

April 17, 2023

Pivot Energy
Attn: Jon Sullivan
1601 Wewatta Street, Suite 700
Denver, CO 80202

Arion Energy
Attn: Nick Azari
500 Ala Moana Blvd. Suite 7400
Honolulu, HI 96813
email: nick.azari@arionenergy.com

via email

Re: Archaeological and cultural considerations with respect to the proposed development of the Kalae 2 Solar Project on TMKs: (3) 9-3-004:027 and 028, 034, and 040, Mohowae and Waiopua *ahupua'a*, Ka'ū District, Island of Hawai'i.

Dear Jon and Nick:

At your request, on behalf of Ka Lae 2 Solar Farm-M2, LLC & Ka Lae2 Solar Farm-M LLC, ASM Affiliates (ASM) conducted background research with respect to the proposed development of a potential community solar site on TMKs: (3) 9-3-004:027 and 028, Mohowae and Waiopua *ahupua'a*, Ka'ū District, Island of Hawai'i (Figure 1). This research included an archival review of existing archaeological reports and historical maps, as well as a review of traditional cultural information relative to the current study area. ASM also conducted a brief field inspection of the potential solar site.

Regarding the cultural significance of the potential site and any ramifications such significance may have with respect to the proposed development, I am providing a brief culture-historical context for the area, which includes the results of prior archaeological studies conducted in the vicinity of the sites. The Kalae 2 Solar Project is situated within Mohowae and Waiopua *ahupua'a* in the District of Ka'ū, near the southern tip of Hawai'i Island (known as Ka Lae; Literally meaning “the point”). As noted by early Western explorers to the Ka Lae region, and as described by Handy and Handy (1991:578-584), the fertile plain in the vicinity of the Kalae 2 Solar Project was once extensively and intensively planted with traditional subsistence crops such as *kalo* (taro) and *'uala* (sweet potato). The archaeological remains of the former field infrastructure, referred to by archaeologists as the Ka'ū Field System, are still evident in aerial photographs across large swaths of land in the vicinity of the subject parcels. In addition to being agriculturally productive, the *ahupua'a* of Mohowae (Literally meaning “selected champion”) is also remembered as an area famous for sport, where according to Handy and Handy (1991:582), “contests and games of strength and skill were held.”

During the *Māhele 'Āina* of 1848, both Mohowae and Waiopua *ahupua'a* were relinquished to the Government (in lieu of commutations on various other lands they received) by their royal claimants: Mohowae by Ane Keohokālole and Waiopua by Loe. Five *kuleana* parcels were awarded to native tenants living in the vicinity of the potential solar site as a result of the 1848 *Māhele*, all within Waiopua *Ahupua'a* (LCAw. 9845 to Napahoa, LCAw. 9846 to Poohina, LCAw. 9847 to Paaeae, LCAw. 9848 to Kinoulu, and LCAw. 9849 to Kapule). Napahoa's land section, situated within the *'ili* of Napahuewalu, was received from Loe in 1838; Poohina's land section, situated within the *'ili* of Popolohaunui, was received from Nakahoa in 1838; Paaeae's land section, situated within the *'ili* of Popolohaunui, was received from Poohina in 1838; Kinoulu's land section, situated within the *'ili* of Waialaa, was received from Napahoa in

1840; and Kapule’s land section, situated within the *‘ili* of Waialaa, was received from Nakahoa in 1838. The native testimonies provided for four of these *kuleana* are silent regarding the specific use of the land, but LCAw. 9847 to Poaeae, was claimed as a *kīhāpai* (field), suggesting that the other awards were also for cultivated lands.

