical testing at Kuaokalā Ridge is a separate undertaking from the HDR-H project. We respectfully request that you focus your comments on the present geotechnical testing undertaking and related historic preservation concerns so that we can give these comments our full consideration as we complete this review. There will be multiple opportunities to consult on and provide comments for the HDR-H project when the MDA begins this consultation later in 2018.

We look forward to working with you regarding historic preservation issues as we complete the Section 106 and Chapter 6E reviews for the geotechnical testing at Kuaokalā Ridge. We request your comments by October 24, 2018 so we have adequate time to consider them as we consult with the State Historic Preservation Division and prepare to conduct the testing. Please return the RSVP form and/or your comments to Dr. Buff Crosby, the MDA Environmental Sensors Support at buff.crosby@mda.mil or mail to Missile Defense Agency/Directorate (FDOE), Attn: Buff Crosby, Bldg 5224 Martin Rd, Redstone Arsenal, AL 35898. You may also contact Dr. Crosby at 256-450-4744 or our Cultural Resource contacts, Elizabeth Leclerc at 720-633-7088 and Jeanne Barnes at 571-327-5876, if you have any questions.

Sincerely,



MARTIN F. DUKE
Director for Facilities
and Deployments

Enclosures:

1. Comment Summary and the MDA's Response
2. Revised Area of Potential Effect
3. AIS Summary
4. RSVP and Comment Form

Geotechnical Testing at Kuaokalā Ridge
Comments and Responses

MDA Response to Comments Received on the Proposal to Conduct Geotechnical Testing at Kuaokalā Ridge

Comments received to date in consultation on the proposed geotechnical testing at Kuaokalā Ridge are summarized below along with the Missile Defense Agency's (MDA) responses to these comments. Comments substantive to the historic preservation review process under Section 106 of the National Historic Preservation Act (NHPA) and Hawai'i Revised Statutes (HRS) Chapter 6E are organized by topic. The MDA received a large number of comments not related to the historic preservation process. The MDA has responded to these comments to provide clarification or additional information where appropriate, included at the end of this document. The MDA appreciates the comments received and looks forward to any further comments you may have.

1. General Communications and Consultation

- **Comments Summary:** The MDA did not do enough to inform people of the meetings and comment period. There are people for whom these lands are their kuleana, and organizations that care for Ka'ena Point that were not included. The comment period was too short and should have been extended more than 1 day beyond the consultation meetings. There were requests for additional time to comment and additional meetings. Some meeting participants were concerned that the MDA representatives at the meetings would not be able to effectively communicate to decision makers the passion and spirituality the participants expressed with regard to the issues discussed.

MDA Response: The MDA is opening another comment period with additional meetings to provide consulting parties additional time to comment and consult under Section 106 and Chapter 6E. The MDA has looked to multiple sources to identify potential interested consulting parties, including the Department of the Interior's list of Native Hawaiian Organizations (NHOs), updated May 2018; an NHO outreach report completed for US Air Force (USAF) Kaena Point Satellite Tracking Station (KPSTS) that identified parties that should be included in such consultations for the region; and comment submittals from the concurrent EIS process. The MDA cross-referenced these contacts with current organization websites to verify current contact information such as mail and email addresses. The MDA's initial correspondence requested that recipients notify the MDA of any additional parties that should be consulted, which are now included in this mailing. Further, mailings were sent via certified mail to ensure delivery receipts. The MDA has cross-referenced undeliverable addresses and attempted to update those addresses. For any organization that had a publically available phone number, the MDA attempted to make contact via phone in order to verify receipt of information and request parties to attend the consultation meetings. Since the initial correspondence, the MDA has requested further assistance from the State Historic Preservation Division (SHPD) and the Office of Hawaiian Affairs (OHA) to identify any additional potentially interested parties and to help verify contact information.

The MDA understands that participants are concerned about their voices and spirituality being understood by decision makers. Both meetings were transcribed so that the MDA

Geotechnical Testing at Kuaokalā Ridge
Comments and Responses

could accurately capture the comments of the meeting participants with accuracy and context.

2. Area of Potential Effect

- **Comment Summary:** The Area of Potential Effects (APE) is too large for the action (i.e. all of the testing locations are concentrated in one portion of the APE). Approval of the testing within the entire parcel would give the MDA or anyone else a green light to construct anywhere in the parcel without further review. For example, if the location was not selected by the MDA for development, the results of this testing could be used for a future project (including housing or commercial development) and still result in loss of land.

MDA Response: The original 160-acre APE was defined with reference to the Kuaokalā Ridge candidate site being considered under the separate, but related, Homeland Defense Radar – Hawai'i (HDR-H) project. As described in previous correspondence and meetings, the geotechnical testing at Kuaokalā Ridge is needed to determine constructability and inform the site selection process for the HDR-H Environmental Impact Statement. The 160-acre candidate site consists of approximately 28 acres of existing USAF leased land that would be used for road access to the proposed HDR-H project area, approximately 67 acres of State land where the HDR-H project would be located if Kuaokalā Ridge is selected as the deployment location, and approximately 65 acres of laydown area which would be used to stage equipment and vehicles during construction. As shared at previous consultation meetings, the proposed geotechnical testing that is the subject of the present consultation would only occur in a portion of this area: approximately 22 acres of existing USAF leased land and the approximate 67-acre parcel of State land where the HDR-H could be constructed. The MDA agrees with the commenters that the APE for the geotechnical testing project should be specific to the actual location of proposed testing and has revised the APE as the 89 acre total area (including USAF and State land). A map of the revised APE is provided separately.

Under Section 106 and Chapter 6E, the APE of an undertaking must be defined based on the potential effects of that specific undertaking. Therefore, when the MDA initiates consultation under Section 106 and Chapter 6E for the HDR-H project, the MDA will define a new APE that is appropriate for the potential effects of that project, will conduct consultation with SHPD, NHOs, and other consulting parties, and seek input regarding the project's effects on historic properties.

Federal and State agencies must comply with Section 106 and Chapter 6E, respectively, for each action they undertake that has potential to effect historic properties. Should the Kuaokalā Ridge site not be selected for deployment of the HDR-H, then no other Department of Defense or other federal entity would be able to use the results of the geotechnical testing without first conducting new Section 106 and Chapter 6E consultations. Likewise, any state or commercial entity interested in using land in the APE would also be required by law to comply with the State's right-of-entry and consultation processes.

Geotechnical Testing at Kuaokalā Ridge
Comments and Responses

3. Identification of Historic Properties

- **Comment Summary:** An Archaeological Inventory Survey (AIS) is needed in the project area, preferably by a Hawaiian firm (one commenter recommended a specific firm, Keala Pono Archaeological Consulting). All archaeological studies should be completed by one firm. The Moka'ena Heiau must be re-surveyed and should be cleared of vegetation so that it can be mapped. How was the archaeological firm selected? If the survey relied on previous surveys it would be inadequate. There are many unrecorded cultural sites in the area.

MDA Response: The MDA contracted Keala Pono, a Native Hawaiian-owned company, to conduct the AIS. The AIS was completed in July 2018. The firm was selected from companies permitted to do archaeology in Hawai'i based in part on their familiarity with the project area and availability. The AIS involved a pedestrian walk-over across the 160-acre Kuaokalā Ridge HDR-H candidate site, which included the 67-acre geotechnical testing APE. The survey was conducted by archaeologists meeting the Secretary of the Interior's Professional Qualification Standards for archaeology. The survey included hand cutting of vegetation and detailed mapping of the heiau and a new archaeological site identified during the AIS as Temporary Site 1 (TS-1). A brief summary of the AIS is provided in a separate document and is provided in full at the project website: <https://www.mda.mil>.

- **Comment Summary:** The entire Kuaokalā Ridge is a culturally sacred area. Moka'ena Heiau is part of a traditional cultural landscape (TCL). A TCL/Traditional Cultural Properties (TCP) survey is needed for the area. It should look at Moka'ena as part of a larger cultural complex which also would include Pu'u Pueo (northwest of the APE); Leina a Ka 'Uhane (one of the most significant sites on O'ahu associated with the departure of souls to the afterlife); Pohaku Lana'i, Puokalei'ne'au, Kukanioko, Pohaku Kaua'i and other sites between Pu'u Pu'e'o and Moka'ena, including but not limited to the areas up mauka and sites along the shoreline. There are sites within Ka'ena that have connections between mauka and makai. Sites in this area are steeped on mo'olelo, including those associated with the hero Maui and the relationship between Ka'ena Point and Kaua'i.

MDA Response: The MDA understands the Moka'ena Heiau may be part of a TCP/TCL that incorporates other sites within the Ka'ena Point landscape. The MDA is arranging to conduct a TCP study in the near future (2018-2019) as part the HDR-H EIS and Section 106/Chapter 6E consultation. It is the MDA's opinion that all cultural sites in the 67-acre geotechnical testing APE that may be part of this landscape were identified during the AIS, and considering the MDA's commitment to avoid these resources and provide archaeological and cultural monitors during testing, it is not necessary that the TCP study be completed before the proposed geotechnical testing can proceed.

- **Comment Summary:** The Moka'ena Heiau is a temple sacred to the Kanenuiakea worshippers, an indigenous religion recognized by the International Association for Religious

Geotechnical Testing at Kuaokalā Ridge
Comments and Responses

Freedom. The temple is and was the site of sun worship. The path of the sun, shadows during solstices, the viewshed to the ocean, and an unobstructed view of the sky are key elements that must be kept intact for cultural purposes. Lineal descendants attribute their Kupuna, ancestors that came to O'ahu from Kaua'i, with the construction of Moka'ena Heiau. The heiau is also associated with the connections between O'ahu, Kaua'i, and the channel between them, referred to during consultation as "the vine that binds." While some commenters suggested the mana at Moka'ena Heiau might be broken since unknown actions have taken place there since the USAF Kaena Point Satellite Tracking Station has restricted access, others stated the mana is intact. Moka'ena Heiau (and Leina a Ka 'Uthane) should be nominated to the National Register of Historic Places (NRHP) and Hawai'i Register of Historic Places (HRHP). These nominations should be a pre-requisite for further consultation.

MDA Response: Comments on the significance of the Moka'ena Heiau were incorporated into the assessment of the site's significance and eligibility for NRHP and HRHP listing in the AIS. The heiau is recommended eligible for both the NRHP and HRHP based on significant traditional association. Information shared by consulting parties regarding the heiau's significance will also be incorporated in the TCP survey and cultural impact assessment associated with the HDR-H project. The MDA notes that under Section 106 of the NHPA, properties that are eligible for listing in the NRHP are afforded the same consideration as listed properties.

- **Comment Summary:** There is a family stone with the Helenihi name, placed in 1905.

MDA Response: The AIS did not identify a family stone within the survey area, and it does not appear the stone is within the APE. The MDA will coordinate with the commenter to determine where the stone is located and ensure the undertaking does not disturb the stone.

- **Comment Summary:** TS-1 is archaeological evidence of people practicing moving pohaku using their minds and oli. To become a kahuna, one has to demonstrate they can move pohaku, which comes from the resonance of your voice and the intonation.

MDA Response: Information on the possible function and significance of site TS-1 was considered in the AIS.

4. Effects on Historic Properties

- **Comment Summary:** Moka'ena Heiau is connected to the ridge, the entire area is connected. One commenter suggested there should be at least a 100 meter buffer around the heiau. Another said no buffer would be large enough to prevent impacts. A third commenter suggested the size of the equipment and borings would not affect the sites. Commenters noted that any construction that blocks the sun or interferes with the shadows at Moka'ena Heiau and below the heiau along the ridge will adversely affect the site, modern religious practices, and cultural customs.

Geotechnical Testing at Kuaokalā Ridge
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MDA Response: The MDA agrees that current fencing around Moka'ena Heiau is insufficient to prevent site impacts. After considering the input received, the MDA believes a 30-meter buffer will be sufficient to protect the heiau and its surroundings, noting that current and previous archaeological testing at the heiau indicates that no buried archaeological deposits are present. The MDA will also implement a 30-meter buffer around site TS-1 even though this site has not been recommended eligible for NRHP listing. The MDA will install temporary construction fencing or flagging to mark the buffer and project personnel conducting the testing will be prohibited from entering the buffer zone around each site. Further, Hawaiian archaeological and cultural monitors during the geotechnical testing will ensure that activities do not intrude within the buffers and will provide cultural sensitivity training for personnel conducting the testing.