Following the *Māhele ‘Āina* of 1848, large parcels of land within Mohowae and Waiopua *ahupua‘a* (those not awarded as LCAw.) were sold by the Hawaiian Government as Royal Patent Grants. The proposed Ka Lae 2 Solar Project is located within former Grant No. 2905, which was sold to Kamananui on January 27, 1863. Five years after Kamananui purchased this land, in 1868, an eruption of Mauna Loa drastically altered the cultural and physical landscape of Ka‘ū. The roughly two-week long eruption included a massive earthquake (on April 2, 1868) that knocked down most of the stone walls and buildings in the district, triggered a *tsunami* that swept away many of the coastal villages and drowned 46 people, and caused a landslide that buried another village along with 31 of its inhabitants. On April 7, 1868 a fissure opened along the southwest rift zone of Mauna Loa, and emitted a lava flow that passed just to the west of the proposed Ka Lae 2 solar project and reached the sea, crossing a distance of roughly 13 kilometers, in only three and a half hours. The lava flow continued for four days, and by the time it ceased on April 11, 1868, it had covered a large area in the vicinity of the potential community solar sites with a fresh layer of *‘a‘ā* lava.

A map prepared in 1903, when the unsold portions of Mohowae and Waiopua *ahupua‘a* and neighboring Government Lands were divided into the Kiolakaa-Keaa Homestead Lots (Hawai‘i Registered Map No. 2176), depicts the boundaries of Grant No. 2905 to Kamananui, and indicates the presence of stone walls along the northern and eastern boundaries of that parcel. An “old road” is shown along the southern boundary of the grant, and a strip of land to the west of the stone wall along the eastern boundary of the grant is labeled as “road reserve” (indicating the current right-of-way for South Point Road).

Aerial photographs indicate that the proposed Ka Lae 2 Solar Project Area was mechanically cleared of vegetation during the second half of the 20th century. This vegetation clearing, likely done by bulldozers initially for pasture improvement purposes, would have had a detrimental effect on any older features of the cultural landscape that were present at that time. The Ka Lae 2 Solar Project Area was later developed as part of the citrus fields for the Ka‘ū Gold Orange Company, which was founded in 1979, and by 2001 included more than 18,000 orange trees on 150 acres of land, representing 95% of the State’s citrus crop (Ka‘ū Calendar 2011). The Ka‘ū Gold Orange Company went out of business in 2011, but the former processing plant and laborer’s quarters are situated nearby the Ka Lae 2 Solar Project Area, and the rows of citrus trees, interspersed with windbreaks, are still growing within this area.

Our archival research indicates that no prior archaeological studies have include the Ka Lae 2 Solar Project lands, although nearby studies have previously documented significant archaeological and cultural resources (c.f. Landrum 1984; Clark and Rechtman 2004; Clark et al. 2004; Gastilo and Clark 2019). A brief field inspection of a portion of the Ka Lae 2 Solar Project Area conducted by ASM on January 5, 2021, indicates that the potential for encountering such resources within the proposed development area for the Ka Lae 2 Solar Project is extremely limited. This area was previously developed as part of the Ka‘ū Gold Orange citrus fields and is currently covered by rows of planted citrus trees, interspersed with rows of other trees that were planted to serve as windbreaks. No cultural resources were identified during the recent field inspection and the entirety of the inspected ground surface appears to have been previously grubbed/graded. Historic properties noted in the general vicinity of the potential solar site was limited to stone walls along the northern and eastern boundaries of Grant No. 2905. These walls, which are depicted on a 1903 map, were likely built as boundary markers during the second half of the 19th century after the larger grant parcel that contains the Ka Lae 2 Solar Project was sold to Kamananui in 1863.

Although the likelihood of encountering cultural resources within the Ka Lae 2 Solar Project Area is extremely limited, given the current regulatory environment, it is most probable that the State Historic Preservation Division will require that an Archaeological Inventory Survey (AIS) in accordance with Hawai‘i Administrative Rules (HAR) §13-284 be conducted in conjunction with any Hawai‘i Revised

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Statutes (HRS) Chapter 6E action associated with the proposed development. If there is an element of the proposed solar project that triggers compliance with HRS Chapter 343, this will necessitate the preparation of a Cultural Impact Assessment (CIA) as a part of the Environmental Assessment process. Based on what we know to date, I do not anticipate that a CIA will result in the identification of significant cultural impacts.

Should you have any additional questions, or if you would like further information, please feel free to contact me.