- **Comment Summary:** This project will invite additional military construction in the vicinity. Construction (of the HDR-H facility) and future projects will have cumulative effects on Leina a ka 'Uhane, which is connected to Moka'ena Heiau. The construction will affect the mana up on the ridge, and affect Leina a Ka 'Uhane as the departure point for our souls.

MDA Response: The MDA understands that there are concerns about construction that may follow from the geotechnical testing, particularly from the HDR-H project. However, the present undertaking is the geotechnical testing required to determine whether the Kuaokalā Ridge site is suitable from a constructability standpoint. Given the 30-meter protective buffers around the two identified sites, along with archaeological and cultural monitoring, the MDA believes the geotechnical testing will not directly affect Moka'ena Heiau. The MDA will consider these comments regarding the cumulative effects of construction again once consultation for the HDR-H project is initiated and when assessing the impacts of that action.

- **Comment Summary:** Archaeological and cultural monitoring is required. Cultural monitoring must be performed by Hawaiian cultural specialists. There should be an advisory group that helps to counsel the program.

MDA Response: The MDA has committed to conduct archaeological and cultural monitoring, and has submitted an Archaeological Monitoring Plan to the SHPD. Archaeologists will be permitted to work in Hawai'i and will be led by an individual meeting the Secretary of the Interior's Professional Qualification Standards for archaeology. The cultural monitor will be a Hawaiian cultural specialist with generational or cultural affiliation with the project area, will have familiarity with cultural properties in the area, and will have sensitivity and the ability to represent and communicate with the MDA on behalf of Native Hawaiians. The monitors will be required to be present wherever there is ground disturbance and will have authority to stop the testing in an area if archaeological materials or human remains are identified on ground surfaces, in excavated soils, or within boring holes. If historic properties or human remains are found, they will be protected while the MDA halts activities, conducts additional consultation, and develops an action plan.

Geotechnical Testing at Kuaokalā Ridge
Comments and Responses

5. Iwi Kupuna

- **Comment Summary:** Commenters stated there are many burials on the ridge, with one stating her Kupuna were scattered on the ridge, in or near the APE. Others stated there are no iwi kupuna, citing numerous cultural studies that did not find iwi and that most of the ridge has not had cultural activity. Others expressed concern that vibrations from drilling could destroy delicate iwi and could have a negative impact on cave systems within the mountains, many of which are the final resting place for iwi kupuna.

MDA Response: The MDA received mixed input regarding the potential for human burials, or iwi kupuna, in the APE. The AIS did not uncover evidence of iwi kupuna in the 160-acre survey area, which included the APE for the proposed geotechnical testing. Given the proximity of the Moka'ena Heiau and TS-1, and some possibility for human remains and/or cultural materials, the MDA is using both archaeological and cultural monitoring during geotechnical testing. In the unlikely event that remains are identified during geotechnical testing, these will be handled in accordance with federal and state law.

6. Comments Outside of the Section 106/Chapter 6E Reviews

- **Comment Summary:** The entire Kuaokalā Ridge is a culturally sacred area, and drilling into the earth is considered an act of desecration similar to drilling in Arlington Cemetery. Our Gods supported that area. It is not some place that we have built because it is sacred. Our Kupuna own that land. Backfilling with foreign materials (e.g. bentonite) is culturally unacceptable, akin to injecting foreign material into the body of a deity. Are there non-invasive means of determining whether the site is constructible? Soil removed from the site should be returned after analysis.

MDA Response: The MDA is required to use concrete-bentonite or a similar mix to backfill the borings, per the requirements of HAR 13-168-2 and the Hawai'i Department of Land and Natural Resources (DLNR) standards. This is necessary to prevent groundwater contamination and restore geological and hydrological conditions. The MDA is considering the request to return any soils removed from the site following analysis. The MDA will implement this measure to the extent practicable.

- **Comment Summary:** The geotechnical testing project is not conforming with other Hawaiian laws (related to impacts on traditional cultural practices). A Cultural Impact Assessment is required. The MDA needs to consider other environmental impacts such as traffic, noise, and effects on biological resources, including endangered species.

MDA Response: The MDA, in consultation with the Hawai'i DLNR Division of Forestry and Wildlife, has determined the geotechnical testing will not have potential to affect the environment and does not require an Environmental Assessment. Therefore, a Cultural Impact Assessment (as part of an Environmental Assessment) is also not required. The

Geotechnical Testing at Kuaokalā Ridge
Comments and Responses

MDA will conduct a Cultural Impact Assessment for the overall HDR-H project, which will be incorporated into the associated EIS. The EIS will address traffic, noise, biological resources, cultural resources, and other aspects of the environment.

- **Comment Summary:** A site visit should be held so that community members can see Moka'ena Heiau and Site TS-1.

MDA Response: The MDA plans to organize one or more site visits to the Moka'ena Heiau as part of the overall HDR-H consultation. The MDA will extend the invitation to participate in the site visit to all NHOs contacted for the present consultation.

- **Comment Summary:** The MDA should provide copies of the AIS, the submittal to SHPD, and the presentation given at the meetings held August 1 and 2, 2018.

MDA Response: The MDA has provided a summary of the AIS, included separately, and has posted a copy of the AIS on the project website, <https://www.mda.mil>. Other materials associated with the Section 106 and Chapter 6E consultations have been placed on the website.

- **Comment Summary:** There are sensitive biological species in the project area and surrounding Ka'ena Point area. Species outside the APE may be affected by travel of equipment to and from the testing activities. These species include a rare variety of naupaka and the ohai that grows there is specific to the Ka'ena Point area. There is a tree that grows mauka at Ka'ena that is believed to be an endangered species. How will the MDA know whether endangered Hawaiian plants are present? Biological surveys should be conducted by a native Hawaiian.

MDA Response: The MDA determined, in consultation with the DLNR Division of Forestry and Wildlife, that the geotechnical testing will not have potential to affect threatened or endangered species. The Hawaiian cultural specialists conducting cultural monitoring will also be familiar with plants of traditional or cultural importance. Additional biological studies in conjunction with the U.S. Fish and Wildlife Service and DLNR of the Kuaokalā Ridge project area are planned in association with the HDR-H project. Qualified biologists with experience with Hawaiian species and environments will complete the studies. The MDA will consider the request that native Hawaiians conduct the biological surveys where practicable. The MDA has also begun initial discussions with the U.S. Fish and Wildlife Service to determine whether any threatened or endangered species are present in the APE. To date, no threatened or endangered species have been identified. The nature of the proposed geotechnical testing is very limited (13 soil borings, 4-12 inches wide) and no trees will be impacted or removed.

- **Comment Summary:** A community member and NHO is corresponding with DLNR to inter the remains of a Waialua owl in their custody at the Moka'ena heiau, which is situated on Pu'u Pueo (Owl Point) overlooking Ka'ena Ahupua'a and specifically Leina a Ka 'Uhane. This should be completed as a pre-requisite to consultation.

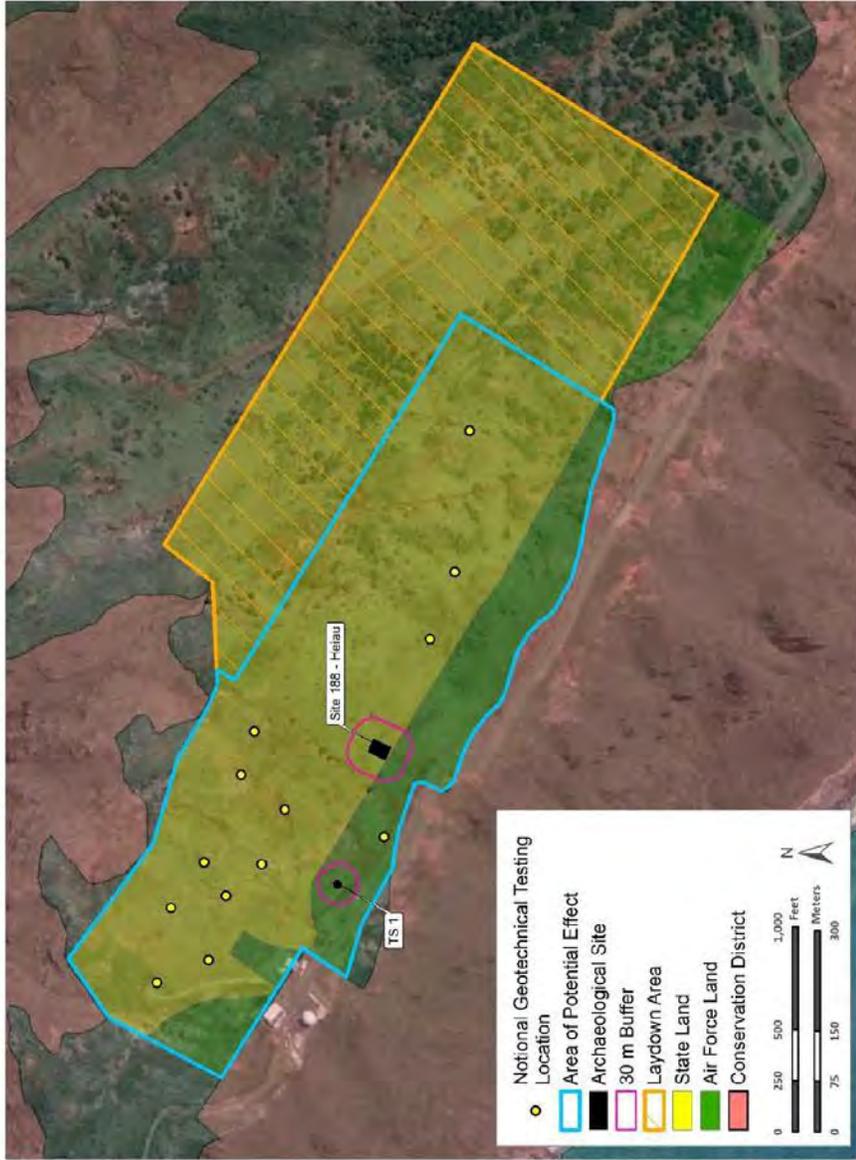
Geotechnical Testing at Kuaokalā Ridge
Comments and Responses

MDA Response: This issue is outside of the MDA's jurisdiction. The MDA will provide this comment to DLNR.

- **Comment Summary:** The MDA should send a letter to the Bishop Museum urging continuing press of their publication entitled "Sites of O'ahu" and/or PDF online on their website for download. This is an extremely valuable cultural resource publication which contains Hawaiian Cultural Sites, including Moka'ena Heiau. Many utilize this publication professionally and personally.

MDA Response: The MDA recommends the commenter submit their comment directly to the Bishop Museum as this is outside the purview of the project.

Kuaokalā Ridge Geotechnical Testing Area of Potential Effects



Geotechnical Testing Area of Potential Effects (outlined in blue), with a 30-meter buffer around archaeological resources, and notional boring locations.

ENCLOSURE 2

Archaeological Inventory Survey Summary for Geotechnical Testing at Kuaokalā Ridge, Ka'ena and Keawa'ula Ahupua'a, Waialua and Wai'anae District, Island of O'ahu, Hawai'i

This summary has been provided for your convenience. Please refer to the full Archaeological Inventory Survey (AIS) draft report, located at the Missile Defense Agency (MDA) project website: <https://www.mda.mil>.

Introduction

At the request of KFS, LLC on behalf of the MDA, Keala Pono Archaeological Consulting has prepared an archaeological survey report for the proposed geotechnical testing at Kuaokalā Ridge, adjacent to Ka'ena Point Satellite Tracking Station (KPSTS). This is located in Ka'ena and Keawa'ula Ahupua'a, Waialua and Wai'anae District, on the island of O'ahu, Hawai'i. Geotechnical testing will take place on portions of TMK: (1) 6-9-003:001 and (1) 8-1-001:014. This work was designed to identify, document, assess significance, and provide mitigation recommendations for any historic properties that may be located in the project area in anticipation of the proposed geotechnical testing.

Project Location and Environment

The project area is situated on the northwest corner of O'ahu. Most of the project area lies within Ka'ena Ahupua'a in the Waialua District, while a small portion on the south is situated within Keawa'ula Ahupua'a in the Wai'anae District. The project is on Kuaokalā Ridge on State land managed by the Department of Land and Natural Resources and adjacent to KPSTS. The survey area covers 66.73 ha (164.89 ac.), which is the area of the Kuaokalā Ridge candidate site for the Homeland Defense Radar – Hawai'i (HDR-H) project (Figure 1). The survey area encompassed the entire approximate 89-acre Area of Potential Effects (APE) for the proposed geotechnical testing undertaking at Kuaokalā Ridge.

Summary of Background Research

Research was conducted at the Hawai'i State Archives, Hawai'i State Library, the State Historic Preservation Division, as well as online at databases such as the Hawai'i Department of General Accounting map database, Ulukau, and Wai'hona 'Aina. Historical maps, archaeological reports, and historical reference books were among the materials examined. More information about the results of the background research is presented in the Draft AIS report and includes discussions about place names, mo'olelo, oli, mele, 'ōlelo no'eau, subsistence, traditional and historic-period land use, archaeological sites of importance, and previous archaeological studies.

The project area is located in the Kuaokalā uplands. This area was once a land rich in natural, as well as cultural resources. Mo'olelo reveal a place known for its ocean resources, where fishing played an important role in subsistence. But the region was also able to support sweet potato and probably some taro cultivation, which supplemented the marine-based diet. Previous archaeology has identified a variety of archaeological sites in the Kuaokalā region, and Moka'ena Heiau, Site 188, is located within the project area. The structure is known as the heiau of highest elevation on O'ahu. Major changes took place in the post-1778 historic era, as foreign interests began to take hold. Sugarcane, pineapple, and the U.S. military were the key enterprises that shaped the ahupua'a later in time.

ENCLOSURE 3

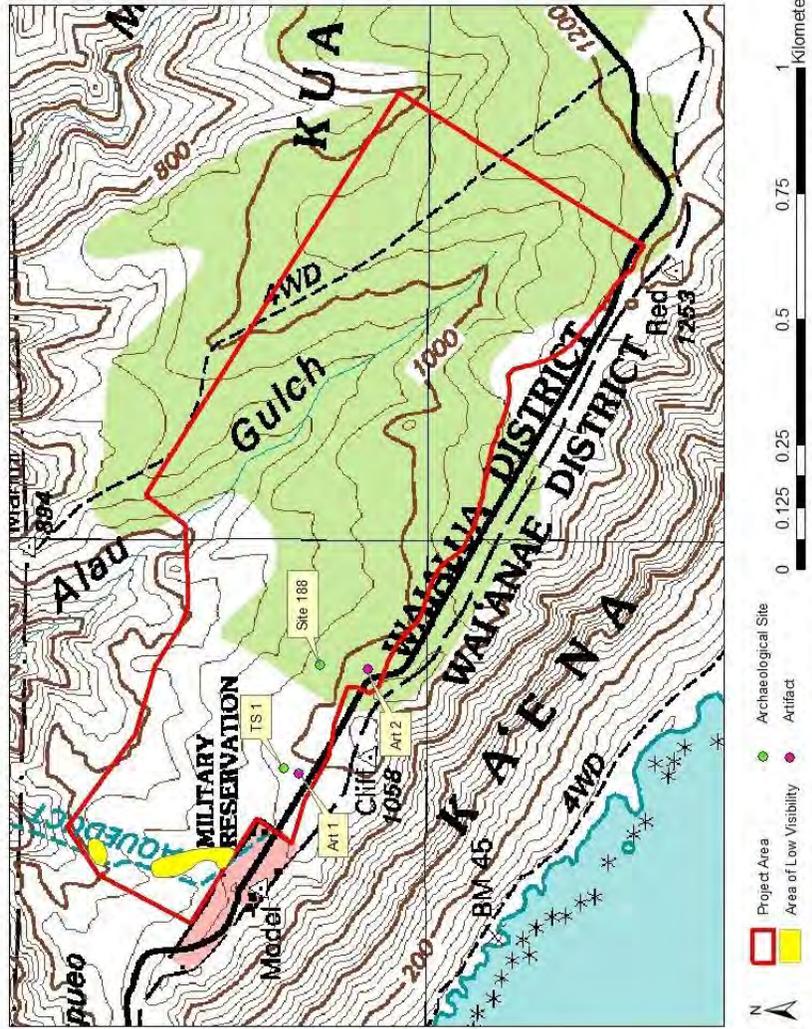


Figure 1. The Survey Area on a 7.5 minute U.S. Geological Survey 2013 Ka'ena quadrangle map showing archaeological sites, artifacts, and areas of low visibility.

Geotechnical Testing at Kuaokalā Ridge
AIS Summary

Methods

Pedestrian survey and mapping were carried out between July 6 and 17, 2018. The survey was completed by Secretary of the Interior (SOI) qualified archaeologists at Keala Pono Archaeological Consulting, assisted by an SOI qualified archaeologist from HDR. The ground surface was visually inspected for surface archaeological remains, with transects walked for the entire project area. Archaeologists were spaced approximately 8 m apart. Of the approximate 160-acre survey area, 100 percent was covered on foot. Vegetation was variable, consisting of large tracts of grass pastureland with some areas of taller grass and trees such as koa haole. Transects and archaeological sites were recorded with a 3 m-accurate Garmin GPSmap 62st.

Results

Two archaeological sites were found: the previously-recorded Moka'ena Heiau (Site 188) and a possible terrace, labeled as Temporary Site 1 (TS 1) (Figure 1). In addition, two historic bottles (Artifacts 1 and 2) were found on the surface, unassociated with either site.

TS 1

Site TS 1 consists of a possible terrace and alignment. The terrace measures 2.7 m long, 3.7 m wide, and 60 cm tall (Figures 2 and 3). It is composed of stacked stones and cobbles and is roughly rectangular in plan (Figure 2). The alignment is slightly uphill of the terrace and appears to be aligned with the terrace wall. It measures 1.1 m long, 70 cm wide, and 15 cm tall. It is composed of cobbles that are aligned in roughly a c-shape (Figure 3). The site may be a traditional (pre-contact Hawaiian) agricultural or habitation feature. It is in poor condition and is not well defined. It is recommended that additional information is collected for Site TS 1 prior to any future construction at this location. Excavation at this site could yield information that would inform on the site's specific age and function.



Figure 2. TS 1 possible terrace, facing southeast.

Geotechnical Testing at Kuaokalā Ridge
AIS Summary



Figure 3. Site TS 1 possible terrace and alignment, plan view drawing.

Moka'ena Heiau, Site 188

Site 188 is Moka'ena Heiau. The heiau is a traditional Hawaiian ceremonial site that was previously documented archaeologically, first by McAllister (1933) and then by Hammatt and Borthwick (1987). Located at an elevation of 366 m (1,200 ft.), McAllister, who conducted an island-wide archaeological survey of O'ahu in the 1930s described this as being the heiau located at the highest elevation on O'ahu.

The current condition of the heiau is roughly consistent with earlier maps and descriptions. McAllister (1933:127) described the heiau as a "3-division structure" measuring 22.9 by 10.7 m. Hammatt and Borthwick (1987:41) noted "4 distinct terraces" measuring 23.8 m by 10.7 m. The current assessment considers the uppermost boulder area as a terrace and is thus in agreement with Hammatt and Borthwick's (1987) count of four terraces. Including this boulder area and possible wall fall around the structure, the current measurements are approximately 28 m long and 12 m wide (Figures 4 and 5).

The uppermost terrace is composed mainly of boulders, some of which are piled (Figure 5). The middle two terraces include intact wall faces which are made up of stacked stones and cobbles with a few boulders. The tallest height of the intact facing is 1.2 m. The walls of the lowest terrace are primarily made up of piled stones and cobbles. Several offerings of branch coral

Geotechnical Testing at Kuaokalā Ridge
AIS Summary

were observed within the structure and in a stone-lined pit, and a possible kū'ula (stone image used to attract fish) is located at the base of one of the walls (Figures 5 and 6). A stone with the appearance of a long face was noted within the third terrace (Figure 5). Hammatt and Borthwick (1987) also observed a row of possible post holes, two inches in diameter each, on the third terrace, but these were not identified in the current survey.

The site as a whole is in good condition, with several intact sections as well as some areas where walls have fallen. A significant aspect of this heiau is its viewshed. Situated at 1,200 ft. above sea level, this is the highest documented heiau on O'ahu (McAllister 1933:127), and its position affords sweeping views of the landscape and ocean. There is a prominent large boulder on the ridge to the northeast that may also be associated with the site. The site is currently demarcated by barbed wire fencing that is in disrepair, with damaged sections on the northwest and southeast corners where cattle can enter from adjacent fields (see Figure 5).

It is recommended that Site 188, Moka'ena Heiau, be avoided during any future construction. If construction is to occur in the vicinity, a preservation plan should be completed for the site, with the viewshed of the heiau considered. Although outside the project area, the prominent boulder visible from the heiau should be examined for cultural significance if the heiau's view plane is to be affected. Access should be made available to the heiau for cultural practitioners and other interested community members. The barbed wire fence that surrounds the site is currently in disrepair and should be fixed and maintained to ensure that cattle do not damage the heiau. The fence is very close to the site boundaries, particularly on the south (see Figure 5) and should be moved farther away to provide an adequate buffer. In addition, Site 188, Moka'ena Heiau, should be nominated to both the National and Hawai'i Register of Historic Places.



Figure 4. Site 188, Moka'ena Heiau, facing east.

Geotechnical Testing at Kuaokalā Ridge
 AIS Summary

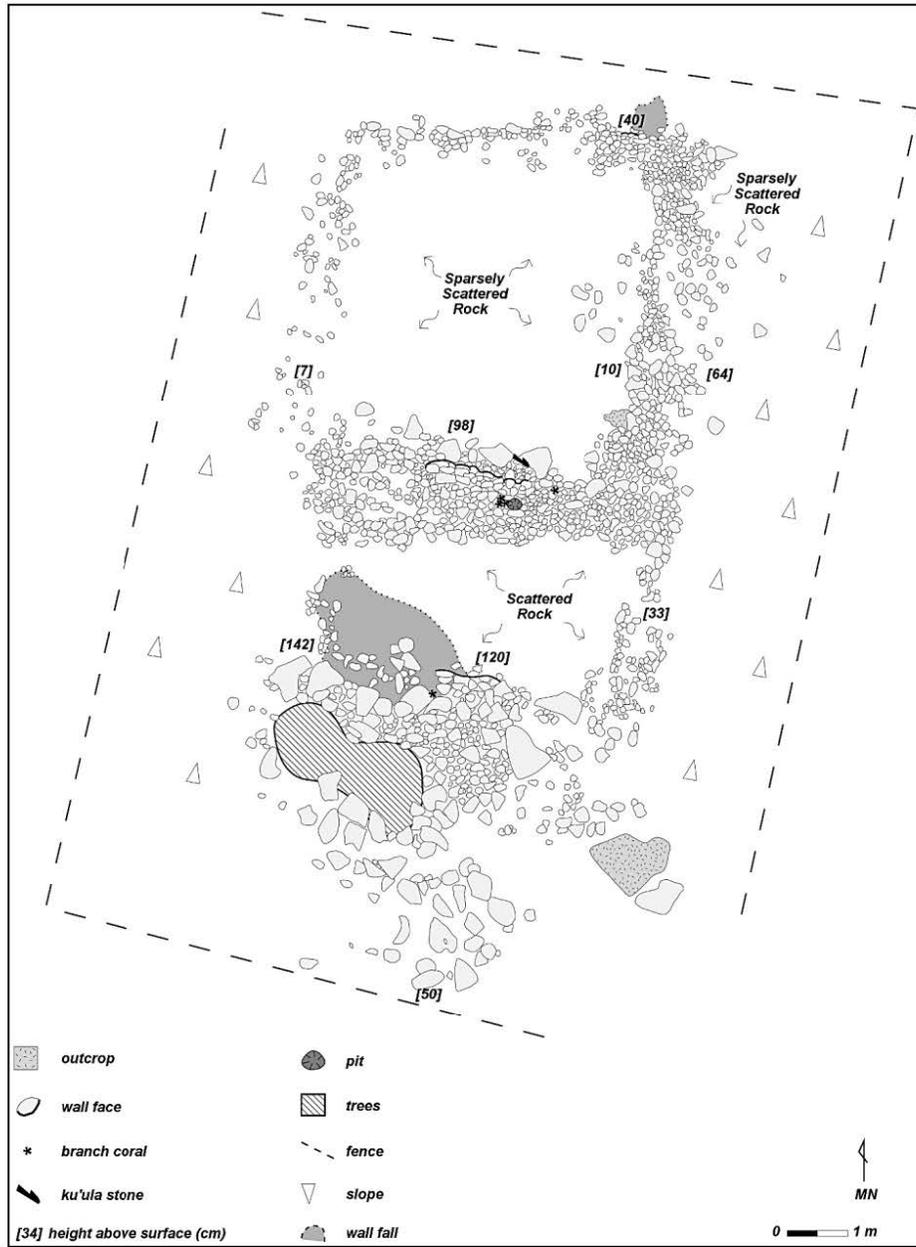


Figure 5. Site 188, Moka'ena Heiau, plan view drawing.