Sincerely,



Matthew R. Clark, M.A.
ASM Principal Investigator

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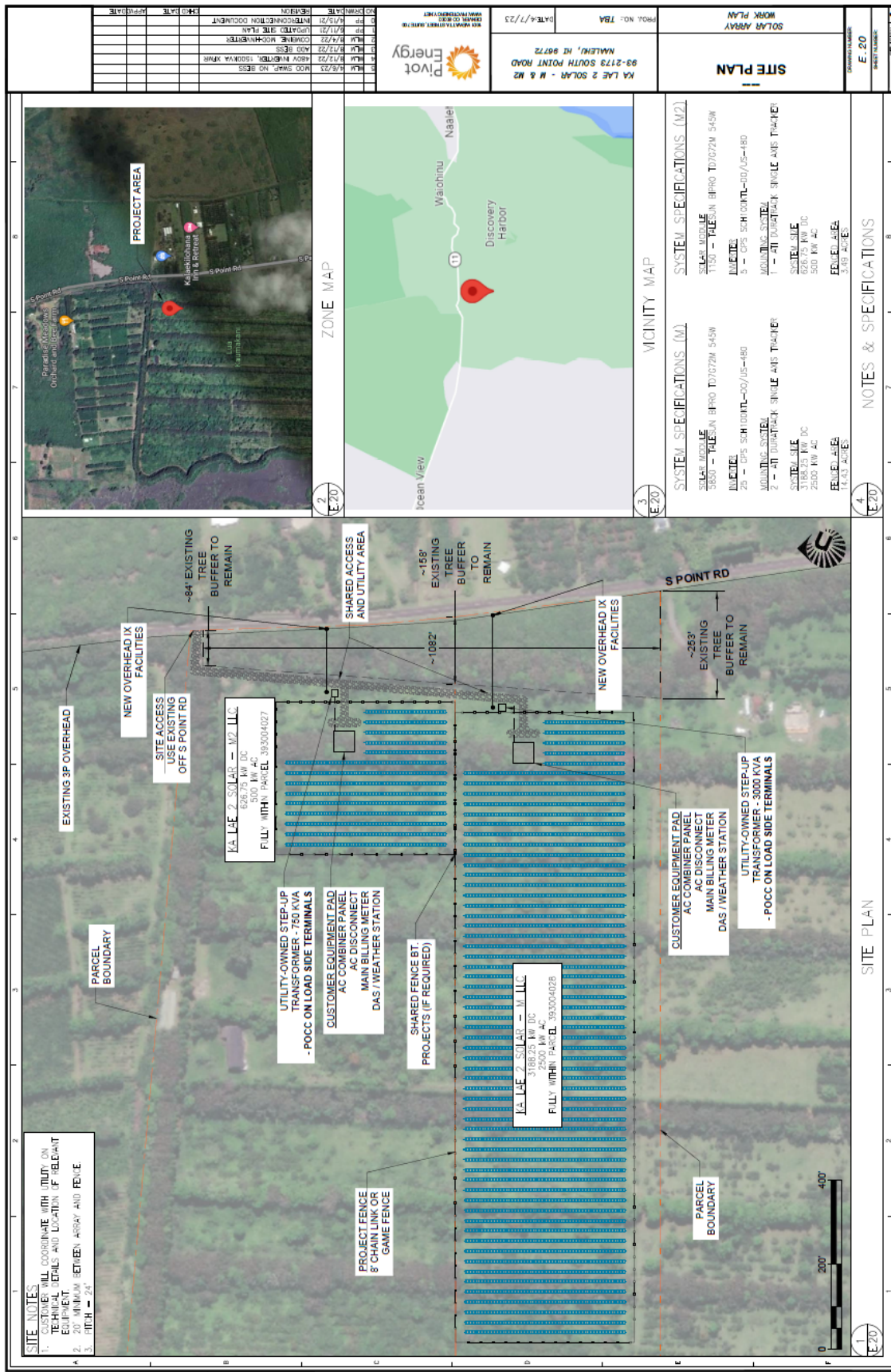


Figure 1. Preliminary site plan for the proposed Ka Lae 2 Solar Project.