Geotechnical Testing at Kuaokalā Ridge
AIS Summary



Figure 6. Site 188, Moka'ena Heiau, possible ku'ula stone, plan view.

Significance Determinations

To determine if a historic property is “significant” under Hawai'i Administrative Rules (HAR) for historic preservation, or is eligible for NRHP listing, it must be assessed for significance according to HAR §13-284-6(b) and National Register Bulletin 15, respectively.

Because of its deteriorated state, Site TS 1 does not retain integrity of workmanship and feeling, and is therefore not significant. Site 188 does possess integrity of location, design, setting, materials, workmanship, feeling, and association. It is significant under Criteria D and E of HAR §13-275-6(b) for its potential to yield further information and for its importance to the history and cultural identity of native Hawaiians. The recommended project effect determination is no historic properties affected, as geotechnical testing will take place well away from both sites. An archaeological monitoring plan should be accepted by the SHPD in advance of geotechnical testing. The plan should outline temporary preservation measures that will be implemented during the geotechnical testing. Even though the geotechnical boring will not affect either site, it is important to educate the testing team on the location of the sites and significance of the heiau and to install temporary buffers around the sites to ensure that they will not be disturbed.

If future construction will affect either site, further recommendations include the following. Additional information should be collected for Site TS 1; excavation at this site could yield information that would inform on the site's specific age and function, even though the site is not significant because it lacks integrity. It is recommended that Site 188, Moka'ena Heiau, be avoided during any future construction. If construction is to occur in the vicinity, a preservation plan should be completed for the site, with the viewshed of the heiau considered. Although

Geotechnical Testing at Kuaokalā Ridge
AIS Summary

outside the project area, the prominent boulder visible from the heiau should be examined for cultural significance if the heiau's view plane is to be affected. Access should be made available to the heiau for cultural practitioners and other interested community members. The barbed wire fence that surrounds the site is currently in disrepair and should be fixed and maintained to ensure that cattle do not damage the heiau. The fence is very close to the site boundaries, particularly on the south, and should be moved farther away to provide an adequate buffer. In addition, Site 188, Moka'ena Heiau, should be nominated to both the National and Hawai'i Register of Historic Places.

References

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C.2 Consultation Meeting Fact Sheet

MISSILE DEFENSE AGENCY



Geotechnical Testing Consultation

<https://www.mda.mil>
mda.info@mda.mil

5700 18th Street, Bldg 245
Fort Belvoir, VA 22060-5573

Geotechnical Testing at Kuaokalā Ridge – Section 106/Chapter 6E Consultation

The Missile Defense Agency (MDA) proposes to conduct geotechnical testing on Kuaokalā Ridge to determine constructability and support site selection for the Homeland Defense Radar – Hawaii (HDR-H) project. The geotechnical testing is a separate undertaking from the HDR-H project. The testing will occur at Ka'ena Point Satellite Tracking Station (KPSTS) and on adjacent State land managed by the Department of Land and Natural Resources (DLNR), Division of Forestry and Wildlife. The MDA is coordinating with DLNR to obtain a Right-of-Entry (ROE) permit for the testing. As a federal undertaking, the geotechnical testing is subject to Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) and its implementing regulations at 36 CFR § 800. Because the geotechnical testing will occur on State land and requires a ROE permit from DLNR, the undertaking is also subject to Hawai'i Revised Statutes Chapter 6E and Hawai'i Administrative Rules 13-275.

Project Overview

The geotechnical testing will consist of approximately 10 soil test borings and 3 auger borings.

- Soil test borings will be 4 to 6 inches in diameter and up to 100 feet deep
- Lower portion of soil test borings will be backfilled with a cement-bentonite grout, and the top portion backfilled with drill spoils and on-site soils
- Auger borings will be 12 inches in diameter or smaller and approx. 6 feet deep
- Each auger borehole will be backfilled with drill spoils
- The MDA will avoid all known historic properties during geotechnical testing
- The MDA will conduct archaeological monitoring during the testing



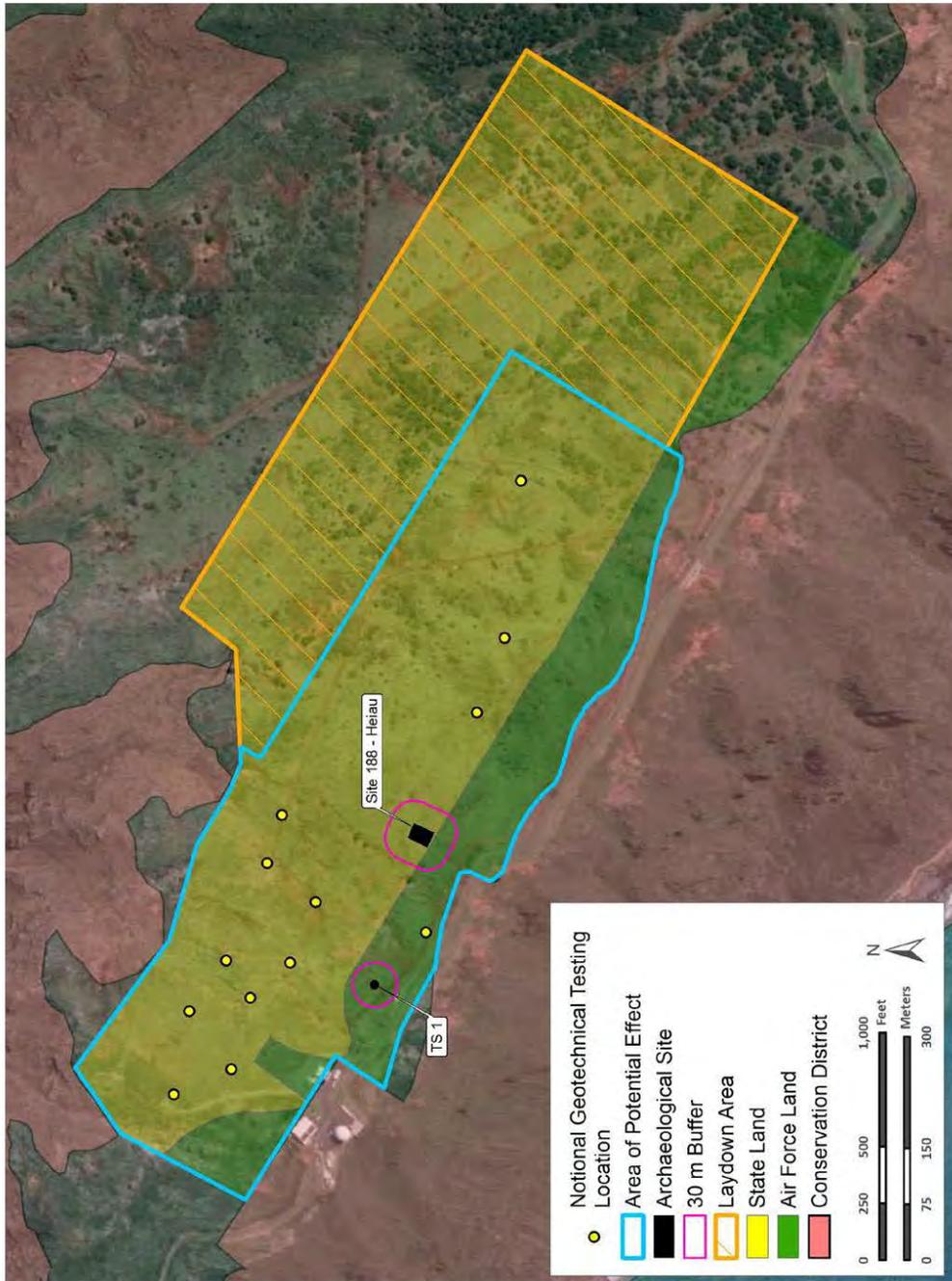
Example of truck-mounted drill rig for geotechnical testing.

The *Area of Potential Effects* is the "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties" (36 CFR § 800.16(d)).

Area of Potential Effects

The HDR-H candidate site at Kuaokalā Ridge totals approximately 160 acres, composed of approximately 28 acres of KPSTS existing leased land, approximately 67 acres of State land, and approximately 65 acres of State land that would be used as a construction laydown area to stage equipment and vehicles. The revised Area of Potential Effect (APE) includes the area where the proposed geotechnical testing would occur in approximately 22 acres of KPSTS existing leased land and the approximate 67-acre parcel of State land. The approximate 89-acre APE is identified in blue in the map on the next page.

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18-MDA-9796 (2 Oct 18)



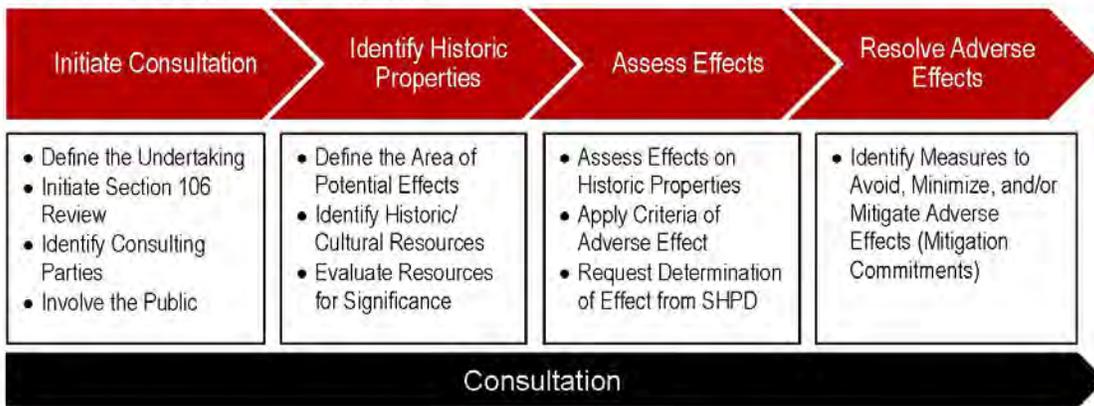
Geotechnical Testing Area of Potential Effect (outlined in blue) at Kuaokalā Ridge, with a 30-meter buffer around archaeological resources, and notional boring locations.

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Section 106 and Chapter 6E

Section 106 of the NHPA and Chapter 6E require federal and state agencies, respectively, to assess the effects of their actions on significant cultural resources, termed “historic properties” in Section 106 and referred to as “significant historic properties” under Chapter 6E. Agencies must consult with the State Historic Preservation Division (SHPD), Native Hawaiian organizations, local government representatives, and other identified consulting parties regarding effects on historic properties.

Section 106 and Chapter 6E Review Process



What are historic properties?

Historic properties are buildings, sites, districts, structures, or objects that:

- ✓ Are typically more than 50 years old; AND
- ✓ Meet at least one of the criteria of significance for the National Register of Historic Places or Hawaii Register of Historic Places:
 - A. Associated with events important in history;
 - B. Associated with people important in history;
 - C. Embody distinctive architectural or engineering characteristics, represent the work of a master, or possess high artistic value;
 - D. Potential to yield information important to understanding the past
 - E. (Hawaii Register Only) Associated with cultural practices, traditional beliefs, events, or oral accounts important to an ethnic group's history and cultural identity; AND
- ✓ Have historic integrity, which is the ability of a property to convey its significance based on its location, design, setting, materials, workmanship, feeling, and association.

What are Adverse Effects?

Adverse effects diminish the integrity of a property. Effects can be direct or indirect and include the following:

- Physical destruction or damage
- Alteration inconsistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties
- Relocation of the property
- Change in the character of use or setting
- Introduction of incompatible visual, atmospheric, or audible elements
- Neglect and deterioration
- Transfer, lease, or sale out of federal/state control without adequate preservation restrictions.

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Known Cultural Resources

Previous reconnaissance surveys in the project area identified one site known to be in the APE, the Moka'ena Heiau, also known as Site 188. The site was first recorded by J. Gilbert McAllister during his island-wide reconnaissance survey in 1929 (McAllister 1933). Site 188 is eligible for listing in the National Register of Historic Places and the Hawaii Register of Historic Places, and is culturally significant as a traditional Hawaiian ceremonial site. The heiau, which is on State land, is at the highest elevation of any on O'ahu.

The MDA contracted an archaeological inventory survey of the HDR-H candidate site, including the entire geotechnical testing APE. The survey was completed on July 17, 2018 and identified one previously unknown archaeological site that is within the revised APE: a possible terrace and alignment. The site may be a traditional Hawaiian agricultural or habitation site. A consulting party has also associated TS-1 with the training of Kahuna to move pohaku using their oli. The site has been given the temporary designation TS-1. The survey also included detailed mapping of the Moka'ena Heiau.



Photo of the Moka'ena Heiau, Site 188, at Kuaokalā Ridge

The MDA Needs Your Input

The MDA is consulting with Native Hawaiian organizations and other interested parties to learn what historic properties are in the APE, how they are significant, and also whether the proposed geotechnical testing will adversely affect historic properties that are significant to Native Hawaiians and local communities. In accordance with the NHPA and Chapter 6E, we request your input on the following topics:

- Identification of Historic Properties
 - Do you know of potential historic or cultural resources in the APE that were not identified in the AIS?
- Evaluation of Historic Properties
 - Do you have new or additional information about TS-1 or the Moka'ena Heiau?
 - Are sites TS-1 and the Moka'ena Heiau significant to you or your organization?
 - Is the significance of these sites adequately addressed in the AIS?
- Assessment of Effects
 - Would geotechnical testing have indirect effects on TS-1 or the Moka'ena Heiau?
 - Do you have any recommendations for the MDA's commitment to conduct archaeological and cultural monitoring of the geotechnical testing?

Comments should be submitted via postal mail or email to the contact information below by October 24, 2018:

Missile Defense Agency/Directorate (FDOE)
Attn: Buff Crosby
Bldg 5224 Martin Rd.
Redstone Arsenal, AL 35898
Email: buff.crosby@mda.mil

While the focus of this consultation is specific to the Section 106 and Chapter 6E reviews, the MDA also seeks to develop relationships with consulting parties more broadly that will contribute to improved sharing of information and ideas related to this and other projects in Hawaii, including the forthcoming HDR-H consultation.

Thank you for your participation.

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18-MDA-9796 (2 Oct 18)

C.3 Consultation Meeting Presentation



Slide 1 features a header with the MDA logo on the left and a satellite image of Earth on the right. The main content is centered text on a white background.

Welcome

**Consultation Meeting for
Geotechnical Testing
at Kuaokalā Ridge**

1



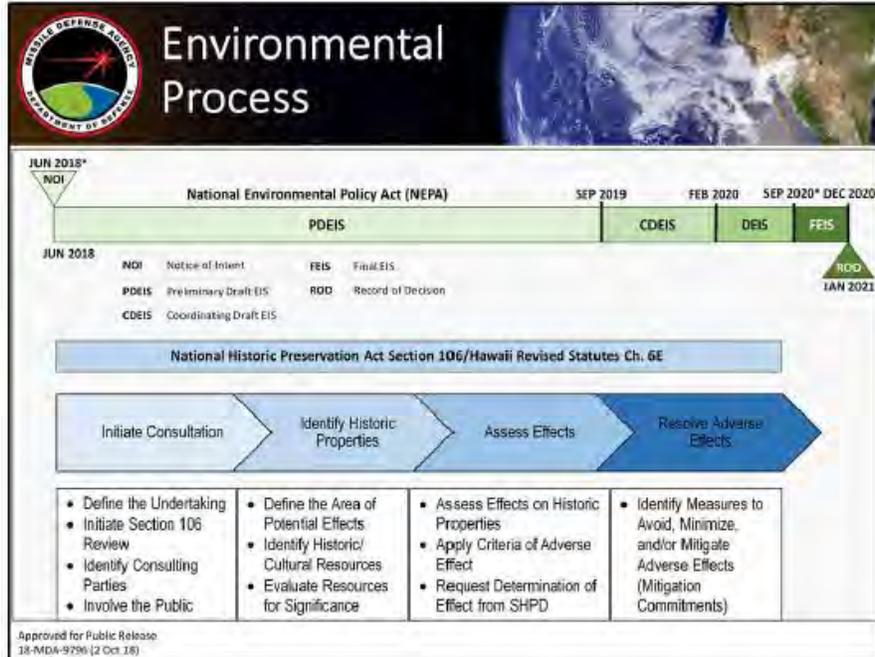
Slide 2 features a header with the MDA logo on the left and a satellite image of Earth on the right. The main content is a bulleted list on a white background.

**Meeting
Agenda**

- Welcome Statement from Rear Admiral Hill
- Pule
- Introductions
- MDA Presentation
- Consultation Discussions/Questions and Comments
- Input on Future HDR-H Consultation Format
- Closing

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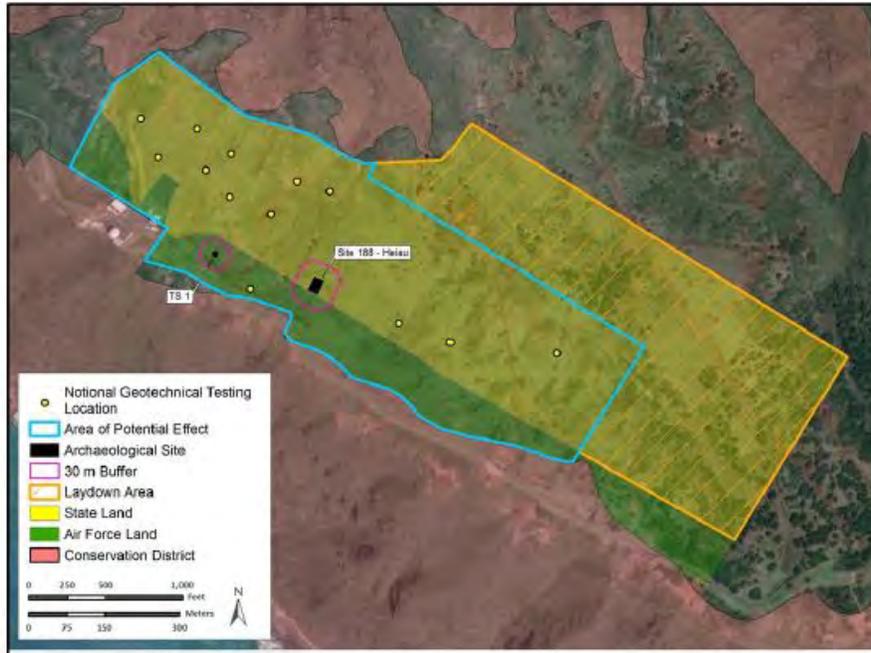
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Project Description

- MDA proposes to conduct geotechnical testing at Kuaokalā Ridge to support site selection for the Homeland Defense Radar-Hawai'i (HDR-H) project.
- Approximately 10 Soil Test Borings
 - 4 to 6 inches in diameter, up to 100 feet deep
 - Borings will be backfilled with bentonite (type of clay) and soil
- Approximately 3 Auger Borings
 - 12 inches in diameter or smaller, approximately 6 feet deep
 - Backfilled with soil
- As requested during consultation, the MDA will return soils to site following analysis, to the extent practicable.

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 MDA Actions Response to Comments	
Comment Topic	Response -Summarized
Communication & Consultation	MDA is providing an additional comment period & hosting additional meetings
Area of Potential Effect (APE)	MDA has reduced the APE to only the area affected by the Phase 1 geotechnical testing (from 160 acres to 89 acres)
Identify Historic Properties	Archaeological Inventory Survey (AIS) conducted in area
	MDA is arranging to conduct a Traditional Cultural Properties (TCP) study in the near future
	Moka'ena heiau is recommended eligible for both National Register of Historic Places (NRHP) and Hawai'i Register of Historic Places (HRHP) based on significant traditional association
Effects on Historic Properties	MDA will address concerns about cumulative impacts from HDR-H during future consultation. If other federal or state projects are proposed in the future, they will also require separate consultation.

 **Archaeological Inventory Survey** 

- Site 188, Moka'ena Heiau
 - Previously documented traditional Hawaiian ceremonial site
 - Highest elevation of any heiau on O'ahu
 - Four terraces
 - Observed branch coral offerings in a stone-lined pit
 - Possible ku'ula at the base of one wall


Moka'ena Heiau ↑


Possible Ku'ula →

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18-MDA-9796 (2 Oct 18)

 **Archaeological Inventory Survey** 

- Site TS 1
 - Possible terrace and stone alignment
 - Terrace is composed of stacked stones and cobbles, is roughly rectangular
 - C-shaped stone alignment is slightly uphill of the terrace, aligned with the terrace wall
 - Poor condition, not well defined
 - A consulting party shared the alignment is associated with Kahuna protégés using oli to move pohaku as a final test to become a true Kahuna


Possible Terrace

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Protective Measures

- The MDA will avoid known historic properties during geotechnical testing
 - 30 meter protective buffer will be fenced or flagged around identified sites
- The MDA will conduct archaeological and cultural monitoring of all ground disturbance during the testing.
 - Local archaeologists from Keala Pono Archaeological Consulting
 - Hawaiian cultural experts contracted through Garcia and Associates
 - Monitoring will also support identification of buried archaeology for future HDR-H consultation.

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Questions and Comments

- Are there other historic properties or cultural resources in the APE?
- How are these significant to you?
- Will geotechnical testing affect these historic properties or cultural resources?
- Recommendations on protective measures?
- Other recommendations?



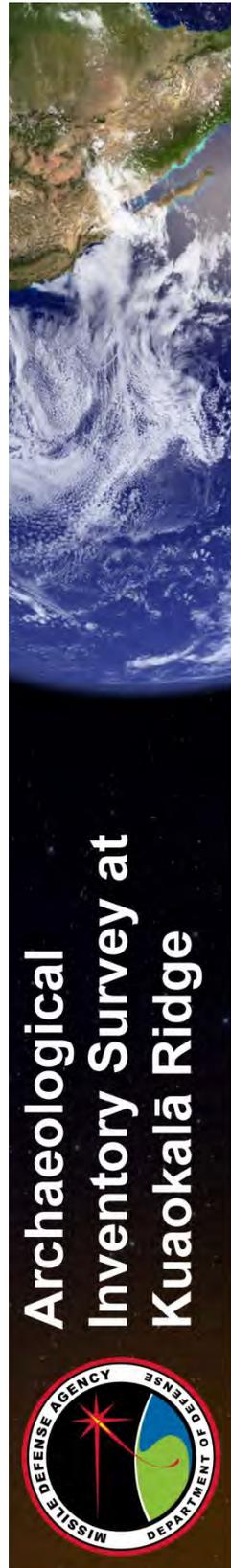
Next Steps

After this meeting, MDA will:

- Review all submitted comments – written comments should be submitted by October 24, 2018 to be included in our submittal to SHPD
- Submit to SHPD:
 - Revised Draft Archaeological Inventory Survey Report
 - Summary of consultation and comments
 - Finding of effects
 - Archaeological Monitoring Plan
- Begin geotechnical testing upon SHPD concurrence

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C.4 Consultation Meeting Survey Poster

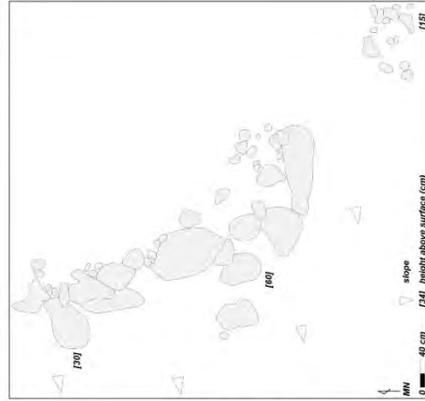


Site 188, Moka'ena Heiau facing east (above) and plan view (right)

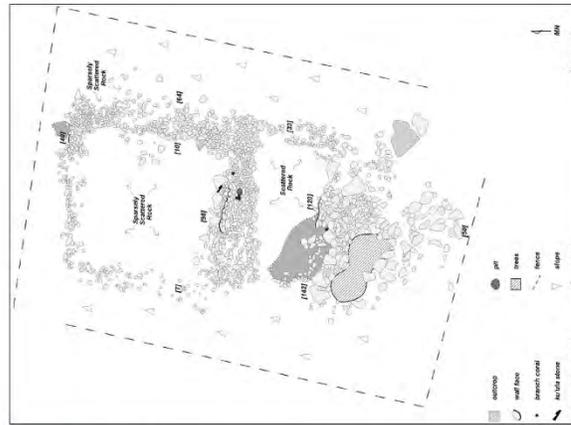
The Moka'ena Heiau is a National Register-eligible traditional Hawaiian ceremonial site at the highest elevation of any heiau on O'ahu. The heiau consists of four terraces that total 28 meters long by 12 meters wide. Several offerings of branch coral were observed within the structure. A possible ku'uila is at the base of one of the walls. The site has sweeping views of the landscape and ocean. A prominent large boulder on the ridge to the northeast (not shown) may be associated with the site.

MDA contracted Keala Pono Archaeological Consulting to conduct an Archaeological Inventory Survey of the Geotechnical Testing Area of Potential Effect. The survey was completed on July 17, 2018. Keala Pono performed detailed mapping of the Moka'ena Heiau and identified a newly identified site temporarily designated TS 1.

Site TS 1 is a possible Terrace and stone alignment. The terrace is 2.7 meters long by 3.7 meters wide and is composed of stacked stones and cobbles. The c-shaped alignment is slightly uphill of the terrace. The site, which is in poor condition, may be a traditional agricultural or habitation feature.



Possible stone alignment at TS 1 (above and bottom left). Overview of possible terrace at TS 1, facing southeast (bottom right)



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D

Comment Response Summaries

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D.1 Response to Comment Period 1

Geotechnical Testing at Kuaokalā Ridge
Comments and Responses

MDA Response to Comments Received on the Proposal to Conduct Geotechnical Testing at Kuaokalā Ridge

Comments received to date in consultation on the proposed geotechnical testing at Kuaokalā Ridge are summarized below along with the Missile Defense Agency's (MDA) responses to these comments. Comments substantive to the historic preservation review process under Section 106 of the National Historic Preservation Act (NHPA) and Hawai'i Revised Statutes (HRS) Chapter 6E are organized by topic. The MDA received a large number of comments not related to the historic preservation process. The MDA has responded to these comments to provide clarification or additional information where appropriate, included at the end of this document. The MDA appreciates the comments received and looks forward to any further comments you may have.

1. General Communications and Consultation

- **Comments Summary:** The MDA did not do enough to inform people of the meetings and comment period. There are people for whom these lands are their kuleana, and organizations that care for Ka'ena Point that were not included. The comment period was too short and should have been extended more than 1 day beyond the consultation meetings. There were requests for additional time to comment and additional meetings. Some meeting participants were concerned that the MDA representatives at the meetings would not be able to effectively communicate to decision makers the passion and spirituality the participants expressed with regard to the issues discussed.

MDA Response: The MDA is opening another comment period with additional meetings to provide consulting parties additional time to comment and consult under Section 106 and Chapter 6E. The MDA has looked to multiple sources to identify potential interested consulting parties, including the Department of the Interior's list of Native Hawaiian Organizations (NHOs), updated May 2018; an NHO outreach report completed for US Air Force (USAF) Kaena Point Satellite Tracking Station (KPSTS) that identified parties that should be included in such consultations for the region; and comment submittals from the concurrent EIS process. The MDA cross-referenced these contacts with current organization websites to verify current contact information such as mail and email addresses. The MDA's initial correspondence requested that recipients notify the MDA of any additional parties that should be consulted, which are now included in this mailing. Further, mailings were sent via certified mail to ensure delivery receipts. The MDA has cross-referenced undeliverable addresses and attempted to update those addresses. For any organization that had a publically available phone number, the MDA attempted to make contact via phone in order to verify receipt of information and request parties to attend the consultation meetings. Since the initial correspondence, the MDA has requested further assistance from the State Historic Preservation Division (SHPD) and the Office of Hawaiian Affairs (OHA) to identify any additional potentially interested parties and to help verify contact information.

The MDA understands that participants are concerned about their voices and spirituality being understood by decision makers. Both meetings were transcribed so that the MDA

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could accurately capture the comments of the meeting participants with accuracy and context.

2. Area of Potential Effect

- **Comment Summary:** The Area of Potential Effects (APE) is too large for the action (i.e. all of the testing locations are concentrated in one portion of the APE). Approval of the testing within the entire parcel would give the MDA or anyone else a green light to construct anywhere in the parcel without further review. For example, if the location was not selected by the MDA for development, the results of this testing could be used for a future project (including housing or commercial development) and still result in loss of land.

MDA Response: The original 160-acre APE was defined with reference to the Kuaokalā Ridge candidate site being considered under the separate, but related, Homeland Defense Radar – Hawai'i (HDR-H) project. As described in previous correspondence and meetings, the geotechnical testing at Kuaokalā Ridge is needed to determine constructability and inform the site selection process for the HDR-H Environmental Impact Statement. The 160-acre candidate site consists of approximately 28 acres of existing USAF leased land that would be used for road access to the proposed HDR-H project area, approximately 67 acres of State land where the HDR-H project would be located if Kuaokalā Ridge is selected as the deployment location, and approximately 65 acres of laydown area which would be used to stage equipment and vehicles during construction. As shared at previous consultation meetings, the proposed geotechnical testing that is the subject of the present consultation would only occur in a portion of this area: approximately 22 acres of existing USAF leased land and the approximate 67-acre parcel of State land where the HDR-H could be constructed. The MDA agrees with the commenters that the APE for the geotechnical testing project should be specific to the actual location of proposed testing and has revised the APE as the 89 acre total area (including USAF and State land). A map of the revised APE is provided separately.

Under Section 106 and Chapter 6E, the APE of an undertaking must be defined based on the potential effects of that specific undertaking. Therefore, when the MDA initiates consultation under Section 106 and Chapter 6E for the HDR-H project, the MDA will define a new APE that is appropriate for the potential effects of that project, will conduct consultation with SHPD, NHOs, and other consulting parties, and seek input regarding the project's effects on historic properties.

Federal and State agencies must comply with Section 106 and Chapter 6E, respectively, for each action they undertake that has potential to effect historic properties. Should the Kuaokalā Ridge site not be selected for deployment of the HDR-H, then no other Department of Defense or other federal entity would be able to use the results of the geotechnical testing without first conducting new Section 106 and Chapter 6E consultations. Likewise, any state or commercial entity interested in using land in the APE would also be required by law to comply with the State's right-of-entry and consultation processes.

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3. Identification of Historic Properties

- **Comment Summary:** An Archaeological Inventory Survey (AIS) is needed in the project area, preferably by a Hawaiian firm (one commenter recommended a specific firm, Keala Pono Archaeological Consulting). All archaeological studies should be completed by one firm. The Moka'ena Heiau must be re-surveyed and should be cleared of vegetation so that it can be mapped. How was the archaeological firm selected? If the survey relied on previous surveys it would be inadequate. There are many unrecorded cultural sites in the area.

MDA Response: The MDA contracted Keala Pono, a Native Hawaiian-owned company, to conduct the AIS. The AIS was completed in July 2018. The firm was selected from companies permitted to do archaeology in Hawai'i based in part on their familiarity with the project area and availability. The AIS involved a pedestrian walk-over across the 160-acre Kuaokalā Ridge HDR-H candidate site, which included the 67-acre geotechnical testing APE. The survey was conducted by archaeologists meeting the Secretary of the Interior's Professional Qualification Standards for archaeology. The survey included hand cutting of vegetation and detailed mapping of the heiau and a new archaeological site identified during the AIS as Temporary Site 1 (TS-1). A brief summary of the AIS is provided in a separate document and is provided in full at the project website: <https://www.mda.mil>.

- **Comment Summary:** The entire Kuaokalā Ridge is a culturally sacred area. Moka'ena Heiau is part of a traditional cultural landscape (TCL). A TCL/Traditional Cultural Properties (TCP) survey is needed for the area. It should look at Moka'ena as part of a larger cultural complex which also would include Pu'u Pueo (northwest of the APE); Leina a Ka 'Uhane (one of the most significant sites on O'ahu associated with the departure of souls to the afterlife); Pohaku Lana'i, Puokalei'ne'au, Kukanioko, Pohaku Kaua'i and other sites between Pu'u Pu'e'o and Moka'ena, including but not limited to the areas up mauka and sites along the shoreline. There are sites within Ka'ena that have connections between mauka and makai. Sites in this area are steeped on mo'olelo, including those associated with the hero Maui and the relationship between Ka'ena Point and Kaua'i.

MDA Response: The MDA understands the Moka'ena Heiau may be part of a TCP/TCL that incorporates other sites within the Ka'ena Point landscape. The MDA is arranging to conduct a TCP study in the near future (2018-2019) as part the HDR-H EIS and Section 106/Chapter 6E consultation. It is the MDA's opinion that all cultural sites in the 67-acre geotechnical testing APE that may be part of this landscape were identified during the AIS, and considering the MDA's commitment to avoid these resources and provide archaeological and cultural monitors during testing, it is not necessary that the TCP study be completed before the proposed geotechnical testing can proceed.

- **Comment Summary:** The Moka'ena Heiau is a temple sacred to the Kanenuiakea worshippers, an indigenous religion recognized by the International Association for Religious

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Freedom. The temple is and was the site of sun worship. The path of the sun, shadows during solstices, the viewshed to the ocean, and an unobstructed view of the sky are key elements that must be kept intact for cultural purposes. Lineal descendants attribute their Kupuna, ancestors that came to O'ahu from Kaua'i, with the construction of Moka'ena Heiau. The heiau is also associated with the connections between O'ahu, Kaua'i, and the channel between them, referred to during consultation as "the vine that binds." While some commenters suggested the mana at Moka'ena Heiau might be broken since unknown actions have taken place there since the USAF Kaena Point Satellite Tracking Station has restricted access, others stated the mana is intact. Moka'ena Heiau (and Leina a Ka 'Uhane) should be nominated to the National Register of Historic Places (NRHP) and Hawai'i Register of Historic Places (HRHP). These nominations should be a pre-requisite for further consultation.

MDA Response: Comments on the significance of the Moka'ena Heiau were incorporated into the assessment of the site's significance and eligibility for NRHP and HRHP listing in the AIS. The heiau is recommended eligible for both the NRHP and HRHP based on significant traditional association. Information shared by consulting parties regarding the heiau's significance will also be incorporated in the TCP survey and cultural impact assessment associated with the HDR-H project. The MDA notes that under Section 106 of the NHPA, properties that are eligible for listing in the NRHP are afforded the same consideration as listed properties.

- **Comment Summary:** There is a family stone with the Helenihi name, placed in 1905.

MDA Response: The AIS did not identify a family stone within the survey area, and it does not appear the stone is within the APE. The MDA will coordinate with the commenter to determine where the stone is located and ensure the undertaking does not disturb the stone.

- **Comment Summary:** TS-1 is archaeological evidence of people practicing moving pohaku using their minds and oli. To become a kahuna, one has to demonstrate they can move pohaku, which comes from the resonance of your voice and the intonation.

MDA Response: Information on the possible function and significance of site TS-1 was considered in the AIS.

4. Effects on Historic Properties

- **Comment Summary:** Moka'ena Heiau is connected to the ridge, the entire area is connected. One commenter suggested there should be at least a 100 meter buffer around the heiau. Another said no buffer would be large enough to prevent impacts. A third commenter suggested the size of the equipment and borings would not affect the sites. Commenters noted that any construction that blocks the sun or interferes with the shadows at Moka'ena Heiau and below the heiau along the ridge will adversely affect the site, modern religious practices, and cultural customs.

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MDA Response: The MDA agrees that current fencing around Moka'ena Heiau is insufficient to prevent site impacts. After considering the input received, the MDA believes a 30-meter buffer will be sufficient to protect the heiau and its surroundings, noting that current and previous archaeological testing at the heiau indicates that no buried archaeological deposits are present. The MDA will also implement a 30-meter buffer around site TS-1 even though this site has not been recommended eligible for NRHP listing. The MDA will install temporary construction fencing or flagging to mark the buffer and project personnel conducting the testing will be prohibited from entering the buffer zone around each site. Further, Hawaiian archaeological and cultural monitors during the geotechnical testing will ensure that activities do not intrude within the buffers and will provide cultural sensitivity training for personnel conducting the testing.

- **Comment Summary:** This project will invite additional military construction in the vicinity. Construction (of the HDR-H facility) and future projects will have cumulative effects on Leina a ka 'Uhane, which is connected to Moka'ena Heiau. The construction will affect the mana up on the ridge, and affect Leina a Ka 'Uhane as the departure point for our souls.

MDA Response: The MDA understands that there are concerns about construction that may follow from the geotechnical testing, particularly from the HDR-H project. However, the present undertaking is the geotechnical testing required to determine whether the Kuaokalā Ridge site is suitable from a constructability standpoint. Given the 30-meter protective buffers around the two identified sites, along with archaeological and cultural monitoring, the MDA believes the geotechnical testing will not directly affect Moka'ena Heiau. The MDA will consider these comments regarding the cumulative effects of construction again once consultation for the HDR-H project is initiated and when assessing the impacts of that action.

- **Comment Summary:** Archaeological and cultural monitoring is required. Cultural monitoring must be performed by Hawaiian cultural specialists. There should be an advisory group that helps to counsel the program.

MDA Response: The MDA has committed to conduct archaeological and cultural monitoring, and has submitted an Archaeological Monitoring Plan to the SHPD. Archaeologists will be permitted to work in Hawai'i and will be led by an individual meeting the Secretary of the Interior's Professional Qualification Standards for archaeology. The cultural monitor will be a Hawaiian cultural specialist with generational or cultural affiliation with the project area, will have familiarity with cultural properties in the area, and will have sensitivity and the ability to represent and communicate with the MDA on behalf of Native Hawaiians. The monitors will be required to be present wherever there is ground disturbance and will have authority to stop the testing in an area if archaeological materials or human remains are identified on ground surfaces, in excavated soils, or within boring holes. If historic properties or human remains are found, they will be protected while the MDA halts activities, conducts additional consultation, and develops an action plan.

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5. Iwi Kupuna

- **Comment Summary:** Commenters stated there are many burials on the ridge, with one stating her Kupuna were scattered on the ridge, in or near the APE. Others stated there are no iwi kupuna, citing numerous cultural studies that did not find iwi and that most of the ridge has not had cultural activity. Others expressed concern that vibrations from drilling could destroy delicate iwi and could have a negative impact on cave systems within the mountains, many of which are the final resting place for iwi kupuna.

MDA Response: The MDA received mixed input regarding the potential for human burials, or iwi kupuna, in the APE. The AIS did not uncover evidence of iwi kupuna in the 160-acre survey area, which included the APE for the proposed geotechnical testing. Given the proximity of the Moka'ena Heiau and TS-1, and some possibility for human remains and/or cultural materials, the MDA is using both archaeological and cultural monitoring during geotechnical testing. In the unlikely event that remains are identified during geotechnical testing, these will be handled in accordance with federal and state law.

6. Comments Outside of the Section 106/Chapter 6E Reviews

- **Comment Summary:** The entire Kuaokalā Ridge is a culturally sacred area, and drilling into the earth is considered an act of desecration similar to drilling in Arlington Cemetery. Our Gods supported that area. It is not some place that we have built because it is sacred. Our Kupuna own that land. Backfilling with foreign materials (e.g. bentonite) is culturally unacceptable, akin to injecting foreign material into the body of a deity. Are there non-invasive means of determining whether the site is constructible? Soil removed from the site should be returned after analysis.

MDA Response: The MDA is required to use concrete-bentonite or a similar mix to backfill the borings, per the requirements of HAR 13-168-2 and the Hawai'i Department of Land and Natural Resources (DLNR) standards. This is necessary to prevent groundwater contamination and restore geological and hydrological conditions. The MDA is considering the request to return any soils removed from the site following analysis. The MDA will implement this measure to the extent practicable.

- **Comment Summary:** The geotechnical testing project is not conforming with other Hawaiian laws (related to impacts on traditional cultural practices). A Cultural Impact Assessment is required. The MDA needs to consider other environmental impacts such as traffic, noise, and effects on biological resources, including endangered species.

MDA Response: The MDA, in consultation with the Hawai'i DLNR Division of Forestry and Wildlife, has determined the geotechnical testing will not have potential to affect the environment and does not require an Environmental Assessment. Therefore, a Cultural Impact Assessment (as part of an Environmental Assessment) is also not required. The

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MDA will conduct a Cultural Impact Assessment for the overall HDR-H project, which will be incorporated into the associated EIS. The EIS will address traffic, noise, biological resources, cultural resources, and other aspects of the environment.

- **Comment Summary:** A site visit should be held so that community members can see Moka'ena Heiau and Site TS-1.

MDA Response: The MDA plans to organize one or more site visits to the Moka'ena Heiau as part of the overall HDR-H consultation. The MDA will extend the invitation to participate in the site visit to all NHOs contacted for the present consultation.

- **Comment Summary:** The MDA should provide copies of the AIS, the submittal to SHPD, and the presentation given at the meetings held August 1 and 2, 2018.

MDA Response: The MDA has provided a summary of the AIS, included separately, and has posted a copy of the AIS on the project website, <https://www.mda.mil>. Other materials associated with the Section 106 and Chapter 6E consultations have been placed on the website.

- **Comment Summary:** There are sensitive biological species in the project area and surrounding Ka'ena Point area. Species outside the APE may be affected by travel of equipment to and from the testing activities. These species include a rare variety of naupaka and the ohai that grows there is specific to the Ka'ena Point area. There is a tree that grows mauka at Ka'ena that is believed to be an endangered species. How will the MDA know whether endangered Hawaiian plants are present? Biological surveys should be conducted by a native Hawaiian.

MDA Response: The MDA determined, in consultation with the DLNR Division of Forestry and Wildlife, that the geotechnical testing will not have potential to affect threatened or endangered species. The Hawaiian cultural specialists conducting cultural monitoring will also be familiar with plants of traditional or cultural importance. Additional biological studies in conjunction with the U.S. Fish and Wildlife Service and DLNR of the Kuaokalā Ridge project area are planned in association with the HDR-H project. Qualified biologists with experience with Hawaiian species and environments will complete the studies. The MDA will consider the request that native Hawaiians conduct the biological surveys where practicable. The MDA has also begun initial discussions with the U.S. Fish and Wildlife Service to determine whether any threatened or endangered species are present in the APE. To date, no threatened or endangered species have been identified. The nature of the proposed geotechnical testing is very limited (13 soil borings, 4-12 inches wide) and no trees will be impacted or removed.

- **Comment Summary:** A community member and NHO is corresponding with DLNR to inter the remains of a Waialua owl in their custody at the Moka'ena heiau, which is situated on Pu'u Pueo (Owl Point) overlooking Ka'ena Ahupua'a and specifically Leina a Ka 'Uhane. This should be completed as a pre-requisite to consultation.

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MDA Response: This issue is outside of the MDA's jurisdiction. The MDA will provide this comment to DLNR.

- Comment Summary: The MDA should send a letter to the Bishop Museum urging continuing press of their publication entitled "Sites of O'ahu" and/or PDF online on their website for download. This is an extremely valuable cultural resource publication which contains Hawaiian Cultural Sites, including Moka'ena Heiau. Many utilize this publication professionally and personally.

MDA Response: The MDA recommends the commenter submit their comment directly to the Bishop Museum as this is outside the purview of the project.

D.2 Response to Comment Period 2

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**Section 106 and Chapter 6E Consultation on Missile Defense Agency's Proposed
Geotechnical Testing at Kuaokalā Ridge**

Response to Comments Received September to October 2018

The Missile Defense Agency (MDA) has prepared this summary response to comments received between September 21 and October 24, 2018 during MDA's consultation under Section 106 of the National Historic Preservation Act (NHPA) and Hawai'i Revised Statutes (HRS) Chapter 6E on our proposal to conduct Phase I Geotechnical Testing at Kuaokalā Ridge. Comments that are substantive to the historic preservation reviews are organized by topic. MDA also received a large number of comments not related to the historic preservation process for the geotechnical testing undertaking. Many of these are related to a separate undertaking for the Homeland Defense Radar – Hawai'i (HDR-H) project. Responses to such comments, as appropriate, are included at the end of this document to provide clarification or additional information.

1. Area of Potential Effect

MDA did not receive any comments related to the revised definition of the undertaking's Area of Potential Effect (APE), which was reduced to approximately 89 acres where geotechnical testing activities are proposed.

2. Identification and Evaluation of Historic Properties

MDA received comments about the scope of identification efforts, about historic resources in the APE, and about the evaluation of historic properties for listing in the National Register of Historic Places (NRHP) and/or the Hawai'i Register of Historic Places (HRHP).

a. Identification Efforts

- **Comment Summary:** The selection of Keala Pono to conduct the archaeological inventory survey (AIS) was a good choice.

Response: Comment noted.

- **Comment Summary:** MDA should have involved people with lineal ties to the project area in the AIS.

Response: MDA selected the contractor for the archaeological survey based in part on recommendations from the State Historic Preservation Division (SHPD) and public scoping comments for the HDR-H Environmental Impact Statement (EIS). Keala Pono has conducted a number of AISs in the project area and was familiar with the region's traditional and archaeological history. The AIS is being revised to incorporate additional consulting party comments, including those from individuals and organizations with lineal ties to the project area. By doing so, the AIS will incorporate the perspectives of lineal descendants and cultural practitioners that use the APE.

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- **Comment Summary:** MDA needs to conduct a traditional cultural properties (TCP) study. This consultation is like doing an ethnographic study, but the information doesn't go anywhere because it isn't published. A TCP study and a Cultural Impact Assessment (CIA) are needed for this project, which will show the value of this property and give an analysis of why MDA shouldn't be there. (MDA understands this comment to also pertain to the HDR-H project).

Response: Based on the results of the AIS and consultation, MDA believes that the identification efforts carried out to date are sufficient and commensurate with the potential effects of the Phase I Geotechnical Testing undertaking. MDA is planning to conduct a TCP study for the HDR-H undertaking that will seek to identify and evaluate historic properties within that project's APE. MDA will also conduct a CIA for the HDR-H radar project undertaking that seeks to understand how that project will affect native Hawaiian cultural practices and cultural resources. MDA and the Department of Land and Natural Resources have determined that the proposed Phase I Geotechnical Testing is a class of action that is exempt from the Hawai'i Environmental Policy Act under HAR 11-200-8 and therefore a CIA is not required.. Comments received during this consultation are being considered for the present action, but will also inform the historic preservation reviews and environmental impact analysis for the HDR-H. The AIS is also being revised to incorporate additional, relevant consulting party comments and responses.

b. Newly Identified Historic Properties in the Area of Potential Effects

- **Comment Summary:** The area of Kuaokalā Ridge is a cultural landscape significant under multiple significance criteria pursuant to Hawai'i Administrative Rules 13-275-6 and is particularly significant under Criterion "e".

Response: MDA recognizes that the Kuaokalā Ridge area is significant to native Hawaiians due to associations with traditional beliefs, events, and oral accounts and cultural practices, particularly gathering and certain religious practices that are still performed within the landscape today. At this time MDA does not have sufficient information to delineate a cultural landscape and evaluate it for significance under Federal or State law. However, as part of the consultation and EIS processes for the HDR-H project, MDA will gather additional information from consulting parties, along with data from the TCP survey and CIA, to document the extent of the property, its historic significance, and its historic integrity. The area around Kuaokalā and Ka'ena Point is noted as a possible TCP in the AIS, based on input from consulting parties.

c. Evaluation of Historic Properties

- **Comment Summary:** The Moka'ena Heiau was built by a certain class of kahuna at the time of Kamehameha's conquest to provide an early warning of his impending attack on Kaua'i. Kāhuna used the heiau to send messages across the channel between O'ahu and Kaua'i, called Ka'ie'iewaho, "the vine that binds," to inform the people that something was happening. The correct name of the heiau is Moku'ena.

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Response: This information about the significance of Moka'ena Heiau will be incorporated into the AIS. MDA understands that multiple spellings have been used for the heiau in existing documents and oral history, including both Moka'ena and Moku'ena. For consistency, MDA will continue to use the spelling "Moka'ena."

- Comment Summary: Moka'ena Heiau is a fishing shrine, and the kū'ula at the heiau is associated with the story of Kumu Nui Akea and menehune who caught the kūmū fish (goat fish), a highly prized fish in Hawaiian culture. The shrine is associated with a fishing koa for kūmū and other productive fishing areas near Ka'ena Point. The power of the fishing shrine remains today, and is evidenced in newspaper stories from recent history of successful fishing exploits around Ka'ena Point.

Response: This information about the significance of Moka'ena Heiau will be incorporated into the AIS.

- Comment Summary: Moka'ena Heiau is not just the rocks, it is the entire area. The area where the proposed borings are is where the mana, the spirit, the power of the heiau is.

Response: Based on this and other comments received, it appears that the viewshed around the heiau and the mana imbued in the landscape are contributing qualities of the heiau and are important aspects of the heiau setting and associations. Based on guidance provided by the National Park Service for defining boundaries of TCPs, these aspects are more appropriately defined as part of the site's setting than as part of the site boundary. The site boundaries and buffer will be defined in the AIS. The qualities related to viewshed and mana will be incorporated into the site description in the AIS.

- Comment Summary: Cows are desecrating and adversely affecting Moka'ena Heiau. The fence is broken and not effective in keeping the cows out.

Response: MDA is aware the fence around Moka'ena Heiau is in disrepair, and has shared this information with the Department of Land and Natural Resources (DLNR), which is responsible for protecting the heiau. MDA will also work with DLNR to repair the current fence to prevent livestock from entering. Recommendations to repair the fence are included in the AIS. Based on other comments received, it does not appear that the impact from cattle has affected the historic integrity of the heiau or its eligibility for the NRHP and HRHP.

- Comment Summary: The correct name for site TS-1 is Pu'u o Pohaku Hāpaina and this is the name that should be used. The name "Temporary Site 1" is offensive to Native Hawaiians. Pu'u o Pohaku Hāpaina is associated with the construction of Moka'ena Heiau. The heiau was built by kāhuna who used the correct intonation in their oli that resonated in the pohaku (rocks) and lifted them into place with vibration. Before they could participate in the construction of the heiau, the kāhuna had to demonstrate their ability to move pohaku using their oli. They did this demonstration at Pu'u o Pohaku Hāpaina, where they moved a rock from one end of the rock alignment to the other. The word "Hāpaina" in the name of the site refers to the lifting of the rocks.

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Response: MDA will use the name "Pu'u o Pohaku Hāpaina with reference to this site going forward. The site has also been assigned a State Inventory of Historic Places number, 8777, which may appear in some documentation. The information about the history and significance of Pu'u o Pohaku Hāpaina will be incorporated into the AIS.

- Comment Summary: Every site should be recognized as significant. Every site is important, no matter what its integrity is. Every site should be protected.

Response: MDA understands that some cultural sites and historical resources may have certain significance to native Hawaiian individuals or groups but do not meet the criteria set out in Section 106 and Chapter 6E. MDA will give due consideration to any cultural resources identified in the APE and will point out those that meet the criteria under Section 106 and Chapter 6E and those that do not.

Effects on Historic Properties from the Undertaking

- Comment Summary: Geotechnical testing anywhere on the ridge will affect the heiau. A 30-meter buffer for testing activities is not sufficient.

Response: MDA believes a 30-meter buffer combined with archaeological and cultural monitoring is sufficient to protect the physical features of the heiau. MDA understands that geotechnical testing may impact the mana in the ridge that is a contributing quality of the heiau. However, MDA has determined this impact would not significantly alter the mana as a contributing quality of the heiau's integrity of setting. The geotechnical testing would be temporary and intrusion into the ground would be minimal. MDA notes that many past and ongoing activities have occurred on the ridge, and consulting parties expressed that the mana at the ridge is still intact. MDA does not believe the Phase I Geotechnical Testing will have an adverse effect on the heiau or Pu'u o Pohaku Hāpaina. MDA will invite cultural practitioners from the local area or those with familial/lineal ties to the project area at the beginning of the geotechnical testing to do protocols and prepare the area for the testing.

- Comment Summary: The geotechnical testing would injure the 'aina and affect familial relationships with one's mo'olelo (personal and collective history) and mo'oka'auhau (genealogy), which are embodied in this eligible traditional cultural landscape.

Response: The proposed Phase I Geotechnical Testing would be a discrete, short-term event that would be minimally invasive (ten 4-inch diameter borings and three 12-inch diameter borings in an 89-acre area). MDA is working with the consulting parties to identify a cultural monitor that has lineal ties to the area or at a minimum is familiar with the area. MDA is considering the feasibility of inviting additional people with lineal ties and cultural practitioners to observe the work. MDA is also implementing measures suggested by consulting parties to minimize the disturbance to the land, including returning soils to boring locations after analysis (to the extent practicable).

Comments Outside of Section 106 and Chapter 6E Reviews

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a. **Iwi Kupuna**

- **Comment Summary:** Native Hawaiians do not need to tell MDA where the iwi are. MDA only needs to understand that the undertaking will disrupt the iwi.

Response: MDA understands that the locations of iwi are sensitive and consulting parties may not want to share this information. MDA only requests this information so that burial sites can be avoided. Some consulting parties have stated that iwi are present in the area, but have declined to provide locations of the remains. At this time, no burial sites have been specifically located in the APE and none were identified as part of the literature review for the AIS. MDA will conduct archaeological and cultural monitoring of the geotechnical testing. If any burials are encountered during testing, the testing activities would immediately cease, the remains would be protected from further disturbance, and MDA would follow applicable state and federal laws.

b. **DLNR Permit**

- **Comment Summary:** MDA has not been consulting in good faith because they already have a permit to conduct the geotechnical testing. Why is MDA bothering to consult with native Hawaiians if they already have the permit?

Response: Since part of the APE is on State managed land, the DLNR requires MDA to receive a special permit to enter and use the land. The DLNR granted MDA a special permit on June 6th, 2018 to conduct surveys to support the siting process and cultural and biological studies associated the EIS for the HDR-H project. A copy of the permit can be found on MDA's project website at <https://www.mda.mil>.

The special use permit authorizes MDA to gain access to the site to conduct "non-ground disturbing" activities, such as the AIS. In meetings with the SHPD in June, it was determined the permit issued by DLNR on June 1, 2018 was sufficient to conduct the AIS; however, MDA was not granted permission to conduct the geotechnical testing until consultations are complete and the SHPD issues a finding of no adverse effects on historic properties. MDA is still working with SHPD to gain authorization for the geotechnical testing.

MDA's purpose for consulting with native Hawaiians has been to better understand the traditional significance of sites in the APE and determine whether the Phase I Geotechnical Testing would adversely affect historic properties of traditional cultural or religious significance. MDA is also consulting to develop protective measures including archaeological and cultural monitoring and buffers around the heiau and Pu'u o Pohaku Hāpaina.

c. **Access**

- **Comment Summary:** Native Hawaiians have a hard enough time accessing the project area, even for gathering or religious purposes. The HDR-H project will take land away

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from native Hawaiians and further limit people's access to the area. Land is everything to native Hawaiians.

Response: MDA will consider the potential impacts of the HDR-H project on access and the loss of state land when conducting consultation for that undertaking. Because of the temporary and short term nature of the Phase I Geotechnical Testing, access will not be substantively affected. MDA heard that processes and procedures for obtaining permits for accessing the ridge and the heiau may be confusing or difficult. MDA will bring this to DOFAW's attention and recommend they clarify their permitting/access procedures. .

d. Land Issues

- Comment Summary: Several participants commented on the status of the lands proposed for the undertaking. Some stated the lands are ceded lands managed by DLNR in the public trust. Others stated the lands are Hawaiian Homestead Land. Another commenter suggested there are political issues surrounding the status of the land.

Response: MDA has consulted with the Department of Hawaiian Homelands, which stated in a letter dated July 25, 2018 that the Department does not anticipate any impacts on their lands or beneficiaries from the proposed geotechnical testing. MDA continues to consult with Office of Hawaiian Affairs and discuss with DLNR to confirm the status of the land in the APE. MDA is aware the lands in the APE are ceded lands and that, as such, they are for the general benefit of Native Hawaiians.

e. Hunting and Gathering

- Comment Summary: The project area is an important area for hunting (gathering). Native hunting traditions are not a game and are critical to maintaining cultural identity. A loss of hunting areas would force native Hawaiians to become more westernized. Native Hawaiians want to keep their gathering traditions alive.

Response: MDA will address impacts of the proposed HDR-H project on hunting and gathering in the EIS and related consultation. MDA does not anticipate that the Phase I Geotechnical Testing will substantially affect hunting as testing activities will be short-term.

- Comment Summary: The geotechnical testing and HDR-H project will affect native vegetation in the area – vegetation that could be eaten, used for medicine, or used for adornment. Some of this vegetation does not exist anywhere else.

Response: MDA is not aware of any sensitive vegetation in the Phase I Geotechnical Testing APE. However, MDA will seek a cultural monitor, if possible, that is familiar with plants that have traditional uses so that these can be avoided during testing. MDA will later conduct biological surveys in the proposed HDR-H project area and analyze

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potential impacts on vegetation, wildlife, and threatened and endangered species in the EIS.

f. Health Impacts

- **Comment Summary:** MDA needs to consider the potential health effects of the HDR-H project.

Response: MDA will analyze potential health and safety impacts of the proposed HDR-H in the EIS.

g. NEPA Analysis and Cumulative Impacts

- **Comment Summary:** The comments made to MDA during this geotechnical testing consultation need to be considered in the NEPA process for the HDR-H. The NEPA analysis also needs to address cumulative impacts. MDA and local communities need to understand the total impacts of the radar combined with other activities up there, such as the antenna ("golf balls"). The analysis should not ignore what is already up there because "it already went under analysis." The combination may say that this is not a good place for the radar.
- **Response:** MDA will consider all comments made during the Phase I Geotechnical Testing consultation when conducting the NEPA analysis and Section 106/Chapter 6E consultations for the HDR-H. The same team will be working on all of these aspects. MDA will analyze the potential for cumulative impacts in the EIS.

h. Local Knowledge and Protocols

- **Comment Summary:** MDA should give preference to information from local practitioners and lineal descendants. MDA also needs to know that local cultural protocols may differ from other areas and are more appropriate here.

Response: MDA must consult with all Native Hawaiian Organizations and other consulting parties that have a demonstrated interest in cultural and historic preservation matters in the APE. This is to ensure that people who may have had ties to the area in the past still have a voice. However, MDA also understands that those with lineal ties or cultural practitioners from the area may have unique knowledge or understanding. MDA is working with consulting parties to identify one or more cultural monitors that have cultural or lineal ties to the area or at a minimum are familiar with the area so that appropriate cultural protocols are implemented.

i. Consultation on Geotechnical Testing at Kahuku Training Area

- **Comment Summary:** When consulting on geotechnical testing proposed at Kahuku Training Area, MDA should give a short presentation about the activity at the North Shore Neighborhood Board meeting.

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- **Response:** MDA will take this comment into consideration. MDA intends to attend neighborhood board meetings during the EIS process for the proposed HDR-H and may give announcements and/or presentations about that project and related actions as appropriate

- j. **Effects of the HDR-H Project on Moka'ena Heiau**
 - **Comment Summary:** The HDR-H project is the same as the original purpose of the Moka'ena Heiau – to provide early warning of an attack. The only difference is that we are in the 21st century. Hawai'i would not be under threat of attack if it wasn't for the U.S. military presence. However, the military isn't going to leave and so we must work together to make sure the people and place are protected. What MDA proposes to do has significance, but needs to be done appropriately.

 - **Response:** Based on this comment, MDA understands that the proposed HDR-H project may be consistent with the original purpose of the heiau. However, MDA notes that the heiau may have additional significance beyond this purpose. MDA will consider the effects of the proposed HDR-H project on all aspects of the heiau during the Section 106 and Chapter 6E review process.